



**Celebrating Giants and Trailblazers:
A-Z of Who's Who in Creativity
Research and Related Fields**

edited by
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- Kyung-Hee Kim, PhD
- Bonnie Cramond, PhD
- Dorothy Sisk, PhD
- Ruth Richards, PhD
- Gerard J. Puccio, PhD
- Fredricka Reisman, PhD

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Celebrating Giants and Trailblazers: A-Z of Who's Who in Creativity Research and Related Fields

Editor

Fredricka Reisman, PhD

Celebrating Giants and Trailblazers: A-Z of Who's Who in Creativity Research and Related Fields



Creativity Book Volume VIII

KIE Publications

Dedication

In Memoriam

Mihaly Robert Csikszentmihalyi (29 September 1934 – 20 October 2021)

Edward De Bono (19 May 1933 – 9 June 2021)

David Tanner (- 20 March 2021)

Michael A. Wallach (8 April 1933 – 16 January 2020)

Ken Robinson (4 March 1950 – 21 August 2020)

Donald J. Treffinger (9 March 1941 – 16 October 2019)

Nathan Kogan (2 May 1926 – 28 April 2013)

Anna Craft (10 December 1961 – 11 August 2014)

Morris “Moe” Stein (13 May 1921 – 6 May 2006)

E. Paul Torrance (8 October 1915 – 12 July 2003)

Joy Paul Guilford (7 March 1897 – 26 November 1987)

John C. Gowan (21 May 1912 – 2 December 1986)

David Wechsler (12 January 1896 – 2 May 1981)

James Melvin Rhodes (14 June 1916 – 29 April 1976)

Alex Faickney Osborn (24 May 1888 – 5 May 1966)

Graham Wallas (31 May 1858 – 9 August 1932)

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She recently completed her fifth year as ACA President (James Kaufman was installed ACA president in November 2017). She has worked with a team of instructional designers and software developers at Drexel to create simulations for pre and in service, teachers addressing school-age violence and classroom management. Dr. Reisman was a virtual keynote speaker at the KIE conference held in Riga, Latvia in July 22-15, 2014 (see <http://www.kiecon.org/page3.html>). She also presented virtually at KIE conferences in London, Istanbul, and Berlin. The recent KIE conference was at Drexel in Philadelphia with participants from the UK, Finland, and several US locations. Dr. Reisman received the 2017 National Association for Gifted Children E. Paul Torrance Award with the following statement: Fredricka Reisman's championing of creativity—as author, educator, test developer, and advocate—is consistent with Dr. Torrance's spirit and wisdom. She has been the long-time president of the American Creativity Association. She is an active scholar who has written numerous books and articles about STEM, learning, and creativity. She has successfully obtained funding in excess of \$13M over the last 15 years towards improving mathematics and science creativity in K-12 schools. Keeping up with the times, Dr. Reisman recently developed the mobile app the Reisman Diagnostic Creativity Assessment. She worked extensively with Dr. Torrance at Georgia and continues to build off of his legacy. At Drexel, she founded the Drexel/Torrance Center for Creativity and Innovation, the first Center outside of the University that had Dr. Torrance's personal permission to open.

Gayle Byock

Gayle Byock has spent her 70 plus years in the field of education. She has taught junior high, high school, community college, university, women entering the working world, veterans reentering American society, adults becoming drug counselors, and many other groups. She spent her 20 years at UCLA as a startup specialist, designing campus and community academic collaborations and a new professional school in public policy. As UCLA's Assistant Vice Chancellor of Research, she oversaw UCLA's contracts and grants and worked to build collaborations among faculty from disparate disciplines. Post-UCLA, she started a new career specializing in creativity and humanistic psychology, focusing on how poetry provides a vehicle to dig into oneself to explore what resides under consciousness. Along the way she has written and published white papers, articles, and poetry. High points were as assistant editor of a book of contemporary poems in the mythic tradition, teaching in Appalachia and learning the dulcimer, and her time spend with poet Elizabeth Bishop at Harvard University. Her poem in this chapter is one that emerged from her time there.

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James Ogunleye, PhD, chairs the KIE Conference and KIE Creativity Books Project. He's also the Convenor, E. Paul Torrance International Roundtable on Creative Thinking and Reisman Diagnostic Creativity Assessment Special Interest Group, and Kaufman Family Research Symposium.

Jeff Westphal

Jeff Westphal is an entrepreneur, author, and Founder of the new venture, MeaningSphere, Inc. He is a recipient of the American Creativity Association (ACA) Champion of Creativity Award and in 2014, served as a panelist for the ACA World Conference, *Creativity in Action*, sponsored by the Drexel/Torrance Center for Creativity and Innovation Lecture Series entitled "Creativity as a Bridge Between Education and Corporation".

Prior to Jeff's role as Founder of MeaningSphere, he served as CEO of Vertex, Inc. As CEO, he spent decades growing and developing Vertex into a global leader in tax software. He maintained an eye on transformation in the tax industry while leading a developmental culture within the company and guiding Vertex to 10-fold growth during his twenty-year tenure as CEO, serving fortune 500 companies like Apple and Starbucks. [Vertex went public on the Nasdaq exchange in July 2020.](#) Jeff served as Chairman of the Board from 1996 to 2020. Vertex undertook an IPO on the Nasdaq exchange in July 2020.

Jeff became intent on using his resources and experience to advance transformational change toward deeper meaning in business, education and autism. His new venture, MeaningSphere, Inc., looks to support people seeking to discover, create and pursue deeper meaning in their work. He co-executive produced the documentary film, "Unschooling," that explores the intrinsic meaning-based learning method. Along with his wife, Jenifer, and through the film company, Wavelength Productions, that she founded and leads, the Westphal's expect to release, *Let Me Be Me*, a feature documentary film about the relationship-based approach their family undertook to support their son, Kyle, diagnosed with autism.

Jeff is also a close collaborator with Dr. Fredricka Reisman (Drexel University) where together they are creating the Drexel University Reisman Center for Translational Research in Creativity and Motivation.

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Jennie Singer, PhD, graduated from California School of Psychology – San Diego (now part of Alliant International University) with a Ph.D. in Clinical Psychology in 1995. She has had years of clinical experience working with police officers, and in federal and state prisons with both female and male high and low security offenders. She also has experience working as a clinical and administrative supervisor in the Paroles Division of the California Department of Corrections and Rehabilitation (CDCR). Additionally, she has had experience doing many forensic and psychoeducational assessment evaluations, used for securing resources and accommodations, or to give recommendations to the Yolo County district attorney's office, the public defender's office, or to CDCR.

Dr. Singer began teaching at Sacramento State University as an adjunct faculty in 2005 and has been a full-time faculty since 2007. She is currently a full professor and has published books and articles on mentally ill offenders, sex offenders, international prisons and policing, creativity in confinement, intellectual and achievement assessment, and rehabilitation program evaluation. Dr. Singer has helped to develop curriculum for the Criminal Justice Division and has mentored many students in the Criminal Justice Graduate program, helping them to finish their theses and to present data to regional and national organizations. Dr. Singer has consistently received funding (CDCR/the California Sex Offender Management Board, the Provost's Research Fellowship award, the RCA faculty award, and paid contracts with Yolo County Probation).

Currently, she has an article being reviewed after revision for the peer-reviewed journal, *Victim and Offender* on the evaluation of the Ascend program, a unique rehabilitation program administered through Sacramento County Probation. The paper focuses on the results of a longitudinal program evaluation and posits that the Ascend program is a promising new program. The preliminary results of this evaluation have been presented at two national criminal justice conferences, students have presented posters at both regional and national conferences, and a white paper detailing the preliminary results of the evaluation has been written and presented to Sacramento County probation. She has had other white papers and peer reviewed articles on rehabilitation program evaluations and is also working with a professor in Iran on Covid-related mental health issues for the Iranian general population. She is returning to clinical work, with a focus on university students, faculty and staff as well as working on a variety of clinical and forensic assessments.

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ER and inspirED for secondary schools, including the impact of emotion skills instruction on school climate, creative problem solving, and emotion regulation ability. Jessica is co-editor of *The Cambridge Handbook of Lifespan Development of Creativity* (2021), and the forthcoming *Cambridge Handbook of Creativity and Emotions*

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K. Brian Dorval

Brian Dorval, co-founder and president of Think First Serve Inc. (www.thinkfirstserve.com), has over 35 years' consulting experience and has delivered hundreds of innovation programs, training courses and performance improvement workshops in 21 countries around the world. He is a co-developer of the current Creative Problem Solving (CPS) method, and the author of more than 60 books, chapters and articles on the subjects of creativity, mental imagery and problem solving. Brian is a world-class facilitator, speaker and trainer in organizational innovation and growth – and he also brings his work in creative thinking and problem solving to the world of sports, where he is an accomplished tennis player, USPTA-certified tennis teaching professional, and sports performance coach. Brian holds a Bachelor

of Arts degree in psychology from Rhode Island College and a master of science degree in creativity and innovation from the International Center for Studies in Creativity, Buffalo State College in Buffalo, NY.

Kathy Goff

Kathy Goff, EdD, is the President of McGoff Creativity and Chief Creative Officer/Co-founder of Vast Learning Systems, a cloud-based edtech software company that focuses on creativity assessments and brain trainings. She earned a doctorate at the University of Georgia in Adult Learning and Creativity under Dr. E.Paul Torrance, the “Father of Creativity”. Kathy served as Torrance’s personal research assistant and collaborator for over 16 years. Goff and Torrance (2000) created the Abbreviated Torrance Test for Adults (ATTA), one of the first instruments to measure creativity in adults. She is an internationally recognized author, researcher, educator, patented inventor, consultant and entrepreneur with over 3 decades of experience researching the creativity of people of all ages and backgrounds.

Kelsey Medeiros

Kelsey Medeiros, PhD, is an Assistant Professor of Management at the University of Nebraska at Omaha. Her research focuses on “troublemaking,” including creativity and innovation, (un)ethical behavior, sensemaking, women in leadership, and sexual harassment.

Kristen Betts

Kristen Betts, EdD, is a Clinical Professor in the School of Education at Drexel University. Dr. Betts has over 20 years of experience in higher education and serving in key leadership positions within private, public, and for-profit institutions. Dr. Betts teaches in the Mind, Brain & Learning certificate program, the Master’s program in Higher Education Leadership, the Master’s program in Creativity & Innovation, and the Doctoral program in Educational Leadership & Administration. She is also the founding Director of the Education, Learning and Brain Sciences (E-LaBS) Research Collaborative. Dr. Betts’ expertise is in online and blended education, curriculum and instructional design, and evaluation. Her research focus is on Mind, Brain, and Education Science, creativity, technology-enhanced learning, Online Human Touch, and professional development. Dr. Betts is a Fulbright Specialist, Middle States Commission on Higher Education peer evaluator, and an instructor with the Online Learning Consortium certificate programs. Dr. Betts is a grant reviewer for the Hong Kong Grants Council and has been a reviewer for 14 journals and publishing companies. Dr. Betts has also been a keynote and invited speaker at conferences and government-supported events in Sweden, South Korea, South Africa, Canada, and across the United

Kyung-Hee Kim

Kyung-Hee Kim (Kay Kim), PhD, is professor of educational psychology at College of William & Mary School of Education, Virginia, USA. Kay is an inventor, with two bio-medical technology US patents, and best-selling author, including *The Creativity Challenge* (USA, 2016), *Education for the Future* (Korea, 2019) and *Let Them Play Outside the Box* (Korea, 2019). She

believes everyone can become an innovator using creative thinking skills. Her humble origin on a farm in Korea proves it. Her life's work promotes creative thinking skills of mastery, imagination, and critical thinking as antidotes to creativity-killing social conformity and test-centric rigidity. She began that work studying under the father of creativity, E. Paul Torrance. Kay won the Berlyne Award (2009) from the American Psychological Association, and the Hollingworth Award (2008), the Early Scholar Award (2011), and the Torrance Award (2018) from the National Association for Gifted Children, becoming one of the foremost experts on creativity assessment and innovation. Her *Creativity Quotient* assessment uses her eye-tracking patent. Media and government leaders frequently seek her expertise through interviews and speaking engagements. It is her passion to promote entrepreneurship through the creative thinking methodologies of her life's work.

Larry Keiser

Larry Keiser, PhD, is Clinical Assistant Professor and Executive Director of Special Projects, Communications & Administration for Drexel University's School of Education. He has been with Drexel 32 years in various positions with a focus throughout on new program development, obtaining externally funded projects, and developing partnerships with Philadelphia organizations and schools. These programs, projects and partnerships promote alternative preparation pathways of K-12, STEM teachers, provide professional development toward school leadership improvement; enhance pre-service and in-service teachers' and elementary/secondary students' mathematics and science content knowledge; better incorporate appropriate technology into the K-16 teaching and learning process; and promote creativity and innovation in schools, the workplace and in life. Larry presents nationally and internationally on the need to infuse creativity and innovation into K-16 education. He serves as adjunct instructor in the School's Creativity and Innovation Program for courses on the Foundations of Creativity.

Macarena-Paz Celume

Macarena-Paz (Mathilde) Celume, PhD, is an associated researcher at the Laboratoire de Psychologie et d'Ergonomie Appliquées (LaPEA) and at the Learning Planet Institute (former CRI) in France. She teaches at Université de Paris in Psychology, Learning Sciences, and Artistic Creation where she mentors and supervises Master's dissertations on topics related to pedagogy and curriculum, innovation in education, arts, and the development of social, cognitive, and emotional competencies in the context of training or educational programs. She is also Chief Research Officer and co-founder of the start-up BE Beyond Education focused on the development of 21st-century competencies in children and adolescents. [www. beyondeducation. Tech.](http://www.beyondeducation.Tech)

Madison Betts

Madison Betts is an undergraduate student at Drexel University and will graduate in 2023. She is an English major with a concentration in writing. Madison is a Pennoni Honors College student and was selected to be an AJ Drexel Scholar. Madison has completed two co-ops with an international

corporation in which she served as a Research & Publishing Associate and as an Operations & Communication Associate. Madison has also been a publishing intern at Drexel University for three quarters. Madison has several publications, which include articles and book reviews. Additionally, Madison was invited to work with the Freddie Reisman Center for Translational Research in Creativity and Motivation on the development and launching of their website. Madison completed at Drexel University a Certificate in Spanish Proficiency and a Certificate in Writing & Publishing. Madison's professional interests are in writing and publishing which align with her goal of working in an editorial branch of a publishing house. She is currently writing her own novel that she aims to publish following graduation.

Margaret Mangion

Margaret Mangion, D.Soc.Sci., is a Senior Lecturer at The Edward de Bono Institute for Creative Thinking and Innovation and at the University of Malta. She has been lecturing in creativity and innovation since 2011. She holds a Doctorate in Social Sciences (University of Leicester). While actively working on various outreach programmes that engage different sectors in the business and social community. Margaret has also pursued research projects in the area of creativity and its manifestation in different contexts. She has recently published a case study with SAGE Publications Ltd. detailing the challenges of conducting online research methods during a pandemic. Margaret has been actively involved in projects and studies pertaining to the field of education. She has recently conducted a study exploring the self-perceptions of the creative self-concept by children in Primary Schools. She was invited to join expert panels at policy making level in the area of education and management on various occasions.

Maria Avitia

Maria Avitia, PhD, received her B.A. in Psychology from California State University under the supervision of Dr. James Kaufman, her M.S. in Education Psychology from Indiana University under the supervision of Dr. Jonathan Plucker, and her PhD in School Psychology from the University of Connecticut under the supervision of Melissa Bray. After receiving her degree, she worked as a school psychologist and is currently a Post-Doctoral Fellow at the University of Kansas Medical Center in the department of pediatrics (Division of Developmental and Behavioral Sciences). She conducts Autism assessments and provides behavioral therapy to children with developmental disabilities. Her research interests include learning disabilities, dyslexia, and strengths-based approaches.

Matthew C. Makel

Matthew Makel, PhD, is an Associate Research Scientist for the Johns Hopkins School of Education. His research focuses on academic talent development and open science research methods. In talent development, he investigates the equitable allocation of gifted identification and services as well as how schools can better meet student learning needs. In open science, he explores how to improve research transparency and rigor so that society can better understand the generalizability, reproducibility, and replicability of

research findings. The influence of education research is too great to be driven by narrow irreplicable results. He has conducted direct and conceptual replications, both in collaboration with the original authors and independently. He co-edited *Toward a More Perfect Psychology: Improving Trust, Accuracy, and Transparency in Research* with Jonathan Plucker (American Psychological Association) and *From Giftedness to Gifted Education: Reflecting Theory in Practice* with Jonathan Plucker and Anne Rinn (Prufrock Press). He has earned degrees from Duke University, Cornell University, and Indiana University.

Meihua Qian

Meihua Qian, PhD, Associate Professor, Clemson University, USA.

Michele Kane

Michele Kane, Ed.D., is Professor Emerita in Special Education from Northeastern Illinois University, where she coordinated the Master of Arts in Gifted Education program for over a decade. She holds advanced degrees in Counseling & Guidance and Educational Administration. Michele is an active member of state, national, and international gifted organizations and is Past President of the Illinois Association for Gifted Children and Past Chair of the Global Awareness Network of the National Association for Gifted Children and Past Chair of the Parent, Family and Community Network. Beginning her career as a parent, Michele has additionally served the gifted community as an educator, leader, author, and counselor. A frequent presenter at state, national, and international conferences, Michele has numerous articles in print and chapters in *Living with Intensity*, *Off the Charts*, and *Accelerating and Extending Literacy for Diverse Students*. Additionally, she co-authored, with Dorothy Sisk, *Planting Seeds of Mindfulness*. She was honored by SENG as their 2018 Educator of the Year. Inspired by her experience raising six gifted (now adult) children, she has been a passionate advocate for enhancing well-being for gifted people across the lifespan for more than forty years.

Mihyun Han

Mihyun Han, PhD, is an assistant professor in the Education department at Hope College, MI, USA. Her research interests include emergent bilingual students' creativity and creative artifacts and teacher emotional scaffolding for enhancing students' creativity development in the K-12 education setting.

Missy Kettell

Missy Kettell is a Community Educator specializing in child abuse and neglect prevention. Her work focusses on designing and facilitating parenting programs for families and providing training for professionals who work with families. Having earned bachelor degrees in both Leadership and Organizational Studies and Social and Behavioral Sciences, she is currently pursuing a master's degree in Leadership Studies.

Molly Holinger

Molly Holinger, PhD, is a Visiting Professor at the John W. Altman Institute for Entrepreneurship in the Farmer School of Business at Miami University. She holds a PhD in Educational Psychology: Giftedness, Creativity, and Talent Development from the University of Connecticut and an M.S. in Creative Studies from the International Center for Studies in Creativity, SUNY Buffalo State. Her current research focuses on the positive outcomes of creativity such as engagement, positive emotions, and meaning.

Pamela Burnard

Pamela Burnard, PhD, is Professor of Arts, Creativities and Educations at the Faculty of Education, University of Cambridge (www.educ.cam.ac.uk/people/staff/Burnard/). She has published widely with 20 books and over 100 articles which advance the theory of multiple creativities across education sectors including early years, primary, secondary, further and higher education, through to creative and cultural industries. She is co-editor of the journal *Thinking Skills and Creativity*. Current funded projects include 'Choices, Chances and Transitions around Creative Further and Higher Education'; 'Diversifying Compositional Creativity using AI'; 'Sculpting New Creativities in Primary Education'; and a meta-analysis of the culminative impact of 'Contemporary Urban Musics for Inclusion Networks' (CUMIN). She is a Fellow of the Royal Society of Arts (RSA) and the Chartered College of Teaching, UK.

Robert Pierce

Rob Pierce, PhD, is an Associate Professor of business at George Mason University. He holds a PhD in early modern European history and an MBA. His pedagogical interests include assessment of student learning, inquiry-based learning, and teaching methods that increase student engagement.

Ronald A. Beghetto

Ronald Beghetto, PhD, is an internationally recognised expert on creative thought and action in educational settings. He is the Pinnacle West Presidential Chair and Professor for the Mary Lou Fulton Teachers College at Arizona State University. Ron is the Editor for the *Journal of Creative Behavior*, Book Series Editor for *Creative Theory and Action in Education*, a Creativity Advisor for the *LEGO foundation*, and *Fellow of the American Psychological Association* and the *Society for the Psychology of Aesthetics, Creativity and the Arts*. He has published 10 books and over 100 articles and book chapters on the topic of creativity in educational settings. Prior to joining the faculty at ASU, Ron served as Professor and Director of Innovation House and the University of Connecticut. He is the 2018 recipient of the Rudolf Arnheim Award for Outstanding Achievement in the Psychology of Aesthetics, Creativity and the Arts and 2008 recipient of Daniel E. Berlyne Award from Div. 10 of the American Psychological Association. Ron has received recognition and numerous awards for excellence in teaching, including the University of Oregon's highest teaching award for early career faculty (2006 Ersted Crystal Apple Award), the 2015 ALD Faculty of the Year Award at the University of Connecticut, and the Provost's Recognition for Excellence in Teaching

(University of Connecticut). Previously, he was a Professor of Educational Psychology, Director of UCONN's Innovation House, and Graduate Program Coordinator for the Cognition, Instruction, Learning, & Technology Program in the Neag School of Education at the University of Connecticut.

Roni Reiter-Palmon

Roni Reiter-Palmon, Ph.D., is a Distinguished Professor of Industrial/Organizational (I/O) Psychology and the Director of the I/O Psychology Graduate Program at the University of Nebraska at Omaha (UNO). She is also the Director of Innovation for the Center for Collaboration Science, an inter-disciplinary program at UNO. She received her Ph.D. in I/O Psychology from George Mason University, Fairfax, Virginia. Her research focuses on creativity and innovation in the workplace, specifically cognitive processes, team creativity, development of teamwork and creative problem-solving skills, and leading creative individuals and teams. She has over 90 publications in leading journals such as *Journal of Creative Behavior*, *Creativity Research Journal*, *The Psychology of Aesthetics, Creativity and the Arts*, *Journal of Applied Psychology*, and *Leadership Quarterly*. She is the former Editor of *The Psychology of Creativity, Aesthetics and the Arts*, the leading journal of creativity research. She is an associate editor for the *European Journal of Work and Organizational Psychology* and *Creativity Research Journal*. She serves on the editorial boards of *Journal of Creative Behavior*, *Journal of Organizational Behavior*, *The Leadership Quarterly*, *Journal of Business and Psychology*, *Journal of Occupational and Organizational Psychology*, and *Journal of Business and Psychology*. She has published four edited books on the topic of creativity, and is the co-editor of the 2nd edition of the *Handbook of Organizational Creativity* (to be published in 2023). She has obtained over 8 million dollars in grant and contract funding from government and businesses focusing on creativity, leadership, and teams. She has received the University of Nebraska systems award for her research and scholarship, and been recognized by the American Psychological Association APA fellow (Divisions 10 and 14).

Ruth Richards

Ruth Richards, MD, PhD, educational psychologist, Board Certified psychiatrist, and professor for almost 25 years at Saybrook University in Creativity Studies, and Consciousness, Spirituality, and Integrative Health, is a Fellow with the American Psychological Association (APA) in Divs. 10, 32, and 48, and a member of Div. 34. She has published numerous articles, edited/written four books on *everyday creativity*, and received the Rudolf Arnheim Award from Div. 10 APA for Outstanding Lifetime Accomplishment in Psychology and the Arts.

Dr. Richards' 2018 *Everyday Creativity and the Healthy Mind* (Palgrave Macmillan, 2018 hardbound, 2019 paperback) won a Silver Nautilus Award ("Better Books for a Better World"). A forthcoming coedited book with David Schuldberg, and Shan Guisinger, features some remarkable contributors, and brings a transformative vision to social scientists in our profoundly interconnected and complex world. The intent is to reawaken awareness of the complexity, interdependence, and multilayered complex adaptive

systems of life and of the realms of consciousness we inhabit, along with a new awe, humility, and wonder. Due out in 2020-2021 from Oxford University Press, *Chaos and Nonlinear Psychology: Keys to Creativity in Mind and Life*, introduces to mainstream linear social sciences, a new worldview. Moving beyond that, it also can affect how each of us live and see our lives—a new view of self-in-world.

Dr. Richards' work spans education, clinical areas, social action, spirituality, aesthetics and awareness, and the importance of chaos and complexity theories in areas including our dynamic identity, interconnection, mutual awareness, expanded empathy, and forward potentials for evolution in a challenged world, and evolving cosmos. Earlier, Dr. Richards was Principal Investigator at McLean Hospital and Harvard Medical School, working with Dennis Kinney and others, on development and validation of the *Lifetime Creativity Scales*. These were written up by Daniel Goleman in *The New York Times*, while highlighting new findings on risk for bipolar disorder and an everyday creative “compensatory advantage” among *better* functioning relatives. The message is mainly about health.

She advocates, now as then, for a “new normal,” broader, more diverse, more exploratory and process-oriented, more open to experience and beyond ego, while helping free us all to embrace risk-taking, discovery, and living beyond fixed expectations, toward our higher humanistic, and human, potential. Aspects of this pattern are already seen, in part, in self-actualizing individuals in humanistic psychology. There is also implication for a more integrated self, broader awareness of the world, and living toward a larger good. Dr. Richards thus sees dynamic creative living as central to advancement of individuals and cultures, both separately and together, and to emergence of a new worldview and view of self-in-world.

Ryan Daniel

Ryan Daniel, PhD, is a professor and senior researcher in creative arts and creative industries at James Cook University, Australia. His research is published in *Creativity Studies*, *Creative Industries*, *International Journal of Cultural Policy*, *Arts and Humanities in Higher Education*, *CoDesign*, *Music Education Research* and the *British Journal of Music Education*.

Sally Krisel

Sally Krisel, Past President of the National Association for Gifted Children Board of Directors, USA.

Sam Hunter

Sam Hunter, PhD, is a professor of Industrial and Organizational Psychology at the University of Nebraska Omaha and serves on the leadership team for the National Counterterrorism Innovation, Technology, and Education (NCITE) Center. Dr. Hunter's research focuses on leadership and innovation, with a particular focus on malevolent acts within those phenomena. As an Industrial and Organizational Psychologist, he engaged in applied work with organizations such as Lockheed Martin, Oakley, NATO, U.S. Marine Corp., Epic Games, Johnson & Johnson, Del Monte, and United Airlines. He has

published more than 100 peer reviewed journal papers, books, and book chapters and has been cited more than 5500 times with an h-index of 37 and an i10 index of 60. He currently serves as an Associate Editor for two journals and is on the editorial board of four. His research has been published in outlets such as the *Journal of Applied Psychology*, *Journal of Organizational Behavior*, *Organizational Research Methods*, *American Psychologist*, *Leadership Quarterly*, and the *Creativity Research Journal*. He has received more than 3.5 million dollars as PI or Co-PI from funding sources such as the Office of Naval Research, the UK Home Office, the Department of Homeland Security, and the National Science Foundation. Sam earned his PhD in I-O Psychology from the University of Oklahoma in 2007. Most importantly, Sam is the father of an awesome daughter (10 years old) named Celia, husband to the cooler Dr. Hunter (aka, Melissa who is a school psychologist) and is a huge fan of the Detroit Tigers.

Sandra M. Dingli

Sandra Dingli, PhD, is a full Professor at The Edward de Bono Institute for Creative Thinking and Innovation and at the University of Malta. She conducts workshops and delivers lectures on creativity and innovation management, foresight, leadership, and philosophy of mind to undergraduate and postgraduate students. Sandra set up the Institute in collaboration with Professor Edward de Bono in October 1992. Over the years Sandra has been instrumental in the fields of creativity, innovation and foresight in Malta and internationally. She has been involved in various projects as a coordinator, a partner or as an evaluator. She enjoys being involved in European funded projects and collaborating with others on topics which range from digital creativity training to open innovation, foresight methodologies, new business models and promoting STEAM in education. In 2004 Sandra designed and launched a new postgraduate degree, a Master of Arts in Creativity and Innovation, at the University of Malta. This programme has attracted numerous local and international students to the University of Malta. Sandra has organised six International Conferences on Creative Thinking at the University of Malta. She has edited five books with selected proceedings of the International Conferences which have been published by the University of Malta Press. Her numerous publications include *Creativity and Strategic Innovation Management* (2017) with M. Goodman as co-author and a chapter on 'Thinking Outside the Box: Lateral Thinking as an Educational Innovation' in *The Routledge Companion to Creativity* (2008) edited by Tudor Rickards, Mark Runco and Susan Moger. Sandra enjoys the opportunities which new technology offers in today's 'flat' world, especially when this involves networking and international collaboration. She has travelled extensively to countries which include India, Malaysia, Australia, Taiwan, the USA, Germany, Finland, the Czech Republic, Denmark and the UK to conduct workshops and to deliver presentations at conferences.

Scott J. Peters

Scott J. Peters, PhD, Professor, University of Wisconsin-Whitewater, USA.

Stuart Omdal

Stuart Omdal, PhD, Professor Emeritus, University of Northern Colorado, USA

Steven Fredericks

Steven Fredericks, EdD., Visiting Professor, Johns Hopkins University, USA.

Sue Hyeon Paek

Sue Hyeon Paek, PhD, is Assistant Professor of educational psychology at the University of Northern Colorado. She has studied about creativity assessment and how people believe about creativity and taught courses in Educational Psychology and Creative Education for teachers.

Susan Batastini

Susan Batastini, PhD, is a NJ and PA Certified School Psychologist who obtained her Ph.D. degree in Educational Leadership and Learning Technologies from Drexel University in 2001 and in 2011 was awarded the Ten-Year Professional Attainment Award from the Goodwin College of Professional Studies. Over the last twenty years, Dr. Batastini has dedicated herself to her career as a School Psychologist in both the public and private school sectors, along with adjunct teaching at Drexel University in the School of Education. Her research has focused on the components of emotional intelligence, creativity and student leadership and her passion lies with developing dynamic programs to empower individuals in these areas. Dr. Batastini is a member of the National Association of School Psychologists (NASP), NJ Association of School Psychologists (NJASP) and the International Association of Wellness Professionals (IAWP). In 2021, Dr. Batastini pivoted from her School Psychology position to embark on a new creative business venture incorporating her background in education and psychology with her strong interest in health and wellness. She is the founder and owner of Walk 2 Wellness, LLC which supports individuals' physical and mental health by incorporating counseling with physical fitness. The program was featured in the 2021 (Volume 12, Issue 5) Suburban Family Magazine "South Jersey's Ladies that Launch". In addition to fostering her business, Dr. Batastini has especially enjoyed adjunct teaching in the Creativity and Innovation Program at Drexel University and areas of special interest include: Grit with a growth mindset, fostering creative environments, and change leadership.

Tara Grey Coste

Tara Grey Coste, PhD, is a Professor of Leadership and Organizational Studies at the University of Southern Maine and teaches courses in communication, group dynamics, and deliberate creativity, among others. Her research focuses on creativity and innovation in multicultural, multinational environments, with a particular emphasis on work in larger corporate enterprises and communities in Africa and Asia. Most recently, she is concentrating her attention on how ancestral belief systems drive modern behavior and The Montagu Project, a multi-decade global leadership lab in South Africa. This work aims to refine the training processes that enhance creativity in teams and to

provide professionals tools that will allow them to enhance their global leadership abilities.

Tatjana Dragovic

Tatjana Dragovic is a doctoral educator and a leader of the EdD (Doctorate of Education) research community at the Faculty of Education, University of Cambridge, UK. She is also an Associate Professor of Management, Leadership Excellence and Business Coaching at the Faculty of Organisation Studies in Slovenia. For the last 28 years she has worked across different disciplines, sectors and industries and is recognised as an international educator, whose interdisciplinary expertise and research interests lie in the fields of creativity, leadership development, coaching, and the professional and personal development of educators. Current EU funded projects include Innovative and Creative Approaches for Higher Education and Digital Savviness (INCAS for HEADS).

Theron E. Fairchild

Theron E. Fairchild, PhD, is Associate Professor at the Faculty of Business Administration, Kanagawa University, Yokohama, Japan, where he teaches English-language development, cross-cultural awareness, and the history of global and Japanese business. Dr. Fairchild did his doctoral work in psychology, with a specialization in the study of creativity, under the mentorship of Dr. Steven Pritzker. His dissertation research employed digital tools to analyze the linguistic and psychological characteristics of English-language novels from the twentieth century. Dr. Fairchild also holds a master's degree in Japanese history. In publications and conference presentations, his topics focus on creativity, language, and history. He contributed two articles, on (i) Novels and (ii) Computerized Text Analysis, for the *Encyclopedia of Creativity* (3rd Edition). He also works as a freelance English-language editor and is a published short-fiction author. Prior to his career in academics, Dr. Fairchild spent two decades in the American entertainment industry, in both a technical and creative capacity. As an audio engineer, he worked with clients that included eminent jazz musician Sonny Rollins and Grammy Award recipient Chris Botti. He also worked as a production cataloguer for the Survivors of the Shoah Visual History Foundation (under the direction of Steven Spielberg, now the USC Shoah Foundation), a testimonial archive and a digital resource in the advancement of genocide studies.

Wendy Ross

Wendy Ross, PhD, is a Senior Lecturer in Cognitive Psychology at London Metropolitan University. Her research is interdisciplinary in nature and she views creativity through the lenses of cognitive philosophy, psychology and anthropology with a particular focus on materiality.

Zorana Ivcevic Pringle

Zorana Ivcevic Pringle, Ph.D., is a senior research scientist and the director of the creativity and emotions lab at the Yale Center for Emotional Intelligence.

She completed her undergraduate studies at the University of Zagreb in Croatia, received her doctorate from the University of New Hampshire, and did postdoctoral work at the Interpersonal Communication and Interaction laboratory at Tufts University. Dr. Ivcevic's research examines the role of emotion and self-regulation in creativity and well-being. Dr. Ivcevic collaborated with colleagues from Denmark, Spain, China, and Croatia and published her research in numerous academic journals such as *Personality and Social Psychology Bulletin*, *Journal of Personality*, *Applied Cognitive Psychology*, *Creativity Research Journal*, *Journal of Creative Behavior*, and others. She is Associate Editor of *Psychology of Aesthetics, Creativity, and the Arts*. Dr. Ivcevic received the Award for Excellence in Research from the Mensa Education and Research Foundation for her research on emotional intelligence and emotional creativity, as well as the Berlyne Award for Outstanding Early Career Achievement in psychology of aesthetics, creativity, and the arts from Division 10 of the American Psychological Association.

PREFACE

THE MANY THE CAP FITS: CELEBRATING GURUS AND TRAILBAILZERS IN CREATIVITY AND RELATED FIELDS

Popular Jamaican Reggae artist late Bob Marley & the Wailers titled their 1976 classic album, “Who The Cap Fit”¹, with these lyrics:

And who the cap fit
Let them wear it
And who the cap fit
Let them wear it

In this special volume of the KIE Creativity books project, the cap fits many giants and trailblazers in creativity research and related fields. This book has them all – at least key eminent individuals, pioneers and experts in the field of creativity. If we have left out any giant or trailblazer or any notable individual in the field, it is because they do not wish to participate (and we have one or two of those individuals), or there was no one available that we can find to write their chapters, or we did not receive expert-nominations about their accomplishments in the first instance.

As we celebrate the giants and trailblazers in creativity research and related fields, we are also celebrating – and thankful to – authors who have contributed to the book. Special thanks also to the editor, Dr Fredricka Reisman, for her continuing support for the creativity books project.

This is a massive project for the KIE, the like that we have not undertaken in the eight years of the KIE Creativity Books Project – 61 authors and co-authors, 41 chapters and 824 pages. In the end, it’s all worth it.

Enjoy.

James Ogunleye, PhD, FRSA
Chairman, KIE Conference
Convenor, E. Paul Torrance International Roundtable on Creative Thinking
Convenor, Reisman Diagnostic Creativity Assessment Special Interest Group
Convenor, Kaufman Family Research Symposium

Note

¹ Bob Marley & the Wailers (1976) 'Who The Cap Fit lyrics', Songwriters: Aston Barrett / Carlton Barrett, Kobalt Music Publishing Ltd., Universal Music Publishing Group, available online at <https://www.lyricfind.com/> and via YouTube (<https://www.youtube.com/watch?v=X3IT1CivkLo>)

INTRODUCTION

FREDRICKA REISMAN

The KIE 2021 volume celebrates creativity giants and trailblazers as the book title suggests: *Celebrating Giants and Trailblazers: A-Z of Who's Who in Creativity Research and Related Fields*. The 41 chapters are arranged alphabetically and are authored by creativity trailblazer colleagues, former students, admirers, personal friends and others. The chapters are a testament to the character and accomplishments of our nominated luminaires. I congratulate the chapter authors who present a variety of pictures of their creativity trailblazer. Some chapters focus on academic accomplishments, some included biographical data, and some shared their personal interactions with the chapter subject, including interviews. All of the chapters attained a superb standard of excellence. However, a few were so compelling that I felt the need to point these out to you and marked them: A must read chapter. Please note that in no way do I relegate the other chapters to a lesser status. Also, I expect that many may not agree with my selections - and that is fine, as ignoring my choices comprises our creative spirits. So here we go - let us delve into what promises to be a delightful journey.

Ronald Beghetto's chapter kicks off the 2021 KIE conference book. Han presents an in-depth view of Beghetto's contributions in creativity theories and research, including his work highlighting 'process' and 'experience' as two critical lenses to understand creativity, the concept of creative learning, uncertainty and other contributions. Burnard and Dragovic present a heart-warming picture of **Anna Craft** who considered *possibility thinking* as a particular dimension of and uniquely salient to *creative learning*. Kyung Hee Kim shares an in depth study of her supervising professor, **Bonnie Cra-mond**, who in turn was a doctoral student of E. Paul Torrance; thus, they represent an academic daughter and granddaughter legacy of Dr. Torrance.

The Betts author team creatively structured **David Cropley's** chapter on the acronym - "CREATIVE". Their in depth look into Cropley's trailblazing accomplishments including feedback from Cropley is a must read. Batastini explores **Mihalyi Cskiszentmihalyi's** early background, summarizes his most influential work and vast array of contributions in the field, and focuses in on a handful of his most compelling concepts that has made him one of the leading pioneers in the field of positive psychology and creativity. Her scholarly and readable chapter includes personal data as well as a com-

prehensive discussion of his most influential work. Batastini's is a must read chapter. Sadly Dr. Cskiszentmihalyi passed away October 20, 2021, Claremont, CA, USA. He was born September 29, 1934 in Rijeka, Croatia and was 87 at his death.

Mangion and Dingli provide a broader picture of **Edward DeBono's** contributions beyond popular lateral thinking and Six Thinking Hats. Sadly Dr. DeBono passed away June 2021. This chapter by Hani Morgan highlights **Howard Gardner's** contribution to the areas of education and creativity, his background and his accomplishments; especially, his theory of multiple intelligences. Reisman quotes interviews with **Vlad Petre Glaveanu** that form the basis of this chapter, which portrays him as a brilliant, creative, scholar – indeed a trailblazer. Ross presents **Glaveanu's** 5A's model for explaining creativity along with an in depth summary of his work. Goff presents a scholarly history of **John Gowan's** life, interests, and work and is a must read recommendation.

Dorothy Sisk explores **Joy Paul Guilford's** influence on psychology and his development of the Structure of Intellect (SI). Guilford had an enormous influence on creativity research as per his 1950 American Psychological Association Presidential address that he initiated as follows: "I discuss the subject of creativity with considerable hesitation, for it represents an area in which psychologists generally ... have feared to tread" (Guilford, 1950: Plucker, 2001).

Dorval chronicles the career of **Scott Isaksen**, academic scholar, practitioner, leader and mentor. The author eloquently provides personal reflections of his work with Isaksen that highlights Isaksen's accomplishments from his 50 years in the creativity field. Larry Kaiser's presentation entitled: About Being Creative...as Experienced by **Rick Kantor** is a most creative, touching, honest, human chapter. This is a must read.

Singer and Scheiber highlight how **Alan Kaufman** in collaboration with **Nadeen Kaufman** (Alan's wife) revolutionized the field of intelligence testing. If I may share a personal view of the Kaufmans while we all were at the University of Georgia. In addition to being great researchers, as a student of Alan's in his IQ testing course, I experienced him simultaneously as a great teacher and as his colleague in my role as Chair of the Division of Elementary Education. In my latter role, I was fortunate to hire Nadeen as one of my field supervisors – and her students loved her professionalism, wisdom and caring.

Choi and Avitia present a comprehensive portrait of **James Kaufman's** impacts on the field of creativity that are amazingly numerous and diverse. In addition to accomplishing the challenge of highlighting Kaufman's contributions, the authors provide statements from other creativity gurus attesting to Kaufman as a caring and graceful human being including wonderful contributions from his wife, mother and father. The authors point out that Kaufman's contributions to the field of creativity are so numerous and diverse, it is challenging to distill his contributions to a specific area. Indeed, Kaufman is not only an outstanding creativity scholar, he also epitomizes the essence of this book's spotlight on creativity trailblazer. This is a must read chapter.

Kyung Hee Kim's chapter, written by her students, captures her brilliant career from humble Korean beginnings to international scholar as professor at the College of William and Mary. On a personal observation, I met Kay years ago when she received the American Creativity Association (ACA) E. Paul Torrance Graduate Student Research award at the ACA conference in San Antonio. Her mentor, Bonnie Cramond asked if I could help Kay with expenses and I arranged for her to bunk with my then doctoral student, Louise Whitelaw. When I returned to Philly, I found a very large beautiful fan with Korean wishes for good health that adorned my office wall for years. The written page does not capture Kay's warmth, caring, and courage.

Graves highlights **Stanley Krippner's** predictions that marijuana would be legalized and that psychedelic research is again being undertaken, as well as being used in psychotherapy. His contributions regarding dreams and consciousness were groundbreaking with special attention to the concepts of spirituality and religiosity. GRAVES portrays Krippner as a "dreamer, an advocate, a humanist, good-natured; indeed a self-actualized man". Batastini has presented an in depth summary of **Todd Lubart's** extensive scholarly endeavors in creativity.

In this chapter Roni Reiter-Palmon, Sam Hunter, Kelsey Medeiros & Gina Ligon summarized a research career that spans 40 years and collaborations with numerous colleagues and students. The author team present an in depth picture of **Michael Mumford's** personal and professional lives. He is best known for his work in advancing the concepts of problem construction and idea evaluation and helped understand the processes. An Interview with Dr. Mumford is a particular highlight of this must read chapter.

Coste and Kettell describe **Kobus Neethling's** interactions with Torrance and Parnes as he opened the door to creativity in South Africa. The authors point out one of Neethling's defining accomplishments of being asked to train Nelson Mandela's staff on the creative perspective when Mandela became president. Coste's personal interactions with Neethling add richness to the chapter. Neethling's focus has been on whole brain communication, whole brain relationship building, creative problem solving, and solutions finding. This is a must read chapter

The Pucci & Holinger chapter provides both a personal and professional picture of **Alex F. Osborn**, who coined and popularized the creative-thinking tool known as "Brainstorming" – "using the brain to storm a creative problem". In this chapter, a team of **Jonathan Plucker's** colleagues, collaborators, and former students (some of whom represent all three) provide an overview of Plucker's work and its origins. Fairchild discusses the diverse career of **Steven Pritzker** from comedy writer in network television to academic. Fox's chapter highlights **Gerard Puccio's** academic career and his scholarly contributions to the field of applied creativity where he created and leads the Buffalo State creativity program.

Galib describes **Fredricka Reisman and Kristen Betts** as two women pioneers in the field of creativity who have paved the way for others to start their journeys as creative, innovative, and technology-mindful leaders. Westphal provides a unique perspective (as the former principal of Vertex) of **Fredricka Reisman** as he describes their over 25 year education-related col-

laboration culminating in he and Drexel University creating the Freddie Reisman Center for Translational Research in Creativity and Motivation. Vertex, a pioneer in tax automation for more than 40 years, serves over 4,000 customers worldwide providing comprehensive tax solutions that enable global businesses to transact, comply and grow. Vertex employs over 1,100 full-time professionals today in the US, Europe and Brazil and Westphal has recently handed over the company's leadership so he can pursue full time philanthropic goals. Westphal brings the unique perspective of industry meshing with education to this book.

Ogunleye & Reisman's chapter entitled "The Man Behind the Four P's of Creativity" on **James Melvin "Mel" Rhodes** (June 14, 1916 – April 29, 1976) point out that Rhodes is purported to be the originator of the 4 Ps of creativity theory but Ross Mooney, a professor of education at the Ohio State University appears to have simultaneously come up with a similar theory. The authors describe Rhodes' many contexts of creativity such as *Creativity as a product*, *Creativity as process*, *Creativity as a personality* and point out that Rhodes created a systems approach that is useful in understanding the nature of creativity from both research and application points of view.

Byock presents a comprehensive picture of **Ruth Richards** with quotes from Richards sprinkled throughout. Highlights of Richards' accomplishments include arts, education, medicine, psychology, psychiatry, and her early education in physics. This is a challenging read but worth the effort. Macarena-Paz Celume states: "**Ken Robinson**, you were right, the school system is not preparing children for the future" and describes: *Learnings from school and job experiences of unemployed young adults attending Réalise tes Rêves, a French remobilization program*. In 2006, Robinson declared that the school system alienated students and did not give place to creativity. This chapter further discusses the impact of the school system in the later professional choices of underemployed adults as well as a national program of labor remobilization with the aim of finding employment. Sadly, we lost Ken August 21, 2020.

Keiser presents Mark Runco as a Creativity Research Contributor Extraordinaire and highlights the many contributions Runco makes to the field of creativity. Hoffmann and Ivcevic discuss **Sandra Russ's** contributions, including her basic science research on play, emotion, and creativity, and her applied work in play interventions most recently for children with developmental disabilities, and in piloting tele-health methodologies. Daniel provides a picture of **Keith Dean Simonton** who supplied the field of creativity studies with a wealth of evidence-based insights and directions for future research. He also is noted for his work in the historiometric analyses of eminent personalities. Kane chronicles the rich contributions **Dorothy Sisk** has provided that endows the fields of giftedness and creativity. This is a must read chapter. Coste, Neethling and Kettell present a history of the accomplishments of **Moe Stein** who not only was a creativity trailblazer but a good friend. We lost Moe in 2006 at age 85. This is a must read chapter.

Ogunleye presents a comprehensive picture of **Robert J. Sternberg**, who epitomizes a Creativity Trailblazer. Reisman describes **David Tanner** as: *Research Scientist, Creative Dupont Leader, Good Friend* and states that

she long admired Dr. Tanner's extensive list of creativity laden accomplishments at Dupont and enhances the chapter with personal parallel experiences including each having lost a child. Dr. Tanner suggested that I write a book dedicated to E. Paul Torrance's work and I agreed if he would be first author culminating in our 2014 publication. Our year-long collaboration was a remembrance of his 2002 standing in at Torrance's request to present me with the American Creativity Association Champion of Creativity Award (Tanner is past-president of The American Creativity Association and Dr. Torrance had nominated me but was too ill to travel to Philadelphia from Georgia to present the award himself). I profoundly miss these two great friends and mentors.

No one could better write Torrance's chapter for this book than Bonnie Cramond whose words illustrate her very personal relationship with Dr. Torrance. Cramond's chapter is a must read chronicle of **E. Paul Torrance's** life, careers and Pansy—the love of his life. Cramond's close and long relationship with Dr. Torrance provides a canvas upon which she has painted a look within the man's character, brilliance, caring, friendships and influence on many lives.

Houtz and Selby share personal histories with **Dr. Donald Treffinger** as well as lovely remembrances by others whose life Treffinger touched. James Ogunleye's comprehensive chapter presenting the biographies and work of **James Michael Wallach and Nathan Kogan** with in depth analysis of the Wallach-Kogan Creativity Test is a must read.

In his classic book entitled *The Art of Thought* (1926), **Graham Wallas** mined ideas from writings of the great thinkers (e.g. Aristotle, Freud, Helmholtz, Poincaré). Reisman states that the baseline assumption in Wallas's writings is that "creative thinking can be delineated" and this led him to a "four-stage description of the creative process; namely, preparation, incubation, illumination, and verification. Included are modifications and critiques of Wallas's theory.

David Wechsler was a memorable mentor to Alan Kaufman as Dr. Kaufman so brilliantly describes Wechsler as Generations Ahead of his Time—The Innovative Pioneer of IQ Assessment.

Dr. Ogunleye, KIE Chair, and I as Editor of this amazing homage to creativity trailblazers, acknowledge that there may be some missed. We owe apologies to them.

Fredricka Reisman, PhD
Editor

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CHAPTER ONE

INTERVIEW WITH RONALD BEGHETTO

MIHYUN HAN

This interview explores Ronald Beghetto's contributions in creativity theories and research. Ronald Beghetto, Pinnacle West Presidential Chair and Professor at Arizona State University, has made significant advancements in creativity research highlighting 'process' and 'experience' as two critical lenses to understand creativity. Professor Beghetto is the author of over 100 articles, book chapters, and books focused on creativity for K-12 educators and students. The following is the edited interview with Professor Beghetto, which was conducted on May, 2021 remotely over Zoom.

Keywords: mini-c creativity, creative learning, uncertainty, primary and secondary creativity, creative experience, generative view of creativity

Why Creativity?

Han: What was your initial motivation to pursue creativity research?

Beghetto: I became interested in creativity as a topic of research starting out as a classroom teacher. I was introduced to creative problem solving through a group of students and a program called 'Odyssey of the Mind'. I had no idea about creative problem solving or creativity in education until I had this experience coaching a team of students in the Odyssey of the Mind. It was a very powerful experience for my students and me. The students went on to win the state championship and the team competed in the world finals.

It was amazing and humbling to see what students were capable of doing on their own, with me just providing some minimal structure and support to their creative thinking. As amazing as this experience was to me, it was also unsettling because it surfaced a question that ended up working on for many, many years: 'Why can't we bring this kind of creative thinking into the everyday classroom?' I therefore went back to graduate school to understand more about how creativity could be included in the classroom. I wrote my master's degree thesis on creative problem solving and then went to Indiana University to study with Jonathan Plucker. And that's where I started really diving into the creativity studies literature and started to develop and explore the driving question of how creativity might be infused into the everyday classroom.

Mini-c Creativity

Han: Where did you get your motivation to identify and introduce mini-c (Beghetto & Kaufman, 2007), personal level creativity? Also, how did your exploration of mini-c creativity affect your subsequent creativity research?

Beghetto: Before mini-c, Jonathan and I were looking at who was doing creativity research and why creativity research was largely missing from educational research and practice. That's where we realized that a core stumbling block for many educators and researchers was the lack of a clear definition for creativity. Just like when I was teaching, most educators and researchers had little to no experience with formal conceptions of creativity or what creativity might mean in the context of teaching and learning.

So, one of the first things that got me interested in mini-c was how there were many parallels between definitions of creativity and constructivist conceptions of learning in education. In the Educational Psychologist paper (Plucker et al., 2004) that I later co-authored with Jonathan Plucker and Gayle Dow, we looked at how creativity was being defined and how it wasn't being defined in the literature. We were able to distill a definition for creativity based on the papers we reviewed that actually did define it. That helped me then understand and start seeing the connections between creativity and education. Creativity is this blend of originality and usefulness or meaningfulness. In the context of education, that could mean any kind of experience, like a learning experience that is new and meaningful or any kind of teaching experience.

Also, during that time constructivist learning theories in education were gaining in popularity and I could clearly see connections with the work of Vygotsky and Piaget, for example. But educational theorists and researchers during that time weren't necessarily talking about creativity in the field of educational psychology or in education. So, I was seeing that there was this connection between constructivist perspectives of learning and creativity in the way creativity was being defined in the literature. Morris Stein (1953) early on had done some work looking at subjective creativity. Mark Runco (1996) had done some work looking at personal creativity, and Leonora Cohen (1989) also looked at different levels of creativity. And J.P. Guilford (1950) even made the claim that no theory of learning is complete without also considering the role of creativity. But there weren't really too many folks who were combining creativity and education together. No one had combined them in the way that I was seeing the connection, not just with Piaget and Vygotsky but in a much broader and generative way.

While I was thinking through that, I had the fortuitous opportunity to meet James Kaufman at a conference. We started having a conversation about all of this and realized that the typical conceptions of little-c and Big-C were really not expansive enough to account for the more subjective creative experiences that are featured in learning. In my own work as an educator and then working with Jonathan, becoming familiar with formal learning and creativity theories and seeing the clear connection between creativity and education, and finally recognizing with James the need to expand conceptions of creativity in the field of creativity studies, that's how mini-c came to be.

Creative Learning

Han: How did your view of learning and creativity form your identity as a creativity researcher, particularly studying creativity in the K-12 education setting?

Beghetto: I came from an education background. I was working in the field of education and I was prepared as an educational psychologist. I was always interested in working with teachers and supporting teachers, that's always been my priority. A lot of my early interests pertained to teachers' beliefs and practices and looking for some of the opportunities for them to recognize, support, and be creative in their everyday teaching. I think that view from education really helped me think about how the ideas that were being developed in the field of creativity studies could be applied not only to education but also to things might be missing in the field of creativity studies.

There were people doing work in creativity and education. But a lot of it was about training, such as creativity problem solving training. That's interesting work, but really doesn't capture what I was interested in exploring. I was interested in understanding how we can involve creativity in everyday teaching and learning practices not as something separate like a special creativity class but as something that's inextricably connected to teaching and learning. So, the idea of the definition of creativity but also thinking of mini-creativity really helped inform my work on how creativity can be both supported and suppressed depending on the kinds of pedagogical practices and beliefs operating in schools and classrooms.

I do agree that creativity is an act of learning and learning is an act of creativity. This goes back to some creativity researchers like JP Guilford who noted that many years ago in the often cited 1950 APA presidential address. But I really wanted to make that even more applied. I have constantly thought about how to actually support teachers who are interested in teaching for, with, and about creativity.

Primary and Secondary Creativity

Han: Your generative view of creativity emphasizes the iterative 'processes' of creative experiences that start from an individual's creative efforts, primary creativity, and result in audiences' creative responses constructing original interpretations of the initial creative expression, secondary creativity. What are some examples of primary and secondary creativity that we can observe in our everyday lives? And how are they meaningful for us to understand creativity as a process?

Beghetto: This primary and secondary creativity framework came out of a collaboration with Mark Runco (Runco & Beghetto, 2019). There seemed to be a disconnect between individual, subjective experience of creativity and social and cultural descriptions of the creative process. So, Mark and I started exploring whether and how there could be a connection between the more subjective and social aspects of creative phenomena, which we ultimately

refer to as primary and secondary creativity. It was a kind of an extension or a different way of looking at the way I viewed creative learning (Beghetto, 2016) in terms of how individuals experience creative learning, encountering a new or novel learning stimulus that actually creates some kind of uncertainty for them. People are put in an experiential state of doubt in which they will need to think and act in a different way. They'll have to engage in creative sense-making to resolve that uncertainty. When they do that, they develop a new and personally meaningful understanding, which is mini-c creativity. That's how mini-c or personal creativity occurs. The primary creativity aspect of mini-c or personal creativity is this dialogue between the person and the medium. The medium could be anything from materials to ideas.

But this primary creativity does not occur in a vacuum. It is saturated with the social, cultural, and historical context. It's not happening independently or only in the mind of the individual. This can happen obviously in a classroom environment anytime somebody learns something new in a personally meaningful way. It can also happen in everyday life and informal environments, as somebody is learning by watching a YouTube video on how to cook a new recipe or a new style of cuisine for them, or whatever the case may be. Once anyone has an opportunity to share their new and personal understandings with others, it can actually benefit the learning of other people including teachers or peers or anyone in their immediate context. This interpsychological or secondary level of creativity occurs at the level of the social audience. The audience is now in dialogue with primary creative artifacts, again these can be material or ideational artifacts, which prompt a secondary creative experience and members of the audience can have their own creative learning insight and on it goes. This is how creativity starts with and continues to be a generative process of interaction, dialogue, sensemaking and creative contributions to oneself and others.

In my recent work I've been highlighting how this process doesn't necessarily stop at the secondary audience. If there are creative artifacts that are developed, then these creative artifacts have the potential to become engaged with by future audiences, animating the generative, creative potential beyond the initial creative event and take on a life of their own by making continuous, indefinite contributions to others. The work I've been doing with other researchers, current and former graduate students (such as yourself), has helped me start thinking about how creativity can transform into continuous creative contributions in the learning and lives of others. I think anytime you have an opportunity to share out or to create creative artifacts that can be shared out in different times, in different spaces, and with different audiences, creativity can have continuous creative contribution.

Creative Experience

Han: Your definition of creativity experience, novel person–world encounters grounded in meaningful actions and interactions, reveals your view on the development and expansion of creativity in society. Can you elaborate on this notion of creative experience by comparing it to the traditional approaches to understanding creativity?

Beghetto: In my collaborations with Vlad Glăveanu (Glăveanu & Beghetto, 2020), Maciej Karwowski (e.g. Beghetto & Karwowski, 2019) and Giovanni Corazza (Beghetto & Corazza, 2019), I have been thinking about creativity more dynamically and about creative learning as a kind of dynamic, ongoing experience. The definitions of creativity traditionally and even today tend to be rather static and finalized. I am not saying that those definitions don't have any value, but that creativity has an indefinite open-ended component to it.

Particularly, what Vlad Glăveanu and I have talked about is that the creative experience really does have some markers or signifying features. We talked about at least four different markers or indicators of a creative experience. The first one is open-endedness. Creative experiences have this kind of open-ended quality to them. There needs to be openings for new possibilities to emerge, openings where people encounter uncertainty or are surprised by different perspectives so that they start thinking and acting in new ways. When we talk about concepts in research, we sometimes talk about them in linear ways. Even creative learning seems like a linear process and creative problem-solving models are mapped out in a very linear, sometimes even stepwise way. But, in reality, there's nonlinearity, a bi-directional nature to it. There's a simultaneous nature to creative experiences that doesn't just follow from one step to the next step, creative experiences often go back and forth. There are typically multiple iterations.

We also talked about the importance of the plurality of perspectives in that creativity really does require an openness to difference. We need to think and act in different ways to be creative. One way to do that is to engage with and be willing to engage with different perspectives from folks that have different social, cultural, and historical experiences and backgrounds and also to challenge our own perspective. So, we talked about this idea of making the familiar unfamiliar and the unfamiliar familiar. Those different perspectives and multiple perspectives can continue to generate additional creative experiences. And we also highlighted that creative experiences, even though they do have a past and present, are always future looking. If we have a creative experience, it opens up new horizons of possibility. So, there is always this kind of future to-be-determined component of any creative experience.

Using Two Lenses to Study Creativity

Han: How is it important for you to use those two lenses, 'process' and 'experience', to understand and study creativity as a creativity researcher?

Beghetto: I think when you start thinking about process and experience and things that are very dynamic, it makes research very challenging. In a lot of my own early research and work, I have looked at creative phenomena using measures that can, at best, offer an incomplete snap-shot of beliefs and behavior using survey instruments and others static measures. I think those approaches still have some value, but we all know they are extremely limited in the snapshot in offering even a brief snapshot of time. They don't capture more dynamic, experiential, counter-intuitive and process-based aspects of creative thought and action. In my work with Maciej Karwowski and col-

leagues, we have been doing a lot of work around the importance of developing and implementing more dynamic perspectives on creativity research. As we argue, we as researchers really need to rise to the non-trivial challenge of developing methods that reflect how creative phenomena can change, for example, how creative self-beliefs and will change in and across a task from moment to moment (see Karwowski, et al., 2019).

Dynamic perspectives on research make research a little bit more complex, but to advance what we know and understand about creativity we as a research community really need to honor the kind of experiential, dynamic, process-based components of a creative experience. This poses some serious challenges but, again, it is necessary for us to do a better job in representing what creativity looks like, feels like, and how it has this kind of ongoing nature. So, when we look at things using, for instance, micro-longitudinal studies in conjunction with other methods and measures we might get closer to understanding the more fascinating and somewhat messy aspect of creative phenomena over time and across contexts and cultures.

Current and Future Research Work

Han: Can you talk about some of your current research projects that you are working on as well as some of your future research ideas and projects?

Beghetto: I always have this commitment to ensure that my work, even heavily theoretical work, has some applied component that ultimately can directly support teachers and students as they creatively express themselves in and out of the classroom. So, one of the projects I'm working on with a colleague, Laura McBain at the K12 division of the Stanford D school is called 'My Favorite Failure Project' and that project is really aimed at sharing out stories of failure and how those are critical learning experiences. We explore how and why such experiences benefit learning, but also explore the emotional dimensions of those experiences, which is necessary if we really care about establishing the kinds of supportive and trusting conditions necessary for people to take creative risks. We need to create conditions of risk taking and productive engagement with uncertainty, where failure can be thought of in different ways, including being honest about the sometimes profoundly painful aspect of failure and how those experiences can still be transformed into positive learning experiences for ourselves and others.

I'm also working on additional theoretical and applied projects where I'm looking at the concept of uncertainty and how that plays a role in supporting creativity learning and development. I have a project that I'm working on with a colleague Garrett Jaeger, doing a book project on the role uncertainty plays in learning, creativity, and development. In another project, a solo book, *Uncertainty by Design*, to be published by Cambridge University Press that focuses on how we can design learning and life experiences that help young people become the creative designers of their own lives and make creative contributions to the lives of others. With Vlad Glăveanu, I am also working on another book for Cambridge, *Pedagogies of the Possible*, that offers a way for educators to move away from a pedagogy of sameness and

toward pedagogies that offer new possibilities for creativity and hope in learning, life, and society.

I also have several research projects that are focused on looking at creative phenomena in much more dynamic ways, including looking at self-beliefs but also the ways we assess and make determinations about what is and what isn't creative. My colleagues and I have been trying to do this in a much more expansive way, by looking at these kinds of continuous creative contributions like the work on creative artifacts. And how the socio-material components of creativity play a central role in the process.

Creativity as Solutions to Current and Future Problems

Han: In the rapidly changing world, we keep facing many unprecedented problems. Can creativity provide solutions to various problems and challenges that current and future generations are experiencing? If so, what should be the role of creativity researchers?

Beghetto: Creativity has always been something that we as humans and even non-humans have as a capacity. At the most basic level, it is capacity that helps ensure our survival. So, creativity is not something that necessarily needs to be taught. But I think sometimes we need to be more aware of our capacity to be creative. In times of crisis, we often do act in creative ways without even thinking about it. Still, we can be more intentional about creativity. And part of what I think we can do with respect to creativity and education is to help young people, educators, parents, and everyone realize that we do have this capacity. We can do this by designing experiences that actually allow young people to recognize when they're being creative and also when it might be most beneficial to be creative. James Kaufman and I have talked about this, discussing the idea of creative metacognition (Kaufman, et al., 2016).

Maciej Karwowski and I (2019) have done some work on an agentic model of creativity where we suggest that all people have the potential to be creative but also, they need to have the confidence in their creativity. People need to value being creative, believe they can be creative, and be willing to take creative risks. If people don't have those kinds of self-beliefs in place, then they might not be creative when they could or should be. They might defer to somebody else or try to do something that's not working as well when they could or should be thinking and acting in more productive and creative ways (Beghetto, 2021). I think people develop those beliefs through action, through experiences, also by watching other people. For young people, we can provide them with opportunities to identify problems that matter to them and support them in solving those problems to produce solutions that are creative, beneficial to others, and long lasting. Once young people see that they're capable of doing that with the collaboration and support from other people, be they peers or outside experts, then young people really can be the creative agents of their own lives and work together to solve some of the most complex problems that we're facing now and into the future.

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CHAPTER TWO

CELEBRATING THE VISION AND LEGACY OF ANNA CRAFT: AN ONGOING INSPIRATION

PAMELA BURNARD & TATJANA DRAGOVIC

When Anna Craft died on 11 August 2014, at the age of 52, a visionary light went out in the international community of creativity research. Anna's most powerful philosophical, conceptual and applied fields of research remain at the core of education for teachers and schools. Anna Craft viewed teachers as thinking professionals, rather than as technicians who merely comply with received views of "best practice". From coining the term "possibility thinking", to distinguishing big C and little c creativity, and the roles of teaching creatively and teaching *for* creativity, Anna saw creativity as an everyday and lifelong imperative. Anna also collaboratively explored how to nurture 'wise humanizing creativity', or good creativity in education, and how we might foster what creativity within education might come to mean.

Alongside Anna's multiple roles and appointments at the Exeter and Open Universities, Harvard University's Graduate School of Education, and many other visiting professorial responsibilities, she convened a zeitgeist-identifying symposium in Cambridge in April 2005, which was attended by two hundred researchers, practitioners and policymakers.

In this chapter we will describe our various relationships with Anna, as tireless colleague, as generous supervisor, and as compassionate friend. The huge contribution she made as an international scholar, in giving ideas about creativity a place in the academic study of education, are just part of her unique vision and legacy, which continues to inspire.

Introduction

*Like a lighthouse
your precious life gave us this paper-boat
world as
birthright.
Stand amidst our dark house.
In writing, we hear your heart¹.*

Anna's boundless passion, energy, optimism, and curiosity, and her tireless work in researching and problematizing creativity, both in practice and theory, was infectious. Her philosophical, concep-



1. Pamela Burnard authored the poems.

tual and applied scholarship gave us a firm ground to the work of enhancing creativity in the early years, in primary education, in teacher education and in higher education. We present here a summary of projects that Anna led and share with you how she challenged educational thinking and practices throughout her life. We also portray multiple ways Anna engaged in and promoted/performed inspirational ways of being an academic and engaging the multiple registers of voice and meaning creatively.

Perhaps more importantly, we also offer some vignettes as collaborators and close friends of Anna. Speaking for the self creates a site for voicing and illustrating the multiple ways that Anna inspired us. The personal voice featured in text boxes functions to communicate the inspirational and real Anna that we knew and will always remember. Anna worked tirelessly to celebrate being a “listening”, “empathic” and “authentic” academic whose voice was central to the extraordinary productive possibilities her research created, while opening us up to difference, to seeing differently, to being different. Anna’s friendship allowed us to emerge in the folds of creativities research, modelling how to move toward the as-yet-unknown as academics, doctoral students, and compassionate human beings.

Little c creativity

*You shared many ways to ask, “what if?”
An amber wheeze, a blood organ, can be
a flapping accordion? A motif.
In writing, we hear your heart.*

Anna advanced the concept of “little c creativity” (or ordinary creativity) (Craft, 1996, 1997a, 1997b; Craft & Lyons, 1996; Craft et al. 1997; Craft, 1998). She argued that this concept would be helpful in looking at the education of young children. And it was. Anna regarded “little c creativity” as distinct from “high creativity”, which she took to mean the extraordinary creativity of the genius. This was a paradigm-shifting and change-making innovation, and a break with past understandings or perspectives. She went on to refine and advance the framework which saw, at the heart of little c creativity, the notion of “possibility thinking” or asking, in a variety of ways, “What if?” This vision led to Anna theorizing “little c creativity” as the active, conscious and intentional taking of action, as a way of coping with everyday challenges, which may involve some form of innovation.

One legacy of Anna’s “little c creativity” (or everyday creativity) has been a Finnish project called “Everyday Creativity – Boosting Creative Resources with Finnish Models of Education” (Szabo et al., 2019). This project targeted in-service teachers from primary and secondary schools to involve them actively in their own and their colleagues’ professional development. Through systematic, instructed reflection on their own practices, a co-created blended course helped teachers to identify some of the good practices of their school community. Further, the course provided a dialogic learning environment and preparation for the role of trainer; that is, the participating teachers also organized workshops for their colleagues and thus contributed to locally

organized in-service teacher education. As result of the needs assessment process, the following development areas were identified for the course:

1. Learning space and multi-sensory teaching
2. Developing applicable skills through teaching
3. Organization of interaction and technology in the school
4. Connecting different subjects in learning and teaching (e.g. multi-disciplinary, interdisciplinary education).

This course offered opportunities for teachers from Romania, Hungary, Italy and the Netherlands to discover and create creative practices in their own school communities. Participating teachers also came to Finland to reflect on their own work in dialogue with Finnish teachers and education experts. A handbook was published, building on teacher participants' experiences, aiming to inspire other teachers to enhance creativity in and beyond their school communities.

Anna: My supervisor²

Equally excited and terrified, with my baby in one arm and my laptop in the other, I was standing in a rectanguloid room at the Open University waiting for a professional doctorate in education admission interview. What was I getting into? What had got into me? How would I juggle a doctoral study with constant business trips to, at least, four other European countries and, on top of that, first-time motherhood? What was I doing? Should I reconsider?

After the interview, I still felt torn between my strong desire to give a voice to teachers – not any teachers, but teachers like me who were teaching in critical situations, during a devastating civil war – and a realization that this would be a demanding and a rather tough journey.

And then I got an email informing me that my supervisor would be Anna Craft. First, I could not believe my luck. Anna Craft, whose book “Continuing professional development” (2000) I kept on my desk and used extensively for my study on continuing professional development of school leadership as part of my MA in education? Anna Craft, who is passionate about professional development of teachers and who is passionate about creativity, about “little c” creativity? And then I got scared.

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Our first phone tutorial made me feel immediately comfortable and relaxed. Anna was patient, calm, kind, perceptive and at the same time focused, observant and an amazing listener.

I have always thought that a real lady/gentleman makes other people around them feel as comfortable as possible. Anna made me feel comfortable. She laughed when I called her a lady. Many more face-to-face and phone tutorials followed and at each and every one Anna provided excellent conditions for me to learn, grow and develop. We had our tutorials while we were at different airports, in different cities, she in New York, I in Brussels, she in Iceland, I in Munich. Whenever it looked impossible to find any time slot due to our ongoing work commitments in different countries, we would think “outside the box” and come up with an innovative idea to overcome our challenges and then actively, consciously and intentionally take action: sending each other documents while on land and reading them while on the planes and then talking upon landing. It took me a while to realize that Anna is talking the talk and walking the walk: we were breathing, living and embodying “little c creativity”. Without realizing immediately how much I was modelling Anna, I started including elements of “little c creativity” in the continuing professional development modules I was delivering to educators and business leaders around Europe. Anna’s vision of “little c creativity” spread into the business world and led to a three-year professional and personal leadership development program/course for business and school leadership that, over the last 17 years, I have designed and delivered to more than 800 groups in ten European countries. Anna’s legacy lives on in every presentation of the leadership development program as well as in the higher education course on “Leadership Excellence” for undergraduate and postgraduate students in Slovenia. Anna’s legacy lives on ...

It is impossible for us to share the polyvocality of these generative and inspirational encounters with Anna. They do, however, offer a space to voice Anna’s legacy. Anna transformed the way we work with both theory and practice, through the concept of “creative learning”. Others who have followed in her footsteps privilege “creative learning” as a site of transformation by generating possibilities, as seen within Anna’s work. This forms just part of the assemblage of Anna Craft’s vision and legacy. Anna also opened up thought and new practices, rather than foreclosing, on “possibility thinking”.

A new pedagogy of “possibility thinking” (What if?)

Coming from the tradition of psychological research, opening up the question of how children develop as creative learners was another vision of Anna’s. She extended and developed the concept of possibility thinking and its role in creative learning and education as a whole (Burnard et al., 2006; Cremin et al., 2006, 2013; Craft et al., 2012). From an educational perspective, Anna considered “possibility thinking” as a particular dimension of and uniquely salient to “creative learning”. The question of “What if?” was, for Anna, implicit in the learner’s engagement with problems, as with the shift from “What is this and what does it do?” to “What can I do with this?” and to “What might it be?” Anna viewed everyday, or “little c”, creativity from the tripartite perspective of people or agents, processes and domains. Anna sug-

2. Tatjana Dragovic aured the reflections in text shaded boxes.

gested that nine features are necessary, which can be clustered into two overlapping sets of concepts; one being to do with the generative process itself, and the other to do with activity and outcomes. Following a validating study of “possibility thinking”, where observations allowed core areas to be identified in the context of children’s learning, Anna developed a model in which “possibility thinking” was theorized within the areas of process, process-outcomes and outcomes, as described in Figure 1.



Figure 1. Possibility thinking reconceptualized (Burnard et al., 2006)

The “What if?” question, which is central to possibility thinking, can only be formulated and answered by adopting new positions towards the problem at hand, by noticing not only how things *are* but also how they *can* or *should* be. Anna wrote “at the core of adaptability and flexibility, which the start of the twenty first century is demanding of people both young and old, is the notion of ‘possibility’” (Craft, 2001, p. 54). Another legacy of Anna’s was to identify and document not only *what* constitutes “possibility thinking” in the learning experiences of young children in the early years and primary education but *how* teachers foster “possibility thinking” as an aspect of creativity. By developing novel techniques of video-stimulated review and micro event analysis as revealing applications for pedagogic understanding, Anna and her research team were able to map the overlapping domains of

teaching and learning, seen in Figure 2 set within a wider circle. Here “possibility thinking” is set within the significance of the enabling context both in the classroom setting and in the wider school environment. These external and internal enabling factors clearly influenced and surrounded the playful endeavors of teachers and children.

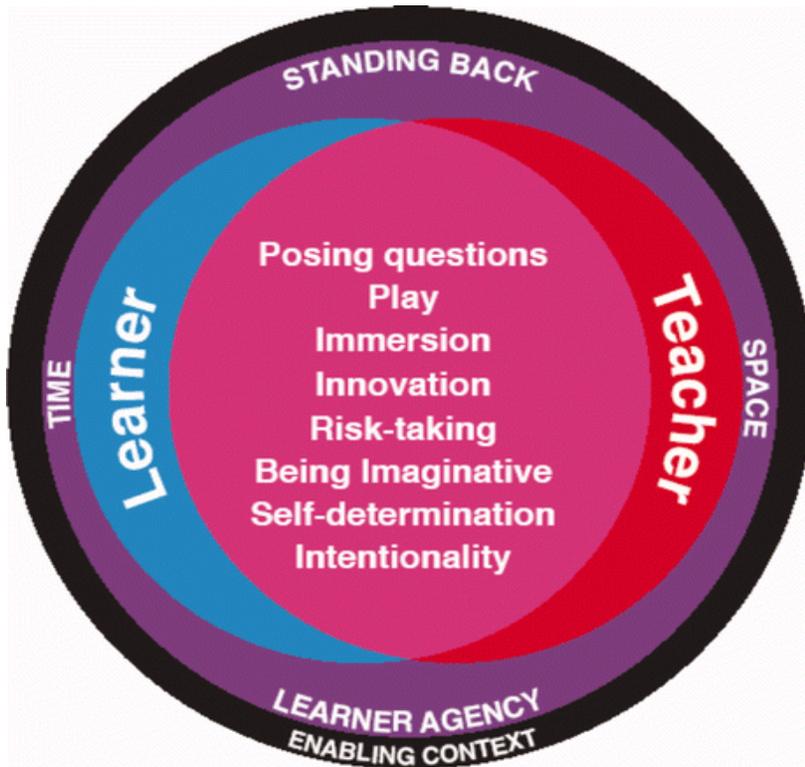


Figure 2: Pedagogy that nurtures “possibility thinking’ (Cremin et al., 2006)

In later studies the significant direction of Anna’s research on possibility thinking was further nuanced through evidence that pedagogy which fosters reciprocity between questioning, imaginative engagement and narrative during playful episodes foregrounds children’s perspectives, which have far more potency than those of adults. The potency of children’s perspectives in relation to question posing and narrative building was further evidenced in the European study Creative Little Scientists, exploring creativity in early science and mathematics. The first of two European projects, Creative Little Scientists (2011-14), looked at the potency of possibility thinking in enabling children to engage in social change that is both ethical and responsible. The EU project Creativity in Early Years Science Education (2014–17), which followed Creative Little Scientists, continued building on “little c creativity”,

defined as purposive, imaginative activity generating outcomes that are original and valuable in relation to the learner, and combined it with inquiry-based science education. Possibility thinking featured extensively in the training modules on fostering creativity delivered at three summer schools for 70 international teachers and teacher educators from 11 countries.

Anna Craft's conceptualization of "possibility thinking" was central to all of her work. What we still find illuminating and exciting about thinking with and practicing possibility thinking is how it makes visible the expression of creativity as a performative doing that constitutes ideas, question posing, and narrative building, and that seeks to undo rigid structures of how children and teachers engage in and are enabled through creativity.

Anna: From my supervisor to my colleague

I always looked forward to Anna's feedback on my "progress reports" as the Open University called them, i.e. our doctoral assignments. Every comment, every question Anna wrote made me think, made me want to go back to my assignment and elaborate, to re-read some articles, to expand and re-write my argumentation. Her tentative language patterns and gentle questions embodied curiosity, open-mindedness and flexibility, yet were stretching and sometimes challenging in a positive way. They always had a powerful immersive and inspiring effect on me and I would dive back into my writing and into reading additional literature. I asked Anna how she managed to strike the right balance between making me simultaneously feel safe and challenged so that I can stay in "flow", which Csikszentmihalyi (1990) defines as a state of deep absorption and immersion in an intrinsically enjoyable activity. She laughed. She said she modelled my coaching skills. I laughed. I did not think so.

Then she explained that all she did was pose open questions, become immersed in my study, take risks with some challenging comments and intentionally stretch my thinking, as she believed we are equal and can learn from each other. I was touched. Again, she made me think. I went back to all of my "progress reports" and re-read all Anna's comments and questions and discovered that she asked me "what if" questions multiple times, that she encouraged me to take risks in renaming some of the methodological approaches in my study, that she asked my opinion, that she stood back and let me decide what to do next and thus empowered me. Anna was using possibility thinking so elegantly and so spontaneously and I was blossoming as her student, as a researcher and as a practitioner. I wanted to know more, to experience more of possibility thinking, and to start using it as well. Anna invited me to become a member of the research team exploring phase 2 of possibility thinking. Together with Pam Burnard, Teresa Cremin, Kerry Chappell and Anna, we embarked on a wonderful collaboration.

And I got to know Anna as a colleague. She was humble and grateful, perceptive and focused, immersed and intentional. She listened and commented, she asked, "what if" and she was curious. She thanked us for our effort and for excellent work. I observed her in her role as a research team leader and I learned. I wished other leaders around the world had been like

that: driven yet filled with humility, determined yet open to listening. And I decided to include possibility thinking in my work as an educator, as a coach and as a team leader. I have been utilising it not only as a new pedagogy but also as a growth mindset (Claro et al., 2016). Anna's vision of possibility thinking being used and practiced in all educational settings and in wider society has been manifested in all 3500+ coaching hours I have carried out for educators, businesspeople, doctors and police around the world, as well as in accredited coaching training programs delivered in the last 15 years. Anna's legacy of possibility thinking is visible in the way I have been supporting undergraduate and postgraduate students in the UK, Finland, China and Slovenia since 2007. And I am only one of Anna's numerous doctoral students and only one of Anna's numerous research team members who have been touched and inspired by her. Imagine how many more are out there. Anna's legacy lives on ...

*You located,
removed us from finite,
folded a fixed map inside a bottle.
In writing, we hear your heart.*

Documenting progression in “creative learning” and creative pedagogies

Anna was an unrivalled possibility thinker when it came to researching the progression of children's creative learning. She was methodologically focused on her vision of creative learning and the assumptions implicit in the values and social purpose of creative learning. She was also concerned to address the challenge of documenting progression in creative learning and also to advance the continuing professional development opportunities for early years and primary educators. Anna furthered our understanding of creative learning from within and across primary and secondary curricula and classrooms. In this, Anna's work enabled the implementation of a creative curriculum that met the learning needs of all learners.

One study undertaken in four sites in England in 2005–06, funded by Creative Partnerships, a national development program, sought to explore how progression in creative learning could be described in two curriculum areas. The analytic framework which emerged from the study, and the key findings, focused on both learners and teachers. Here Anna and her research team advanced not only the concept and application of “creative learning” but its progression (Craft et al., 2006). Whilst some of this work built on her earlier conceptual accounts which explored possibility thinking as core to creativity (Craft, 2000, 2002; Burnard et al., 2006, Cremin et al., 2006), Anna identified that there had been little work focused on how *progression* (i.e. development over time of what children know, understand and can do) in creative learning might be conceptualized.

The progression in creative learning study investigated progression in musical and written composition and involved children aged four to fifteen

(in the language of the English education system, from what is known as ‘Foundation Stage’ to ‘Key Stage 4’³). The team of researchers, from the Open University, the University of Cambridge and Canterbury Christ Church University, in partnership with eight school-based practitioners in four school sites, three primary schools and one secondary school, worked in depth with a proportion of the children and a small number of teachers in each site. This study established new understandings of what constitutes “creative learning” through fine-grained analysis using a newly developed analytical framework that sought to understand, rather than to explain, how children’s learning journeys could be mapped and differentiated.

Also implicit in the study was a view of learning as increased competence, derived from the Harvard model of “teaching for understanding” (Wiske, 1998). At the heart of this model is the notion of learning/understanding as “performance”, meaning the capacity of a learner to go beyond reproducing knowledge, to applying it in new contexts. Thus, the view of learners implied in the Harvard model is increasingly competent persons. At this time, features of creativity had been conceptualized in the UK as shown in Table 1. It was Anna who took the emergent nature of the literature, as it was then, to further articulate the range of behaviours that characterize creative learning – particularly across key stages, with particular regard to the interrelationships between pupils’ and teachers’ stances. She shaped the Qualifications and Curriculum Authority’s (QCA) extension of the reach of creativities across the curriculum, as seen in the document *Creativity – Find it* (QCA, 2003), which presented creativity as a set of mental and attitudinal/behavioural qualities, identifiable in any learning activity and context (as shown in Table 1 in the following page).

This legacy has opened up some powerful new discourses of creativity with profound effects for practical implementation in education. The range of behaviours identified in Table 1 led to a more nuanced definition of creative learning:

significant imaginative achievement as evidenced in the creation of new knowledge as determined by the imaginative insight of the person or persons responsible and judged by appropriate observers to be both original and of value as situated in different domain contexts. (Craft et al. 2006, p. 77)

From here Anna continued expanding the vision of “creative learning” in school contexts, asking: What more could creative learning be and become? Anna saw that we needed a flexible and evolutionary definition that was rooted in stability (Craft, 2005, p. 5). The repeated themes included: 1. possibility thinking, 2. playfulness, 3 notions of identity and agency, and 4. the creation of something new. Anna continued to develop the concept of “creative learning” (Craft et al., 2008), saying: “creative learning involves significant imaginative achievement as evidenced in the creation of new knowledge” (p. 77).

Building on Anna’s legacy, Biddulph (2017, p. 261) provides detail of three children’s creative learning at home:

Creative learning manifests in diverse ways within diverse spaces in the communality of family life. It is rooted in difference and bound by cultural space. Within these spaces, diverse opportunities of uncertainty arise, through which children actively search for imaginative possibilities. These are informed by family culture and access to diverse resources.

<i>Imagination and purpose</i>	Imagination directed at achieving an objective	
<i>Originality</i>	Tackling questions, solving problems and having ideas that are new to the learner	
<i>Value</i>	Value in relation to purpose – judged through critical evaluation	
A range of behaviours		
<i>Questioning and challenging</i>	Asking why, how, what if? Responding to ideas, questions, tasks/problems in an unusual way	Asking unusual questions Challenging conventions and assumptions Thinking independently
<i>Making connections and seeing relationships</i>	Recognising the significance of knowledge or previous experience Generalising from information and experience, searching for trends and patterns	Using analogies and metaphor Reinterpreting and applying learning in new contexts Communicating ideas in novel or unexpected ways
<i>Envisaging what might be</i>	Imagining and seeing things in the mind's eye Asking "what if?" Visualising alternatives	Seeing possibilities, problems and challenges Looking at and thinking about things from different points of view
<i>Exploring ideas, keeping options open</i>	Playing with ideas, experimenting Responding intuitively, trusting intuition Keeping one's mind open, adapting/ modifying ideas with creative results	Trying alternatives and fresh approaches Anticipating and overcoming difficulties, following through ideas
<i>Reflecting critically on ideas, actions and outcomes</i>	Reviewing progress Inviting and incorporating feedback Making perceptive observations about originality and value	Asking "Is this good? Is this what's needed?" Putting forward constructive comments, ideas, explanations and ways of doing things

Table 1. Features associated with creativity (QCA 2003) and further advanced by Anna Craft (2006)

We easily identify Anna's legacy in Biddulph's new conceptual model which frames the vital importance of conceptualizing creative learning as situated

and culturally bound. In becoming more conscious of the migratory experiences of families and in knowing that there is often a disjuncture between home and school, Biddulph saw that creative learning attributes have synergies with intercultural learning. As such, creative learning can be pursued as intercultural by recognizing that, as children cross the spatial borders in their lives, there is creative learning.

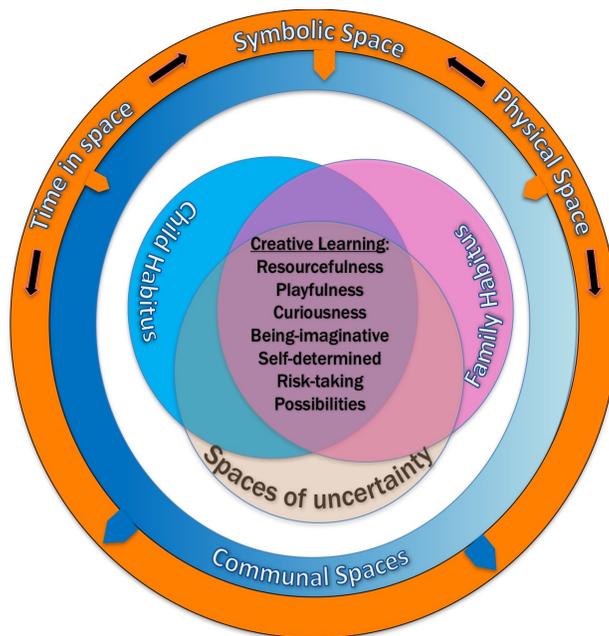


Figure 3: Conceptualizing creative learning in children's family homes (Biddulph, 2017, building on Anna Craft)

*Your wisdom in a glass bowl,
your 4 p's, the art,
the earth that joins us all.
In writing, we hear your heart.*

Wise creativity

Creative teaching, creative learning, and possibility thinking remain part of the assemblage of constructions in Anna's legacy of understanding creativity as a set of operational linkages. She also went on to describe ways of nurturing *creativity, wisdom and trusteeship* in education. This was the title of a book which Anna co-edited with Howard Gardner and Guy Claxton (Craft et al., 2007). The book has three points of departure: the concept of creativity, the concept of wisdom and the notion of trusteeship, each of which is set in the educational milieu of today and of the future.

Working with her close colleague and friend, Kerry Chappell, Anna further problematized the concept of “wise humanizing creativity” (WHC) as she emphasized the need for creativity which attends to the impact of actions and which is informed by empathy. WHC as a term was first coined and developed in a collaborative study called ‘Dance Partners for Creativity’. This project, led by Kerry Chappell, shed light on how the conflicting narratives of performativity and creativity may be navigated via wise, humanizing creativity which broadened the notion of what education is for and how it relates to society (Chappell, et al 2011, p. 158).

At the International Inclusive Education Conference held at the University of Zaragoza in 2014, Anna delivered a powerful keynote addressing the difference between wise, humanizing creativity and marketised creativity. Wise, humanizing creativity is focused on the collective, on ethics and on wider impact, whereas marketized creativity is more focused on competition/performativity (Craft, 2014). Drawing on the DPC research with Kerry (Chappell et al, 2011), Anna invited us all to think about how wise, humanizing creativity fuels quiet revolutions which are ethically driven and generated through shared identity and ownership, expression and empathy. Anna envisioned 21st-century classrooms as

spaces where multiple voice are both expressed and listened to. They are democratic and open spaces and therefore potent forces for quiet revolutions. They foster and enable trust, encourage and embrace uncertainty, generate empathy in co-construction. They are characterised by openness to diversity and dialogue, negotiative approaches and willingness to shift. (Craft, 2014, p. 12)

Anna: From my supervisor and colleague to my fellow human being

Anna asked “what if” I was to include a section titled “My personal account” into my thesis. I was hesitant. “It is personal, it is painful, it is intimate”, I said. “I know”, she said. “It is emotionally draining to even think about it, let alone write about it”, I said. “It is”, she said. “It is your experience, it is part of your study, and it is your participants’ experience”, she almost whispered. She was right. Yet, I was not certain I could do it. I was not certain academic rules would allow it to be included in the thesis. I was not certain I was ready to let go of it ... Deep down, I knew Anna was right. I was doing a professional doctorate in education because I wanted to achieve impact and improve my own professional context. I was a teacher in the midst of the Balkan civil war, my study participants were teachers in the midst of the Balkan civil war in another part of our former common country, and I knew I had to write “my personal account”. Anna fostered and enabled trust, encouraged me to embrace uncertainty and generated empathy. And I did it. I sent it to Anna. She called and we read it together and we cried together and we felt relief together. This was wise, humanizing possibility thinking in action. “Will they allow me to include it in the thesis?”, I asked. “What if you explain how vital this part is for

understanding your rationale?”, she added. “What if you explore that possibility?”, she smiled. Quiet revolution did happen and I kept “my personal account” in the thesis. There was “openness to diversity and dialogue, negotiative approaches and willingness to shift” (Craft, 2014, p. 12) at the Open University. We were both happy. We were two happy human beings. All I could think about was how much I would like my little boy, at any phase of his education, to be touched and inspired by someone with a big heart, someone like Anna.

Anna’s vision of wise, humanizing creativity and the 21st-century classroom is spreading around Europe through multiple conference presenters and presentations (the most recent ones were in March 2021 and again in June), our guest lectures on creativity for Spanish, Chinese and Slovene students, our work with the EdD (professional doctorate in education) students at the University of Cambridge, and my professional and personal development modules for teachers. Anna’s legacy is visible in the need for quiet revolutions in education, particularly in the current pandemic situation which exposed the lack of open and democratic spaces. Anna’s legacy lives on ...

*You cradled from shoulder to wrist,
the long flight after time,
nowhere far, nowhere near.
In writing, we hear your heart.*

Anna in multiple roles

Anna was the cofounder, along with Bob Jeffrey, of the British Educational Research Association Special Interest Group on Creativity and Education (later called Creativities in Education). Anna was the cofounder, along with Rupert Wegerif, of the *International Journal of Thinking Skills and Creativity*. Here contributors met with Anna’s inimitable ability to support, nurture, coach and encourage.

Anna was a key contributor to the Cambridge Primary Review Trust. Here we again met with Anna’s energy and commitment to improving the lives of children and redefining the role creativities play in the early years. She saw creativity as an everyday and lifelong dimension with problem finding, problem solving and possibility thinking at its heart.

Anna worked tirelessly balancing two appointments as professor of education at the Exeter and Open Universities, and as visiting professor at Harvard University’s Graduate School of Education. She came to define partnerships between schools, creative professionals and outside agencies from all subjects including science. One of her many successful bids was granted posthumously. The project Creativity in Early Years Science Education started less than a month after Anna passed away.

*You are a gift,
nowhere near, nowhere far,
a re-former, a transformer.
In writing, we hear your heart.*



Concluding thoughts on Anna Craft: An ongoing inspiration ...

Creative possible education futures and dialogic approaches were important to Anna, whose vision was to trigger seismic changes. She argued that classrooms of the future should be characterized by participation, playfulness, pluralities and possibilities (the 4 Ps), and that children and young people will bring to classrooms of the future the capacity to experiment and co-create, not only in response to change but also to catalyze it.

Anna wrote: “it is up to us as global citizens to work out when we really do need new solutions to new challenges, and what our own roles are in the seemingly unstopably shifting landscape of our interconnected lives” (Craft, 2015, p. 195). She also argued that creativity as a learning goal, as well as a desirable process through which learning may be conducted, is likely to remain a focus of research and a challenge for educators and researchers. Anna’s legacy is ongoing as it resounds in all of our work to develop wise creative educational futures and to nurture creative imagination toward what might be.

*Like a lighthouse
your precious life gave us this paper-boat world as birth-
right.
Stand amidst our dark house.
In writing, we hear your heart⁴.*

Notes

¹ Pamela Burnard authored the poems.

² Tatjana Dragovic authored the reflections in shaded text boxes.

³ The English education system, its curriculum, assessment and funding, is divided into five key stages:

- Foundation Stage (not compulsory): 3–5 year olds Key Stage 1 (compulsory): 5–7 year olds, or children Years 1 and 2
- Key Stage 2 (compulsory): 7–11 year olds, or children in Years 3, 4, 5 and 6
- Key Stage 3 (compulsory): 11–14 year olds, or children in Years 7, 8 and 9
- Key Stage 4 (compulsory): 14–16 year olds, or students in Years 10 and 11.

⁴ Pamela Burnard authored the poems.

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CHAPTER THREE

THE LIFE AND CAREER OF RESEARCH, EDUCATION, AND SERVICE OF BONNIE CRAMOND

KYUNG HEE KIM

Bonnie Cramond, Ph.D. Bonnie is Professor Emerita of Educational Psychology and Gifted and Creative Education at the University of Georgia and the former Director of the Torrance Center for Creativity and Talent Development. She is well-known for her research and speech on the identification and development of creativity, especially among at-risk students. But her proudest accomplishment is the empowering impact she has had on so many people's lives throughout the world.

Cramond first became interested in creativity while teaching 5th grade students at Woodland West Elementary School in Jefferson Parish, outside of New Orleans. She was a curious, passionate, open-minded, and playful teacher who inspired both good students and *troublemakers*. To her astonishment, the young troublemakers showed the greatest initiative when allowed creative self-expression. For example, teaching the amazing achievements in the Guinness Book of World Records inspired a group of troublemakers to create their own Book of School Records. They organized school competitions for new records and created novel categories, such as the fastest student to recite the alphabet backwards. They took initiative to write up and publish the findings. When the school district supervisors discovered what she had done for the students, they asked her to teach gifted students. While she was teaching the gifted students in the school district, she became very curious about the relationship between creativity and giftedness. She took a summer course on gifted and creative education at the University of New Orleans even though there were no requirements for teaching gifted students at that time. While studying creative students, she fell in love with the work of E. Paul Torrance, commonly referred to as *the Father of Creativity*.

Like Cramond, Torrance started his career as a teacher and counselor who worked with high school troublemakers, which led him to become a graduate student of psychology to better understand them. His teaching career was interrupted by World War II when he was assigned to work for the Air Force Survival Training Program as a research psychologist. During his assignment, he made his foundational discovery that both Air Force jet aces, the top performers, and the high school troublemakers were like *wild ponies*, nonconforming risk-takers, with a unique spark. He later realized this spark was creative energy. Cramond was inspired by Torrance's insights, seeing in

her elementary school troublemakers the same unique spark as in Torrance's jet aces and high school troublemakers. Their insights laid the foundation for both Torrance's and Cramond's lifelong passions, identifying and developing creative potential.

Cramond observed a key difference between Torrance's adult jet aces and her child troublemakers. While the aces were taught to harness their creative energy and redirect it to use for their passion, the troublemakers were labeled problems to be corrected by authority figures. Those insights inspired Cramond to start her graduate studies in Educational Psychology at the University of Georgia under Torrance's guidance. Like Torrance, she also developed her passion for helping all students identify, value, and nurture their own creativity while helping educators recognize and foster creativity in their students. She recognized their potential and sought to nurture it rather than suppress it.

Cramond's long and distinguished career as a leader in the study of human creativity started during her Ph.D. program. Since she earned her Ph.D., she has consistently demonstrated passionate dedication to the field not only as a researcher and teacher but also as a practitioner. She taught gifted students in middle school in Lafayette, Louisiana. Then she took a position as an assistant professor at the University of Southeastern Louisiana and then at Western Illinois University, teaching courses for gifted education and creativity. When Torrance retired, Cramond was encouraged to apply for her mentor's position because of her passion to continuing his legacy. She returned to the University of Georgia in 1989, whereupon she dedicated the rest of her life to raising awareness about the nature of creativity.

Cramond got to know first-hand Torrance's personal warmth and generosity. For example, he anonymously paid for student assistantships in his department, which no one knew about until after he retired. He left all his assets to the university and royalties from his books and tests to the Torrance Center. Like Torrance, Cramond was also one of the most generous of all my friends and acquaintances. She hosted international scholars and students and their families in her home during the Center's numerous events, and offered her heart and help to support her graduate students' needs. Because Torrance had no children, she took care of him in his later years, leading some nurses at the hospital to mistake her for his *mistress*.

During my time at the University of Georgia, where I earned my Ph.D. in Educational Psychology (2004), I was privileged to have Cramond as my advisor. She was by far the most inspiring of my teachers during 30 years of schooling in both Korea and in the United States. Before I met her, I lacked the confidence in my English skills as an international student to express my ideas. It was a priceless gift to have an advisor who was willing to take the time to help me and other foreign students overcome our language and cultural inhibitions. She was always a humble yet demanding teacher, honest and forthright in guidance, never afraid to tell us if we were off-track. Her teaching style combined relevant timely examples of her research and life stories, making her classes a fascinating experience, inspiring my continuing passion for research. Moreover, she recognized my unique spark and supported me personally and professionally until I developed a strong reputation in the field

of creativity. In my book, *The Creativity Challenge: How We Can Recapture American Innovation* (2016), I described my experience with her:

“I’ve never met anyone who is as open, funny, honest, and trusting as Cramond. She accepted who I was 100 percent—including my differences, mistakes, weaknesses, and failures. I was able to talk with her about anything including interests, research, relationships, emotions, finances, and anything else that was on my mind; she’s become my American mother! Under her guidance, for the first time, I realized research could relate to my real life, which made my research relevant, exciting, and fun for me.”

Cramond’s inspirational teaching was recognized by the College of Education’s Outstanding Teaching Award just as I was completing my studies at the University of Georgia. It was through her influence that I have realized my goal to be a researcher in creativity. Without her passion and inspiration, I would not have become a productive scholar and successful author in the field of creativity.

She maintains an interest in her students’ success long after we graduate, through the present day. Her life is filled with loved and loving students from all over the world with whom she stays in contact. After I left the University of Georgia for a job as an assistant professor, she became a trusted colleague who provided strong mentorship, an experience I share with countless others from the 40 years of her academic career, allowing her current and former students to seek her help any time. Many of her former students, scholars, and educators in the world have declared, without exaggeration, that Cramond changed their lives.

Cramond’s passion continued for her research on how to identify and foster creativity. She published or edited six books, 51 peer-reviewed journal articles, 30 book chapters, 13 book reviews, eight encyclopedia entries, and 23 bulletins, reports, conference proceedings, and newsletters on gifted education and creativity. Her greatest passion was for empowering individuals considered at risk because of their different ways of thinking, such as those diagnosed with emotional problems or ADHD (attention deficit/hyperactivity disorder), school drop-outs or troublemakers, and the disenfranchised. She became focused on how creative students are perceived and accepted. This led to her observation that students were labeled ADHD when they were, in fact, highly creative. She was fearful that the numbers of students on Ritalin, used to treat ADHD, was increasing, as high as 30% in some schools, and that many more students were on similar drugs in certain areas of the United States. This fear eventually led to her groundbreaking work, *Attention -Deficit Hyperactivity Disorder and creativity--What is the connection?* (1994) as well as *The Coincidence of Attention Deficit Hyperactivity Disorder and Creativity* (1995). She became the first researcher to establish a connection between creativity and ADHD, showing the similarities between descriptions of creative people and people diagnosed with ADHD. She found some highly creative students are diagnosed and often misdiagnosed with ADHD. Her fear that most educators aren’t taught to recognize creativity led

to her passion for teaching educators that the class clown, or those marching to a different drummer, often have high creative potential.

Her intense passion drove her to expand her campaign to identify and foster creativity beyond educators and scholars to parents and other adults. She took many leadership roles, among them, serving as the fourth Director of the Torrance Center for Creativity and Talent Development. Leadership in creativity research and education allowed her to make invaluable contributions to the world. Working as the Torrance Center Director while conducting scholarly research as a professor in the College of Education provided her with perfect vehicle for lasting impact. She worked indefatigably, managing an impossible schedule with a dedication to the Center's and her purposes of research, education, and service.

To fulfill the purpose of *research*, she facilitated and cooperated in creativity research, building on Torrance's work. Thanks to Torrance, the University of Georgia's rare book library has the largest collection of resources on creativity in the world. The library has attracted scholars from all over the world to conduct research. The Center collaborated with researchers nationally and internationally. Nationally, she led research collaborations through establishment of cooperative centers, such as with the Drexel Torrance Center at Drexel University, PA, Northern Illinois Torrance Center at Northern Illinois University, IL, and Creative Oklahoma Torrance Center, OK. Internationally, she established research collaborations between the Center and cooperative organizations in other countries, including Bahrain, China, India, Ireland, Japan, Malaysia, Portugal, Singapore, South Africa, Spain, Taiwan, Turkey, and United Arab Emirates. She also led the Visiting Scholars Program and hosted scholars from Turkey, Vietnam, Brazil, China, Korea, and Russia, Egypt, Portugal, Germany, and Finland.

To fulfill the purpose of *education*, she trained individuals worldwide on application of her research, how to identify and foster creativity, using the Torrance Tests of Creative Thinking. Her leadership established the Torrance Tests as the world standard for creativity measurement, which were translated into over thirty-five languages. In the field of intelligence, there are many intelligence tests providing a comprehensive assessment of intelligence. But in the field of creativity, only the Torrance Tests exist to provide a comprehensive assessment of creativity. She implemented and promoted Torrance's Future Problem Solving program globally. She established the Summer Institute for professional development, appointed a Visiting Board and an International Advisory Board for the Center, established networks of those interested in promoting creativity, and promoted the Torrance Annual Lecture Series that honors Torrance's legacy and brings the scholar or artist who significantly impacted many lives to the University of Georgia and give a speech about his or her creativity each year.

Also, to fulfill the purpose of education, Cramond developed the Graduate Interdisciplinary Certificate in Creativity and Innovation that enables cross-pollination across different fields, the sciences, technology, engineering, art, and math (STEAM). Her goal is to educate people to express creativity through any human endeavor, not just through art, as many people only think of creativity as expressed artistically. She aims to teach that cross-functional collaboration between people working in different fields, especial-

ly in STEAM, is exponentially beneficial. STEAM is where the biggest innovations from the juxtaposition of two or more fields happen. She urged STEAM specialists to explore new ideas with greater wonder and less skepticism. Her dedication to the Center's purpose of education, especially in interdisciplinary education, earned her a *Research Thought Leader* designation from the Innovation Collaborative, a national forum that fosters creativity, innovation and lifelong learning through research and effective practices.

Also, to fulfill the purpose of education, she has shared her expertise on identifying and fostering creativity at numerous workshop and conference sessions, at the local, national, and international levels. She has appeared on several TV shows and radio shows, nationally and internationally, especially in Asia, where she is regarded as the *Daughter of Creativity*. She has appeared in other non-print media, such as podcasts, CDs, and videos. In her home state of Georgia, she has taught creativity classes, seminars, and workshops to children, graduate students, educators, and parents. Ongoing contributions to the field include supporting school gifted programs and holding leadership positions in the Georgia Association for Gifted Children. She has been the keynote speaker at national conferences held in Georgia, Florida, Oklahoma, and Indiana, and at statewide conference in 11 different states. She conducted workshops at a national and statewide conferences more than a hundred times in sixteen different states. She has been an international speaker in over 40 countries, including six times in Korea, four times in Singapore, three times in Taiwan, twice in Malaysia, twice in China, twice in Barbados, and in Japan, Macao, Germany, Brussels, South Africa, Russia, and Finland. She also trained educators at numerous workshops and 16 conferences overseas, including Bahrain, Spain, Turkey, India, Korea, South Africa, Macao, Singapore, Denmark, England, Austria, Canada, Germany, Hong Kong, Australia, and Ireland.

To fulfill the purpose of *service*, the Center, under her leadership, established Saturday and summer programs for children, such as the Torrance Center Math Camp for children. She initiated collaboration with Duke University and the Talent Identification Program and developed the University of Georgia Programs for Gifted and Talented Youth for gifted middle and high school students. She has worked on many evaluation tasks of gifted programs of school systems, universities, and projects. After years of evaluating gifted programs, she worked with a colleague to develop a teacher training program designed to help schools implement more recent research-based teaching methods, and to make curriculum which meets gifted students' needs, rather than just serving the general student population.

Other service roles that she has played include journal editor and a member of the editorial board for many publications. These include: editor for *The Journal of Secondary Gifted Education* (2003–2007), on the editorial board for *Creativity Research Journal*, *Journal of Creative Behavior*, *Gifted Child Quarterly*, *Advanced Academics*, *Torrance Journal for Applied Creativity*, *Roeper Review*, and *Korean Journal of Thinking and Problem Solving* (2001–2004).

Finally, she has served in advisory capacities at the national level, as a member of the Board of Directors (2003–2009) and President's Education

Commission (2003–2006), both for the National Association for Gifted Children. For this Association, she served through committee leadership roles, as the Chair of Division of Research and Evaluation (1996–1998) and as a judge for the Torrance Graduate Student Research Award since 2004. Together with her colleagues or collaborators, she received nine grants totaling \$2,633,370 for projects that enhanced the fields of gifted education and creativity. As a leader in the field, she frequently met with legislators not only to advocate for funding for creativity research but also to help them understand the critical role that creativity plays in education and economic development. She served as a member of the advisory board for the American Creativity Association since 2012, on the advisory board for the Future Problem Solving Program International since 2010, the advisory board for the Global Center for Gifted and Talented Children, and as a member of the Japan International Creativity Society. Her lifelong mission to give back through service has left a deep and broad legacy of her achievements and contributions.

Cramond's contributions as a transformational leader in the identification and promotion of creativity have earned her many awards at the local, national, and international levels. Her dedication to gifted and creative education in the state of Georgia was recognized by many awards, such as Bynum Award (2008) and E. Paul Torrance Creativity Award (2004), both from the Georgia Association for Gifted Children. Her dedication to teaching and research was recognized by the University of Georgia, such as the Lifetime Achievement as a Researcher Award from the College of Education Alumni Association. She was recognized by many national awards, such as the Person of Significance Award National Society for the Gifted and Talented (2018), the Distinguished Service Award from the National Association for Gifted Children (2014), and The Paul Torrance Creativity Award from the Creativity Network of the National Association for Gifted Children (2009). Finally, she has received many international awards, such as the Torrance Lifetime Creativity Award from the International Conference on Knowledge, Innovation, and Enterprise (2019), the Yes Award from the Future Problem Solving Program International (2014), the Lifetime Beyond Award from the South African Creativity Foundation (2013), and the Global Panel Appointee Award from the Singapore American Institute of Innovation & Entrepreneurship (2012).

For the past 40 years, Cramond has tirelessly dedicated her life and career to fulfillment of the Torrance Center's and her purposes, spreading Torrance's legacy and her own research findings around the world while enhancing the Center's reputation as the pioneer in research on creativity and evidence-based practice. It is very rare to find someone who is both a serious theoretical researcher and a compassionate practitioner such as Cramond. Her lifetime dedication has changed many individuals' lives, especially those of troublemakers like me, in such a way that I had never thought possible. She serves as a symbol that one person can change not only the academic world but also the real world for the better. She has left footprint on my life, earning my lifelong gratitude, which I will continuously pay forward.

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CHAPTER FOUR

DR. DAVID CROPLEY “CREATIVE” OVERVIEW

KRISTEN BETTS & MADISON BETTS

One of the great giants and trailblazers in creativity research, engineering, and STEAM (Science, Technology, Engineering, Arts, Mathematics) education is Dr. David Cropley. To fully understand the extensive contributions by David, this chapter provides a “CREATIVE” overview of his academic background, research, and professional accomplishments: **C**-Creativity, **R**-Research, **E**-Education, **A**-Accomplishments, **T**-Teaching, **I**-Innovation, **V**-Villainy, and **E**-Enduring Contributions. This chapter also highlights the dynamic relationship that David has with his father Dr. Arthur Cropley, with whom he has many seminal creativity publications.

David was born in South Australia in Adelaide to Arthur and Alison Cropley. He excelled in school as well as athletics throughout his formative education and higher education. David graduated from The University of Salford and went on to earn a doctoral degree from the University of South Australia. One of the profound figures in David’s life was his father Dr. Arthur Cropley, who is recognized for his contributions to creativity research, education, and learning. While David’s career is expansive from teaching and publishing to television, his contributions do not stop with this chapter since he is still actively engaged in creativity research with more contributions forthcoming.

Creativity

David Cropley’s involvement in creativity research began by accident. As shared by David, he was asked as a young lecturer while at University of South Australia to assist in developing a new, first-year course as well as other initiatives that focused on engineering creativity and innovation (Cropley, 2012). David decided it was best to reach out to an expert in creativity who could provide insight and guidance. Professor Arthur Cropley, who was teaching at the University of Hamburg, was ideal. David was aware of his father’s research within this area growing up; however, this connection served as a catalyst for David’s work within creativity as well as many collaborative studies and publications with father, Arthur.

David defines creativity as the “generation of effective novelty.” To make creativity a habit, David says there are three necessary things: *opportunity*, *encouragement* and *reward* (Vukovic, 2020). When it comes to creativity and products, David shares that creative products need to be *new* and *surprising* since they must respond to real-world problems (Jarrett, 2020).

Therefore, engineers need to be creative to address an array of technological problems in a dynamic and ever-changing society in which innovation is the driver of modern economies (Cropley, 2012).

Research

David Cropley's research contributions are diverse and extensive. His research and publications expand creativity and innovation within engineering, education, and organizations. David's ability to bring a critical lens to essential topics have brought him global recognition as both a giant and trailblazer in creativity research. Intriguing titles such as *Creativity and Malevolence*; *Creativity and Crime*; *Fifty-Shades of Creativity*; *Ethics and Creativity*; and *Aesthetics and Creativity* as well educational titles such as *Supporting Creative Teaching and Learning in the Classroom*; *Creativity in the Engineering Domain*; and *Teacher Implicit Beliefs of Creativity*, reveal David's breadth of research across fields of study and his ingenuity in capturing the attention of his readers.

David is a prolific author. Figure 1 highlights various books in which David was an author or co-author. Appendix A includes a full list of all his published books with sample book chapters, articles, and research projects. To access a full list of David's publications, visit the ORCID website <https://orcid.org/> and type in David Cropley.

Figure 1: Sample Books Published by Dr. David Cropley



Education

David Cropley completed primary education in Adelaide, South Australia. He completed secondary education in Kinloch Rannoch, Scotland. From a young age, David excelled in the sciences, finding physics especially interesting. His favorite subjects included not only physics, but also languages (French and Germans) and music. He completed high school successfully after specializing in mathematics, chemistry, physics and music, also winning a scholarship from the Royal Navy that would see him begin officer training on graduating.

David completed a Certificate of Naval General Training from Britannia Royal Naval College after finishing secondary school. He then enrolled in the University of Salford and graduated with a Bachelor of Science

in Applied Physics and Electronics. Just three years after completing his undergraduate degree, David enrolled at the University of South Australia where he completed a Doctor of Philosophy in Measurement Systems of Engineering. As a passionate lifelong learner, he completed a Graduate Certificate in Higher Education from Queensland University of Technology. Figure 2 provides an overview of the institutions that David attended.

Figure 2: *Institutions Attended by Dr David Cropley*



Accomplishments

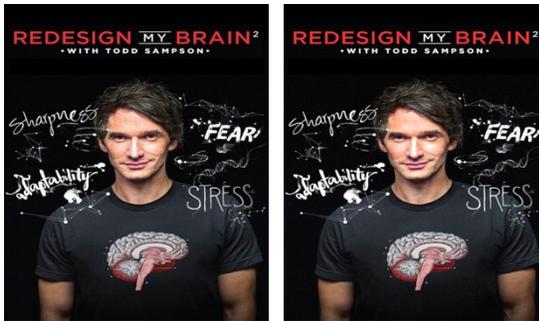
David Cropley's accomplishments range from education and television to sport. David is a renowned professor, researcher, and author. Throughout his career, David has been actively engaged as a speaker, facilitator, and member of many boards and associations. David is also iconic as an expert for television programming and as an actor. Within sport, David has won numerous awards in indoor rowing as well.

David's accomplishments as a professor and researcher within creativity, innovation, engineering, and STEAM education are best captured in his extensive publications. David has over 100 publications to date, including books, chapters, and articles with many publications forthcoming. Within higher education, David has received distinguished awards for his work, including the Excellence in Innovation Award from Indira College of Engineering and Management; Innovation Arabia 10 Best Paper Award by Hamdan Bin Mohammed Smart University; and Endeavour Executive Award from the Australian Government's Department of Education, Employment and Workplace Relations.

Throughout his career, David has been active as a co-editor, editorial board member, reviewer of distinguished journals, and a member of numerous professional associations worldwide. David's work with journals include: the Journal of Creative Behavior (editorial board member, reviewer); International Journal of Creativity and Problem Solving (co-editor); Thinking Skills and Creativity (editorial board member); Elsevier (editorial board member); Psychology of Aesthetics, Creativity, and the Arts (editorial board member); and American Psychological Association (editorial board member). Highlights of his professional memberships include the Institute of Electrical and Electronics Engineers (IEEE), United Kingdom's Naval Review, and Institute of Physics, London.

While David is recognized within engineering and education, he is also widely known for his work within television. David served as a scientific consultant and on-screen expert for the award-winning TV documentary, *Redesign My Brain*, Series 1 and 2 with Todd Sampson, which is part of the Australian Broadcasting Corporation. The *Redesign My Brain* series had over 1.25 million viewers in Australia, United States, and United Kingdom (see Figure 3). David was an on-screen expert for the TV documentary *Life at 9* with the Australian Broadcasting Corporation. David has also had featured roles in *The Champ* (Short Film), *ANZAC Girls* (ABC TV), *Danger 5* (SBS TV), and *Changed Forever* (History Channel).

Figure 3: *Redesign My Brain Series which Features David Cropley's Research*



David's talents go beyond academia to sport. He was a high achieving indoor rower. David set two world records in indoor rowing in his age group for a 24-hour tandem row and for a tandem 100km row.

Teaching

David Cropley is passionate about teaching. He serves as a Professor of Engineering Innovation at the University of South Australia. David teaches systems engineering, research methods, and creativity and innovation in undergraduate and postgraduate programs. Courses that he has taught include a range of topics in electronic engineering, and more recently:

- ENGG 5031 Principles of Systems Engineering
- ENGG 3006 Design Management for Engineers

In addition to teaching, David delivers training and education to organizations worldwide in creativity and innovation. He has been at University of South Australia since 1990.

Innovation

Understanding the process of innovation is an important part of David Cropley's research. This is evident through his publications, projects, and awards. Much of David's collaborative work with Arthur Cropley has focused on exploring how creativity drives the process of innovation. According to David:

...to understand and improve innovation, we need to understand the processes by which ideas are generated and exploited, the people who generate the ideas, the organisational climate (or *press*) that can foster or inhibit the generation and exploitation, and the things themselves (the products) that are created. (Cropley, 2012, para. 11)

In 2015, David co-authored with Arthur, *The Psychology of Innovation in Organizations*. This book provides methods for conceptualizing and managing organizational innovation. In this book, David and Arthur present a model of the interactions between four key components of creativity: product, person, process, and press. The book also examines environments that facilitate innovation with both outcome benefits and process benefits for organizations as shared in Table 1.

Table 1: *Examples of Specific Benefits of Innovation for Organizations, The Psychology of Innovation in Organizations (Cropley & Cropley, 2015)*

Outcome Benefits	Process Benefits
<ul style="list-style-type: none"> • Increased productivity • Competitive advantage • Increased demand • Improved export performance • Increased revenue • Greater profitability • Improved ability to attract investors • Greater ability to attract high-quality staff 	<ul style="list-style-type: none"> • Better response to crises • Improved planning • A more satisfied workforce • A more intrinsically motivated workforce • Better teamwork and collaboration • Improved organizational citizenship • Reduced staff turnover

The breadth of David’s work in innovation is extensive, including positive innovation, negative innovation, malevolent innovation, digital innovation, entrepreneurship innovation, business innovation, innovation management, organizational innovation, lethal innovation, ethical innovation, innovation capacity, and value innovation.

Villainy

David Cropley has spent much of his career researching the concept of functional creativity from the lens of malevolence. This area of interest began following the September 11, 2001 attacks. According to David, he wanted to better understand the domain of terrorism through the four factors of functional creativity to support the counter-terrorism community in using creativity to their advantage (Cropley, 2012, para. 8). David co-edited *The Dark Side of Creativity* with Arthur Cropley, James Kaufman, and Mark Runco, which includes chapters from lead experts in creativity research. Appendix B shares articles and book chapters by David and colleagues that have focused on malevolent creativity.

David has continued his research in malevolent creativity. In the November 2020 article, “Recognise the Creativity Behind Crime, Then You Can Thwart It”, David provides detailed insight into malevolent creativity. In reflecting on stopping malevolence, David states in the article:

We will probably never entirely stop malevolent creativity, whether in the form of terrorist attacks, internet scams or sophisticated fraud. But we can use our scientific knowledge of creativity to make life as difficult as possible for any would-be malevolent creator. (2020, para. 19)

David’s work in this area has greatly contributed to expanding creativity research and to thwarting malevolence worldwide.

Enduring Contributions

David Cropley is recognized for his many contributions to creativity ranging from creativity concepts and models to creativity instruments. His collaborative work with Arthur Cropley in functional creativity has been catalyst to proactively building creativity into product development in engineering.

David, James Kaufman, and Arthur Cropley collaboratively developed the Creative Solution Diagnosis Scale (CSDS). This creativity instrument started with 30 items across the four factors and has been refined to 27 items (Cropley et al. 2011). The CSDS does not require any special training in the assessment procedure so it can be used by non-experts. Furthermore, Cropley et al. (2011) share that the CSDS:

...offers product innovation management an important new tool for formulating highly differentiated measures of product creativity that can be used in the development of new products both as a means for stimulating and enhancing creativity and as a diagnostic tool in the process of selecting product ideas. (p. 26)

David is a passionate advocate for integrating creativity into K-12 curricula and STEAM. His publications provide critical insight to support teachers and curriculum specialists with understanding creativity as a lifelong skill for all students. In an interview with *Teacher Magazine* in 2020, David speaks about the importance of creativity being spread across curricula and finding more concrete ways to foster creative capabilities as a “habit.” When asked by the interviewer, Rebecca Vukovic, “How can education systems and schools foster students’ creative capabilities?”, David responded:

... when we think of creativity as a habit, there are three things that are necessary that I just mentioned – opportunity, encouragement and reward. So as we embed creativity across the curriculum, if we take that concept of creativity as a habit, as a kind of guiding principle, and the need for the *opportunity* to be creative across different subjects, and then when children in the classroom show that they’re making use of those opportunities, that they get the *encouragement*, and when they do things that are actually crea-

tive, that they get some kind of recognition and *reward* – that's the essence or it's the first important step in fostering creative capabilities at the school; this idea that it's a habit, that kids need opportunity, encouragement and reward, and that it's really the job of the teachers to sort of guide that and create that. And what the teachers do in the classroom themselves, of course, is as important as what's in the curriculum. So the teachers are also constantly demonstrating what it looks like for a person to be open to new ideas and flexible and able to think divergently and so on. (2020, para. 22)

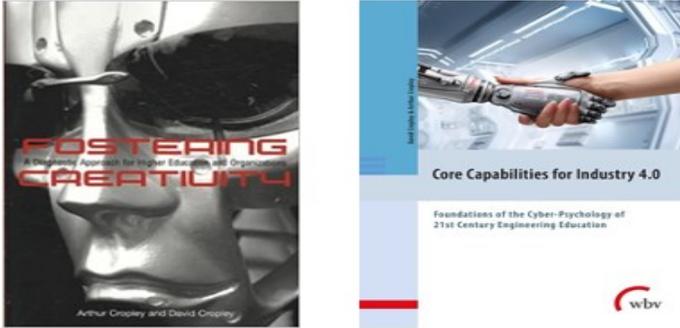
David's continued work within K-12 education and STEAM is transforming how educators view the importance of creativity in teaching and learning.

David is also recognized as an outstanding speaker. He presents worldwide on innovation and creativity, education, sport and health, and motivation (Celebrity Speakers, 2021). There are many open-access videos online through YouTube in which David speaks on creativity topics such as Great Expectations; Innovation = STEM + Creativity; Managing Creativity and Innovation; Strategic Innovation; and more. David is actively engaged in creativity, engineering, and STEAM conferences as a keynote speaker, panelist, and session presenter. He is also an invited speaker across higher education institutions and K-12 schools globally.

Conclusion

This CREATIVE overview of David Cropley's career and contributions truly demonstrates that he is one of the great giants and trailblazers in creativity research, engineering, and STEAM education. While his work in creativity may have occurred by accident, David has spent his career committed to creativity research and collaboration. His work with his father, Arthur, early in his career has been foundational to his research and continued contributions. David shares five co-authored books with Arthur with the first publication in 2009 entitled *Fostering Creativity: A Diagnostic Approach for Higher Education and Organizations* and the latest publication in 2021 entitled *Core Capabilities for Industry 4: Foundations of the Cyber-Psychology of 21st Century Engineering Education in 2021* (see Figure 4, next page).

Figure 4: *Fostering Creativity: A Diagnostic Approach for Higher Education and Organizations* (2009) and *Core Capabilities for Industry 4.0: Foundations of the Cyber-Psychology of 21st Century Engineering Education* (2021)



What is most exciting about David's career is that while the text will end at the conclusion of this chapter, his research and enduring contributions will continue. David's translational research, publications, and presentations will continue to touch the lives of those who seek to learn about creativity and innovation. Readers are encouraged to follow his forthcoming contributions through Orchid and University of South Australia's webpage on David Cropley: <https://people.unisa.edu.au/david.cropley>. Readers can also look for David at future conferences and events. This chapter concludes with comments by David from an article he published in 2012 that are as inspirational today as they were approximately a decade ago:

The field of creativity, while not unique in this respect, is certainly one that offers a broad range of opportunities for interdisciplinary research. My own experience of combining engineering and technology with psychology has opened up exciting perspectives, and the field of creativity is one in which I see unlimited possibilities. (David, 2012, para. 13)

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Appendix A

Sample Publications

Books, 2009-2021

Cropley, D. H., & Cropley, A. J. (2021). *Core capabilities for Industry 4: Foundations of the cyber-psychology of 21st century engineering education*. wbv Media.

Cropley, D. H. (2020). *Femina problematis solvendis-Problem solving Woman: A history of the creativity of women*, Springer.

Cropley, D. H., & Cropley, A. J. (2019). *Die schattenseite der kreativität: Wie kriminalität und kreativität zusammenhängen - eine psychologische analyse*, Springer.

Cropley, D. H. (2019). *Homo problematis solvendis-problem solving man: A history of human creativity*, Springer.

Cropley, D. H., & Cropley, A. J. (2018). *Die psychologie der organisationalen innovation: Eine einföhrung für föhrungskräfte*, Springer.

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Sample Chapters in Books from 2019-2021

Xing, K., Cropley, D. H., Oppert, M. L., & Singh, C. (2021). "Readiness for digital innovation and industry 4.0 transformation: studies on manufacturing industries in the city of Salisbury", in M Kosaka et al. (eds), *Business Innovation with New ICT in the Asia-Pacific: Case Studies*, Springer, Singapore, pp. 155-176.

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Cropley, D. H., & Patston, T. J. (2019). "Supporting creative teaching and learning in the classroom: myths, models, and measures", in CA Mullen (eds), *Creativity under duress in education? Resistive theories, practices, and actions*, Springer, pp. 267-288.

Cropley, D. H. (2019). 'Do we make our own luck? Reflections on Ernst Mach's analysis of invention and discovery', in V.P. Glaveanu (ed.), *The creativity reader*, Oxford University Press. pp. 219-234.

Cropley, D. H. (2019). "Inspiration or perspiration? Reflections on Edwin Prindle's the art of inventing", in V. P. Glaveanu (eds), *The creativity reader*, Oxford University Press, pp. 49-72.

Sample Journal Articles from 2019-2021

Patston, T. J., Kennedy, J. P., Jaeschke, W., Kapoor, H., Leonard, S. N., Cropley, D. H., & Kaufman, J. C. (2021). Secondary education in COVID lockdown: more anxious and less creative-maybe not?, *Frontiers in Psychology*, 12(391), pp. 1-14.

Cropley, D. H. (2020). Applying quality function deployment to the design of engineering programmes: approaches, insights and benefits, *Australasian Journal of Engineering Education*, pp. 1-14.

Karwowski, M., Gralowski, J., Patston, T., Cropley, D. H., & Kaufman, J. (2020). The creative student in the eyes of a teacher: a cross-cultural study, *Thinking Skills and Creativity*, pp. 1-32.

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Sample Projects from 2012-2021

Investigating the impact of a multi-level multi-scale model of data informed professional learning to support whole-of-college change: An establishment project, Trinity College Gawler, 28/02/2020 - 28/02/2021

Teacher Attitudes to Creativity, Geelong Grammar School, 01/03/2017 - 30/09/2020

Innovation Assessment Tool - Scoping Study, Cwth Dept of Defense, 21/06/2016 - 30/08/2016

System competency measurement and accelerated development, Defence Science & Technology Organisation, 02/10/2013 - 15/12/2014

Development of a competency and aptitude framework for systems engineers, Defence Science & Technology Organisation, 01/09/2012 - 30/10/2013

Appendix B

Sample Publications Related to Malevolent Creativity

Cropley, D. H. (2016). Lethal innovation: The nexus of criminology, war and malevolent creativity, in .R McGarry & S. Walklate (eds.), *The Palgrave handbook of criminology and war*, Palgrave MacMillan, pp. 347-366.

Kapoor, H., Tagat, A., & Cropley, D. H. (2016). Fifty shades of creativity: Case studies of malevolent creativity in art, science, and technology, in FK Reisman (ed.), *Creativity in arts, science and technology*, London, UK: KIE Conference Publications, pp. 25-44.

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creativity, Edward Elgar Publishing Ltd, pp. 185-195.

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CHAPTER FIVE

MIHALY CSIKSZENTMIHALYI: FLOWING INTO CREATIVITY

SUSAN BATASTINI

ABSTRACT: Csikszentmihalyi may be best known for his theory of flow, a highly focused mental state, (Csikszentmihalyi, 1990) but he has contributed to the field of psychology and creativity in so many other diverse and unique ways. This chapter will explore his early background, summarize his most influential work and vast array of contributions in the field, and focus in on a handful of his most compelling concepts that has made him one of the leading pioneers in the field of positive psychology and creativity. Csikszentmihalyi portrays creativity as an interaction between the three factors of the individual, the field and the domain (System's Model) and stresses the importance of the concepts of flow, self-discovery, an autotelic personality and intrinsic motivation in the pursuit of happiness.

Keywords: Creativity, flow, autotelic personality, Systems Theory, intrinsic motivation, positive psychology, happiness, self-discovery.

Introduction

“Happiness does not simply happen to us. It’s something that we make happen”

- Mihaly Csikszentmihalyi (2004, p. 34)

Mihaly Csikszentmihalyi, a Hungarian-American psychologist, has impacted the field of psychology and creativity in profound ways. His best-selling book, *Flow: The Psychology of Optimal Experience* (1990) reviews how this highly focused mental state is not only conducive to productivity but allows an individual to enter a place where they feel a sense of great enjoyment, purpose and meaning. His intentions in writing *Flow* were to offer insight on cultivating happiness that he learned from researching when individuals felt the most enjoyment. Today,



his book has sold over 4 million copies and it continues to draw much attention among both the public and professional audiences.

Csikszentmihalyi also has several other publications in the field of positive psychology and is acknowledged for his work in highlighting human strengths such as optimism, creativity, and intrinsic motivation. He continues his research and teaching as a Claremont Graduate University's Distinguished Professor Emeritus of Psychology and Management and his work as the founder and co-director of the Quality-of-Life Research Center (QLRC), which is dedicated to research in these most significant areas of self-discovery.

Early Signs of Flow and Optimism

The Encyclopedia of World Biography (2006) gives a brief yet important summary of Mihaly Csikszentmihalyi's early life including pivotal events that clearly had an impact on his future research and teachings. Mihaly Csikszentmihalyi was born September 29, 1934 in Rijeka, Croatia (which was then part of Italy). His family was Hungarian and his father was a career diplomat who was appointed Hungarian Ambassador to Italy shortly after World War II before resigning to avoid working for communists who took over Hungary in 1948.

During the time of the war, Mihaly was a child and his life became quite disruptive as he was held in an Italian prison camp. Although an obvious difficult and challenging time, it was there that he was introduced to the game of chess and he found the game to be an excellent way to divert attention away from the challenges around him. In an interview, Csikszentmihalyi related:

Although maybe not aware of it at the time, but Csikszentmihalyi's introduc-

"I discovered chess was a miraculous way of entering into a different world ... for hours I'd just focus within a reality that had clear rules and goals" (Sobel, 1995, January). Interview: Mihaly Csikszentmihalyi. *Omni*, 73-90).

tion to the game of chess under those challenging circumstances probably constituted one of his early representations of experiencing his most influential and future concept of flow. Furthermore, as he moved into young adulthood, Csikszentmihalyi found yet another activity to be of high interest and that was painting. He discovered that painting was an addictive and enjoyable activity where creative work could be produced; another example of flow rearing itself early in his life. Influenced by his artistic interest, many of his observations and studies around creative individuals involved artists.

Another pivotal event in Csikszentmihalyi's young life was a chance interaction with Carl Jung at the early age of sixteen. Csikszentmihalyi met Jung at one of Jung's speaking events in Switzerland and this interaction had a profound impact on him. Just as Csikszentmihalyi was trying to find a system to better organize his life Carl Jung was speaking about the importance of more positive aspects of human experiences. This interaction no doubt im-

pacted many of Csikszentmihalyi's future interests in positive psychology including his work around self-discovery, optimism, and the pursuit of happiness.

Learning that the field of psychology was more established in American universities, Mihaly focused on applying to an American institution where he could further his education. He immigrated to the United States at age twenty-two and began his college degree at the University of Chicago. Soon after he graduated from the same university with his B.A. and Ph.D. (1965) degrees in Psychology and became a U.S. citizen in 1968. He returned to the University of Chicago in 1969 as a professor and remained at there until 2000. During his time as a professor, he continued to focus on his research and teaching in positive psychology (Encyclopedia of World Biography, 2006).

The Flow State

“Whenever the goal is to improve the quality of life, the flow theory can point the way.”

- Csikszentmihalyi (1990, p. 5)

Csikszentmihalyi used the term “flow” in a 1988 collection of essays, *Optimal Experiences: Studies of flow in consciousness* that he co-edited with Isabella, his wife. On the heels of that collection of essays, *Flow: The Psychology of Optimal Experience* was published in 1990. Although Csikszentmihalyi did not have a goal to become well-known and famous, that changed quickly when his book appeared on the bestseller list and has now sold over 4 million copies. The impact of his book on the concept of flow was incredible and demonstrated an increasing impact outside the academic arena – moving into the realms of popular culture, professional sports, business and politics (Nakamura & Csikszentmihalyi, 2002).

Flow can best be described as a peak experience, losing one's self or being in the zone (Csikszentmihalyi, 1990). It is the intrinsic reward for going after a challenging goal where there needs to be an optimal match between the challenge of the problem and an individual's own skills. He further characterized flow as the balancing of boredom and anxiety (Csikszentmihalyi & Rathunde, 1993).

Csikszentmihalyi (2002) also concluded that there are individuals who have developed their flow to such a great extent that they are even able to translate potential threats into an enjoyable challenge, all while maintaining an inner tranquility of the mind. This person can be described as an autotelic self which is discussed in more detail in the next section.

Csikszentmihalyi spent a significant amount of time investigating the nature of enjoyment and the concept of flow by interviewing several individuals (chess players, rock climbers, dancers) who stressed enjoyment as the main reason for pursuing and persisting in an activity (Csikszentmihalyi, 2000). The conclusion of his findings was that there were general characteristics of optimal experience and similar conditions were present across both work and play environments.

The flow conditions that were present in Csikszentmihalyi's finding included:

Further studies in the arts and sciences (Csikszentmihalyi, 1996), aesthetic experiences (Csikszentmihalyi & Robinson, 1990), sport (Jackson 1995, 1996) and literary writing (Perry, 1999) confirmed the original account

1. Perceived Challenges
2. Clear Goals & Immediate Feedback
3. Intense & Focused Attention
4. Merging of Action and Awareness
5. Loss of Reflective Self-Consciousness
6. Sense of Controlling One's Actions
7. Distortion of Temporal Events – Experience of timelessness
8. Being Involved in an Intrinsically Rewarding Experience

of the flow state that Csikszentmihalyi described and the experiences were found to be the same across lines of culture, class, gender and age (Nakamura & Csikszentmihalyi, 2002).

Csikszentmihalyi also asserted that flow does not necessarily require extensive commitment such as in a sport or musical or artistic endeavor, but can also be achieved by many other activities such as reading, eating or even having a conversation with a friend. What does seem to be required is: Intense concentration and attention and these are defining qualities of flow. Remaining in flow requires attention be held and intrinsically rewarding, leading to the individual to continue to identify and progressively engage in complex challenges in order for deepen enjoyment to be present (Nakamura & Csikszentmihalyi, 2002).

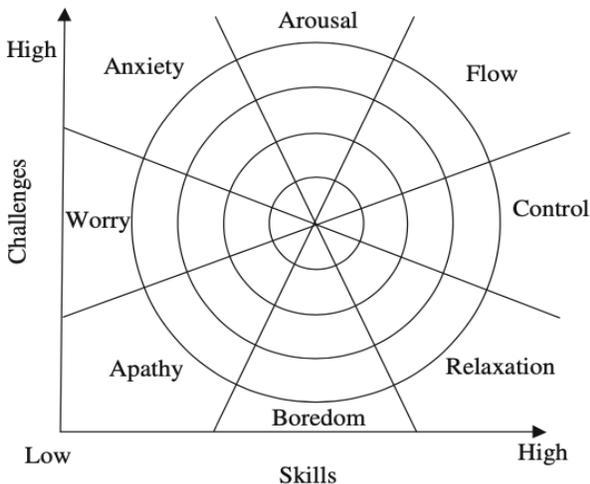


Figure 1: Adapted from Csikszentmihalyi (1997)

The model of the flow state is where flow is experienced when perceived challenges and skills are above an individual's average levels.

Csikszentmihalyi's research on flow continues to contribute knowledge to several topics that are of significant importance to positive psychology and highlights the phenomenology of optimal experience and long-term happiness which will be explored later in further detail. Still today, after several decades of being introduced, the concept of flow remains highly visible among many diverse audiences, including academia and the public sector. One thing is clear and that is whenever the goal is to improve one's quality of life, the flow theory can point that way.

Flow and the Autotelic Personality

“Autotelic persons are attracted to goals that require effort to achieve; those that prefer relaxation are not”

- Nakamura & Csikszentmihalyi
(2002, p. 257)

Csikszentmihalyi described a personality type found within an individual who possesses flow as one with an autotelic personality or a person who “generally does things for their own sake, rather than in order to achieve some later external goal” (Csikszentmihalyi (1997, p. 17). These individuals have competencies such as a general curiosity and interest in life, persistence, and low self-centeredness; all of which enable an individual to enter and stay in flow.

Csikszentmihalyi felt that a good life was characterized by complete absorption in what one does and his flow research and theory originated in the desire to understand this phenomenon of intrinsically motivated or autotelic activity: Activity rewarding in and of itself (Nakamura & Csikszentmihalyi, 2002). This experience stood apart from any extrinsic reward that an individual may receive or be motivated by.

Csikszentmihalyi (1996) related that a successful creator was almost obsessive in their perseverance and defined this individual with an “autotelic” personality (two Greek roots: auto – self and telos – goals). He further related that because creative individuals direct themselves toward a goal, they have incredible amounts of energy for their work with great perseverance (Csikszentmihalyi, 1997). It is inevitable that creative individuals will encounter obstacles when working towards their objectives and at times they have to work against the popular vision and what everyone else is doing. This is where perseverance is noticed and has an obvious connection to the concept of flow

Csikszentmihalyi (1996) summarized five main ways in which an individual is able to cultivate one's self into an autotelic person and it is clear how these five components relate closely to the ingredients needed for flow.

1. Setting goals that have clear and immediate feedback
2. Becoming totally immersed in a particular activity
3. Paying full attention to what is happening in the moment
4. The enjoyment of an immediate experience
5. Considering one's skills to the challenge at hand

The Systems Model

Creativity occurs in an interaction between a person's thoughts and a sociocultural content.

- Csikszentmihalyi (1997)

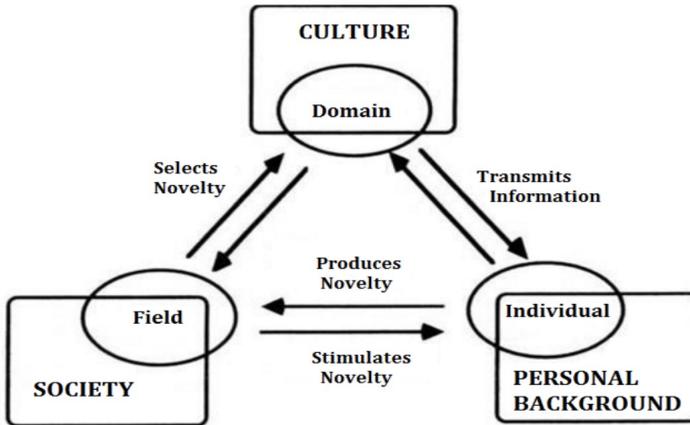
Feldman, Csikszentmihalyi, and Gardner (1994) were all interested in the interactionist orientation of the social context of creativity. Their framework, the Domain-Individual-Field Interaction (DIFI) indicated that there are three important subsystems that must interact to generate a creative product. Csikszentmihalyi (1990) referred to "flow" when each component of the DIFI system was found to be synchronized with the other two.

The domain in the system's model is "a formalized body of knowledge that is associated with a given field" (Feldman, Csikszentmihalyi, and Gardner (1994; p. 20) and the framework focused on the *individual* who created something of permanent significance to a specific domain. Abuhamdeh & Csikszentmihalyi (2006) expand the definition and related that the *domain* consisted of information or a set of symbolic rules within a society and culture and combined the area of expertise within which an individual is present. In addition, they described the *field*, the third component, as the gatekeepers in the domain who have a significant impact on whose individual's work rises to the top of the domain and gets recognition for their contributions.

A domain may be art and the individual the artist. In this particular example, the field would include all of the members within the art domain who act as the gatekeepers and who judges the quality and creativity of an individual within the domain. However, in the study of creativity, "art" may be considered too large to be considered a single domain and one of its branches, such as painting, might be considered a more appropriate domain (Feldman, Csikszentmihalyi, and Gardner, 1994). In the domain of art, the field "selects what new works of art deserve to be recognized, preserved and remembered" (Csikszentmihalyi, 1997). In this example, it is evident how the three components of the individual, the domain and the field work together for optimal creativity to take form.

In the systems model, creativity takes place when an individual makes a change in the information contained in a domain and this change or new expression of creativity is chosen by the field for inclusion in the domain. If an artist produced artwork that is not accepted or does not fulfill the needs of the field, the artist would be ignored (Abuhamdeh & Csikszentmihalyi, 2006). The continued need for the interactionalist orientation re-

mains evident and as Csikszentmihalyi (1988) asserts, the individual is part of a system of mutual influences and information.



(Csikszentmihalyi 1999, p. 315)

Figure 2: The merging of the three factors of the individual, the domain and the field. These three factors must come together for creativity to result.

The overview of the system’s model clearly suggests that the nature of the creative individual is dependent on the nature of the domain and field in which the individual operates. Unlike the more traditional view of creativity as a mental process or insight of an individual, the system’s model proposes that creativity can only be made up of an individual, a domain and a field (Abuhamdeh & Csikszentmihalyi, 2006) and can only work in sync as a triad with circular causality. Csikszentmihalyi’s researched this triad with great intensity and vigor and his work has made a significant impact in the field of creativity.

The Pursuit of Happiness

“The best moments usually occur when a person’s body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile. Optimal experience is thus something we can make happen.”

- Csikszentmihalyi (1990, p. 3)

How individuals seek optimal happiness has been a question asked for over twenty-three hundred years dating back to Aristotle (Csikszentmihalyi, 1990). Despite all of the many advances in our world, achieving happiness still remains a topic of high priority today and Csikszentmihalyi, as one of the lead-

ing pioneers in the scientific field of happiness, has researched this question in great detail to provide some answers.

Csikszentmihalyi's intense exploration in this area for many decades has uncovered some very powerful discoveries. To start, he ascertained that happiness is not something that just happens nor is the result of good fortune or random chance. It also does not depend on outside occurrences, but rather on how those events are interpreted.

Csikszentmihalyi (1990) noted that happiness is a condition that needs to be carefully prepared for and independently developed by each individual. Being able to control one's inner experiences and responses to life around them is key. He also explained that happiness should not be consciously sought after but instead act as an ongoing force of inner control in one's daily life. This has to deal with each individual's perceptions of their own unique personal life. There are many factors outside of a person's control but one's perceptions of events – good or bad occurrences – can have a huge impact on the level of happiness experienced.

Csikszentmihalyi went on to claim that when individuals are feeling a sense of control with their actions in life, they in turn feel a sense of mastery of their own fate. This often brings a feeling of great exhilaration and enjoyment, leading to the ultimate feeling of happiness. Furthermore, it was added that this does not exclude the instances in life when faced with unfavorable or challenging circumstances. Even during challenging ordeals, individuals were found to have experienced extraordinary epiphanies or what one may see as achieving flow (Csikszentmihalyi, 1990).

The work of Csikszentmihalyi in this area gives hope and a sense of self-control to each individual who seeks a happier and more fulfilling life. For each individual there are thousands of opportunities and challenges to expand oneself and it is up to each individual to decide how they will respond and perceive those situations. To state it simply, happiness comes from within and something that individuals have control over and make happen despite any and all external factors swiveling around. Getting control of one's life is not always easy but in the long run optimal experiences add up to a sense of mastery or a sense of participation in determining the content, perception and result of one's life. That is how Csikszentmihalyi (1990) best explains happiness.

Csikszentmihalyi further relates that all individuals have the potential to find genuine satisfaction and happiness during the flow state. However, as earlier described, this doesn't just happen automatically. It has to be carefully prepared for and nurtured by each individual and occurring when challenges are carefully set (neither too demanding nor too simplistic). It involves an honest perception of an individual's personal level of challenge and their perceived level of skill.

Self-Discovery

“Every flow experience contributes to the growth of the self.

- Csikszentmihalyi (1993, p. 237)

How do individuals discover moments in their lives that create who they really are and that fulfill a life of meaning? Csikszentmihalyi has explored the topic of self-discovery in several of his published works which have invited readers into a deep dive exploration of how to grow oneself to the fullest potential.

As Csikszentmihalyi (1990) explained, the self is a complex entity – containing everything that has passed through consciousness, including memories, actions, desires and pains, and represents the hierarchy of goals that we have built up over time. Following a flow experience, the organization of the self becomes even more complex and is said to grow.

This complexity that Csikszentmihalyi (1990) referred to is the result of two broad psychological processes: differentiation and integration. Differentiation refers to a movement towards uniqueness and can be seen by separating oneself from others. Integration on the other hand refers to a union with other people, forming ideas beyond the self. Combining these opposite tendencies is where Csikszentmihalyi indicates we find our complex self. Furthermore, the self becomes more differentiated as a result of flow because conquering a challenge inevitably leaves an individual more skilled, capable and confident. When individuals chose a goal and invest themselves in it to the limits of their attention, whatever is accomplished will be enjoyable. Once this state is experienced, it is thought that individuals will strive to repeat it and this is the route to self-growth and discovery.

In Csikszentmihalyi's (1993), *The Evolving Self*, he claimed that every system tends to keep itself in an ordered state and in the case of human beings, most of what is called life consists of efforts to ensure self-preservation and self-replication. However, to reach a flow state, individuals first must recognize opportunities for action or challenge and then acquire the skills needed to conquer them. Unfortunately, many individuals find themselves attached to goals that lead to stagnation rather than growth. Csikszentmihalyi related this may be due to the fear of losing control over one's psychic energy as people strive to defend the self and remain oblivious of their full potential. Evolving to one's fullest potential challenges individuals to take risks but with great intrinsically sought out rewards. This may not be the goal of every individual, but for the people who strive to optimize their full potential and reach flow in the process, creativity can emerge.

Looking to the future with self-discovery, Csikszentmihalyi (1993, pp. 289-190) discussed four basic tenets or recommended principles to follow in life:

1. *You are part of everything around you: the air, the earth, and the sea: the past and the future.* Bringing disorder to any of these, brings harm upon your own self as well.
2. *You shall not deny your uniqueness.* Your thoughts, feelings and actions should be rooted in your personal knowledge and experience.
3. *You are responsible for your actions.* You are likely to increase order around you if you achieve control over your mind, desires, and actions.
4. *You shall be more than what you are.* The self is a creative construction. No one is ever complete and finished. It is what you will do in the future that determines who you are.

The Unfolding Lives and Influencers of the Creatives

“A creative life is still determined, but what determines it is a will moving across time – the fierce determination to succeed, to make sense of the world, to use whatever means to unravel some of the mysteries of the universe”.

- Csikszentmihalyi, (1996, p. 182)

Creativity: Flow and Psychology of Discovery and Invention (Csikszentmihalyi, 2013), gives a glimpse of what can lead up to these creative and monumental events of self-discovery. It is said that creative people differ from one another in many ways however in one regard they unanimously love what they do. Unlike others who put fame and fortune as their top priority, creative individuals strive for the opportunity to do the work that they enjoy doing. The question is: How did they acquire this autotelic personality? Were there things in their childhood or early adult life that fostered this type of creativity or flow state? This question is not clear cut in any case but there are some important conclusions that Csikszentmihalyi found in his research and creatives as children along with their parental influences and social class are worth highlighting.

Csikszentmihalyi (1996) indicated that some children who later became remarkable adults in their field were early identified with great talent. However, many others showed no signs of early creativity. He found in his research that being a child prodigy is not a requirement for later creativity however high curiosity about one’s surroundings appears to be (Csikszentmihalyi, 1996). Being open to the world and interested in finding out more about it is what seems to be a key component of development of future creativity. This notion can support educational goals and strategies in school at a young age such as a tolerance of questioning and time for further exploration of high interest items.

Turning to the influence of parents, Csikszentmihalyi (1996) found that treating the child as a fellow adult contributes immensely to a child’s intellectual development along with the entire family’s supports of the child’s interest or area of expertise. Building a child’s sense of strong personal standards and self-confidence was also found to be impactful, in addition to having a sense of self-respect and discipline.

However, parental influences were not always perceived as positive and sometimes even fraught with tension especially if their child’s future direction (ie artist) was not what they envisioned. Csikszentmihalyi (1996) indicated that perhaps the most important contribution was in shaping character and how important a father or mother figure was in teaching certain values, especially honesty or the virtue of seeking truth in one’s work. Although there are always exceptions, it appeared that by and large parents were the main source of curiosity and involvement with life that is characteristic of future creatives. Another aspect in terms of the family upbringing was found to be the social class of parents. Some future creatives came from very poor origins and others from the upper or professional class but interesting enough, the research indicated that few were from the middle class.

Csikszentmihalyi also looked at the education, or schooling, of creatives and surprisingly it was found that these components had little effect on an individual's future creativity. That is not to say, however, that there were not some exceptions and there have been exceptional teachers that have been found to have a huge impact on future creatives. Csikszentmihalyi (1996) related that two teacher characteristics or factors can make a difference and they are: A teacher that notices and believes in the student's abilities and a teacher that challenges (and gives additional work) to the student. Some students in the studies conducted were known to especially recall extracurricular activities (and the teachers of these subjects) and saw these in a more favorable light than the main subjects. These subjects may have indeed been tapping into their high interest curiosity. The research that Csikszentmihalyi also summarized indicated that although the future creatives did not perceive themselves as popular in school, they rather saw themselves in a marginal position or being on the outside.

As the future creatives entered their adult lives, their creativity is noted to have begun to become more defined. The years in college tended to be a high point and where they often found independence and their own voice and where their future vocation became clear. Teachers also were found to appreciate their uniqueness and acted as mentors. Csikszentmihalyi made clear that creativity and the pursuit of self-discovery is rarely the product of a single moment or specific pattern. It is instead the result of a long-term commitment to a domain of interest that starts somewhere in childhood, proceeds through many years of schooling and ends in a career of personal high interest where flow can be achieved.

The kind of pattern – or lack of pattern – that has been explored by Csikszentmihalyi suggested an explanation of development that is quite different from the typical deterministic one. Instead, it appears that future creatives are not shaped by early events in their life but rather as they moved along in life, they had to adapt to whatever they were faced with. “Instead of being shaped by events, they shaped events to suit their purposes” (Csikszentmihalyi, 1996, p. 181). The creatives appear to have a fierce determination to succeed and make sense of the world.

The Impact of Intrinsic Motivation

“To be successful you have to enjoy doing your best while at the same Time contributing something beyond yourself.”

- Csikszentmihalyi (2004, p. 28)

Since the flow concept was first introduced back in 1975 by Csikszentmihalyi, research on the flow experience has given a view into the phenomenology of intrinsic motivation. In extensive studies that have followed, Csikszentmihalyi has demonstrated that flow is highly associated with intrinsic motivation and enjoyment.

A key dimension of intrinsic motivation is interest, a positive effect that occurs in the interaction between a person and an activity and Deci

(1992) went on to suggest that the experience of interest results only when the needs, desires, and capacities of the individual line up with the attributes of an activity. Deci named two characteristics of tasks – optimal challenge and novelty – that make an activity interesting. Csikszentmihalyi (1975, 1990) has presented evidence that for any activity, the optimal level of challenge is that which balances with an individual's level of skills in that particular activity. When this balance occurs, a flow experience can emerge.

An important longitudinal study conducted by Hekner & Csikszentmihalyi (1996) explored flow and intrinsic motivation in adolescents. Although prior research by Csikszentmihalyi and Larson (1984) had shown that adolescents are typically not intrinsically motivated to do school work and the question of how to promote intrinsic motivation has been extensively studied, including several studies linking intrinsic motivation to “flow” (Csikszentmihalyi (1990), less was known about the intraindividual changes in flow and intrinsic motivation in adolescents and how these changes related to the development of self-directed learning.

The result of this important study expanded on earlier findings and suggested that those who increased in flow also increased in intrinsic motivation, self-esteem, time spent doing school work, and in the relevance in their activities to their future career goals (Hekner & Csikszentmihalyi, 1996). These findings showed that positive change in adolescence is possible and that helping teenagers find the right balance of challenge and skills is necessary so they don't fall into the trap of passivity that can continue into adulthood.

Csikszentmihalyi has noted (1990) that many individuals give up on learning after they leave school because extrinsically motivated education is still a source of unpleasant memories and they have counted graduation as the first day of freedom. However, the individual who forgoes the use of their symbolic skills can never really be free as their thinking will be directed by the opinions of others or by the appeals of television. This relates back to the system's theory and how the three components of the individual, the domain and the field (or gatekeepers) work together. It also related to the flow perspective and how the perceived challenge and skill level of the individual is considered.

Csikszentmihalyi discusses how in an ideal situation, the start of a good education is one that is motivated intrinsically where the goal of studying and learning is no longer to make a grade and find a good job but rather to understand and develop a meaningful sense of what one's personal experience is all about. Only from this, will come the joy of a true thinker or an individual who can fully discover the flow of the mind.

No matter if it is an educational, work or an environment of leisure, the goal for most individuals is to find enjoyment in what they are doing. To do this, intrinsic motivation has to be part of the equation. It is up to the individual to take charge and be in control or the results can be disappointing. As Csikszentmihalyi has pointed out (1990) most jobs and even leisure activities – especially those involving passive consumption of mass media – are not designed to make individuals happy. Individuals have to set up their lives to be happy and learn to enjoy their work and their free-time so they can end up feeling that their lives as a whole are more enjoyable and worthwhile. When

this happens - when individuals can find their flow and work toward their full potential – they are on the path to living a fulfilling and meaning life.

Concluding Remarks

The field of psychology as a discipline often focuses on areas of human and group dysfunction rather than on activities that result in satisfaction, joy and happiness. Csikszentmihalyi's work and research has changed this. His theories and concepts impacted this change in a more positive direction and his research was based on academic methodologies that brought his uplifting concepts to the forefront. These concepts including flow, the autotelic personality, self-discovery, intrinsic motivation and the pursuit of happiness, were all discussed in this chapter, bringing in the research and supporting examples not only from Csikszentmihalyi but also from his colleagues, past students and other researchers and well-known authors in the field of psychology and creativity.

What is paramount is that creativity needs to be cultivated and is necessary for the future of our world and Csikszentmihalyi's gives us many examples of this. Creativity is a central source of meaning for everyone and most of the things that are interesting and important in life are the results of creativity. Furthermore, as Csikszentmihalyi indicated (1996), when individuals are involved in creativity they are living more fully as compared to others and leaves to an outcome that adds to the complexity and richness of our future society. Through better understanding the concept of flow, and all of the other essential topics in this chapter, all individuals in every society can learn how to live in better harmony and return to an increased state of happiness.

Author's Personal Impact

I personally felt extremely fortunate to have been asked and able to write this chapter on one of the most influential pioneers in creativity and positive psychology – Mihaly Csikszentmihalyi. As I underwent this incredible and amazing journey, I found myself emersed into my own sense of personal flow in the process. Most days while reading and writing, I found myself in a highly focused state, entrenched in the information where time and my surroundings seemed to have been lost. I didn't want to get up from my chair nor even look away from the words being read or constructed on the computer screen. I was intrinsically motivated by some force inside me to continue to investigate the research and organize and re-organize my thoughts onto paper all while feeling deeply connected to the work at hand.

I found myself in a focused tunnel with keen attention and persevered at great lengths to gain more and more knowledge about Csikszentmihalyi and his many contributions to the field of positive psychology and creativity. My goal was to do good work at great lengths as I sought to highlight and brought attention to some of Csikszentmihalyi's most important concepts and theories over the past several decades.

Who couldn't be enthralled with such learning of positivity? Even while I was not in an active state of reading and writing about Csikszent-

mihalyi's concepts of flow, happiness and self-discovery, I often found my brain wondering off in that direction during both my waking and dream state. Interesting enough, the first thing I thought of during my initial waking hours was some concept of positivity and a new connection I was finding related in my own life. Grateful and blessed was always the feeling during these moments. It was a challenging yet fascinating experience and as the research indicates it seemed to be the perfect proportionate match between skill and challenge.

Csikszentmihalyi is not just a remarkable professor, researcher, author and leader in his field, he is a true creator and positive visionary. He has indeed impacted the lives of his students, friends, family, and colleagues with his important contributions of his concepts and Mihaly Csikszentmihalyi has no doubt made his mark on millions of individuals around the world and will continue to influence many more for years to come.

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CHAPTER SIX

EDWARD DE BONO'S OUTSTANDING ORIGINAL CONTRIBUTION

1933 - 2021

MARGARET MANGION & SANDRA M. DINGLI

ABSTRACT: Edward de Bono was often acknowledged as a creativity guru, an influential thinker. His reputation stems from his ability to publish numerous books, deliver countless workshops and establish a world-wide network of business trainers. He was often referred to as 'the Lateral thinking guru', 'the inventor of Lateral Thinking' or 'the Six Hats person'. There is, however, a great deal more to de Bono than first meets the eye. His original contributions to education, management, training and to the world in general are remarkable and they deserve increased recognition. Edward de Bono was a remarkably inspirational individual. This chapter discusses some lesser known – but equally outstanding – contributions to the world of applied creativity and thinking. It includes a discussion of his concept of 'constructive thinking', a consideration of some of his less known 'thinking tools', and an appraisal of some of the valuable original ideas communicated in his books. The evolution of de Bono's thought, which started off with the publication of *The Mechanism of Mind* in 1969, to his present-day work will be discussed, demonstrating the trajectory from issues related to medicine and psychology towards teaching children and learning from their ideas, to playful but erudite texts and on to his success as a world-renowned thinker who came from one of the smallest island nation states in the world. Some of the programmes designed by de Bono are then discussed. Application of the de Bono methods allows for improved thinking, increased creativity, better idea generation and enhanced value creation.

Introduction

This chapter focusses on the originality of Edward de Bono's ideas and on the astonishing fact that a world-renowned thinker was born on one of the smallest island nation states in the world. Edward de Bono was born on the 19 May 1933 in Malta to Joseph, a physician, and Josephine, a journalist who was instrumental in the women's suffrage movement in Malta in the 1940s. Malta is a very small island nation state in the middle of the Mediterranean Sea with a population of around 500,000 people.

This chapter also discusses the trajectory of de Bono's original ideas, ranging from issues related to medicine and psychology, towards teaching children and learning from their ideas, to playful but erudite texts and publi-

cations that are best sellers in the world of creativity and innovation management.

Although de Bono was often known as ‘the inventor of Lateral Thinking’, there is a great deal more to his work than first meets the eye. This chapter first discusses the trajectory of de Bono’s ideas, moving from education to business management and including some of his more provocative ideas. It then discusses three of his programmes that, when applied, allow for improved thinking, increased creativity, better idea generation and enhanced value creation.

de Bono’s first degree was in medicine, which was a family tradition, but which he never practiced. This was followed with the award of additional degrees as a result of his being awarded a Rhodes scholarship to study Psychology at the University of Oxford. Edward de Bono was always very curious and inquisitive. While at school in Malta he jumped a class, he was the only student at school who was given a key to the school’s laboratory, and he joined the medical course at University of Malta at a very young age. His upbringing and education led him to reflect on the manner in which the human brain works: as a self-organizing information patterning system. In the next section, some of the works and concepts developed by de Bono are explored.

The Mechanism of the Mind (1969)

The human brain as a self-organising information patterning system is the main topic of one of de Bono’s first books, *The Mechanism of the Mind*, published in 1969. This is, without doubt, one of his most original and inspirational texts which provides the basis for much of his later work. In this publication de Bono describes, often in metaphorical terms, how the human brain functions and how it processes information. His background in medicine and psychology is clearly discernible in this book. He believes that the human brain is not designed to be creative. This is the basic premise of his later work, including his world-renowned lateral thinking methods. Although the human brain processes information and is a pattern making system, yet it is possible to by-pass these inbuilt neurological circuits. In other words, if the human brain organises the information it receives into patterns which tend to become more ingrained over the passage of time, just as a valley gets to be more defined as a result of the passage of water over time, then there are ways of overcoming this constraint. How can this be done? Simply by ‘cutting across patterns’, that is, by creating algorithms or recipes which one can easily follow, and which simulate the process that occurs when inspiration comes about. de Bono believed that far from being an innate trait, creativity can be developed and nurtured. He claimed that individuals can become creative through the deliberate use of idea generating methods that may be used to set a focus, to produce new ideas or to evaluate situations.

Random Input: one of de Bono’s Lateral Thinking methods

Random Input is one of the Lateral Thinking methods which de Bono proposed which clearly addressed this limitation and enables the human brain to

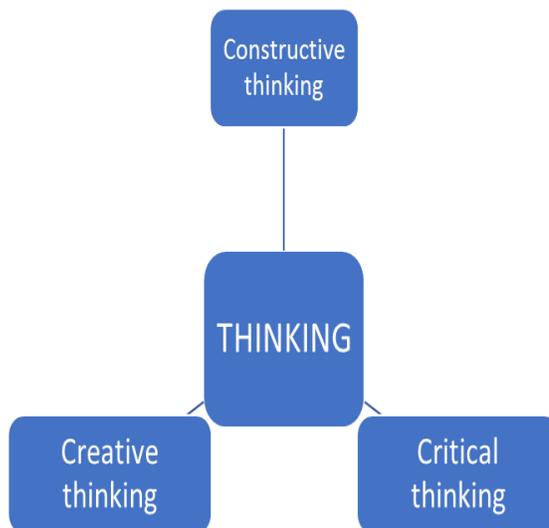
overcome it. It is a lateral thinking technique that is simple to use and it enables the instigation of inspiration (or idea generation) at will. This takes place through the introduction of an extraneous random word or thought that is linked to another idea or thought on which original ideas are generated. This is precisely what happens when inspiration takes place, as our current thoughts require the introduction of an external idea, or extraneous input, in order for them to be shifted towards an entirely new direction.

It is often assumed that idea generation is closely linked to problem solving and decision making. These often involve argument and analysis and the tendency to get into a position where *I am right, you are wrong*, which is the title of another of de Bono's publications (1990). Argument and analysis are useful and relevant in certain contexts, but there is a great deal more to thinking and reasoning than just argument and analysis. This is why de Bono advocated the application of 'constructive thinking'.

Constructive thinking

According to de Bono, new ideas are not only required for problem solving or decision making. Rather, constructive thinking (see Figure 1) allows for the creation of original ideas in the absence of any pressing need to resolve a problem or take a decision. The value of constructive thinking is evident when considering the manner in which designers and manufacturers create new products or services which offer value that by-passes necessity. New tablet and smartphone designs, for example, do not resolve any problems. They are created as so-called 'objects of desire' and gain popularity as a result of convincing marketing strategies.

Figure 1: Constructive thinking as the 'pinnacle' of the thinking triangle



Imagine a triangle with creative thinking and critical thinking as the two base angles. Constructive thinking is placed on the topmost angle (see Figure 1). The latter concept, constructive thinking, involves the generation of ideas which are not directed towards decision making or problem solving. Rather, they create ideas which, when converted into services or products and placed on the market become 'objects of desire'. Does a person really 'need' to have all the latest gadgets, twenty tubes of face cream, more books than can be read in a lifetime, three of four cars, etc.? New models of some renowned smart phones are examples of objects of desire, as some novel design features make them appealing to quite a broad public.

Constructive thinking offers a number of advantages where economic success related to products or services is concerned. It could, moreover, be contrasted to adversarial thinking which merely concerns a reactionary process, as discussed by de Bono in *I am right you are wrong* (1990). This latter publication draws attention to flaws in the current mode of Western thinking and provides suggestions as to how this may be overcome. With change being so prevalent in today's world, constructive thinking allows for the design of new possibilities and opportunities and for moving away from simply arguing about who is right and who is wrong.

Three categorizations

de Bono's books may be divided into three main categories. The first are the 'tongue in cheek' or provocative books which advocate for paradigm changes, some of which may sound preposterous at face value, but which embody a serious underlying message. The second are the books on education, mainly aimed at including 'the direct teaching of thinking' as a subject in school curricula. The third are self-help business books which target the management market. de Bono has also published a number of additional self-help books which are directed at a broader target market, many of which have achieved international bestseller status, such as *The Use of Lateral*

Thinking (1971) and the Six Thinking Hats (1985).

de Bono's provocative ideas

The provocative books are numerous and include de Bono's *Why I want to be King of Australia* (1999). Here he provocatively attempts to motivate Australians to seriously think about their future in the 21st century, due to the fact that his ideas have generally been very popular in Australia, which he visited on numerous occasions. *The de Bono Code Book* (2000) addresses the inadequacy of language and the urgent need for new concepts and perceptions, as de Bono presents an international language with numbers representing various thoughts, concepts and perceptions. *H+ (plus) A New Religion? How to live your life positively through Happiness, Humour, Help, Hope, Health* (2010) is yet another provocative piece of work. Here de Bono proposes a framework for living by means of conscious positive actions (or 'pons') which result in a sense of achievement and an increase in self-esteem and belief in oneself. de Bono's originality and his fertile imagination are clearly visible as he playfully suggests the use of a secret hand signal to demonstrate

adherence to H+ and the payment of fines payable to the H+ central headquarters, whoever that may be, if one does not achieve one's daily 'pons' target. The message of the book is, however, clear: H+ appeals to the positive side of human beings, and an increase in self-esteem allows for increased self-confidence and the motivation to make the world a better place through changing outdated paradigms.

de Bono's focus on thinking in education

In his early work, de Bono focussed mainly on education. The CoRT work-cards and teachers' handbooks (1976) were published when de Bono strongly advocated the introduction of 'thinking' as a subject in its own right in schools, with short-term success in places such as Venezuela, Australia and Malta. Most educational and self-teaching publications, such as *Teach your child how to think* (1992) and *Teach yourself to think* (1995) included numerous practical exercises which could be used to improve the skill of thinking. de Bono further advocated the setting up of Thinking Clubs where people would get together to generate and exchange ideas (see, for example,

de Bono's Thinking Course (1982) pp.142-53).

The Dog Exercising Machine (1970) and *Children Solve Problems* (1972) are two rather iconic, playful and original de Bono publications which reveal his interest in education in the early days and his conviction that children do not censor their ideas as adults generally tend to do. Both publications provide a number of insights into children's thought processes. The 1970 publication presents drawings submitted by children who were asked to design a dog exercising machine. The second exhibits children's ideas related to assigned tasks, such as how to weigh an elephant and how to design a sleep machine. The content of these two publications demonstrates the manner in which young children tend to be totally uninhibited when coming up with ideas, something which, sadly, tends to diminish over time as they move through the educational system and become more cautious where censorship and right and wrong are concerned.

de Bono's contribution to management thinking

Edward de Bono was well known as a guru in management circles and his publications in this regard have been prolific. Various professional courses are offered by the organisation which de Bono had set up to manage his intellectual property and training rights. These are generally administered and run by regional or country representatives and by certified de Bono trainers.

Addressing the business sector, de Bono's work is mainly concerned with the creation of value (or what he calls 'valufacture'). The numerous publications authored by de Bono and directed towards management include two very original publications, *Sur/Petition: Going beyond competition* (1992) and *Simplicity* (1998). *Sur/Petition: Going beyond competition*: This book instigates those who are involved with running a business to ignore competition which, he claims, limits and restricts business thinking, and to move towards Sur/petition – another new word (among many others) which de Bono has coined. Sur/petition takes organisations beyond their typical understanding of how advantage may be sought by doing better than the compe-

tion. The emphasis in this book rests on the exploitation of ‘integrated values’.

‘Competition’, de Bono claims, ‘is one of the things that is necessary for business to survive, but it is not sufficient. ... Competition is merely part of the baseline for survival. Success requires going beyond competition to sur/petition’ (pp. viii-ix). How is this done? de Bono advocated the creation of ‘value monopolies’ as he stated: ‘For survival, you need competition, but for success you need sur/petition and the creation of value monopolies. ... Instead of running in the same race, you create your own race’ (p.xi). Although the book is peppered with a great amount of self-promotion (as are many other de Bono publications), it also contains numerous interesting anecdotes and examples. Its originality lies in the fact that de Bono provided management with methods that may be used to generate value for their organisations in such a manner so as to ‘create their own race’ and to move beyond the competition, rather than simply reacting to what the competition comes up with. Numerous examples of this are evident as tactics used by organisations that are in competition with each other today, such as automobile companies, the soft drinks beverage industry, the airline industry, and the smartphone and tablet market. For example, an automobile company introduces an innovative feature in its vehicles, soon after the competition follows suit. This is what de Bono meant by ‘running in the same race’, i.e., competition. It is only by adding value and creating an appealing, distinctive and original market presence that an organisation would successfully be able to go beyond competition, as is apparent, for example, in a number of products which *Apple* has produced over the years.

As nowadays numerous industries have shifted their focus on to customer experience, de Bono was ahead of his time by pushing forward the notion that organisations had to understand the complex values of the customer. Integrated values and sur/petition cannot be achieved if an organisation becomes complacent. When this happens, organisations are no longer in a position to embrace innovation or to have the ability to question how things can be done differently. Complacency hampers organisations from being able to stand out and be instantly distinguished from their competition. Sur/petition enables not only improvement but also innovation.

Simplicity (1998) is de Bono’s reaction to increased complexity, both with regards to devices (de Bono mentions video recorders, which are rarely used today, on the dust jacket of the hardbound version) and with regards to legislation. The book contains valuable suggestions, tactics and rules for simplicity. The first suggestion is that ‘Every country should set up a National Institute for Simplicity’ and ‘nothing much is going to happen unless someone is given the responsibility for making it happen’ (p.9). In an original, provocative and unique de Bono fashion, the book starts by directing the reader to Page 279 where the ten rules of simplicity are presented. Although the book appears to be rather long, the actual text appears only on the right-hand side pages, with the left-hand side providing key quotations that summarise the information on the right-hand side. The book ends with an Appendix that advocates the setting up of ‘The Edward de Bono National Simplicity Campaign (and local campaigns)’ (pp.289-305). This includes a suggestion for an annual ‘Simplicity Day’ when everyone puts forward their thoughts to

making something simpler' (p.305). It is interesting to note that the ideas in *Simplicity* have been converted into a successful training program offered by certified de Bono trainers.

Thinking is a skill

Central to his discourse and visible as a running thread throughout his publications is de Bono's strong recommendation: Everyone ought to make time for thinking. According to de Bono, thinking is a skill that can be learnt, practiced and in which we can excel. In turn, this could make the world a better place. de Bono approached his teachings with simplicity, adopting concepts that are relatively easy to grasp and implement. There are, however, a few criteria that he stipulated which make for more successful learning and applicability of these thinking skills. To make these skills transferable to various practical spheres of our lives, it is important to suspend judgement by letting ideas flow freely without prejudice. We also must make a deliberate effort to allocate time. There is a time for everything. de Bono stipulated that there should be a time for thinking too. One other element he emphasized is calling the thinking tools he designed by each of their names. Just as a carpenter chooses his tools carefully, and refers to each tool by name, using each tool for a specific function, in a similar fashion, it is important to distinguish between the different thinking tools, and use each of them depending on the task at hand, that is, what we need to use them for. This would, in turn, make us better and more effective thinkers.

It may be noted that de Bono's pioneering of a variety of attention directing thinking tools over the years can be linked to the need to develop 21st Century Skills that can help us to face the challenges that the modern world throws at us. By practicing these thinking tools, de Bono posited that we can improve our thinking skill and become more fluent and proficient at thinking. Just as one requires practice to play a musical instrument or to become proficient at a particular sport, in the same manner, one requires repetitive practice in order to become a more proficient thinker.

Operacy: the skill of thinking that leads to action

de Bono coined yet another word for this – 'operacy' – the practical skill of thinking that leads to action. Improving one's thinking skill may be achieved through 'operacy'. The term is derived from the words 'operate' and 'operational', and operacy refers to the skill that one needs to do something and to set things in motion for action to occur. de Bono strongly advocated for operacy as a third gateway for success in formal education, together with literacy and numeracy. His argument was that not all children may be good at learning language or numerical skills, but they may be potentially excellent at thinking.

Letters to Thinkers (1991)

de Bono wrote a vast array of books that could be used as companion resources for implementation on an individual basis or in a group. These books include *Letters to Thinkers* (1991). In this publication, de Bono raises the need to start 'thinking about thinking' and to give it its due place in our lives, to challenge assumptions and to aim for improvement even where systems

that are already in place are working well, or where we may perhaps assume that they do. Through simple diagrams the issues that de Bono raises come across clearly in each letter, while raising awareness about various aspects. This inquisitiveness aims to arouse the need for intervention and improvement of existing systems. Resonating with current trends related to mindfulness and the acquisition of a more reflective stance, in order to assess and evaluate what goes on around us, in letter number 5, *Think Slowly*, de Bono advocates the urgent need to create an attitude towards thinking. This involves the creation of a space where we can look back to see what ground has already been covered and to assess the situation before moving further forward. When we stop to look around us, there is more of a possibility of us observing what options are available, with the consequence that we may make better choices. In a fast-paced world, slow-thinking becomes more challenging, yet increasingly rewarding. Making time for thinking becomes essential.

Focus on three of Edward de Bono's programmes

Known mostly for his lateral thinking techniques, de Bono designed a variety of creative thinking methods. This section focusses on three methods that are perhaps less well known. When reading de Bono's works, one comes across key principles that are addressed using his techniques. One finds the notion of value at the core of all the thinking tools and programmes designed by de Bono.

The different independent frameworks that de Bono designed complement each other. For instance, the Six Frames can easily be incorporated into a sequence of the Six Thinking Hats or the Power of Perception tools. Used individually or as part of a sequence, the tools developed by means of these simple methods may prove to have a powerful influence in how we structure our thought.

The three programmes outlined in this section are *The Six Value Medals* (2005), *Six Frames: for thinking about information* (2008) and *Bonting: Thinking to create value* (2015).

Consistency and complementarity

de Bono's much acclaimed Six Thinking Hats programme, the Six Value Medals and the Six Action Shoes share the same number of tools within each of the respective programmes. However, notwithstanding this detail, each programme is totally autonomous and independent of the others. Once an individual becomes fluent in these skills through practice, then these frameworks may very well complement each other quite easily.

The Six Value Medals (2005)

The main concept behind the Six Value Medals is, in de Bono's tradition, to bring to the fore values. de Bono claimed that almost all of our thinking and our actions are driven by values, and that forgoing values is almost impossible. Values could be perceived from a personal, individualistic point of view or from a group or an organisational point of view.

As values are central to everything that we do, it is highly relevant to dedicate time to untangle and unpack these values and to optimise their use.

The Six Value Medals programme aims to direct our attention towards where one can address values. This thinking method allows one to scan for values, and to prioritise which of these values are most important to follow in the face of a particular situation. The maximisation of values is considered throughout the process.

Six types of thinking are outlined that support the practitioner of this framework to think in parallel and streamline any process involving planning, decisions and other forms of thinking. It is like putting on a pair of spectacles, where one can change the lenses and look at things from a different perspective. Six lenses are, in this case, used to represent the six value categories.

The Six Value Medals may be used to optimise decisions at individual, group or organisational level by supporting users in their effort to resolve conflicts by giving importance to different outlooks on a shared concept. Until now there has not been a concrete way to assess the impact that a decision may have on attempts to create and protect value. When employees can scan, identify and prioritise values, they become vital partners in growing a business.

Gold Value Medal

Gold is perceived as a precious metal. de Bono metaphorically compares this precious element to people – people are precious. The function of the gold value medal is concerned with what matters to people. Human values include pride, achievement, a sense of belonging, hope, trust, and growth. Human beings have basic and psychological needs, all these are addressed by means of the gold value medal. The basic human needs include good health, shelter, respect, safety and freedom from oppression. On the other hand, psychological needs refer to the sense of recognition, appreciation, prestige, simplicity, trust and human dignity.

Silver Value Medal

The Silver Value Medal relates to organizations. What are the values at the heart of an organization? By applying the silver value medal, members of organisations recognize which goals are being worked on and how action may influence the path forward in the pursuit of these goals. There are various areas where silver value medal goals may apply, including advertising, public relations, promotions, pricing, distribution, and saleability. Silver medal values arise from the intended purpose and goals of the organization. Silver medal values incorporate everything that helps the organization to fulfil its mission.

Steel Value Medal

The general perception of steel is that it is a strong metal. This robustness is portrayed in the steel value medal through a quest for quality. The function of this medal is to question implications for quality. How will quality be impacted by any impending decisions? The term ‘Quality’ may be interpreted from different perspectives, such as the quality of service, function quality and the quality perceived by the end user. In an attempt to constantly better output, constant improvement is essential. Improvement, particularly related

to quality, comes under the steel value medal. The steel value medal may incorporate incremental improvement or there may be a paradigm shift which constitutes a creative leap. However, it is critical not to focus on creative leaps at the expense of overlooking incremental improvement. Both ought to be seriously considered and worked upon diligently.

Glass Value Medal

Glass can be moulded into different shapes, addressing both beautiful aesthetics and functionality. The different dyes that may be applied during glass moulding are figuratively aligned with the functions of this medal. As it is made out of sand, glass bears no resemblance to or link with the original ingredients, once it becomes a finished product. The glass value medal addresses action in the form of change, innovation, simplicity and creativity. Just as glass is fragile, new and creative ideas may also be fragile. Extracting the potential benefits of an idea may make it stronger and this may be useful when the potential of an idea is challenged, and when its existence is threatened. Just as glass can be shattered, ideas may be crushed if they are not nurtured. Therefore, extracting the potential of an idea is essential for it to have an opportunity to germinate and to take shape.

Wood Value Medal

The Wood Value Medal focuses on the environment. What positive or negative impact to the environment will there be if certain decisions are made? In this case, the environment could be related to nature, in the way that this term is generally associated. However, taking a broader perspective, the wood value medal addresses the manner in which decisions and actions may impact third parties. It is often the case that third parties are not involved in a decision-making process. However, by empathizing and by putting ourselves in their shoes it would be easier to understand how they could respond to what is proposed. When assessing competition, it would be useful to put yourself in the shoes of competitors and to consider how they would respond to a decision. The same applies when dealing with suppliers. On a more personal level, the wood medal value could enhance empathy since anticipating impact could lead to the reconsideration of an action. Some values that may emerge may be negative. A decision could then be taken on how to act on these emerging negative values and how to deal with them in order to avoid or to enhance a specific impact.

Brass Value Medal

At first glance, brass may look like gold but is not gold. Sometimes appearances could influence the way we perceive situations. Perceptions, influenced by diverse backgrounds, could change the interpretation of situations. The brass value medal is all about perceptions. First impressions are important when searching for and identifying brass medal values which enable the examination of appearances and perceptions.

Perceptions make up how we interpret the world around us. It is important to be careful about how selective perception unfolds. The general tendency is to pick what fits a particular purpose, and this implies that perceptions may simply mirror the values that fit current emotions, preconceptions

and prejudices. When scanning for the brass value medal, it is important to consider different points of view. Considering all these different perceptions adds value to the thinking process.

General application of the six value medals

The six value medal values could be applied to a variety of situations. When using the six value medals, de Bono suggests conducting a value scan in order to identify the core values that are used when making decisions. The analogy of a builder using a spirit level to check that the building is coming up well applies here, as it is necessary to make regular checks in order to increase the certainty that the decisions taken turn out to be right. Value scanning is essential when selecting ideas, when allocating resources or when timing an event. Cost-cutting, design, drawing up strategies and addressing areas of conflict are also critical areas where it is important to check values.

Six Frames: for thinking about information (2008)

Life today involves the constant processing of information of various kinds. Some information may be personal, other information may be work related. It is at times rather difficult to create sufficient space and time to process each type of information separately, and this may lead to inefficiencies.

de Bono's Six Frames programme helps to increase thinking about information by deliberately making the time for it. de Bono designed this framework to support individuals in order to optimise their ability to think about routine processes effectively. Each frame points towards a direction in which to look. As with de Bono's *Six Thinking Hats* (1985), parallel thinking is key to lay out the process. Groups of people using this method are encouraged to use one frame at a time in order to think on the same lines, rather than allocating different frames and using them concurrently. Each frame has a specific function representing purpose, accuracy, point of view, interest, value and outcome.

The Triangle Frame (Purpose)

Everything that we do should have a purpose. The triangle frame, which represents purpose, emphasises the importance of being clear and establishes the baseline of why information is required and how engagement with this information should occur. Issues which are obvious are often overlooked and the result implies missing out on potentially useful information. By directing our attention towards the purpose, notions that would otherwise sit at the back of our minds are brought to the foreground. This acts in a similar manner to putting a spotlight on specific areas for thinking. Establishing the purpose helps to improve clarity about what should be extracted from the available information.

The Circle frame (Accuracy)

Being bombarded by information could potentially lead to mindless action. When this is the case, specific details tend to be overlooked, with the result that potentially useful information may be ignored. Representing accuracy, the circle frame directs attention towards the precision of the information that

is being considered. The manner in which the information at hand is assessed will reflect the value of that same information.

Accuracy could play a role in how the information generated is perceived in a critical manner. It is sometimes the case that sources are trusted for some time for practical reasons or due to lack of knowledge in specific areas. By placing the circle frame into the thinking process, accuracy of the information processed is increased.

The Square Frame (Point of View)

Interpreting information is critical in order for it to be fully understood. Being able to infer information in more than one way is useful in order to categorise and store information. Being aware of any prejudice or any inclinations of thought acquires relevance as information is assessed for its objectiveness. Without clarification and objective understanding, information could be distorted and, subsequently, it could become dangerous. Assessing points of view using the square frame adds comprehensiveness and objectivity to thinking.

The Heart Frame (Interest)

The heart is often instinctively related to emotions, love, and possibly to romance. This is not the case when applying the heart frame. The heart frame refers to areas of interest. Interest may be aroused through the intensity of the need for information. When the need for information emerges as a result of personal involvement, it is then necessary to seek information to find out more about the situation at hand.

The Heart Frame directs attention to matters of interest. The level of interest may vary from general to specific or special interest. Over time, background information that may apply under different circumstances is accumulated. Although seemingly tacit, intangible information related to interest may acquire considerable relevance.

The Diamond Frame (Value)

The Diamond Frame offers the opportunity to recapture thoughts in order to move on to the next steps. Its function is related to providing a summary and an overview. Once again, value is brought to the fore as the value of the information available is assessed. As value may be subjective, it is relevant to acknowledge that there are different variations of it. The diamond frame clarifies these values through direct attention. When summarising or building an overview of the situation, values that would have been observed through other frames may be reviewed through the Diamond Frame.

The Slab Frame (Outcome)

Once a summary of the process is provided, a thinking session could be drawn to a conclusion. The Slab Frame directs attention to this process. Discipline is required, together with a deliberate effort to arrange the conclusion on the 'slab' for everyone to take note of. It is important that conclusions are clearly spelt out, since different perceptions may lead to different interpretations of the same conclusion. The Slab Frame facilitates conclusions by clearly establishing the outcome of the thinking effort.

***Bonting: Thinking to create value* (2015)**

One of the most recent books authored by de Bono is entitled *Bonting: Thinking to create value* (2015). As with many of the frameworks designed by de Bono, Bonting is about thinking for value creation. de Bono claims that directing attention in a deliberate manner could lead to new ideas, even in areas that are usually taken for granted. This is typically done through engagement with specific tools that enable novel perspectives, including the ability to look at something from different angles, even if it is something that was experienced time and time again. By re-visiting a familiar situation, or re-evaluating an existing product or service, Bonting allows for the adding of value to something which may already be considered as good, but which may not be good enough. There is always room for improvement as nothing is perfect. This is in line with another of the words which de Bono coined: 'ebne', which means excellent but not enough. An example he provides is an excellent speech which, when focussed upon, may not be enough in spite of its excellence as further action would be needed.

de Bono claims that the improvement of thinking could have an impact on how problems are approached. He claims that 'bonting' is derived from the Latin word *bonum*, which means good.

Bonting is used to refer to the process of thinking to create value by focusing on positive values. This is done by engaging in constructive and creative thinking and by looking forward to anticipate potential situations. Through the use of different thinking methods, Bonting encourages users to be forward looking and to look for possibilities, to imagine what might be. This may create areas where value may be added. To do this, a point of change or a desired state is used as a focus, and alternatives are generated as a way to achieve the anticipated state.

This publication also exhibits a number of de Bono's provocative and original ideas. He admits that some may be feasible, others less so. In line with his tendency for provocation, one of the suggestions he recommends is that there ought to be one moment in the day when people are allowed to propose ideas such as 'preposterous suggestions, crazy ideas and provocations. They need not be taken seriously. ... It would be like having a daily carnival' (pp.293-94). The idea behind this is clear – too many crazy ideas which may contain value for humanity and society are unjustly censored or not communicated at all, generally due to fear of rejection or to unfair criticism. Why should there not be a specific daily 'space' when these ideas could be shared? Some value, which could be of benefit for humanity, may emerge from them.

Conclusion

In order to reiterate certain aspects deemed critical by de Bono, one may observe an element of overlap at times when reading through his publications. However, one must also note his carefully chosen diction. de Bono adopts an almost colloquial writing style, which is a style that is easily understood by a large audience. It is likely that this was done in order to reach out to the largest number of potential followers and readers as possible, and in the hope that uptake of the concepts being proposed would be maximised.

In conclusion, one may deduce that, based on the original and provocative teachings designed and proposed by de Bono, if time is dedicated towards thinking deliberately and slowly, towards a specific focus, and towards the extraction and creation of values, this may then allow for improved thinking, increased creativity and better idea generation.

A value-added perception of the world around us, besides creating more critical and creative thinkers, could make the world a much better place to live in.

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CHAPTER SEVEN

HOWARD GARDNER'S MULTIPLE INTELLIGENCES THEORY AND HIS IDEAS ON PROMOTING CREATIVITY

HANI MORGAN

This book chapter highlights Howard Gardner's contributions to the areas of education and creativity. It includes an introductory section on his background and accomplishments. The chapter focuses on his theory of multiple intelligences, Gardner's best-known theory, and provides details on how he got the idea for this theory. It offers an explanation of this theory and the implications it has for educators. His theory of human intelligence contradicts the view that there is one type of intelligence that could be measured by standardized tests. Gardner first described seven intelligences and later added an eighth. The chapter also focuses on Gardner's ideas on creativity and offers information on how teachers can implement the kind of teaching that promotes creativity.

The theory of multiple intelligences has influenced educators from all over the world, encouraging them to envision more effective ways of teaching. This theory was developed over 30 years ago by Howard Gardner, a world-renowned psychologist. In 1983, Gardner transformed the field of education when he published *Frames of Mind: The Theory of Multiple Intelligences*. In this book, he described a new way of thinking about human intelligence, challenging the traditional view that there is one kind of intelligence standardized tests can measure (Strauss, 2013).

Howard Gardner's Early Years

Howard Gardner was born in 1943 in Scranton, Pennsylvania. He was very successful in school. As an early reader and writer, he produced a newspaper when he was in second grade and enjoyed writing it and watching the pages come out of the printer. His parents allowed him to make his own decisions and trusted him (Mineo, 2018). Although he was described as a gifted pianist, he found the responsibilities associated with formal piano instruction burdensome (Gordon, 2005). He even quit after one of his teachers told him he had to practice three hours every day (Mineo, 2018). But he never lost his love of music. In fact, his passion for music played a role in his beliefs about multiple intelligences (Gordon, 2005).

His parents were German Jews who came to America to escape the Holocaust. They arrived in New York City with little money and later hid the horrors of the Holocaust from their son, fearing that becoming aware of these atrocities would harm him. They also did not tell him about how his 8-year-

old brother tragically died in a sleigh-riding accident before he was born. When he found out by looking through clippings, Gardner became annoyed because he had not been told about this tragedy, but recently mentioned that he later understood how difficult it must have been for his parents to talk about it (Mineo, 2018).

The death of one of their sons led Gardner's parents to be protective. When he was a child, they took measures to prevent him from participating in sports. It was not until he was in his twenties that he rode a bicycle. Although he was not antisocial, the activities he participated in were predominantly solitary and included reading, writing, and playing the piano. Although he was social with his close friends, he was not gregarious. His parents were eventually warned not to shelter him in excess. And at age seven, he attended camp away from home where he participated in competitive sports. At first, he did not enjoy camp and lacked talent in sports, but after going year after year, he became more enthusiastic (Gardner, 2020).

Career at Harvard University

Gardner completed his professional training at Harvard University, where he focused on research involving gifted children and brain-damaged adults. During his early career, he developed into a prolific writer. And after he published *Frames of Mind*, his theory of multiple intelligences became popular all over the world (Gordon, 2005).

He first came to Harvard in 1961 and thought about majoring in history. However, after taking history classes during his freshman year, Gardner's aversion of the way historians wrote led him to lose interest in pursuing history as a major. Instead, he majored in Social Relations after being influenced by a teacher who noticed Gardner's interest in psychology and sociology and recommended Social Relations as a major. Although Social Relations—a mix of psychology, anthropology, and sociology—was not viewed as a prestigious major, it interested him (Mineo, 2018).

Several factors led him to write *Frames of Mind*. One of these was Gardner's fondness of writing. He has always enjoyed writing and had written three books by the time he started his postdoctoral work in 1971. He published his fourth book, *The Shattered Mind*, in 1975. This book focused on how different forms of brain damage affect people and how different parts of the brain regulate different cognitive functions. After completing this book, he thought about writing a book on how different human faculties are connected to the brain. In 1976, he wrote an outline for this new book, which was eventually titled *Frames of Mind* (Gardner, 2011a).

Several experiences enhanced Gardner's interest in cognitive function. One of these was his work at the Boston Veterans Administration Hospital. After completing his doctorate in Developmental Psychology, he got a fellowship at this hospital, allowing him to observe patients with brain damage. While working there, he continued to work at Project Zero, where he held a position that started shortly after he began his graduate studies. Project Zero was founded in 1967 at the Harvard Graduate School of Education and has focused on exploring learning through the arts. Today, Project Zero also focuses on inquiry through diverse disciplinary perspectives to explore vari-

ous topics including intelligence, creativity, and ethics (Harvard Graduate School of Education, 2016).

His work at Project Zero concentrated on the development of children's artistic thinking. For a certain period, Gardner would be working in the morning with patients with brain damage and in the afternoon with children at Project Zero. These experiences shaped Gardner's concept of multiple intelligences because he noticed how some patients at the hospital were very musical but were not able to use language well. And he observed a similar pattern when working with kids (Mineo, 2018).

Multiple Intelligences

In addition to his previous interest in and work on cognitive abilities, Gardner's participation in a research project funded by the Bernard van Leer Foundation contributed to the writing of *Frames of Mind*. This project focused on conducting research on human potential. Its principal investigators assigned him to write a book documenting what was known about the connection between human cognition and the biological and behavioral sciences. It was this research that ultimately led to the theory of multiple intelligences (Gardner, 2011b).

The grant from the van Leer Foundation allowed Gardner to synthesize the work he did on brain damage with what he has learning about cognitive development. His studies on cognitive development explored seven ways in which children mastered symbol use and included their singing, drawing, and storytelling abilities. With his colleagues, he used literature from various fields, including psychology and anthropology, to determine the best taxonomy of intellectual capacities (Gardner, 2011b).

Calling the different abilities he identified "intelligences" created controversy, but popularized Gardner's work. He mentioned that had he used another word, he would not have been known all over the world. His theory was not accepted by many psychologists because they generally have different ideas about studying intelligence. For example, his views on intelligence are at odds with those of psychologists like Richard Herrnstein, who believed that IQ is inherited to a great extent (Mineo, 2018). In fact, Gardner was critical of a book Herrnstein co-authored entitled *The Bell Curve*, arguing that the book encourages readers to be sympathetic to the IQ elite and does not provide ideas about how to educate those who do not excel on IQ tests (Gardner, 2001).

According to Gardner, an intelligence involves a person's ability to solve a problem or do something considered valuable in one or more cultures. In the early 1980s, he identified seven intelligences and about a decade later added an eighth after (Checkley, 1997). Table 1 (overleaf) shows the eight intelligences he identified.

Gardner mentioned that the linguistic intelligence appears to be the one most widely shared by humans across the world because without linguistic skills in semantics, phonology, syntax, and pragmatics, people would have difficulty functioning with efficacy in the world. In contrast, the abilities of gymnasts, mathematicians, musicians, and visual artists are often perceived as remote and even mysterious by the average person (Gardner, 2011b).

Table 1

<i>Intelligence</i>	<i>Description of Intelligence</i>
<i>Linguistic</i>	<i>People with strong linguistic skills can use their native language, and sometimes other languages, to understand people and express their thoughts. Examples of professionals with above average intelligence levels in this area include writers and orators.</i>
<i>Logical-mathematical</i>	<i>Scientists are examples of people strong in the logical-mathematical intelligence because they can manipulate numbers the way mathematicians do. They tend to have above average logical-mathematical skills also because of their knowledge of causal systems.</i>
<i>Spatial</i>	<i>Spatial intelligence involves the skills people have to represent the spatial world. Spatially intelligent people tend to become painters, sculptors, and architects. Spatial intelligence is used more often in certain sciences like anatomy and topology.</i>
<i>Bodily kinesthetic</i>	<i>This intelligence relates to the ability to use whole or certain body parts to create something, solve a problem, or display skills involving bodily movement at an event. Examples of professionals strong in this intelligence include athletes and dancers.</i>
<i>Musical</i>	<i>People with enhanced musical intelligence have a heightened ability to hear, recognize, and remember patterns. They think in music and cannot get it out of their minds. In <i>Frames of Mind</i>, Gardner indicated that musical intelligence emerges earlier than other intelligences.</i>
<i>Interpersonal</i>	<i>The interpersonal intelligence involves one's ability to understand others. People strong in this intelligence can detect other people's moods, intentions, and desires. This intelligence is especially important for individuals who deal frequently with people like teachers, clinicians, and salespeople.</i>

<p>Intrapersonal</p>	<p><i>An enhanced understanding of oneself is a characteristic of someone strong in the intrapersonal intelligence. A developed intrapersonal intelligence enables people to anticipate how they would react to experiences and how to choose the experiences that can be beneficial. It also helps people be aware of the difficulties they might encounter.</i></p>
<p>Naturalist</p>	<p><i>The naturalist intelligence was added to the original seven. It relates to an individual's ability to differentiate among living things. People strong in this intelligence are good at classifying plants, minerals, and animals as well as rocks and grass.</i></p>

Note. The information in this table is adapted from (Checkley, 1997).

Criticisms of Multiple Intelligences Theory

Although MI theory has received tremendous attention, it has been criticized. In *Frames of Mind*, Gardner mentioned that two books were published with critiques of his theory: *Howard Gardner Under Fire* and *MI at 25*. Gardner has responded to criticisms of his theory. In 2006, for instance, he co-authored an article mentioning that Lynn Waterhouse had misunderstood his theory. One of the problems Gardner and Moran (2006) discussed regarding Waterhouse's idea of MI theory was her belief that it is not grounded in empirical findings. Gardner and Moran responded to this critique, insisting that the origins of MI theory are entirely based on empirical conclusions and that Warehouse was using a naïve perspective of science when making this claim.

In *Frames of Mind*, Gardner summarized some of the common criticisms of his theory and offered his responses. One of the objections critics have involves using the word "intelligence." For instance, critics say that "talent" would be a more appropriate word to describe the ability of a gifted dancer. Gardner's response is that in accepting a narrow definition of intelligence, people regard the abilities that fall outside of this definition as less valuable.

Another criticism of MI theory involves the connections between different faculties. Some scholars believe that since there are correlations between tests of ability, there is a level of general intelligence that people have. However, Gardner has expressed skepticism about these correlations, arguing that almost all tests focus primarily on logical and linguistic faculties. He mentioned that people strong in the logical and linguistic intelligences are likely to perform well on tests that focus on musical and spatial abilities. But those with weak logical and linguistic skills will likely perform poorly even if they have the skills these tests are allegedly measuring. According to Gardner, the extent to which various intelligences are correlated is unknown (Gardner, 2011b).

Other criticisms focus on the similarities between the intelligences and the lists some researchers have published about the different styles people

might display such as learning styles, personality styles, working styles, etc. Although there may be similarities, there are differences between these styles and Gardner's intelligences. Intelligences are content specific, but researchers tend to believe that styles remain the same across content. For instance, people can be viewed as emotive or analytic regardless of the content to which they are exposed. In contrast, Gardner identified his intelligences according to the content in the world, such as numerical and spatial content. A child may be engaged with one type of content but inattentive with another type. Therefore, considering styles and intelligences to be synonymous is problematic (Gardner, 2011b).

Implications of the Multiple Intelligences for Educators

In a 1997 interview, Gardner described the implications of his theory of multiple intelligences for how schools might provide instruction. At the start of the interview, he emphasized that the primary role of schools is to promote the learning of content and to develop the skills students will need and use after they graduate. However, whatever students learn in school will likely be forgotten unless they take an active role. To be active requires them to ask questions, participate in hands-on activities, and recreate and transform information as needed. Unfortunately, exams do not necessarily measure the extent to which students are involved in active learning. Students can do well on an exam by memorizing information, which they will likely forget after a few years. In contrast, students who conduct an experiment, analyze the data, make a prediction, and see the results develop skills and knowledge likely to last for a much longer period (Edutopia, 2009).

Regrettably, American schools have too often failed to encourage the environment needed for students to take the active role that will develop the skills and knowledge they will need after they graduate. One reason for this trend involves the overuse of standardized tests to evaluate schools and teachers. At the start of the 21st century, for example, schools began to rely more on these tests to evaluate teachers and schools, leading many teachers to use a style of teaching that focuses on memorization (Morgan, 2016). In December of 2015, the passing of the Every Student Succeeds Act (ESSA) ended the high-stakes consequences previously attached to students' standardized test scores. However, it requires students in grades 3 to 8 to be assessed through standardized tests every year (Wang, 2019).

ESSA is a policy that is more harmonious with Gardner's views on the type of learning that benefits students because it encourages teachers to meet the needs of students by implementing innovative methods such as differentiated instruction. Under No Child Left Behind (NCLB), the policy ESSA replaced, schools did not have this option, and schools that continuously failed to meet their state's annual achievement targets faced the possibility of being shut down (Klein, 2015). The pressure teachers were under led many of them to teach to the test, using the kind of teaching that Gardner mentioned should be avoided.

While ESSA will likely reduce the type of teaching based on memorization that NCLB encouraged, some states have continued to use test scores

to hold teachers accountable (Close, Amrein-Beardsley, & Collins, 2019). This trend is unfortunate because some systems of education do not use standardized tests to evaluate teachers to avoid the problems associated with this practice. For example, Finland's education system has received tremendous attention because its approach to education differs greatly from the methods many other nations implement and does not involve the use of standardized tests to evaluate teachers. Although standardized tests are used in Finland, they are implemented *only* for curricular decisions and university admission (Morgan, 2018).

Since students vary greatly in the intelligences Gardner identified, teachers need to differentiate instruction to be effective for *all* their students. If they teach to develop several intelligences as they neglect others, they end up discriminating against the students who are strong in the intelligences they neglect but weak in those teachers choose to develop. It may seem impossible to adjust instruction according to the differences in intelligence levels among students in a given class. For example, how can a teacher achieve this goal in a class containing a student with a very hands-on way of learning, a learner with strong visual intelligence, and a pupil with highly developed linguistic skills? Gardner addressed this question, mentioning that the teacher can provide resources, materials, and software that present content in ways for each child to use her or his intelligences productively (Edutopia, 2009).

One of the problems of using standardized tests to assess students is that such tests usually do not measure many of the intelligences Gardner identified including the interpersonal, intrapersonal, musical, and bodily kinesthetic. Instead, these tests focus only on two: the linguistic and mathematical intelligences (Morgan, 2016). And when teachers are evaluated in part on how well their students perform on standardized tests, they often feel pressure to develop the intelligences these tests measure and ignore the others. Although ESSA reduced the use of standardized tests, it maintained many of the testing mandates the No Child Left Behind Act required (Blad, 2021).

In addition to the importance of having students do well on standardized tests, schools may avoid implementing instruction according to multiple intelligences (MI) theory based on the false belief that uniform instruction is fair. It may seem fair to assess all students in the same way and provide instruction uniformly because everyone is receiving the same treatment. However, this approach to instruction is based on the assumption that all students learn in a similar way. But according to MI theory, students weak in one intelligence will not learn as well if teachers deliver instruction only through the intelligence students may be weak in. For example, a child with weak verbal skills will likely perform less well than one with strong verbal skills if a teacher uses an instruction style that focuses primarily on learning through words and language. But if the child with weak verbal skills has strong spatial skills and if the teacher uses plenty of pictures, images, photos, and drawing activities, this child will have a much better chance of making academic gains.

According to Gardner (1999), teachers may ignore certain intelligences and focus primarily on providing instruction through language and logic for several reasons. First, they may be unaware that different students have different types of minds. Second, they may have a set of students who

vary greatly in the intelligences they are strong in and may feel incapable of accommodating each student. Third, they may be convinced that although students are different, they need to learn to be more alike to become members of a community. Teachers who ignore the intelligences students are strong in as they acknowledge the intelligences students are weak in are not only providing instruction unfairly but making certain students feel stupid (Gardner, 1999).

In a recent interview, Gardner expressed the importance of using students' strong areas when introducing them to topics in the traditional curriculum. Teachers who avoid proceeding this way as they focus primarily on pupils' weak areas increase the chances for students to develop low self-esteem (Hunter, 2021). It is crucial to allow students to develop the areas in which they are talented. In his recent interview, Gardner used physics to show how providing instruction through the intelligences commonly ignored may be achieved by teaching this subject using a method other than one focusing on a textbook. For example, students could understand physics topics through their bodily intelligence (Hunter, 2021).

Personalized Learning

Since uniform instruction is detrimental, one alternative for improving the teaching environment is to implement personalized instruction. This type of instruction involves a type of teaching that matches the different kinds of minds students have. Teachers who use this approach must first gain awareness of the types of minds their students possess by learning about students' interests, anxieties, goals, and strengths without stereotyping them (Gardner, 1999).

James Keefe (2007), a former high school principal, mentioned that personalized learning develops the entire range of human talents but that schooling is rarely personalized. This trend can contribute to catastrophic results. It can also lead the most creative people to be miserable in formal schools. For example, people like Charles Darwin, Sir Isaac Newton, Louis Pasteur, Orville Wright, Albert Einstein, and Marlon Brando failed to thrive in their schools (Keefe, 2007).

Personalized learning involves tailoring students' learning experiences according to their individual needs, skills, and interests. It allows students to follow an optimal learning path based on various types of instructional methods, which include group projects, instructional software, and individual and small-group time with teachers. This approach differs from the traditional way of teaching, which emphasizes leading the whole class to learn a common lesson (Childress & Benson, 2014).

Schools and teachers can personalize instruction in many ways. And there is no one optimal way to achieve this goal. Different views also exist about personalized learning. For some educators, it means adding a personal touch when dealing with students. For others, it involves modifying instruction based on their needs. The differences in ideas about personalizing instruction have led to confusion. Many educators know little about this approach or think that it is too difficult to implement. And others perceive it as a fad that will disappear like other ones that come and go quickly (Keefe, 2007).

These views are unfortunate because when implemented well, personalized learning can help students make strong academic gains. For instance, after providing support to teachers in differentiating instruction, the Summit Public Schools in California experienced impressive success in enhancing students' academic progress. Six of Summit's charter schools improved their reputation as institutions that prepare students well for college, although they served a considerable number of pupils from low-income families (Childress & Benson, 2014).

After analyzing data on the students who went to college, Summit administrators discovered that many pupils were not ready for college level math. This problem led to a need to explore ways to enhance math preparation. Summit teachers then personalized learning by developing a blended math model with Khan Academy (Childress & Benson, 2014). Blended learning consists of a combination of different models of teaching and modes of delivery (Gonzales & Vodicka, 2012). This approach combines face-to-face and online instruction to customize learning for each student and makes content more accessible. When implemented well, it usually involves student choice or agency in their own learning (Pierce, 2017).

Fortunately, approaches based on personalized learning have increased considerably in recent years. ESSA is partly responsible for this trend because it authorizes Congress to provide funding for professional development. Districts can use this funding for supporting teachers to integrate technology into the curriculum to personalize instruction and implement blended learning (Center for Digital Education, 2017). It was recently estimated that at least three-fourths of U.S. school districts have used some form of blended learning (Pierce, 2017).

One of the ways teachers can implement blended learning is by converting their classrooms into "flipped classrooms." This approach to teaching personalizes instruction to a certain extent because it permits students more chances to learn at their own pace. Students learn at a level that matches their abilities because they receive instruction through a video at home rather than through a face-to-face setting. When teachers provide instruction through a traditional approach, they usually deliver content too slowly for some students and too quickly for others. However, when students have access to the content on a video they view at home, they can view difficult material over and over and spend little time on content they easily understand. When lecturing, teachers typically have little information on which content students understand, because they normally get this feedback after reviewing students' homework. In contrast, in a flipped classroom, students do much of their "homework" at school, allowing the teacher to provide more guidance to students who have difficulty, while offering more challenging work for those who find it easy (Morgan, 2014a).

Blended learning can be implemented in a variety of ways. But regardless of how teachers use this approach, it requires more time to plan. The planning involves preparing the variety of activities that will match students' abilities and appeal to their learning preferences. Although teachers may be intimidated by having to design different lessons based on students' needs, the progress students typically make is usually worth the extra effort teachers put forth (Pierce, 2017).

To plan well for personalizing or differentiating instruction, teachers need to have a strong understanding of the theories behind this approach to learning. As previously mentioned, Howard Gardner's theory of multiple intelligences is crucial for understanding how to provide instruction based on the different minds people have. Another critical theory for knowing how to personalize instruction is Lev Vygotsky's zone of proximal development.

Lev Vygotsky's Zone of Proximal Development

Gardner's theory of MI is similar in some ways to Lev Vygotsky's zone of proximal development. Indeed, differentiated instruction has been described as an approach to teaching based on both Gardner's MI theory and Lev Vygotsky's zone of proximal development (Morgan, 2014b). These two theories are alike in that they have similar implications in regard to teaching according to a level that matches students' abilities. As previously mentioned, Gardner indicated in one of his books that if teachers continuously teach students according to the intelligences they are weak in, students will feel stupid. Vygotsky's theory also suggested that if there is a mismatch between teachers' instructional methods and the skills of their students, negative outcomes will likely occur (Morgan, 2014b).

According to Lev Vygotsky, the zone of proximal development involves the level at which a learner can achieve a task with the guidance from a more capable peer or an adult (Vygotsky, 1978). According to this theory, teachers need to teach students having difficulty understanding a concept in a way that will allow them to comprehend the concept and proceed at their own pace. One way to fulfill this goal is by providing instruction through the intelligences students may be strong in for the purpose of developing their weak intelligences. For example, as noted earlier, children with weak verbal skills but strong spatial skills will much more likely improve their verbal skills if their teachers use plenty of pictures, images, photos, and drawing activities. But if their teachers insist that these students can learn as well as those with more advanced verbal skills without such visual aids, those with weak verbal skills will likely feel frustrated.

Research on the chemicals the brain releases when students learn supports the idea that teachers need to instruct students according to students' abilities. If students are frustrated or bored because the instruction their teachers provide is too difficult or easy, their brains will likely release too much or too little of the chemicals needed for learning. As a result, they may experience a sense of withdrawal or behave inappropriately (Morgan, 2014b).

Teaching according to a level that matches students' abilities does not necessarily mean relying on the intelligences not commonly used during classroom instruction. Students can be taught according to the zone of proximal development simply by adjusting instruction so that it is neither too challenging nor too simple. However, in many cases, when teachers provide instruction through a wide variety of intelligences rather than a few, they make content easier for students who would otherwise have difficulty understanding it (Morgan, 2014b).

When teaching math, for example, teachers can make content easier to learn by allowing students to use manipulatives, which are physical objects such as pens. Such an approach creates opportunities for students to interact

physically with objects to learn new content (Carbonneau, Marley, & Selig, 2013). By using this method, teachers permit students to learn in part through their bodily kinesthetic intelligence. The use of manipulatives also encourages students to connect concrete experiences to abstract concepts and usually makes math fun to learn (Tichenor, 2008).

Ideas on Enhancing Creativity

Personalizing instruction is not the only topic Gardner discussed regarding how the education of students might be improved. He also covered topics involving creativity and provided examples of how certain people developed their creative potential using each of the intelligences he identified. These people are important to study because they shared certain qualities allowing them to be creative. Educators, therefore, might attempt to promote the development of these qualities to enhance student creativity. Gardner also offered his ideas about what educators might do to promote creativity.

Before exploring some of the individuals he identified as exemplars in the area of creativity and his views on the approach most likely to promote creativity, it is important to explore his understanding of creativity. Gardner indicated that creativity occurs when someone produces something new that first seems odd but becomes accepted by people who have knowledge about it. The decisive test involves whether the domain the invention is associated with becomes changed as a result of the invention (Schreuder, 1997).

Another important aspect involving creativity is that it differs from intelligence. In fact, psychologists often perceive people with creative potential as those who think divergently. However, intelligent people are often perceived as those who think in a narrower way. Rather than generate a large number of possible answers, intelligent people tend to be thought of as those who can figure out the right one. Although creativity is correlated with intelligence, people can be highly intelligent with unimpressive creativity skills or be much more creative than intelligent (Gardner, 2011c).

Individuals with Extraordinary Creative Skills

Gardner (1995) chose examples of people who had extraordinary skills in each of his intelligences. These people consisted of T. S. Eliot (linguistic), Sigmund Freud (intrapersonal), Pablo Picasso (spatial), Albert Einstein (logical-mathematical), Igor Stravinsky (musical), Mahatma Gandhi (interpersonal), and Martha Graham (bodily-kinesthetic). In thinking about the creativity of these individuals, he considered the interaction of three constituents:

1. The individuals themselves with their styles and needs.
2. The area of knowledge each person specialized in.
3. The collection of people who offered awards and training and who made judgments regarding the products the individuals produced.

He noted that it makes no sense to think that creativity emerges by thinking about the individual without considering the field and the domain: “the possibility of creativity emerges only when an individual carries out work within a

domain and the field ultimately comes to value that work” (Gardner, 1995, p. 35).

In exploring the lives of the seven individuals, Gardner noticed some similarities in their personalities and in the way they lived their lives. One similarity was that they tended to reject standard practices and desired to try new things. For instance, Einstein rejected the paradigms of the physics of his time (Gardner, 2011c). These creative people also needed cognitive and affective support. Those who provided them with affective support loved them and assured them they were not crazy. And those providing cognitive support realized they were in the process of making an important discovery (Gardner, 1995).

Gardner found that these individuals had above average ability in more than one intelligence. For instance, Einstein had outstanding logical-mathematical skills as well as excellent spatial skills. And Freud not only had notable personality skills but also had excellent linguistic skills. These extraordinarily creative people were also difficult, demanding people at some point of their lives. Although it might be misleading to describe some of them as workaholics during their youth, all of them became so absorbed in their work to a degree that nothing else was more important. Gardner indicated that great creators are responsible for a number of breakthroughs during their lives and that it takes about 10 years for them to achieve each one (Gardner, 1995).

There were also differences among these people. For example, the breakthroughs they were responsible for reflected different ways of thinking. Freud’s achievements and thought processes differed from Einstein’s. For this reason, Gardner mentioned that there are various forms of creativity (Gardner, 2011c).

Environment for Promoting Creativity

One of the questions parents and educators may want to ask themselves is whether or not they want their children or students to grow up to be like one of the creative people just mentioned. When children stand out from others for doing things differently, they frequently get rejected (Schreuder, 1997). Considering that the creative people Gardner identified endured significant pressures and challenges, some adults may not perceive the experiences these individuals had as the ideal ones for their children. Fortunately, students can be creative as educators attempt to minimize the challenges associated with being creative. Promoting creativity is therefore a goal that educators generally consider worthy and desirable to achieve. An environment encouraging discovery learning tends to be more motivating as well (Stapleton & Stefaniak, 2019).

The results of a nationally representative study conducted by Gallup and designed to explore the outcomes of assignments that promote creativity indicated that such assignments contribute to many benefits. Teachers who frequently assign creative activities were more likely to feel that their pupils show important components of learning such as the development of problem-solving and critical thinking skills. The majority of parents and teachers participating in the study felt that the most important educational strategies were those that promote creativity. Unfortunately, the study’s findings indicated

that although creative work contributes to many academic benefits, such work is too often not assigned (Gallup, 2019).

Encouraging students to develop some of the qualities the seven creative people Gardner identified shared can allow educators to provide the kind of environment students need to be creative. So what did Gardner mention about the characteristics of people who achieve breakthroughs? First, such people know their domain well. For example, without knowledge of music, it is impossible to write music. Creative people are also risk takers who are not easily subdued. And they invent something at a time when there is a need for it. For instance, Einstein's theory would have been harder to accept had he developed it a century earlier than the time he came up with it (Schreuder, 1997).

Unfortunately, the encouragement of creativity is usually a low priority in many schools. Students who take risks and reject standard practices are likely to contribute to a disruptive environment. Gardner suggested that most teachers would probably prefer for the development of creativity to occur during extracurricular activities after school rather than deal with such an environment on a regular basis (Gardner, 1995). He suggested that the development of creativity is often considered a luxury, which progressive schools might promote. Wealthy parents who can provide more than a basic education for their children may be able to offer an environment that promotes creativity, but it is unrealistic to expect the average school to provide it. Schools may have good reasons for not emphasizing the development of creativity. In addition to the possibility of having to deal with a more disruptive environment, teachers need to teach various subjects and to encourage civility (Gardner, 1995).

However, as noted earlier, a creative environment usually contributes to many benefits. To provide such an environment, Gardner mentioned a few strategies. First, children need to know that taking chances is fine. They need to be supported because doing things in a different way increases the chances of being rejected. Children also need to know that there are limitations to the chances they can take. Although encouraging creativity requires educators to accept more responsibilities, they experience a strong sense of fulfillment when they guide someone who goes on to make an important contribution to society (Schreuder, 1997).

Importance of Developing Creativity at an Early Age

Children display works showing their creativity at an early age. Such works consist of the scribbles early drawers create and the stories young children tell. These examples constitute the willingness to take risks that characterize great inventors. Gardner discussed that adults may even draw upon these early activities when they are involved in creative endeavors (Gardner, 1991).

To develop into one of the seven creative people Gardner identified, young people need to have the basic skills of the domain they will use to create new products and ideas. Gardner discussed that it is in the middle years of childhood that children are most suited to develop skills in a domain and that adolescence is the best time to combine these skills with the creativity that they often display during earlier years (Gardner, 1991).

In one of his essays, he described what he believed was the best approach to develop creativity during the early years. In this essay, he also mentioned the influence of John Dewey and Jean Piaget on the American education system. According to these Western thinkers, childhood is not just a time of transition to adulthood but a time when children display their genius. The Western view emphasizes that children are born knowing how to solve problems and that those responsible for raising them need to permit children to mature at their own pace. Schools should therefore refrain from strict instruction. Instead, they need to supply an environment that allows children to flourish (Gardner, 1989).

Although many American schools are criticized for their failure to promote creativity, innovation is generally tolerated. Indeed, Gardner mentioned that according to the American view, the ideal method for dealing with a new problem is to offer many chances to investigate it with little instruction from a teacher. This way of exploring is frequently considered the optimal approach for finding out one's competence in relation to a problem. Students who can solve problems in new ways should be praised. However, aid may be appropriate if they become frustrated. In offering aid, educators should refrain from providing answers. Instead, it is best to offer suggestions and hints. Gardner (1989) indicated that those who are responsible for the most innovative achievements tend to proceed in a novel direction and make decisions on their own.

Gardner's views about the ideal environment for learning are in many ways similar to Jerome Bruner's cognitive constructivist approach. In fact, Gardner mentioned that Bruner increased his awareness of many issues (Gardner, 2011b). According to Bruner's constructivist approach to learning, children construct new knowledge by exploring things in the world. The teacher's role during this process involves setting up an environment that will allow students to discover associations between concepts rather than playing the role of an authority figure (Stapleton & Stefaniak, 2019).

Regrettably, it is not unusual to observe teachers instruct students in a manner antithetical to the philosophy of teaching based on the constructivist approach (Ellis, 2010). Such teachers lead students to become dependent and dominate the class instead of playing the role of facilitators. In contrast, teachers who implement a style of teaching based on Bruner's ideas provide students with opportunities to explore. Such teachers create an environment that promotes creativity and motivation. Bruner's approach to learning encourages creativity because it creates opportunities for students to learn actively, creating chances for them to be exposed to new ideas. And active learning not only contributes to motivation but to retention as well (Stapleton & Stefaniak, 2019).

These are some of the reasons it can be important for children to have opportunities to explore at a young age. However, as Gardner noted, in order for creative people to produce valuable outcomes, they need to have the skills and knowledge of a domain. Parents and teachers might ask whether children should be instructed to develop skills first and then have chances to be creative later or whether they should be allowed to explore first and then have opportunities to develop skills later. Gardner believed that the preferred ap-

proach involved devoting the first seven years of children's lives to a creative approach that focuses on exploring and that after this period, instruction could focus on basic skills (Gardner, 1989). He reached this conclusion as a result of his understanding of developmental psychology and his observations in various countries. However, he acknowledged that it is possible to implement an approach focusing on skill development that leads to creative products (Gardner, 1989).

Although Gardner believed that the early years of life needed to focus on an environment emphasizing exploration, he indicated that some skill acquisition during this period was important as well. And he warned of the danger of providing an environment that promotes too much creativity without enough skill building. Also dangerous is an environment that promotes too much skill building without allowing enough opportunities to develop creativity (Gardner, 1989).

Conclusion

Howard Gardner's theory of multiple intelligences has proven to be a crucial theory that sheds light on the different ways students learn and the need to deliver instruction according to their needs. When students are provided with instruction that matches their needs, they tend to learn more and remain engaged. Unfortunately, too many instructors overlook many of the intelligences identified in *Frames of Mind*. This practice is detrimental for several reasons. First, teachers who focus on developing a limited set of intelligences typically fail to take advantage of how students may be gifted in certain areas. Second, developing only a few intelligences oftentimes makes students weak in these intelligences feel inferior and prevents them from learning new content.

Promoting creativity during instruction appears to be as important as personalizing instruction based on Howard Gardner's MI theory. Requiring students to complete creative assignments develops students' problem solving and critical thinking skills. A classroom environment encouraging discovery learning will likely enhance student motivation and develop creativity. Such an environment is believed to allow students to retain new content for a longer period. By personalizing instruction in a manner that allows students to learn through an approach based on discovery learning, instructors can create an environment that benefits students in many ways.

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CHAPTER EIGHT

VLAD PETRE GLAVEANU: RESEARCHER, SCHOLAR, CREATIVE SCIENTIST, TEACHER

FREDRICKA REISMAN

Vlad Glăveanu is a social and cultural psychologist with an interest in creativity and especially the relationship between creativity and culture. His work focuses on creativity, imagination, culture, collaboration, and societal challenges. He speaks 5 languages and is proficient in English and Romanian, displays an intermediate level of French and Spanish and an elementary level of Portuguese.

Dr. Glăveanu's assertion that *creativity is complex* points out the absurdity of our simplistic widespread acceptance to define creativity as *original/novel and relevant/useful*. Interviews of Dr. Glăveanu by Suzanna E. Henshon in the Roeper Review and by Keenan-Lechel, Henriksen, & the Deep-Play Research Group provide insight into his personal observations as well as his proclamation of the complexity of defining creativity. In response to Henshon's question asking *what led Glaveanu to the field of psychology and then to the study of creativity*, he responded that many events, some intentional, some accidental including a love for birds and their behavior and understanding of their habitat. His discovery of symbolism and mythology and the fact that his mother was an art teacher made him curious about culture, history and society, but a more pragmatic deciding factor was having won several national school contests in psychology that allowed him to enter the University of Bucharest and subsequently obtain his masters and PhD degrees from the London School of Economics. Vlad's early interest in symbols led to his dissertation on creativity in craft, taking the decoration of Easter eggs in Romanian communities as a case study, precisely in order to highlight the importance of community, tradition, habits, and even repetition for creativity.

Henshon's next question stated that *you have worked at several universities in Europe. What has immersion in these various national contexts contributed to your knowledge of psychology, or creativity, or giftedness?* Glăveanu responded that he did study and/or teach at quite a few universities including the University of Bucharest (Romania), London School of Economics (United Kingdom), Aalborg University (Denmark), and currently Webster University, Geneva (Switzerland), but not a U.S. university. Thus, he has experienced southeastern, western, Nordic, and central European academic

cultures and they each taught him something important about culture itself and about creativity including that the culture of universities, just like the one of the cities and countries around them, is not unitary or monolithic. In response to Henson's question concerning *individuals that have exerted the strongest impact on your thinking*, Vlad responded that he has been very lucky to collaborate, through the years, with a number of fantastic researchers, coming from different countries and disciplines, many of whom he is proud to consider friends, and last but certainly not least, his wife, Constance de Saint Laurent, who is also a sociocultural psychologist, and who had the strongest impact on his theoretical thinking about creativity. Henson further asked *what insights about creative processes or products can you extract from your projects?* Glăveanu responded: "First of all, any list of insights needs to be prefaced by what is perhaps the greatest insight of all: the fact that **creativity is an extremely complex phenomenon to study and theorize**. One cannot simply isolate creative ideation from the more general cognitive, affective, and motivational dynamics of the person. One cannot take this person outside of his or her unique developmental history and, at the broadest level, this history can only make sense when studied against the background of a given culture and society at a certain point in time. The ideal of parsimonious models in creativity research, those that isolate the creative person from other people, creative ideas from affect and motivation, idea generation from idea evaluation and implementation, is creating false and dangerous dichotomies."

Glăveanu offers a framework for understanding creativity rather than a definition in the Keenan-Lechel, et al interview:

Previously I proposed a five A's framework for creativity that includes the following "elements": actors, artifacts, actions, audiences, and affordances. Creative actors are the individuals, groups, or communities that initiate different creative actions. The artifacts, material and/or symbolic, including performances, norms, and values, represent the outcomes. Actions specific for creativity incorporate thinking processes such as combinatorial and divergent thinking but always as part of making, and they are not reduced to what the actors are doing to produce creative artifacts. The actions specific for creativity also include the contributions of different audiences—from collaborators to critics and the general public—who get to re-create artifacts through processes of (re)interpretation and user innovation. Last but not least, the dynamic of creativity has a strong material dimension to it, captured well by the notion of affordances. This concept designates what objects allow or afford our action; in other words, the action potentials embedded within the physical spaces we inhabit and constantly (and creatively) transform. What is crucial about the 5 A's framework is the fact that these notions don't reflect disparate, disjointed elements. On the contrary, actors, artifacts, actions, audiences, and affordances are interdependent within creative

expression and it is precisely their dynamic interplay and evolution over time that (sociocultural) creativity researchers aim to study.

In recent years I added, from a pragmatist standpoint, new dimensions to this vocabulary for describing creativity and creative processes. More specifically, I am trying to theorize creativity in terms of difference, positions, perspectives, and dialogues. To start with, differences—between people, between signs and objects, between past, present, and future, etc.—are a necessary condition for creativity. Creative action originates in difference in the sense that it makes us aware of and helps us bridge gaps in our understanding, in our material world, and in our social life (from Darwin trying to make sense of how existing views matched the empirical evidence he collected on his journey to Galapagos, to trying to make a good, healthy dinner from scratch). But, at the same time, differences in and of themselves are not a sufficient condition for creativity to take place. We become acutely aware of this every time we work in groups and notice that more points of view are not necessarily more conducive to creative expression. Here is where the second and third notions, those of position and perspective, come in. We all occupy, at all times, certain physical, social, and symbolic positions in the world (think, for example, about the position of your body but also the social role or roles you are playing at the moment). These positions allow us to relate to the world around us by developing certain perspectives on reality. Our physical position engenders certain visual, auditory, or other perspectives and not others. Our social roles come with a set of expectations and possibilities that define what perspective we enact in a given situation. Both sensorial and conceptual perspectives are, thus, fundamentally related to action (to link this discussion back to the five A's model)

Henshon next asked *What other concepts have held your interest over the years?* Glăveanu listed the following: Alongside creativity, I have been interested from early on by craft and craftsmanship. Achieving masterful action requires practice, apprenticeships, and learning. These are all essential characteristics of craft. Vlad also included an interest in imagination and the possible. Henshon finally asked: *What research are you currently working on?* Glăveanu described 3 current interests; namely, perspective taking, social media, and the migration crisis.

The following portion of this chapter addresses Dr. Glăveanu's education, positions, teaching and research projects.

Education

Vlad has a PhD in Social Psychology from the London School of Economics and Political Science, United Kingdom. His supervisor was Sandra Jovchevlovitch and his dissertation title is “Creativity and culture: Towards a cultural psychology of creativity in folk art,” completed July 2012. He attained a Post-graduate Certificate in Higher Education at the Teaching and Learning Centre, London School of Economics, United Kingdom in 2008, and an Msc in Social and Cultural Psychology with Distinction from the London School of Economics and Political Science in 2007. Vlad Glăveanu’s BA with High Honors in Psychology is from the University of Bucharest.

Positions

Glăveanu currently holds several positions with start dates ranging from 2012 including Associate Professor, Department of Communication and Psychology, Aalborg University, Denmark; Associate Staff, Department of Psychology and Behavioural Science, London School of Economics, UK. Course co-convenor, Lent term; Associate Researcher, Laboratoire Adaptations Travail-Individu, Universit. Paris Descartes, France; and Associate Researcher, Institute of Psychology and Education, Universit. de Neuch.tel, Switzerland. In addition, he was Associate Professor II, Centre for the Science of Learning and Technology (SLATE), Bergen University, Norway that was a 20% position, 2017-2018 and served as a Teaching Fellow, LSE100, London School of Economics and Political Science, United Kingdom, 2011/2012.

Teaching

At Aalborg University, Vlad has a robust teaching history including the following: Social Psychology (undergraduate lectures+continuing education) and Educational Psychology (undergraduate lectures+continuing education). Advances in Research Methods (undergraduate lectures), Qualitative Methods (undergraduate lectures), Creativity and Competence (undergraduate lectures), The Psychology of Creativity (optional course), The Cultural Psychology of Creativity (optional course), Cultural Psychology and Social Practice (graduate lectures), and Consultancy in Organisations (graduate lectures / workshop). He also lectures at the London School of Economics and Political Science; Folkeuniversitetet,

Denmark; the Academy of Special Education, Poland; the Universit. de Neuch.tel, Switzerland, University of Copenhagen, Copenhagen, Denmark; Universit. Paris Descartes, Paris, France; University of Antioquia, Medellin, Colombia; University of Brasilia, Brasilia, Brazil; University of Connecticut, USA; Teacher’s College, Columbia University, USA; Ritsumeikan University, Kyoto, Japan; Bergen University, Bergen, Norway; and Universit. Cattolica del Sacro Cuore, Milan, Italy. Glaveaunu also is engaged in supervision and examination for students from the Bachelors to PhD levels of study.

Research Projects

Vlad's research is cutting edge and collaborative and current focus includes: *Experimental research into individual and group creativity with a focus on reflexivity and perspective taking in contexts of collaboration*. Collaborators are Alex Gillespie (London School of Economics, UK) and Maciej Karwowski (Academy of Special Education, Poland), James C. Kaufman (University of Connecticut, USA). *Creativity, art, activism and social change in marginalised or oppressed communities, in protest and in revolution*. Collaborators: are Zayda Sierra (University of Antioquia, Colombia), Gerald Fallon (University of British Columbia, Canada), Gemma Argüello Manresa (Universidad de las Américas Puebla, Mexico), Sarah Awad and Brady Wagoner (Aalborg University, Denmark). *Digital communication, social media, political imagination, and the European refugee crisis*. Collaborators are Constance de Saint Laurent (Université de Neuchâtel, Switzerland) and Ioana Literat (Teacher's College, Columbia University, USA). *Distributed and participatory creativity in education and in society*. Collaborators are Ronald Beghetto (University of Connecticut, USA), Michael Hanson (Teacher's College, Columbia University, USA), Edward Clapp (Project Zero, Harvard University, USA). *Creativity and the development of values in educational contexts*. Collaborators are Angela Branco (University of Brasília, Brazil) and Monica Neves-Pereira (University of Brasília, Brazil).

Vlad is recipient of numerous scholarships, awards and grants, is a sought after presenter, and has several editorships including: The Journal of Creative Behavior; Psychology of Aesthetics, Creativity, and the Arts; and the International Journal for Talent Development and Creativity (IJTDC). In regard to publications, Vlad's latest list includes 4 Handbooks, 4 Books, 4 Edited books, 4 Lead and invited articles, 53 Chapters and 71 Articles.

On a personal note, I am delighted that Vlad immediately agreed to join the illustrious Inaugural Advisory Board of the *Freddie Reisman Center for Translational Research in Creativity and Motivation* described in chapter 25.

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CHAPTER NINE

VLAD GLĂVEANU

WENDY ROSS

Vlad Glăveanu occupies a unique space in the history of creativity studies. Although he only wrote his thesis less than ten years ago in 2012, he has had a significant impact on our understanding of creativity as not only influenced by but constituted through the socio-cultural world in which the creator is embedded. He has published over 100 peer reviewed articles and as many chapters in respected edited collections. His papers have been cited close to 5000 times and have been influential in crafting and shaping creative discourse. Beyond this, he is deeply involved in editorial work, sitting on the editorial board of the main journals in the area of creativity as well as being the Editor in Chief of Europe's Journal of Psychology (which he founded as an undergraduate) and Managing Editor of the Journal of Possibility Studies and Society. For the past few years, he has directed the Webster Centre for Creativity and Innovation which has brought together international thinkers in this area and established itself as a key hub in the growing network of creativity researchers. It is hard for this entry to do Glăveanu's influence justice but by focusing on a few key papers, I hope to draw out important themes in his work.

It is important to establish that Glăveanu works from a socio-cultural perspective on creativity. As he outlines in a 2011 paper *How are we creative together*, socio-cultural perspectives move beyond seeing the environment as an influence on an otherwise removed individual to something through which creativity operates: Through action, creativity emerges from the person and the material and social surroundings and neither can be reduced to an "influence" rather they are integrated in the act of being creative. To borrow from the 2010 paper *Principles for a cultural psychology of creativity* (p. 152):

This theoretical framework stresses the fact that creativity is relational in nature and is born of intersubjectivity, of explicit and implicit connections between an individual or collective creator and others (both from the same and different communities). Simultaneously, producing the 'new' requires a constant dialogue with the 'old', with the existing systems of artifacts, norms and knowledges that both Self and Other hold, share and, at times, contest.

This socio-cultural emphasis led him to lead a group of key researchers in drafting *The Socio-Cultural Manifesto* (2020). The points on this

manifesto are a useful introduction to Glăveanu's stance on creativity so I outline them here:

1. Creativity is, at once, a psychological, social and material (physical and embodied) phenomenon;
2. Creativity is culturally mediated action;
3. Creative action is, at all times, relational;
4. Creativity is meaningful;
5. Creativity is fundamental for society;
6. Creativity is dynamic in both its meaning and practice;
7. Creativity is situated but its expression displays both similarities and differences across situations and across domains;
8. Creativity needs specification;
9. Creativity research needs to consider power dynamics both within our analyses and as a field of study;
10. The field of creativity studies needs both quantitative and qualitative methodologies with strong theoretical grounding;
11. Old literature should be revisited and not abandoned;
12. Creativity researchers have a social responsibility.

Over the course of this entry, many of these points will be touched upon explicitly with a focus on the dynamic, embodied and situated nature of creativity which has threaded its way through so much of Glăveanu's work.

It is also important to note that while Glăveanu has conducted some quantitative research, he is predominantly a qualitative researcher. This is in part informed by his focus on creative action rather than achievement. In the *Principles for a cultural psychology of creativity* (2020), he explains this methodological stance (p.155)

In terms of general methodology and because of the need to have an in-depth situational understanding of creativity, qualitative methods would probably be, in the first instance, more suitable than quantitative ones: from ethnographic research and case studies (gathering information about individual circumstances and the social and historical context of the creative act) to interviews and focus groups (on issues related to creative identities and creativity assessment).

Research on creativity is dominated by studies of a quantitative nature but this can at times obscure the idiosyncratic and contingent nature of the creative arc (Katz-Buonincontro & Anderson, 2020) and Glăveanu's qualitative case study work and work across larger groups of creators (see for example (Glăveanu et al., 2013) have greatly increased our understanding of the granularity of analysis.

Paradigms in the study of creativity: 'He', 'I' and 'We'.

Glăveanu firmly set out the space for socio-cultural psychology in his (2010) paper *Paradigms in the study of creativity: Introducing the perspective of cultural psychology*. Here he explores three paradigms which he suggests

structures research in creativity theory and psychology: The *He* paradigm, the *I* paradigm and the *We* paradigm.

The *He* paradigm refers to the lone genius which is a clear and persistent representation of creative acts. As Glăveanu demonstrates this became particularly important to the understanding of creativity during the Renaissance and Romantic periods when the location of genius moved from divine inspiration to an innate genetic predispositions, a move that was shored up by Francis Galton's work on hereditary genius in the 1870s. This form of creativity refers to historically meaningful creativity and is marked by two main features: exclusivity and disconnection. Under this paradigm creativity is a gift given to only a few and the creator (most often male) becomes other and disconnected from the surrounding world. This is a strongly individualistic stance to creativity and once which Glăveanu's work strongly rejects.

Glăveanu argues such a view of creativity with its focus on creative breakthroughs and the "great man" has limited creativity research, giving an elitist and essentialist account of creativity which detaches the creator from the community. The *I* paradigm emerged as researchers focused more on creativity as a psychological and personality trait. It reflects a move from the idea of genius to *gifted* and *creative* and suggests that everyone has the potential to be creative. Guilford's celebrated and oft-cited 1950 speech to the APA convention explicitly called for research on creative personalities and suggested creative acts were to be expected of everyone. This more democratic approach to creativity which led to psychometric approaches and considerations of creative cognition. Glăveanu makes clear that while these approaches avoid the problem of exclusivity, they still stem from a view of creativity which relates to something generated by something within the psychology person. It remains a deeply individualistic approach.

In what was to be the start of a career built on the decentering of the individual and a focus on a dialogical and perspectival view on creativity and thinking more broadly, Glăveanu describes the *We* paradigm which works to bring together both individual and societal structures. He examines the work of Teresa Amabile but suggest that there is still a focus on the individual and that the social in this work is still not the centre, rather he suggests that focus of this work is still an individual level phenomenon which is shaped by social factors. While he admires the historiometric method of Dean Simonton and the scientific rigour of the work, Glăveanu argues that this method by requiring an analysis of the work of historically significant creative geniuses also maintains this focus on the "great man" myth. Glăveanu suggest that the greatest achievement of the *we* paradigm might be Csikszentmihalyi's systemic model of creativity which propose that the person is creative in a field (the dominant social system) and a domain (a system of symbols). This systemic and ecological approach recognises the roles of culture in the generation of both creativity and the value attributions.

From this "we" perspective, Glăveanu broadens out his scope to propose a cultural psychology framework for creativity which takes into account the social context of a creative act and the back ground of cultural resources which are drawn upon. To this end Glăveanu (p.9) defines creativity from a cultural perspective as:

a complex socio-cultural-psychological process that, through working with “culturally-impregnated” materials within an intersubjective space, leads to the generation of artifacts that are evaluated as new and significant by one or more persons or communities at a given time.

He proposes the following model to structure understanding of creativity:

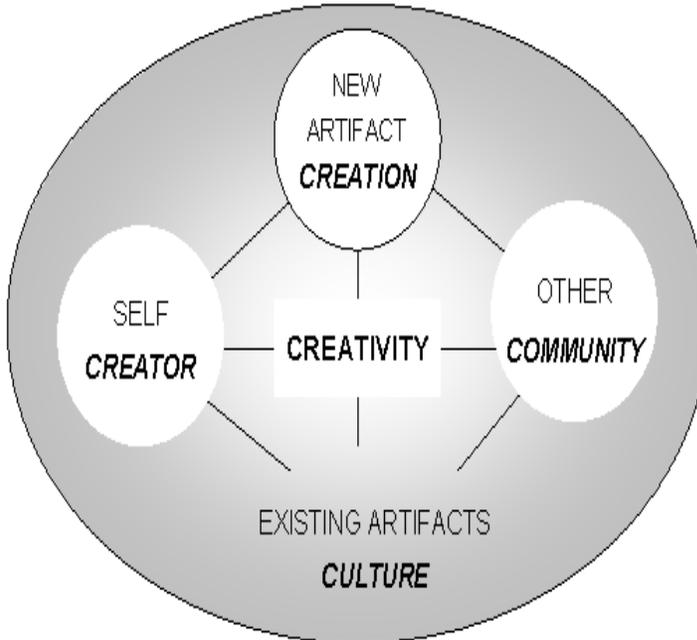


Figure 1: A proposed cultural framework of creativity taken from Glăveanu (2010)

This will later be elaborated on in the 5As model (see below). There are some key points to draw out here. First, that the material artifact emerges in dialogue between self and other as well as an existing body of cultural artifacts, symbols and norms. This is a model of true emergence which suggests that the dynamism of the creative moment cannot be reduced to its constitutive parts but arises from the tensions of artifact, self, others and cultural background. This situates creativity and creative meaning making in a community and body of thought. Second, that creativity is a generative process deeply rooted in the existing cultural norms. Third that the situatedness of

creativity leads to a research agenda which does not impose “scientific” notions of Western creativity.

Craft and habitual creativity

Glăveanu’s doctoral work centered around Romanian Easter egg decoration and this work inspired a deep consideration of the tension between habit and craft style making and the more elevated notion of “creativity”. As we have seen Glăveanu has already rejected the idea of a “Great Man, “I” paradigm as being useful to study or a good reflection of sociocultural creativity. His work on craft also aimed to shift the focus of creativity research from a one, shot “lightening” strike view of creative genius to a posit a creativity which is more habitual and part of ongoing human experience.

There is a theoretical tension in the idea that creativity can be habitual. It tugs against the dualistic notion that human activity can be either creative and innovative or mundane and repetitive. As Glăveanu outlines in his 2021 paper, habit is reduced in Western psychology to a series of learned and unconscious response patterns and is often seen as something to be changed or broken. On the other hand, creativity is seen as positive and meaningfully associated with the progression of human society. I would add that there is an additional social layer that classifies the work of the intellect above the work of the hands in terms of its value. Furthermore, the addition of intentionality to the understanding of creative acts places it out of the reach of unconscious and habitual gestures.

Glăveanu questions the usefulness of this dichotomy between creativity on the one hand and habit on the other and rather suggests we rehabilitate the notion of habit drawing not on a story of reflexive and unconscious action as demonstrated by the psychological approach but rather one which is more pragmatist in origin and casts habits as open to reflection during the course of action. He introduces Baldwin’s concept of progressive interaction where habit and imitation results in a fluid movement of change and accommodation. This is further elucidated in the discussion of the work of Dewey which has at its core the notion that behaviour cannot be segregated from the cooperation of organism and environment. Habit becomes not a dull repetition but an sensitivity to the environment in which the person is situated. This is similar to Bourdieu’s notion of habitat which is considered to be a “feel for the game”, a set of dispositions. Habitus is simultaneously formed and supple – it is an open system of dispositions rather than something predetermined and which is then rather aligned with indeterminacy than fixedness. In other words, habit can be conceived as a “social, situated and open system” (p. 83) Building on this, Glăveanu suggested that all creativity be seen as habitual, that is building on a detailed understanding of culture or materials. Rather than a lightening bolt, creativity arises from the type of open ended and indeterminate habit espoused by the pragmatists. This adherence to a pragmatist philosophy continues to inform Glăveanu’s work and can be seen as a clear thread throughout his theorising.

As a non-dualist approach within psychology, a pragmatist look at creativity allows us to overcome some of the oldest - and most damaging - separations within the field: those between mind and body, self and other,

individual and culture. A sociocultural psychology of creativity built on a pragmatist foundation shows us that we create as human beings, and not as brains or minds, beings that are at once agentic, situated, and in a continuous process of (creative) development. The starting point is the notion of action and the fact that most socioculturalists, especially those working in the pragmatist tradition, would consider creativity as a quality of human action or activity. This means that, instead of focusing on the creative process as a mainly cognitive and intra-psychological, sociocultural theorists approach creativity as a form of doing and, ultimately, of being in the world. Individual cognition, or creative thinking in this case, are not ignored but integrated within a wider Vygotskian notion of the mind as constituted through action and interaction.

The 5As: An update to the 3Ps

Glăveanu proposed his update to Rhodes' 4P model in 2013. Rhodes's 4P model has been used as an organising framework for the study of creativity since its publication in 1961. Rhodes suggests that to understand creativity, we need to look at 4 separate but interconnects domains – the person, the product, the process and the press. In his words:

The word “creativity” is a noun naming the phenomenon in which a **person** communicates a new concept (which is the **product**). Mental activity (or mental **process**) is implicit in the definition, and of course, no one could conceive of a person living or operating in a vacuum so the term **press** is also implicit (p. 305)

The 5A model is true to the idea put forward by Rhodes of a creativity which is situated and embedded as well as clearly demonstrating some of the themes which strongly echo through Glăveanu's work – namely the situated and everyday attributes of creativity. The 5A model also sets itself to counter very firmly the dominant trope in creativity which Glăveanu (2013, p. 69) describes as “written largely from the perspective of the individual and, within individuals, from the perspective of cognitive functioning.” Glăveanu argues that the original 4Ps have been read in a static and modular way, against Rhodes' original idea, and proposes a 5A model which emphasises a dynamic and interactive view of creativity. It is important to note that the changing of the vocabulary is not considered simply a semantic move but rather aim to shift the perspective of creativity research and introduce a more systemic approach.

In the 5A model, the person becomes the actor. This leads to an emphasis on the way the creative person is embedded in social networks and acknowledged the dynamic nature of that interaction. The actor in Glăveanu's model is one who is in constant dialogue with the surround culture. The act of creating is not put down to a certain “personality constellation or cognitive style” (p. 72) but is rather an examination of the generative power of being in relation to the surrounding cultural environment. This cultural embeddedness leads Glăveanu to invite us to consider the product an “artifact”, that is to

shift the emphasis to their cultured nature and the cumulative nature of creativity.

The artifact does not stand alone, rather it stands in relation to the surrounding culture.

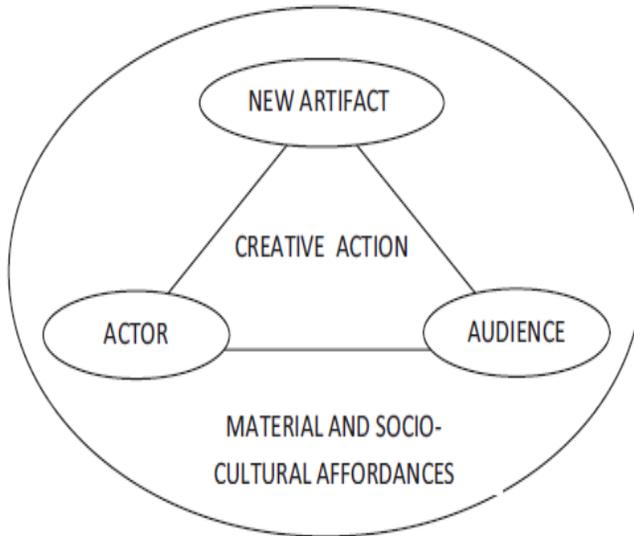


Figure 2: The 5 As model of creativity taken from Glăveanu (2013)

Perspectives

The 5A model draws heavily on the notion that creativity can be seen as something which occurs in the in between space and this is perhaps most strongly reflected in his ideas on creative perspectives which draws particularly heavily on yet another pragmatist, George Herbert Mead. In a series of papers, Glăveanu has used Mead's position on perspectives to illuminate rhythms of engagement and distance in creative action. Rather than taking a perspectival stance as representing distance from the world and undermining notions of reality, Glăveanu argues that perspectives do quite the opposite, moving from an abstract idea to a position in the world. Perspectives are relations with people and things that derive from being deeply situated in an environment.

Embracing the notion of perspectives also allows a rhythm between the egotistical absorption in the creative act and the stepping back to examine it. Adopting the perspective of audience, reader and viewer and moving between them allows the artist to develop her skill. Glăveanu argues that the ability to take this metaposition in relation to the multiple perspectives in play at any one moment in time is an important part of the creative attitude or

mindset. In this way we return to the core notion of creativity as a dialogue between socially and materially defined positions. This leads to the requirement for diversity and difference. As Glăveanu argues in *How are we creative together?* (2011), the development of a shared representational space grows out of a

It is this metaposition that Glăveanu calls the paradox of immersed detachment in a 2019 paper on *Creativity as immersed detachment*. As he describes it on p.2

Imagine a masterful pianist performing successfully a well-known musical piece. The creativity of this performance doesn't reside in breaking with the musical score and generating a completely new melody (this can be done during an Improv session, but not at a concert). Rather, it concerns the musician's ability, coming out of years, oftentimes decades of practice, to give a personal (re)interpretation of an established melodic line. From the outside, he or she is completely immersed in the performance, perhaps in a visible state of flow. A phenomenological account reveals a different situation, [...] The musician is very much absorbed within the act but, years of practice have also given him or her the distance necessary to play with its elements on the spot, to embellish and personalize the score, to make the performance one's own. It is what I call here "immersed detachment"—a paradoxical state of simultaneous hyper-connectivity and disconnection that enables creativity and represents, in my view, its distinctive sign.

This rhythm of engagement and disengagement is made possible by the existence of multiple perspectives which allows the creative to be at once involved and also disengaged.

Glăveanu's work on perspectives led him to propose the Perspective Affordance Theory of creativity (PAT). In this 2020 paper, Glăveanu draws on his work on affordance theory and perspectives to describe how the existence of multiple perspective drives creativity. It is founded in the notion that differences can trigger creative work but that they are not sufficient in themselves. Rather they must be realised through action – perspectives must be placed in relation to each other through productive dialogues. From this multiplicity of perspectives, new and unusual affordance are revealed leading to new creative behaviours. In addition, PAT offers the opportunity for generating practical applications of this flow of creative dialogue between people and things:

PAT also has the potential to offer various practical suggestions for those who would like to discover and cultivate creativity in the family, at school, at work, or in society. For example, it points to the need to encounter differences of perspective with openness, curiosity, and respect; to stimulate perspective taking and reflexivity in the relation between one's views and the views of others; to encourage whenever possible experimentation and the open exploration of affordances; to learn to appreciate the constructive role of chance, accidents, and even failure in creative work, among others.

This plays into the increasing focus in Glăveanu's work on the applied nature of the large-scale notions he is discussing. There is an interesting scalar shift at play from the "big" questions on what makes humanity unique to how understanding this can support and improve the lived experience of many. This collapsing of the boundaries between the theoretical and the practical marks Glăveanu's work as critically important to our understanding of how we advance creativity theory meaningfully.

Wonder

Glăveanu's longstanding interest in how creativity expands the sphere of the possible for human thinking and action led him to explore the very nature of the experience of the possible. What do we feel like when we realise that there is more to be thought about or more to be done than what we initially imagine? And what triggers this kind of realisation in the first place? For him, both these questions take us back to wonder (see Glăveanu, 2019, 2020), a phenomenon as old as our first philosophical musings about ourselves and the world and, especially, our place in the world. There is no surprise, then, that Socrates considered philosophy to be born in wonder. For Glăveanu, the experience of the possible itself, carrying enormous potential for creativity and agency, has wondering as its origin. This is because wonder brings us back to the state of not knowing or not understanding and prevents us (unlike curiosity) from quickly getting to know from satiating our interest and reaching easy conclusions (Glăveanu, in press). On the contrary, when wondering we defamiliarize the familiar and get to question what we already know. We see the world from a new perspective and, in this space created between old and new types of thinking, the possibility of emergence – especially the emergence of novelty – becomes actualized.

How does wonder 'work'? Glăveanu proposed a structural and dynamic model of this phenomenon (in Glăveanu, 2020). The former relates it to the similar yet different experiences of awe, curiosity, contemplating and pondering, arguing that wonder presents us with a unique combination of activity and passivity, immersion and detachment. The latter articulates three sub-processes of wondering that feed into each other and frequently overlap: becoming aware of new possibilities, exploring new possibilities, and being excited about the possible. While wondering doesn't have to always be an uplifting or positive experience (and, indeed, we can wonder about issues or situations that make us feel sad or depressed), it does energise our thinking and pushes us towards new forms of acting and, ultimately, of being. Far from an individual, isolated experience, wondering can be shared and it often gains a collective element to it whenever people come together to question the taken-for-granted, the conventional, and the hegemonic. This is why, for example, classrooms can (and should) be spaces of collective wonder, and social movements depend on it in order to persuade, to attract, and to go on. The key question becomes, then, how can we create environments in which individuals, groups and entire communities can wonder and, in doing so, re-imagine the world? And how can we guide these imaginations towards build-

ing better, more sustainable, more just and more inclusive societies? Again, we see an increasing focus in this work on explaining and using the bigger notions of what make us human as a basis for

The Possible

Glăveanu's most recent work emerges from the influences outlined here and expands it to move beyond a consideration of just creativity but human possibility as it is constituted in the in-between space of the material, social and the individual. In his 2020 book *The Possible: A sociocultural theory* he argues that the lives of human beings are marked by their amphibious nature, taking place once in the realm of the real, or the 'here and now', and yet in constant engagement with the sphere of the possible, of what is not (yet) here and yet could be. The unique ability to entertain multiple possible outcomes is enabled by our capacity to use signs and symbols and, more generally, to engage with experiences of the world that are distant from what we perceive or what we do in the moment. More than this, we have a drive to expand what is possible in our lives and the lives of others. As individuals and as a species, we are keen to contemplate the limits of our possibilities for thought and action and then try to overcome them. This quest for actualizing potentialities reveals the best and brightest in human nature and is arguably behind our most creative and innovative achievements.

The notion of the possible is deeply rooted in the perspectival attitude that has been clear throughout his work to date and informed by pragmatist approaches to reality. In a 2018 paper *The Possible as a field of enquiry*, he writes (p.1):

At the heart of this argument is the claim that what creative actions do is open up, exploit and expand the possible for both self and others. In other words, multiple perspectives, growing out of difference and enhanced by dialogue, are the basis of the possible in all its forms of expression (possible worlds, possible selves, possible pasts and futures, among others). To experience the possible, one needs to become aware of differences in perspective and of the basic fact that we all live, as human beings, in a perspectival world.

As always, his theorising on the nature of possibility is deeply embedded in the practical. The possible for Glăveanu is a way of understanding difference in a way which does not erase it but celebrate it so that the opposite of the possible is not the impossible but the monological. Thus thinking about the possible is a way of increasing empathy and social harmony as well as

With an *Encyclopedia of the Possible* published by Palgrave in 2022 and a collaborative network of groups working on complementary areas and now a Sage journal of *Possibility Studies and Society*, Glăveanu hopes to establish a field of 'possibilities studies. As a large-scale interdisciplinary movement, this area of research brings together scholars and practitioners from a variety of fields that span the social and natural sciences and put them

in contact with the arts and humanities. As psychologists dedicate more and more time to themes like creativity, serendipity, and chance trying to overcome simple and deterministic models of human behaviour such an endeavour is only likely to be a success.

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CHAPTER TEN

JOHN CURTIS GOWAN (1912-1986): PIONEER IN GIFTED AND CREATIVE EDUCATION

KATHY GOFF

John Curtis Gowan was a pioneer in gifted and creative education. His developmental stage theory provided the principles to guide the development of gifted youth. His work in gifted and creative education led to investigating the psychic phenomena of human creativity as it relates to extraordinary development and mystical states of consciousness.

John Gowan began his professional educational career at the age of 17 when he entered Harvard University. He earned an undergraduate degree followed by a master's degree in mathematics. His first job was as a counselor and mathematics teacher. John earned a doctorate at UCLA and became a founding member of the educational psychology program at California State University at Northridge.

He became interested in gifted children after the Russians launched Sputnik and formed the National Association for Gifted Children. Dr. Gowan served as editor of the Gifted Child Quarterly which offered, and continues to offer, new information and creative insights about giftedness and talent development in schools, at home and in the wider society. (www.nagc.org)

While at UC Northridge, he developed a program to train campus counselors on approaches and strategies for working with gifted students. Gowan felt much could be done to identify and develop the talent in this country. His intent was to develop each student's potentiality to its fullest potential. Gowan was one of the first to publish on the subject of counseling the gifted

In his monograph, The Academically Talented Student and Guidance (1971), he and Catherine Bruch provide a two-fold message: 1) gifted and talented students include not only those with high generalized abilities but also those with a variety of specific abilities and 2) gifted and talented students experience many problems and *need* adequate guidance (p. ix). At the time, both of these concepts were relatively new to many educators and guidance personnel because the prevalent view was that able students could readily resolve their own problems and that acceleration was the only aspect to be considered in guidance.

Gowan and Bruch (1971) argued that the more able students often have specific problems related to their giftedness and abilities. Accelerated academic growth may not be mirrored in social and emotional development. They proposed that guidance counselors had a unique role in helping gifted

and talented youth bridge the gaps in development and in fostering environments for growth.

“Guidance personnel can play a major role in fostering the optimal development of talented and gifted children, youth and adults. Counselors need to understand such bright persons in more than simple terms based upon generalizations about the gifted as a group. Gifted persons display a great variability in cognitive and personality characteristics. They present highly individualistic problems to guidance staff, problems sometimes related to their own unique qualities.” (Gowan & Bruch, 1971, p. 1)

“...there is no given style for the gifted’s pursuit of achievement and self-actualization. Their complexity and sensitivity compound the guidance problems.” (Gowan & Bruch, 1971, p. 2)

Gowan believed that an effective program for the gifted needed some approach to the improvement of parents’ understanding of giftedness in general and in their own children in particular. Parents need to understand that they have a special stake in their child’s future by providing enrichment and not solely depending on the school. Not only do parents need to plan for their children’s educational futures but also deal with their psychological and emotional growth.

Parents can help their children learn more creative behavior by exemplifying creative problem-solving strategies with the family (Torrance, 1969). Gowan (1971) suggested that parents can help their children become more creative by a) providing a fostering attitude, b) facilitating the child’s own mental health, c) facilitating the creative child’s social relationships and d) facilitating the child’s own cognitive development from simple to complex.

Gowan advocated for counseling guidance as necessary for the continued development of gifted and talented students (1960). The concept of differentiated guidance for the gifted, in order to make them creative, was a very new idea.

Proper guidance for the gifted and talented is not a luxury by a necessity of American cultural life. The organization of adequate programs of guidance for the academically talented awaits only the demand of the districts and the efforts of educational personnel. It is time for us all to come to a realistic appraisal for the importance of guidance programs for all youth in the procedures of general education and in the specific problems of the gifted and talented. In no other way shall we meet the problem of achievement and productivity which appears to be in the process of becoming the central educational issue of the mid-twentieth century. (Gowan, 1981, p. 223)

Besides being a long-time researcher and author in the fields of guidance and measurement, he also became interested in creativity and development. This led to the first of a trilogy of books. The first was The Development of the Creative Individual (1972) where he joined Erikson's affective stages with Piagetian cognitive stages into his Periodic Developmental Stage Theory which identified creativity as a cognitive development stage beyond formal operations.

Gowan used developmental stage theory to provide a framework for helping gifted children become creative (Gowan, 1981b). He saw giftedness as potentiality. A gifted child was defined as one who has the potential for verbal creativity. A talented child was defined as one who had the potential for non-verbal creativity. In both cases, it is the actualization of the potentiality, not the potentiality itself, that is important.

His developmental stage theory contained three paramount stages for educators of the gifted:

1. Stage 3 (ages 4-6) – creative fantasy or magic nightmare
2. Stage 4 (ages 7-11) – teaching to avoid the creativity drop
3. Stage 5 (ages teens) – establishing verbal creativity at adolescence

Developmental stages are characterized by escalation which means to raise the level of action by discrete jumps. The objective of escalation is creativity, which is emergent in the personal unfoldment of the individual as part of the developmental process. This unfoldment is as natural as the budding and blossoming of a rose, if proper conditions of sunshine, soil and moisture are present. (Gowan, 1981b, p. 77)

Gowan believed that the preservation and stimulation of creativity were paramount issues for teachers of gifted students. Failure to do so would create both a source of anxiety and a waste of talent. A key concept was the elicitation of right hemisphere imagery, either through the direct method of stilling the left hemisphere functions or through the direct method of stimulation of the right hemisphere while the left is operant.(Gowan, 1981b).

Right hemisphere imagery is the vehicle through which incubation produces creativity. Incubation is any technique of relaxation of the conscious cognition (left-hemisphere function) which allows subliminal processes (right-hemisphere functions) to operate. (Gowan, 1981b, p. 81)

Incubation allows for creative insights to emerge. Whereas most functions of the left hemisphere are concerned with convergent production, functions of the right hemisphere are principally concerned with divergent production. These functions involve imagery through which incubation produces creativity (Gowan, 1981b)

It appears that right hemisphere imagery goes on all of the time and that it is merely necessary to pay attention to it. Learning how to do this is a

new educational challenge, if we are to educate both halves of the brain and hence stimulate creativity in young people. (Gowan, 1981b, p. 82).

Growth creates differences within the individual and emphasizes her/his uniqueness from others; these differences are combined into new patterns giving rise to originality; originality is intrinsic in creativity, so creativity is an outcome of development. (Gowan 1974, p. 90).

The second book, The Development of the Psychedelic Individual (1974), identified mind expansion (psychedelia) as the subsequent cognitive stage beyond creativity. This book contains Gowan's most complete assessment of psychedelic experiences and their potential to help the individual grow and break through barriers. Gowan dubbed it a "book for the 21st century," a rigorous examination that embraces both science and mysticism.

It outlines the emergent traits and experiences possible in the course of extraordinary human development, particularly for gifted children and gifted adults. It traces developmental stages of integrative growth in the relationship between the individual ego and the collective preconscious, which underlies creativity and psychedelic or mind-expansion functions.

The work was based in the idea that the preconscious is involved in a developmental process which starts with anxiety and ranges to creativity through well-known stations on the continuum of mental health.

Creative performance is the synthesis of several different systems:

- a. different abilities and their stimulation (as in Guilford's structure of the intellect model)
- b. mental and physical health
- c. nurturing tendencies in parents and other in the environment
- d. lifestyles

These aspects can occur at any time in a human's lifetime. Tendencies toward creative performance, especially those influenced by education, can and do occur at all stages of development.

Creativity occurs early in the development of the mentally healthy individual and promised the continuation of such mental health. Creative performance tends to influence development in the direction of mental health.

Adverse conditions or circumstances may deny the early promise or the playful creativity of the child may not have been bolstered with the cognitive tasks necessary to produce the more formal and finished productions of adult creativity. Childish creativity requires only playfulness; adult creativity requires discipline. Hence almost all children are creative, but few adults are.

Creativity enhances mental health in the adult, but in adults, as in children, creative insights often come before the power to nurture the idea and follow through with it is gained. Most of us have creative ideas on occasion, but most of us continually abort the creative ideas and never bring them to fruition. (Gowan, 1974)

Creativity is not a rare experience accessible only to genius. It is a characteristic not only of individual human behavior, but also of the species in general. It is a natural and indeed an inevitable outcome of an intelligent

mind when functioning in conditions of desirable mental health. Creativity is an early dividend of progress toward mental health and self-actualization. It seems increasingly certain that healing and creativity are different pieces of a single picture. (Gowan, 1974)

Creativity in the mental domain involves the emergence of a new and valid synthesis of ideas, not by deduction, but springing by "intuition" from unconscious sources. Gowan, 1974 , p.308).

The third volume, *Trance, Art & Creativity* (1975), describes three modes of contact between the conscious ego and the collective preconscious. The book is concerned with a taxonomy of the cognitive representation of numinous experiences arranged in a hierarchy.

The numinous element was described by Jung (1928) as the collective unconsciousness. There appear to be three modes of contact between the individual ego and the numinous element. They are (Gowan, 1975):

- a) Trance - prototaxic experience characterized by loss of ego. It is a disengagement from ordinary reality; suspension of the ordinary criteria of common consensus; it consists of primitive consciousness.
- b) Art - parataxic experience characterized by the production of images whose meaning is not clear or categorical. It represents the numinous element transformed into archetypes, dreams myths, rituals with art as the final product; it represents the numinous element transformed.
- c) Creativity - syntactic experience where meaning is more or less fully cognized symbolically with the ego present. This numinous experience is received cognitively with full consciousness.

The process of development in our individual lives and the process of evolutionary development of our species is simply an "immense journey" from the prototaxic through the parataxic and eventually to the syntactic mode of representation of the numinous element or the movement from trance, through art to creativity. (Gowan, 1975, p. 22)

The syntactic mode embraces three levels. The first was the creative which was identified as the sixth developmental stage. This level generally involves the ordinary state of consciousness. The essential feature of the syntactic mode is the attempt to grasp the numinous element with the mind rather than with the body.

The next level was the psychedelic, identified as the seventh developmental stage. This level involves the transient altered state of consciousness known as an ecstasy in which there is loss of time, space and self.

The third level was the highest level called the intuitive, the eighth developmental stage. Words fail to be of much use in describing this high level. Individuals who dwell here are in a permanent altered state of consciousness with attendant psychic powers. (Gowan, 1975).

Gowan's third volume, *Trance, Art & Creativity* (1975), investigates the psychic phenomena of human creativity as it relates to extraordinary development and mystical states of consciousness. According to Gowan (1975:

The numinous element appears in the process of becoming, in the process of manifesting, in the process of building toward what is to us a future event of perfection. All that precedes that dawn is prologue, including the dream world in which we live, for this can be conceptualized as no more than the numinous element trying out different facets of its power and energy through the medium of our individualized lives, much as a concert artist tries out themes before a symphony concert. But that rehearsal is a necessary part of the evolution, for when housed in us, it is able, if but in the blink of a man's lifetime, to blend its awesome power with the personal element which it alone lacks... (p. 388)

This chapter merely serves as an introduction to the work of John Curtis Gowan. Dr. Gowan was an intellectual who was very thorough in his research and writings of the higher levels of thinking and creativity. His writings were exhaustive of the current literature on the creative mind and its expansion.

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CHAPTER ELEVEN

J.P. GUILFORD: A PIONEER OF MODERN CREATIVITY RESEARCH

DOROTHY A. SISK

ABSTRACT Guilford had an enormous influence on psychology changing not only the concept of the intellect, but how it is measured. This chapter will explore the influence of J. P. Guilford on psychology, a summary of his background at Cornell University, his role in the U.S. Army Air Corps as a research director, and his work at the University of Southern California where he developed the Structure of Intellect (SI). The focus will be on how he made changes to the SI over the years, developed tests for assessment, and the work of Mary Meeker and Robert Meeker who extended the SI with Assessment and Curriculum Development; and the role of creative thinking skills in the creative problem-solving process.

Keywords: Creativity, structure of Intellect, divergent thinking, transformation, creative thinking skills creative problem-solving

Introduction

To live is to have problems, and to solve problems is to grow intellectually.

- J.P. Guilford (1967b)

J.P. Guilford's profound influence on psychology helped to change not only the concept of intellect, but how it is measured, and he impacted the integration of the creative process and problem solving. Guilford received his Ph.D. from Cornell University in 1927 where he studied with Edward Titchener; however, his doctoral chair was Karl Dallenbach with whom he collaborated on a number of studies and publications. His thesis was entitled *Fluctuations of Attention with Weak Visual Stimuli* (Guilford, 1927). In addition, Guilford published research on the auto kinetic phenomenon independently (Guilford, 1928) and with Dallenbach, 1928). He worked on the phi phenomenon



with both Harry Helson (Guilford & Helson, 1929) and Kurt Koffka during Koffka's visit to Cornell University (Guilford, 1967a). These research explorations stimulated a lifelong interest in the unique abilities of the individual. After receiving his doctorate in 1927, J.P. married Ruth Sheridan Burke, who has survived him. They have one daughter Joan Guilford who is a psychologist, and she graciously provided a copy of *An Odyssey of the SOI Model* as a resource for this chapter.

Guilford returned to the University of Nebraska in 1928 as an associate professor of psychology, after a brief stay at the University of Illinois and the University of Kansas. During this period of his life, one of his major publications was his book *Psychometric Methods* (1936) which he later revised in 1954. This book became the standard text for training psychophysicists supplanting Titchener's book *Experimental Psychology* (1905). Guilford's text went beyond covering classical psychophysics and scaling methods, with a major portion of the book covering correlational methods, psychological testing, and the use of factor analysis.

Factor analysis was becoming a keen interest in J.P.'s work and he sought opportunities to learn more about its use by visiting the University of Chicago where he was able to attend evening seminars of L.L. Thurstone. Thurstone was working on his book *Vectors of the Mind* which he published in 1935. There were many lively discussions since Charles Spearman was also visiting the University of Chicago, and J.P. was able to work with Spearman in considerable detail on factor analysis. With this highly motivating interaction with his colleagues, Guilford drafted what would become the multivariate sections of his revised *Psychometric Methods* book. In 1940, J.P. joined the University of Southern California; however, this stint was interrupted in 1942 when he voluntarily joined the U. S. Army Air Corps.

Army Air Corps Experience

When Guilford reflected on this period of his life in his article *Creativity: Yesterday, Today and Tomorrow* (1967b) he said, "The second World War called forth great efforts toward innovation in research and development. ...inventive brains were at a premium, and there were never enough (Guilford, 1967b, 6). In the U. S. Army Air Corps, J. P. was promoted to the position of Chief of the Psychological Research Unit. The research unit was working on the development of the Stanine Project which organized and implemented the standard nine intellectual abilities that were necessary for pilots to be able to effectively fly airplanes. Guilford's work with this project was quite successful and there was a significant increase in the graduation rate of pilots. His research was highly significant influencing the qualifying exams for the U. S. military from the 1950's to the 1970's. In 1946, Guilford retired from the Army Air Corps with the rank of Colonel, and he received the coveted award of the Legion of Merit. As a result of his work with the U.S. Army Corps, he received funding from the Office of Naval Research to assist them in selecting civilian personnel to fill positions as scientists and technologists. This contracted work afforded Guilford the opportunity to create The Aptitudes Research project. The Office of Naval Research contract was refunded over a period of 20 years and led to funding from the Office of Education, HEW, and

the National Science Foundation (NSF). (Guilford, 1986)

Guilford's Challenge at the APA Conference

J.P. Guilford had a profound effect on a wide audience of psychologists, educators and college and university personnel with his Presidential address to the American Psychological Association (APA) in 1950. J. P. was deeply concerned about the lack of research on creativity in psychology and the lack of correlation between education and creative production. He challenged the audience with two questions: How can we discover creative promise in our children and youth? and How can we promote the development of creative personalities? These two questions became J. P. Guilford's professional passion for the rest of his life. In his APA address Guilford defined creativity and discussed the creative personality:

Creativity refers to the abilities that are most characteristic of creative people. Whether or not the individual who has the requisite abilities will actually produce results of a creative nature will depend upon his motivation and temperamental traits. The creative personality is then a matter of those patterns of traits that are characteristic of creative persons...which include such activities as inventing, designing, contriving, composing, and planning (Guilford, 1950, 444)

International Acclaim

At the University of Southern California Guilford taught courses on the Creative Disposition and became well known internationally with his work on psychometrics, creativity and particularly with his theory of the Structure of Intellect (SI) which he introduced in 1955. The SI was Guilford's attempt to codify the concept of intelligence and to provide a systematic taxonomy for its components (Guilford, 1956, 1967a). Guilford's book *Personality* (1959) with its factor analytic approach to the topic, was another significant contribution. The SI model was an extension of Thurstone's primary mental abilities (verbal, comprehension, verbal fluency, number, spatial, visualization, memory, perceptual speed and reasoning). Guilford split the primary mental abilities and added new abilities which increased the number of factors from 7 to 120. J.P. said the factors were independent; whereas Thurstone considered the factors to be correlated.

Structure of Intellect

In *The Nature of Human Intelligence* (1967a) Guilford said every mental task includes three ingredients: an operation, a content, and a product. In the SI model there are five kinds of operations: Cognition, memory, divergent production, convergent production, and evaluation. In addition, there are six kinds of products: Units, classes, relations, systems, transformations, and implications. Last, there are four kinds of content: Figural, symbolic, semantic, and behavioral. Since Guilford said the subcategories are independently defined,

The third major principle of classification of the primary intellectual abilities is *in terms of the kind of products achieved by the different kinds of operations applied to the different kinds of content*. Six kinds of products have been recognized and each kind results from the various kinds of operations, and the kinds of products are units of information, class of units, relations between units, patterns or systems of information, transformations, and implications.

Creative Thinking

In *Afterthoughts on the Structure of Intellect* (1988b) Guilford said that the analyses they conducted showed that creative talent is definitely not the same wherever they found it. It depends upon the kinds of SI abilities that the individual possesses to a high degree. Being highly creative depends upon two sections of the SI model, the operations of divergent production and the product of transformation. Divergent production contributes fertility in thinking of alternative ideas and transformation provides changes, creativity, novelty and originality. He shared one of his studies in which they interviewed recognized highly creative individuals and asked them to rate the importance of their use of SI abilities in their work. They rated divergent production abilities high and transformation abilities even higher. In the book *Creative Talents: Their Nature, uses and Development* (Guilford, 1986) provided an entire chapter on transformation in creative thinking with examples of items that could be used to assess the factors. One example for CBT is below:

Behavioral Transformations (CBT)

In the behavioral area Guilford developed a test that illustrates involvement of transformation as in connection with ability CBT. *Social Transformations* asks for selecting from alternatives a pair of described people between whom a certain given remark should have the most different meaning from other pairs in which the same remark is made. Suppose the given remark is "Please" made by the boss to his secretary. The alternative pairs are:

- a) a beggar to a stranger
- b) a father to his son
- c) a chauffeur to a passenger.

The listed correct choice is A. which would change the meaning the most (Guilford, 1986, 77).

Guilford's Concept of a Social Intelligence

Guilford identified an area of abilities pertaining to the cognition of thoughts, feelings and attitudes of other individuals, and this area of intellect he called *social intelligence*, or empathic ability. This area was a type of material he designated as behavioral. He hypothesized that the abilities dealing with behavioral content are parallel to those already known or predicted in connection with other kinds of content. This would include the ability to recognize the behavior of others, and separate abilities for remembering behavior, for engaging in productive thinking about it, both convergent and divergent, and for evaluating our cognitions and conclusions about it. This represents an early recognition of social intelligence that was to come much later in the work of

Goleman (2006) in his book *Social Intelligence*. Products of behavioral intellectual operations would be expected to fall in the same six categories of units, classes, relations, systems, transformations, and implications. He summarized his view by stating:

According to the cognitive view, the organism is an agent that discovers information, remembers information, and uses information in productive thinking, and inevaluating any of its intellectual procedures. (Guilford, 1959, 30)

In his article *Creativity, Yesterday, Today and Tomorrow* (1967b) Guilford identified two abilities that he viewed as the most relevant for creative thinking. One was *divergent production* (DP) abilities that include generation of ideas, as in solving problems where variety is important, and other DP abilities include fluency, flexibility, and elaboration. The second ability that Guilford identified as source relevant for creative thinking was *transformation* abilities which include revising what one experiences or knows, thereby producing new forms and patterns (Guilford, 1967b, 8). He viewed creativity as a form of problem solving and worked closely with the Creative Problem-solving Foundation established by Alex Osborn and Sidney Parnes in examining how creativity and creative thinking skills can be integrated with problem-solving. J.P. was a regular attendee at the annual Creative Problem-Solving Institutes (CPSI) and he used these meetings as opportunities to dialogue with Sidney Parnes on the integration of creative thinking skills in the creative problem-solving process (CPS) developed by Alex Osborn and Sidney. They discussed the role of *intuition* and the importance of *incubation* in the creative problem-solving process. Sidney Parnes shared the role of spontaneous imagery that takes place during the creative problem-solving process, the *Aha*, and both agreed the work of Nikola Tesla and his use of imagery in his creative work, was a prime example of the importance of spontaneous imagery and intuition in the creative problem-solving process.

J.P. provided an evening seminar at the Creative Problem-Solving Institute (CPSI) in 1981 on his view of creativity as a type of problem solving. He listed four kinds of problem-solving skills: sensitivity to problems, fluency, flexibility and elaboration. He described sensitivity to problems as the ability to sense or recognize problems; and he said there were three kinds of fluency, *ideational fluency* or the ability to rapidly produce a variety of ideas that fulfil stated requirements as in brainstorming; *associational fluency* or the ability to generate a list of words which is associated with a given word; and *expressional fluency* the ability to organize words into larger units, such as phrases, sentences and paragraphs; flexibility included both spontaneous and adaptive flexibility to produce ideas that are novel and high in quality. The last problem solving skill Guilford identified was elaboration where there can be transformation as one sees new possibilities.

When he was asked how education could change to help close the gap between education and the development of creative individuals, Guilford said educators need to not only teach what is, but there is a need to teach students to think about what could be. He emphasized the importance of rewarding students' new ideas, as well as the importance of their remembering and recalling known facts. He suggested that educators encourage the production of

alternatives and place an emphasis on critical thinking, because evaluation plays a strong role in problem solving. He said students should be taught when to turn criticism on and when to turn it off. He noted a role for stockpiling items of information because creative thinking depends upon a well-stocked memory. Several participants noted this idea's similarity to the concept of a well primed mind (Sisk, 2020).

Benefits of Creative Problem-solving

Guilford was keenly aware of the enormous economic value of new creative ideas and the need for individuals with inventive potentialities, and that industry and government agencies are always looking for productive individuals with good judgment, planning ability and inspiring vision. He said creative productivity depends upon primary traits other than abilities, including motivation factors (interests and attitudes) as well as temperament factors. In many CPSI seminars, he discussed the neglect of research on ways creative thinking skills can be developed in education and the impact that creative thinking skills experiences would have on the creativity and achievement of students (Sisk, 2020).

A Structure of Intellect Problem-Solving Model (SOIPS)

Guilford in *Creative Talents: Their nature, uses and development* (1986) showed how the SI model could fit into a problem-solving episode. In the SOIPS model, the memory store underlies everything else. The SOIP model is depicted in Figure 2 (on the next page). This collection of cognized and remembered items of information contribute to everything that goes on. He said:

The operation of memory keeps a running record of ongoing events.

In the problem-solving episode. SI operations other than that of Memory are represented in the model by rectangles. Memory operations are indicated by the arrow pointing toward the memory storage. Events in solving a problem begin with input into the communication system from the environment (E) or from the person's body or soma (S). (Guilford, 1986, 95).

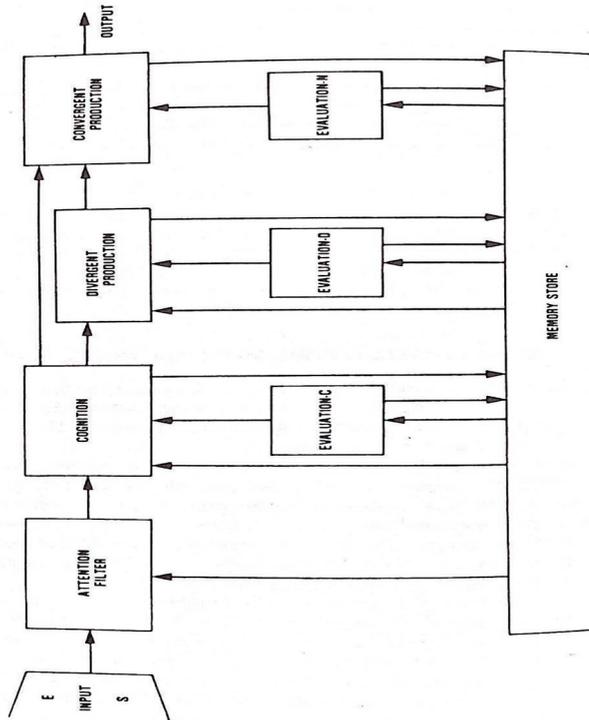


Figure 2: SOIPS model

A Criticism of the Structure of Intellect

In *Afterthoughts on the Structure of Intellect*, Guilford (1988b) said he knew of only one noteworthy criticism in print of the SI model, that of Horn and Knapp (1973) regarding the manner in which the axes were rotated in factor analysis. At first, Guilford used Thurstone's graphic method, but later used Cliff's (1966) computerized method when it became available. Cliff's method involved essentially hypothesizing as to where the axes should go in order to achieve simple structure, positive manifold and psychological meaning, as in graphic rotations. Guilford said we did try out all of the available computerized methods, but the results yielded very poor replication in terms of psychological meaning. Guilford explained Horn and Knapp's work quite succinctly:

Horn & Knapp selected one of our early reported analyses for their illustration of how well a rotation of axes by Cliff's method would pull the axis to an arbitrary goal. They had the computer generate a set of axis positions by chance. The rotations that were affected yielded what they considered to be a fair fit of obtained results in the chance-generated goal. (Guilford, 1988b, 102)

Guilford described the research of Elshout, Van Hemert & Van Hemert (1975) as coming to his rescue when they pointed out that our critics should have generated, not one, but a number of hypothetical factor patterns toward which to rotate, lest the one that they used be a fortunate one for their purpose. The authors did actually follow that plan, computing an impressive index of goodness of fit of each rotated pattern of factors, also using the test on the Horn-Knapp (1973) solution. They found a normal distribution of the indices that the index for the Horn-Knapp (1973) solution was way outside the distribution in the favorable direction (Guilford, 1988b, 102).

Sternberg & Grigorenko (2000) in *Guilford's structure of Intellect model of creativity: Contributions & limitations* addressed Guilford's use of subjective rotations as flawed, and what Guilford interpreted as confirmation of his theory was not, and they said there are more sophisticated confirmatory techniques available now. Concerning the tests that Guilford designed for his SI theory, they recommended these types of tests would benefit from correspondence to the type of tasks used to assess creativity in adults, to show any predictive relevance of creativity. Guilford's contributions were listed as recognition of the importance of precise empirical validation; being one of the first to define intelligence broadly; and sparking interest in the field of creativity when the field was moribund. They concluded that Guilford concentrated on confirmation rather than disconfirmation of his theory and they said. "...until we all do research that allows and even encourages our beliefs to be disconfirmed—in other words, until we act like scientists...each of us is convinced that we alone possess the truth..." (Sternberg & Grigorenko, 2000, 315).

Application of Guilford's SI Theory to Assessment and Curriculum

Mary Meeker, a doctoral student of Guilford at the University of Southern California was keenly interested in applying Guilford's SI theory to the development of assessment instruments and curriculum development. Her dissertation focused on these two areas with application to both children and adults. In his APA address, Guilford said any general theory to be seriously tested would need investigation of primary abilities that could then be improved with practice of various kinds, and positive transfer of effects would be evident (Guilford, 1950, 440).

Meeker responded to this directive and began exploring the potential of applying SI to education based on two major points: 1) intelligence can be precisely measured using a test that identifies an individual's aptitude on the multiple intellectual abilities identified in the Guilford SI model; and 2) The individual's intellectual abilities can be remediated or improved using learning materials that target each particular ability. Meeker called her application of Guilford's theory (SOI) or Structure of Intellect (Sisk, 2020, 7).

After graduation, Mary Meeker and her husband Robert Meeker, a psychologist developed an SOI Institute that produced SOI tests and educational materials developed during Mary's work on her doctorate, and afterwards as an independent research effort. They conducted training throughout Texas, and eventually expanded nationally and internationally to certify people as

SOI diagnosticians. The Guilford SOI model involves the matching of an individual participant and an assignment with educational experiences developed for each specific intellectual component. For example, the Figural category in the content dimension deals with sensory materials. It represents a kind of concrete intelligence needed by engineers, artists, musicians, mechanics, and machine operators. This intelligence can be identified by selected items on the SOI test and increased by well-chosen activities (Meeker, 1987).

Bridges Learning Systems

U.S. Senator William Brock founded Bridges Learning Systems, a commercial enterprise that implemented school programs based on Meeker's SOI work and on an Integrated Practice Protocol (IPP) that Mary Meeker developed with Robert Meeker (Meeker & Meeker, 1992). An IPP includes SOI related assessment and learning and teaching materials that incorporate intelligence assessment such as the SOI-LA test for vision assessment and sensory integration (Sisk, 2020). These activities were implemented in Bridges Labs.

Bridges Labs at Paris ISD

Paris Independent School District (PISD) in Paris, Texas developed a Bridges SOI lab to work with students who were having difficulty staying on task and who had behavioral issues. The SOI lab can be described as a *gymnasium for the brain* in which students work on exercise activities focusing on visual, auditory and sensory motor activities, and on training tasks including sensory exercises, fine motor and perceptual activities, and trampoline and balance board exercises. Students also engage in *independent book work* on individualized program tasks that develop sensory integration and focus skills. The students at the Paris ISD spent a minimum of 45 minutes a day working with a lab specialist two days per week during the school year. Evaluation of the Paris Bridges Lab found the program helped the students focus, stay on task and concentrate on their work. As a result, the students improved both academically and behaviorally. Standardized tests and assessment results indicated positive gains for the students and significant outcomes, notably in reading and math.

One student who had been referred to the Bridges Labs for behavior issues and difficulty in focusing, was the center on the high school basketball team. After working in the lab, he was no longer being referred to the principal for his behavior, and the basketball coach said his foul shots greatly improved. This could be traced to the visual motor activities in the lab in which the students stand on one side of the room and swing a pendulum at a target on the other side of the room. Teachers of this young man reported that he had more pride in his work, was asking more questions, and he said he enjoyed the emphasis on being focused.

Retirement from the University of Southern California

Guilford's retirement from the University of Southern California had little or no effect on his productivity. With his book *The Nature of Human Intelligen-*

ce (1967a), Guilford continued to influence the field of psychology, particularly through his work on the Structure of Intellect. He supported the establishment of the *Journal of Creative Behavior* by the Creative Education Foundation by writing an initial keynote article *Creativity: Yesterday, today, and tomorrow* (Guilford, 1967b). He predicted in that article that future investigations would probably take two major directions; one toward a more detailed and complete understanding of the process of creative thinking; and two, a survey of the conditions that influence creative thinking, both positively and negatively. The work of Gerrard Puccio, the current chairman of the International Center for Studies in Creativity at Buffalo State College where the rich history of creativity research started with the work of Alex Osborn and Sidney Parnes, testifies to the accuracy of J. P.'s prediction. Puccio and his colleagues use an approach they call *FourSight* that includes four steps: Clarifying, Ideating, Developing and Implementing. They say the ability to spot problems and devise smart solutions is being recast as teachable skills (Pappano, 2014).

Changes in the Structure of Intellect

Some Changes in the Structure of Intellect was published after Guilford's death in the journal *Education Psychology Measurement* (Guilford, 1988a). The article introduced changes that included the five areas of Content properties: Visual, auditory, symbolic, semantic and behavioral with figural changed to include visual and auditory. There were changes in Operations including memory as memory retention and memory recording. Then Operations would read Cognition, memory recording, memory retention, divergent production, convergent production and evaluation. Citations of the research justifying these changes were included in the article. These changes are depicted in Figure 3.

Guilford received honorary doctorates from the University of Nebraska (1952) and the University of Southern California (1962), but his most treasured honor was his election to the National Academy of Science and to the International Society of Intelligence Education (ISIE) in Japan. He was elected to the ISIE presidency and served for 10 years. During this ten-year period, ISIE developed an intelligence test based on the SOI model and translated all of Guilford's books into Japanese. The society published a book entitled *Odyssey of the SOI Model* which contained a 20-page autobiography of J.P. and his article *Afterthoughts on the Structure of Intellect* (Guilford, 1988b). At the initial conference of ISIE in Japan, Guilford proposed a presentation with the title *Intelligent Education is Intelligent Education*. Sidney Parnes, the president of the Creative Education Foundation introduced J. P. with the title of *Odyssey of the SOI model* which the ISIE organizers thought the participants would be more able to recognize his work, rather than J.P.'s proposed title of *Intelligent Education is Intelligent Education* which was on a plaque on his office desk at the University of Southern California.

A Japanese sculptor Yoshio Matsuda created a bronze commemorative bust of Guilford that was presented at the initial ISIE conference. Mary Meeker and Robert Meeker were featured speakers at the ISIE conference in Japan, and they helped organize a second ISIE conference held in California.

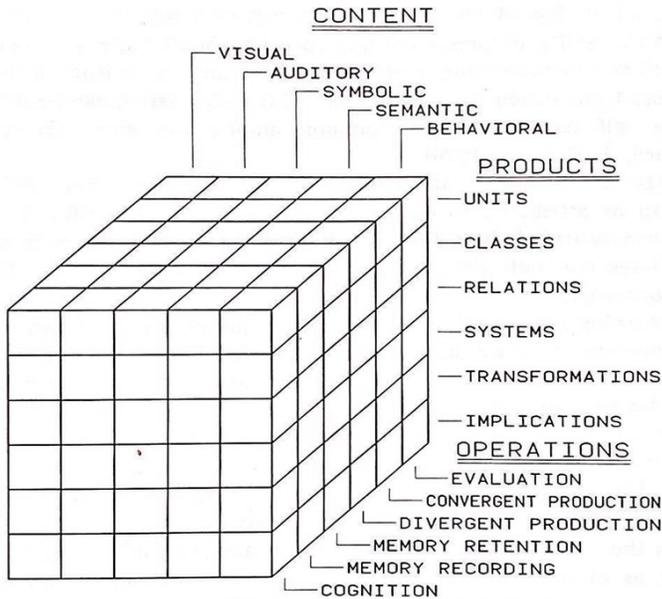


Figure 3: Revised and enlarged structure-of-intellect model

Concluding Remarks

J.P. Guilford's pioneering efforts in the field of psychology and psychometrics are foundational for the measurement of cognitive processes. He contributed hundreds of articles and monographs to the research literature, as well as 43 books. In his *Structure of the Intellect* model, the mind, thoughts and mental processes are considered as a set of factors classified according to their unique variations. Included among these factors is the attribute of creativity (Guilford, 1967a). His work on the Structure of Intellect contains major implications for education, measurement and creativity. Guilford's work in creativity provided a foundation for a good part of the research now being conducted on creativity. In his *Afterthoughts on the Structure of Intellect* (Guilford, 1988b), said the SOI model suggested some interesting considerations, its development showed that investigating how human individuals differ in their functioning, we can also discover how they are alike. This understanding can lead to greater consideration of individual differences, and how best to work toward the creative development of individuals. Guilford said the consequences of the future of mankind's present and future efforts to gain understanding and control of creative performance is incalculable. He said to live is to have problems and to solve problems is to grow intellectually (Guilford, 1967b, p. 12). He said as we identify the strengths of our students and within ourselves, we can celebrate these resources and begin to rewrite what we imagine to be possible, with our intuition and transformation. J.P

was spot on seeing the importance of creativity, the power of the creative process and the need to develop creative thinkers.

One of Guilford's professional satisfactions was seeing Akira Chiba using the SOI in their gifted programs in Japan, and its positive effect on their education. Guilford viewed creative education having several important outcomes including developing self-starting, resourceful and confident persons. He said these individuals would be ready to face personal, interpersonal, and other kinds of problems. He described self-confident people as being tolerant, where there is a need for tolerance, and that a world of tolerant people would be peaceful and cooperative. He concluded, "Thus, creativity is the key to education in the fullest sense and to the solution of mankind's most serious problems (Guilford, 1967b, 13).

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CHAPTER TWELVE

SCOTT ISAKSEN: 50 YEARS AS A SCHOLAR-PRACTITIONER

K. BRIAN DORVAL

This chapter chronicles the career of Dr. Scott G. Isaksen, academic scholar, practitioner, leader and mentor. It highlights 12 key accomplishments from his 50 years in the creativity field, during which he has authored over 250 publications, and worked with more than 450 organizations in 30 countries. The first 25 years focus on his building and extending the Buffalo-based tradition of creative problem solving (CPS). The next 25 years highlight the broadening practical application of CPS, along with an expanding research agenda.

The First 25 Years

Scott's first 25 years are primarily anchored as an educator and academic. Adapting the Pareto Principle, 80% of his professional efforts were focused on teaching and research, and 20% was focused on providing services, workshops, and consulting.

The Journey Begins

In the Summer of 1970, Scott was invited to participate in a unique research project to see if it was possible to deliberately develop creativity. He had been accepted to Buffalo State College to pursue a degree in education, was assigned to the experimental group, and started taking Creative Studies classes in the Fall of 1970. The Creative Studies Project (Noller & Parnes, 1972; Parnes, 1987; Parnes & Noller, 1972a;1972b; 1973) included four semester-long courses, and lots of testing sessions.

The courses were taught by Sid Parnes and Ruth Noller, along with numerous guest speakers, and were very experiential and eclectic in their approach. Yet, the core of the classes was learning and applying creative problem solving (CPS). They relied heavily on the *Creative Behavior Guidebook* (Parnes, 1967a) and the *Creative Behavior Workbook* (Parnes, 1967b). Students in the courses also had to complete 13 readings each semester and write a short reaction paper. The readings could include articles from within the *Journal of Creative Behavior*, the *Source Book for Creative Thinking* (Parnes & Harding, 1962), or other creativity-relevant sources.

Early in the first semester of Creative Studies, Scott experienced an “aha” moment. He had turned in his first two and a half typewritten reading

reaction paper. Ruth returned the paper during the following class and it had many pencil-written comments, notes, and questions – almost as much writing as he had done! This really set him back, as this was very unique in comparison to going through the routines of other classes. It also made him realize that these folks were serious about creativity!

This event stimulated Scott to have regular conversations with Ruth that grew into a meaningful mentorship that lasted until her passing in 2008. One of these conversations led to Ruth inquiring if I could be involved in the planning and logistics support for the upcoming Annual Creative Problem Solving Institute (CPSI, see Parnes, 1975). So, Scott took a two-week break from his summer job to work at his first CPSI in 1971.

This led to another “aha” moment for Scott. His job was supervising a team that made copies of handouts, moved classroom furniture around, prepared coffee breaks, delivered audio-visual equipment, and anything else that would help make the 1000 leaders and participants happy. Scott went to grab an early lunch during the first full day of CPSI, and was sitting all by himself in a rather empty cafeteria. A tall, slender man approached his table and asked if he could join Scott. As lunch progressed, and introductions occurred, Scott realized he was eating lunch with J. P. Guilford – someone he had read about the semester before! Moments later, others joined us – E. Paul and Pansy Torrance, Don MacKinnon, Moe Stein, Don Treffinger, and a few of his team. What an experience! This event, along with being able to attend sessions by these researchers and other practitioners at CPSI made Scott realize that creativity was actually a real, important, and growing field!

This experience prompted Scott to continue his coursework in Creative Studies beyond the Project, staying involved in CPSI, and starting to work with the Creative Education Foundation (the sponsor of CPSI). It also paved the way for Scott to enroll in the first cohort of the yet-to-be approved Master of Science Degree Program in Creative Studies.

During the summers, and in addition to staying involved in CPSI, Scott had the chance to apply what he was learning within his summer job. He managed a resort in the Adirondacks from 1970 through 1973. It was initially a tax shelter for its owner, so it was a fun experience to hire staff, make improvements, and spend even more than was earned. However, the third year Scott was to manage the resort, the owner informed him that he had to make money, or there would be major tax consequences. This represented a major change, and an opportunity to apply CPS. This was the first time Scott applied CPS outside the classes, and found that it really worked in the real world, particularly when he gathered the staff to generate opportunities and ideas.

Becoming an Educator

After graduating, Scott landed a teaching job in a school district in Western New York, working with intermediate-age children. This created a major opportunity to integrate many aspects of the Creative Studies program within the curriculum. It also allowed for applying CPS with other professionals, in committee work, and curriculum development. For example, in 1976, Scott

received a national award from the Joint Council on Economic Education for the design and delivery of a mini-economy simulation that provided many opportunities for his students to apply CPS. Eventually, Scott was able to move to a teaching position that allowed him to more directly use what he had learned by working with gifted and talented students.

It was during these years that Scott completed his Master of Science degree in Creative Studies and conducted his first research study examining the relationship between aspects of creative personality and creative process (Isaksen, 1977). He also started his course work for his doctoral program in Curriculum Design at the University at Buffalo. It was during this time that Scott also learned of Ruth's intention to retire from the Interdisciplinary Center for Studies in Creativity (The Center) and was asked to consider joining the faculty.

Scott received approval for meeting his doctoral residency requirement by working with Ruth for the Fall of 1980 and Spring of 1981. This allowed Scott to shadow Ruth's teaching for the year, and become more familiar with all her other responsibilities. Ruth was not just a Professor of Creative Studies, she was also Co-Director of the Center, and had major responsibilities for CPSI and other work with the Creative Education Foundation (CEF). During the residency, Scott was asked to help provide numerous programs and workshops as a part of the outreach and service missions of the Center and the CEF. The CEF was the sponsor of CPSI, published the *Journal of Creative Behavior*, provided numerous outreach programs and services, and provided various levels of support for the academic program. The CEF was co-located with the Center at Buffalo State College.

Joining the Faculty of the Center

Scott formally joined the faculty of the Center for the Fall of 1981, as an Instructor and co-director of the Center with Sid Parnes. The primary focus was to balance teaching and coordinating the undergraduate and graduate courses with completing his doctoral dissertation. His dissertation was successfully defended in 1982 (see Isaksen, 1983; Isaksen & Parnes, 1985), and was immediately promoted to an Assistant Professor, and upon Sid Parnes' retirement, appointed Director of the Center. Don Treffinger joined the faculty in 1977, after conducting an earlier evaluation of the potential graduate program, as well as a study of the effects of the Creative Studies Project (Reese, Parnes, Treffinger, and Kaltsounis, 1976). Don was leading the new graduate program, and given his international leadership within the field of gifted and talented education, he attracted many teachers within the field. He also founded the Center for Creative Learning to help share our program with educators round the world.

The early 80's were busy, challenging and ultimately productive years for Scott and his colleagues at the Center. There were many opportunities for providing keynotes, lectures, and workshops on creativity and CPS. Scott worked with Ruth to develop the now widely known four P's Venn diagram to help communicate the many ways to define creativity (see Figure 1). Scott was invited to explain how this diagram was created with Ruth in a chapter published in honor of Horst Geshka (see: Isaksen, 2010).

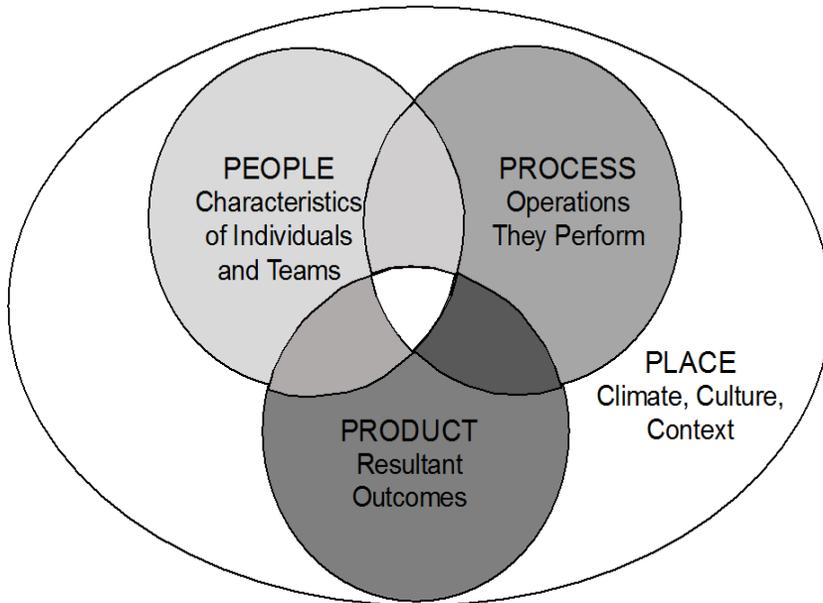


Figure 1: The Four P's of Creativity

Balance and Breadth to CPS. The faculty had inherited a rich tradition from its founders. The Creative Studies Project had validated the value of the instructional program. Ruth and Sid had already updated the foundational instructional creative studies materials (Noller, Parnes, & Biondi, 1976; Parnes, Noller, & Biondi, 1977), yet Scott and Don had many opportunities to reflect on the strengths and challenges associated with the educational program.

Scott related a key observation related to a lack of balance within the program. While he was involved in the Creative Studies Project, he had friends within both the experimental and control groups (eventually marrying a member of the control group!). One of his friends had dropped out of the experimental group after only one semester of creative studies. This friend was one of the most creative people Scott knew. Later in life, his friend wrote numerous TV series and received Academy Awards for his work. He left the program because he explained that he already had loads of ideas. He just didn't know what to do with all of them.

Upon reflection and examination, Scott and Don agreed that the creative studies program was heavily focused on divergent thinking and tools. The search was on for productive ways to integrate convergence into CPS. The faculty and staff decided to attend and study numerous other programs related to creative studies. Roger Firestien and Bill Shephard attended a Synectics program based on the work of Prince (1970). Scott and Don attended a Synectics Educational Systems program based on the work of Gordon and Poze (1973). John Moffat attended a program based on the work of Kepner

and Tregoe (1965). This provided an opportunity to review other problem-solving approaches. One of the key outcomes from this review was the deliberate development of new convergent tools that could be integrated within the educational program (e.g. Treffinger, Isaksen & Firestien, 1982; Firestien & Treffinger, 1983).

Another key observation was that there was so much more to learning and applying CPS than the actual process and tools. Scott had the opportunity to join Sid on numerous real-life projects outside the academic program and observed that Sid was a master facilitator. No matter what the circumstance, Sid always landed on his feet! When Scott tried to mimic Sid's approach, he would fall flat on his face! Sid was obviously doing loads of things right – but what were they?

One of the other key outcomes from the review was the realization of the importance of a facilitative approach to leadership and the development of a model that clearly specified the roles involved in applying CPS (e.g. Isaksen, 1983; 1992; Parnes, 1985). A facilitator plays a critical role in managing CPS – and ensuring that CPS delivers results. People can have an abundance of tools and techniques, but determining how, when, and why to apply them belongs to the facilitator (e.g. Firestien & Treffinger, 1989a&b; Treffinger & Firestien, 1989).

Don had approached the CEF to take on new outreach efforts to the education community, but his comprehensive initiative was turned down. He then founded the Center for Creative Learning, and involved Scott in many of its programs and services. Scott also had the opportunity to attend the Leadership Development Program at the Center for Creative Leadership. He had met Stan Gryskiewicz, the head of that Center's Creativity Division, at CPSI and was able to attend another program called Targeted Innovation. These two programs showed Scott that CPS and creativity were not just relevant to education, business and other organizations needed this as well. Scott was invited to become a Program Associate and helped to deliver Targeted Innovation courses at the Center for Creative Leadership, as well as numerous other client locations around the US.

Scott was not alone in recognizing the breadth of the need for creativity and CPS. Roger Firestien and colleagues founded Multiple Resource Associates to provide training and consulting to businesses as well. They also worked to integrate the learning around balance, convergence, and facilitation. Simultaneously, the Creative Studies program was beginning to attract interest beyond those involved in education. Students from other departments, particularly business studies, started taking creative studies classes.

It was in the midst of all these exciting developments that another critical event occurred. Sid and the Board of the Creative Education Foundation had decided to leave Buffalo State. This gave Scott real pause! That meant that the only support from the State of New York for the academic program was three full-time faculty lines, two graduate assistantships, and office space. There would be loss of support staff, instructional resources, and the sense of protection and reach that the CEF provided. It also raised many questions and issues regarding future collaboration with a key leading organization in our field.

Scott had to make an important decision: does he stay and fight for the future of the academic Center; or does he consider other options. His first stop was to meet with the Provost and Vice President of Academic Affairs of the College, Dick Wiesen. After a frank conversation, Scott learned that Dick supported and saw value in the academic program and wanted to see it remain and grow. However, given the stark budget situation with the State, and other observations he shared, he advised me to meet with all the Deans on campus.

This was a challenging reality check. The program did not sit under a Dean, but the Director of the Center reported directly to the Provost. All the Deans had their eyes on the faculty lines and had formed definite impressions about the Creative Studies Program – most of them were not so positive! One Dean asserted that no meaningful research had been conducted in years. Another shared the observation that the courses were seen as “easy A’s” and were painfully out of date. The third Dean actually called the Center a “cult on campus.” Surely, if Scott chose to stay and save the Center, he would have his work cut out for him!

While mulling all this over (and praying), and while the CEF was in the midst of moving off campus, Scott had a very momentous experience. He was leaving campus late one evening in January. Campus was eerily quiet and it was snowing lightly. As he was approaching his car, he noticed something on the top of a nearby garbage can. Evidently, the CEF was disposing of some of their stuff that way. When he approached the can, he found a red box. Much to his surprise, it contained a very special book. It was Alex Osborn’s (1953) personal copy of the first edition of *Applied Imagination* – a paradigm-breaking work that created the impetus for the entire Creative Studies program! It included a personal note from the publishers and editors of Scribners that told Alex how wonderful he was to work with, and they wished him many future successes.

Scott had never met Alex. Of course, he had to read *Applied Imagination* as a part of his studies. He even got to work at his desk until it was moved to the CEF’s new location. Was there some special meaning to finding this book? Scott thought so, and I am personally grateful he did. His decision would have a changing impact on my life, and the lives of so many others who would join the Center’s academic program. It enabled me to begin a 35 year professional career in the field of creative thinking and problem solving, and personally, to meet my future wife.

The challenge was on!

Revamping the curriculum and new instructional materials. Scott and his colleagues evaluated and made significant changes to both the undergraduate and graduate courses. They (Isaksen & Treffinger, 1985) blended the best from the tradition with their new insights and learning. The most concrete task was building flipcharts for the classes (thanks to Ed Zilewicz!). Then Scott led the team to review and revise course goals and objectives, and create criterion-referenced grading systems for all classes. A new undergraduate minor in Creative Studies was created that allowed majors from other departments to complete a sequence of courses. The graduate program was revised

into three major streams of focus and students could obtain a Certificate of Graduate Studies in lieu of completing the full Master of Science degree.

Scott and colleagues also levered the various theories and research, along with their practical experiences to make some fundamental changes to the CPS process, since this was a core aspect of the academic program. They expanded on the need for a better balance between creative and critical thinking by developing parallel guidelines for focusing and convergence – that complimented the well-known and established guidelines for generating and divergence. Both divergent and convergent phases of CPS were specifically spelled out (Isaksen, Dorval, Noller, & Firestien, 1993).

They also codified many of the key ingredients that were important for the successful application of CPS that were not deliberately included within the Osborn-Parnes model. This earlier model included five stages (Fact, Problem, Idea, Solution, and Acceptance Finding). There was an acknowledgement of preconditions like: problem sensitivity, mess, or objective. Yet, the insights gleaned from their practical work and research pointed out that much more needed to be included here. This led to the invention of the Five O's.

These were now included within an additional stage of the Osborn-Parnes Model called Mess-Finding (Isaksen & Treffinger, 1985). *Orientation* focused on improving people's awareness of their preferred approach to problem solving, as well as identifying blocks they may have related to CPS. *Outlook* included considering the problem owner's familiarity with the task, as well as the situational aspects involved. *Outcomes* and *Obstacles* provided a structure for generating and selecting goals or objectives suitable for the rest of the CPS process. *Ownership* ensured that those pursuing CPS had adequate influence, interest and need for imagination.

Impact Research – What works? It was during this time that Scott and colleagues began to conduct impact studies designed to find out what works – how is CPS applied in the real world? These impact studies were conducted following workshops and training events provided through the Creative Problem Solving Group, founded by Scott in the early 1980's. He would follow up on real-life client engagements to find out how those involved were actually applying CPS, as well as assessing the outcomes from these events. Further refinements and developments within the instructional program and CPS were based on this kind of research and development and are well chronicled (Isaksen & Treffinger, 2004; Treffinger & Isaksen, 2005).

One of the major insights from impact research was that the Osborn-Parnes model depicted CPS as a linear, prescribed sequence of stages. Within these stages, numerous tools and techniques could be deployed. Well, the real-world feedback was that this was not the way people actually applied CPS.

Breaking up the CPS Process. They reported using what they needed, when they needed it. They reported three main clusters of applied activity: obtaining clarity on opportunities and problems; generating ideas; and planning for action. This insight caused Scott and colleagues to literally break-up the CPS

process into three main components. Thus, transforming CPS from being considered a prescriptive, linear model and approach (we all used to do ‘run throughs’ of the entire process) to an open-systems, descriptive model. This change was reflected in the development and publication of numerous instructional resources for use in both the undergraduate and graduate courses (Isaksen, 1989; 1991; Isaksen & Dorval, 1992; Treffinger & Isaksen 1992). These changes to CPS were also shared in other sources outside the academic program (e.g. Isaksen, Dorval, Noller, & Firestien, 1993; Joyce, Isaksen, Puccio, Davidson, & Coppage, 1995; Joyce, Isaksen, Davidson, Puccio, Coppage, & Maruska, 1997).

Appraising Tasks and Designing Process. Once the three major CPS components were developed, students and participants could no longer simply rely on the prescribed series of stages. Scott and I worked together to create a new component that would help people navigate their way through CPS (Isaksen & Dorval, 1993c). This new component was fundamentally different from the others. For both individual and group application of CPS, the three components, and stages within them, related to structuring cognitive activity – using appropriate language, tools, and guidelines. The new navigational component called Planning your Approach demanded thinking about their thinking (meta-cognition) in order to appraise their task and design their process to meet their need. Again these developments were integrated into instructional activity within the Center (Isaksen, 1996; Isaksen, Dorval, & Treffinger, 1993; 1994; Treffinger, Isaksen & Dorval, 1994) and through other sources (Isaksen & Dorval, 1994; Treffinger, Isaksen, & Dorval, 1994; 1995a).

Parallel to all these curricular activities, major efforts were started to develop a robust research, development, and dissemination program. Scott had observed a dwindling presence of researchers and scholars attending CPSI during the early 1980’s, and proposed creating a Frontiers in Creativity Research symposium to occur at the 30th CPSI in 1984. Prior to this event, Scott convened a working group to explore the current state of creativity research, and jointly created a proposed model for the formulation of future inquiry (see: Isaksen, Stein, Hills, & Gryskiewicz, 1984). The symposium was well received. Scott also decided that more could be done to help foster future creativity research, so he invited the first generation creativity researchers (e.g. Getzels, Guilford, MacKinnon, Parnes, Stein, Taylor, and Torrance), as well as a selection of those engaged in current research (e.g. Amabile, Basadur, Besemer & O’Quin, Gryskiewicz, Hausman, Khatena, Kirton, Simonton, Toepfer, Treffinger, and Van Gundy) to contribute to an edited collection (Isaksen, 1987).

Scott explained that there was a clear need to build on earlier philosophical and theoretical work on creativity research in order to define a comprehensive program of research for the Center (Treffinger, Isaksen, & Firestien, 1983; 1992). This led to the development of an ecological or interactionist framework that could guide research within the Center, and perhaps, the field (Isaksen, Puccio, & Treffinger, 1993; 1999; Puccio, Isaksen, Treffinger, & Murdock, 1994). Taking an interactionist approach led to the formalization of two projects, beyond the impact research effort, as well as a

comprehensive research, development, and dissemination mission (Isaksen & Puccio, 1994).

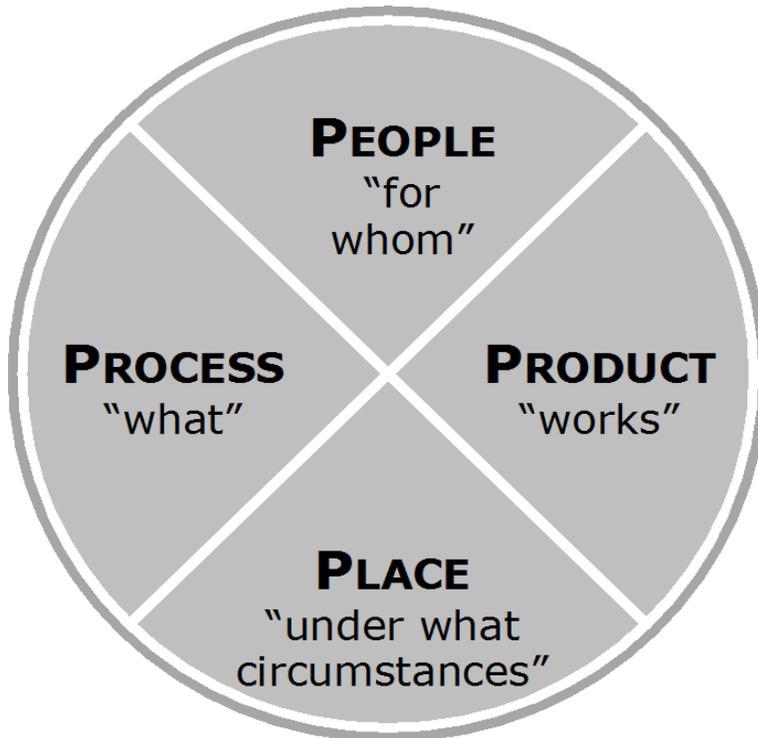


Figure 2: What works, for whom, under what circumstances?

The Cognitive Styles Project – What works for whom? The Creative Studies Project had clearly demonstrated that it was possible and desirable to deliberately develop creative abilities. Yet, it was also clear from research on the drop-outs from the Creative Studies Project that individuals needed different things from CPS, and naturally possessed different kinds of preferences for CPS. Initially, this was identified within the Orientation aspect of Mess-Finding. Don and Scott both shared experiences related to learning styles based on their educational backgrounds. Based on their shared interest, they began to investigate various style assessments, and engaged interested graduate students in conducting research to examine the connection between styles and CPS. The guiding question was: What works for whom? Many of the style assessments they examined did not hold up to scientific scrutiny (e.g. Joniak & Isaksen, 1988). Ultimately, they settled on the Myers-Briggs Type Indicator (MBTI) and the Kirton Adaption-Innovation Inventory (KAI) as two assessments that held up well, and were relevant for examining the linkages to CPS (e.g. Isaksen, Lauer, & Wilson, 2003) and leadership development (Isaksen, Babij, & Lauer, 2003).

Scott met Michael Kirton during the Center for Creative Leadership's Creativity Week event in 1983, and that began a decade-long collaboration. Dr. Kirton (1978) clearly asserted the importance of making a distinction between creative level (How creative are you?) and creative style (How are you creative?). Scott worked with Michael to design and deliver qualification courses for the KAI, advise graduate theses (e.g. Puccio, 1987; Teft, 1990; Zilewicz, 1986), and eventually had Kirton qualify the Center's faculty in the use of the KAI. This resulted in numerous publications (e.g. Isaksen & Puccio, 1988; Isaksen, Dorval, & Kaufmann, 1992; Murdock, Isaksen, & Lauer, 1993).

Scott acquired a grant in September of 1984, that enabled Don and Andy Joniak to attend a training and qualification workshop for the MBTI delivered by Mary McCaulley. This was an excellent opportunity for the three of them to discuss and debate the aims and methods of the Cognitive Styles Project with Mary and her colleagues.

Overall, this research project has been quite generative for the Center, and for many others. Summaries of its outcomes and potential have been well documented (e.g. Isaksen, 2004; Isaksen & Dorval, 1993b; Isaksen & Puccio, 1994). One study within this program examined the relationship between style and climate of creativity – linking person and process (Isaksen & Kaufmann, 1990), and another study examined gender differences in style within the organizational hierarchy (Kaufmann, Isaksen, & Lauer, 1996).

The Creative Climate Project – Under What Circumstances? Scott continued to conduct and supervise numerous impact studies on CPS. The many changes made to CPS, and linking style as a key aspect of participants' orientation, resulted in confirmation of the usefulness of the modifications. However, new challenges to the successful application were beginning to become clear. Participants in CPS workshops found CPS to be very useful, yet they were identifying other organizational barriers that limited their application potential. Those who were more successful were identifying many positive aspects within their organizations' work environment.

Fortunately, Sid had developed a relationship with Göran Ekvall, a Swedish industrial psychologist who had done significant research on idea-suggestion systems within international organizations. Based on this work, Göran had recognized the importance of the work environment in supporting creativity and innovation. Scott invited Göran to the Center to share his work on creative climate. He began his presentation by outlining an interesting conceptual model that included many, if not all, the organizational issues Scott had identified through the impact studies. Göran then shared his work on the Creative Climate Questionnaire (CCQ) and the impressive results showing the significant differences on climate scores between stagnated and innovative organizations. In 1985, Scott and colleagues immediately worked with Göran to translate the CCQ from Swedish into English (thanks to John Gaulin and Ed Zilewicz!). The hope was that the CCQ would tap many of the key aspects of situational outlook important for successful learning and application of CPS.

The work on understanding the climate for creativity became an active part of the research mission at the Center. Numerous graduate studies were

conducted (Britz, 1994; Cabra, 1996; Grivas, 1996; Gaulin, 1985; Lauer, 1994). A technical manual was written to document the development of the Situational Outlook Questionnaire (SOQ) (Isaksen, Lauer, Murdock, Dorval, & Puccio, 1995), and faculty members published outcomes as well (e.g. Treffinger, Isaksen, & Dorval, 1995b).

One of the key developments within this program of research was derived by a critical practical incident. Scott was working with Gerard Puccio on an assessment of climate for IBM. Climate surveys had been mailed to a few hundred participants. As they opened the envelopes from those who returned their surveys to prepare the data for analysis, Scott noticed that one participant has written quite an epistle on the survey. This was set aside as they conducted the analysis of the quantitative results. After all the data was sent for analysis, Scott sat down and read what the participant had written. The person started by stating that he knew what we were trying to measure, but felt it was important to inform us of additional aspects of the work environment. Scott took that survey down the hall to Dr. Mary Murdock, who had a strong background in qualitative research, and she helped to design open-ended questions for the SOQ. This allowed participants to provide deeper insight into other aspects of the work environment beyond the dimensions of climate. It also made the SOQ a multi-method assessment.

Taking CPS Global. One of our British visiting scholars commented during a faculty meeting that our approach to CPS was OK for Americans, but would not have any value elsewhere. Scott found that statement challenging. After all, didn't everyone need access to a creative approach to problem solving?

During the 1980's the Center's graduate program was growing, and had a number of international students enrolled. The first was Marjorie Parker who started her studies in 1985. She invited Scott to do CPS workshops in Norway, and eventually published her thesis called *Creating Shared Vision* (Parker, 1990). Another was Patrick Colemont, from Belgium, who's master's project involved creating a series of new International Creativity and Innovation Networking Conferences (ICINC). The first of this series was hosted by the European PERISCOPE network in 1987 (Colemont, Grøholt, Rickards & Smeekes, 1988) and held in the Netherlands. This network grew from the interest of a few European practitioners who had met at CPSI and were already providing occasional conferences. They wanted to initiate more continuous interaction on their side of the Atlantic. The next was hosted by the Center for Creative Leadership in 1988, and resulted in the formation of the PRISM network responsible for the North American part of the ICINC program.

These networks alternated responsibility for hosting an annual event and offer an important opportunity for creativity practitioners to meet and exchange information (Geschka, Moger & Rickards, 1994; Gryskiewicz, 1993; Rickards, Colemont, Grøholt, Parker & Smeekes, 1991; and Rickards, Moger, Colemont & Tassoul, 1992). The development of the PRISM network culminated from the Center for Creative Leadership's ten-year tradition (1978-1987) of hosting a week long International Creativity Symposium called Creativity Week in Greensboro, North Carolina (Gryskiewicz & Hills, 1992).

Scott was an active member of the PRISM group and led the Center's team to host the 1990 International Conferences. The unique feature of these conferences was the commitment to have an independent, yet parallel, working research conference designed to convene over thirty-five creativity scholars (see Isaksen, Murdock, Firestien & Treffinger, 1993a&b). It was quite clear that these efforts were important, as creativity scholars were not actively included in the existing main conferences within the field. These conferences served to bring the researchers into view and contact with many of the main practitioners within the field.

These conferences were an important intervention for the practitioners, as well as the researchers. At first, the CSC faculty felt that the two conferences should be separate and distinct. We really did not think that creativity practitioners would be interested in attending or being involved in the research conference proceedings. In fact, we had designed the research conference so that working teams would meet in break-out rooms, and then convene in a larger space to share and discuss their outcomes. Creativity practitioners would be invited to observe the large-group proceedings in a separate room that included TV monitors, so those who were interested could listen and watch. At a critical point during the conference, those who were in the practitioner room insisted that the wall be taken down, so they could interact directly within the proceedings. The actual level of interest and involvement on their part was both surprising and inspiring – the wall came down! Our involvement in these conferences clearly demonstrated the high level of international interest and involvement in creativity research and practice, and provided many opportunities for Center faculty and students to share their work on CPS. These conferences continued for many years.

In 1991, I joined Scott on an international study tour to examine the appropriateness of CPS training in Bergen, Norway, and Bratislava, Slovakia (Isaksen & Dorval, 1993a). The study was partially funded by the Marshall Fund. We planned to offer the standard Buffalo-based CPS course to participants from the two other countries to better identify and understand the potential cultural differences. We had been 'primed' to look for differences based on the comment from our earlier visiting scholar. Scott and I went to lunch with Guttorm Fløstad, a Norwegian philosopher (who had joined the 1990 Conferences) a few days before we launched our field study. We eagerly shared our plans with Guttorm during a wonderful lunch overlooking Oslo. He was very interested and supportive of our efforts, but after taking a final sip of wine, stated that we were likely to find differences if you go looking for them. Why not consider looking for similarities as well. Scott and I went to work after lunch to completely overhaul our protocol for the study! We did find meaningful cultural differences, but we also found many similarities – particularly that CPS was, in fact, seen as useful and valuable.

The Center was increasingly seen as an international focus of expertise and knowledge on creativity and CPS, and functioned as a global clearinghouse for information. Scott worked with Mike Fox (1988) to create a computer-based system of citations and annotations of the periodical creativity literature. He launched the International Creativity Network to share developments more broadly with those interested through newsletters and other activities. Scott was also able to sort out the relationship with the CEF, and

obtained their support for fee-waivers for the Center's graduate students to attend CPSI, as well as for the Alex F. Osborn Visiting Professorship program. This allowed international scholars to visit the Center and its classes, work with graduate students, provide workshops and presentations, and collaborate with the faculty.

Summary. The first 25 years of Scott's involvement in the field of creativity was based primarily within the academic and educational context. During this time, Scott was internationally recognized as a scholar in the field. Amabile's recommendation for his promotion to professor in 1992, named Scott as one of the top four creativity researchers in the world.

The commitment he showed for the Center paid off. When he started, the Center was perceived as a 'cult on campus' and by 1995, it was considered an academic program of distinction and a center of excellence. Scott also ensured continued growth of the academic program by hiring a new generation of faculty, acquiring additional staff, and gradually increasing the SUNY budget for the program. Scott developed a great relationship with the Center's sponsor, Dr. Gerald Accurso (Jerry), who served as Dean for Graduate Studies and Research and Associate Vice President of Academic Affairs. Jerry's support for Scott and his team was critical to the acceptance and growth of the Center. Scott was recognized with the SUNY Chancellor's Award for Excellence in Teaching in 1996.

During this period, Scott had also founded the Creative Problem Solving Group (CPSB) to share the developments being accomplished with the private sector. I joined Scott with this effort in 1988, and we spent countless hours designing and developing materials and programs for numerous clients. By 1995, we had many clients around the world who sought after our programs and services. CPSB was initially integrated within the work of the academic Center, to provide experiences for faculty and students, as well as direct support for the program. Yet, the Center faculty and staff encouraged CPSB to move off campus as much of the activity was considered a distraction from its academic mission. For the next few years, Scott split his time as a full-time professor and director at the Center with an almost full-time role at CPSB. One student working with Scott described the situation as riding on two skateboards at once!

The next 25 Years

Ultimately, and for a variety of reasons, Scott had to make a choice about which of the skateboards should have both feet. Toward the end of 1995, Scott decided to leave the Center, and focus his full-time attention on the work of CPSB. He left the Center just before it was to celebrate its 30th anniversary as an academic program at Buffalo State College in 1997. He wrote a detailed history of the Center as a preface to Istvan Magyari-Beck's treatise on economic psychology and the creativity paradigm (see: Isaksen, 2009). This preface documented the major waves of research and development, the emergence of the academic program, and the wide variety of service activities accomplished over the first 30 years of the Center.

Scott's next 25 years are primarily anchored as a practitioner and consultant. Adapting the Pareto Principle, 80% of his professional efforts were focused on designing and conducting programs and workshops and other applied ventures, and 20% of his efforts on academic teaching and research.

CPSB had been founded during the 1980's, and its initial purpose was to support the development of the Center and provide programs and services to those outside the academic program. After moving the activities off campus, Scott built a unique infrastructure that included a full-time director of research, support staff for database management, a number of full-time Program and Research assistants, and I became the Director of Programs and Services. CPSB provided the unique opportunity to continue to advance his research interests, while simultaneously learning from a wide variety of practical applications of CPS.

We had a great many client engagements that took us around the world (more on this below).

Scott continued his commitment to the conduct of creativity research focused on what works, for whom, and under what circumstances. He established the Creativity Research Unit that included numerous scholars to help guide the research mission of CPSB. Based on years of collaboration with Geir and Astrid Kaufmann and others, Scott made numerous visits to Norway to conduct workshops and visit various universities. The Kaufmanns eventually 'drafted' Scott to join the faculty of BI-Norwegian Business School as a Professor II of Leadership and Organizational Behavior. Scott continued to teach creativity courses, had access to excellent doctoral students and faculty colleagues, and conducted a variety of research projects.

Luc DeSchryver, one of the international graduate students from the Center, had returned to Belgium and took an academic appointment at a local college. This provided Luc the opportunity to integrate creativity and CPS into his own coursework, as well as identify some students who had a serious interest in the field. CPSB was able to provide these selected students with internships, and involve them in graduate research projects.

One of the first studies Scott was able to complete was actually conducted during his last year at the Center. One of the longstanding elements of confusion within the field was conflating CPS with brainstorming. Moving to CPSB allowed Scott to complete the report relating to this confusion (Isaksen, 1998b), as well as the results of an empirical investigation that illustrated the power of following Osborn's recommendation that brainstorming sessions should be led by a trained facilitator (Isaksen & Gaulin, 2005).

Integrating and Applying CPS in Organizations. Moving to CPSB also afforded greater opportunities to engage in longer-term, more continuous relationships and projects in organizations. These real-world situations allowed Scott to become more deeply emersed in using CPS to address a wide range of strategic business and organizational issues. Some of his work focused on using his own facilitation of CPS to help organizations achieve creative results such as new products and services. In other situations he trained people to facilitate CPS on their own so they could ignite the creative potential of people and teams within their organizations. And in many situations, it

was the powerful integration of learning and applying CPS that created the most compelling opportunities to expand his own learning and develop ways to move the professional practice of CPS forward.

The work through CPSB helped focus greater attention on broader applications for the practice of CPS. Organizations provided the context to test and expand the limits the new open-ended descriptive systems approach to CPS. Scott began to explore links between CPS and other topics like strategic change, change management, and innovation. He had first-hand experiences with managers struggling with the novel, complex and ambiguous situations CPS was designed to address. The theory of how change was supposed to happen came in direct contact with what happens in reality. We had many conversations about the importance of theory having practical implications and for effective practice to be grounded in good theory. The work in organizations provided the rich context to learn about the productive integration of the two and provided the impetus for a deeper level of understanding and impact from the practice of CPS.

Change management and CPS. The work we did with International Master Publishers (IMP) produced clear links between the practical facilitation of CPS and strategic change in organizations. IMP was a global direct marketing company that had been around for many years and needed to plan its next wave of growth. At the strategic level, the company needed to get a diverse global executive team on the same page about where the company was going and how it was going to get there. Scott worked with the CEO and executive team to develop a global strategic framework for growing the business. His use of CPS resulted in consensus about a common mission, vision and strategy for moving the company forward on a global scale. Creating a shared vision and strategy for growth can be challenging in any situation. This was even more of an accomplishment because it was a family-owned business and the CEO was the founder and owner. Scott realized the power of CPS to bring different personalities together in a pressured situation to produce consensus on strategy.

A strategic framework for growth is important, but not enough to produce actual change. Real and lasting change needs to be managed with deliberate and planful action, solving problems in creative ways as they emerge along the way. For the first time, the decision was made to embed CPS facilitation as a core capability for managing the change on such a scale. We began the process of training hundreds of people across IMP. In turn, they used their CPS facilitation skills to engage in the work of transforming the company with powerful examples of impact throughout. One such example was the work of a product development manager trained as a CPS facilitator. She initiated and led work to rethink how new products were developed in one of the company's global business units. Working together, we used CPS to develop the global strategy for new product development, identify market opportunities and prioritize the consumer needs within each, and initiated cross-functional teams to create new products to address them. CPS provided the framework, language, and tools used within the updated new product development process. When all was said and done, integrating CPS re-

duced product development time by over 50%, reduced the costs by over 88%, and increased the success rate of the products produced by over 400% (Stead & Dorval, 2000).

Until now, CPS was most commonly used to facilitate idea generation sessions. It was less about making successful change happen and more about running effective meetings. We called it the ‘session mindset.’ The work with IMP harnessed CPS to both design and implement strategic change, as well as run effective meetings. It demonstrated the full range of potential with learning and applying CPS on real business challenges.

Leadership and CPS. Work with the Management Consultant group within Coopers & Lybrand (C&L; which eventually became PriceWaterhouseCoopers - PWC) stimulated a new level of understanding about the links between CPS and leadership. C&L directors and partners in the consulting area were receiving customer feedback indicating their work was not as creative as the competition. Their engagement teams were not producing the level of new or original solutions customers were looking for and the consulting group needed to change that.

Scott saw facilitating CPS as a form of process-oriented leadership. He had been teaching Creative Leadership in the undergraduate program at the Center and was involved in Targeted Innovation programs at the Center for Creative leadership. However, the work with C&L provided a much more robust opportunity to fully explore those linkages. These were senior consultants whose specialty was using their content knowledge to add value to customers. And now they were being told that knowledge was not enough. They needed a new approach to leading engagement teams that relied less on sheer knowledge and more on the power of imagination and creativity.

We worked with C&L to develop a tailored approach to creative leadership called Acting with Insight. It was designed to prepare people to lead teams in situations requiring creativity, innovation and change. Scott developed new ways of understanding links between different forms of leadership. The program integrated management competencies, leadership practices, and CPS facilitation. The CPS framework, language and tools became the operating system in the minds of the directors and partners leading engagement teams.

The power of CPS as a leadership framework was made clear in the feedback provided by participants. CPS provided them with something they could lean on when the situation was unclear, ambiguous or uncertain. It helped them know what to do when they didn’t know what to do. And it helped move a group’s thinking beyond the obvious. Whereas they once relied solely on knowledge, process-oriented leadership enabled them to lead in ways that went beyond the limits of their own knowledge and expertise, giving them greater access to the creative imaginations of entire engagement teams and clients alike. In fact, clients commented how much they liked being able to contribute to creating their solutions as opposed to having the solutions given to them. This came about because partners and directors engaged them in the creative process using their new found process-oriented leadership skills with CPS. Acting with Insight was originally presented as a

limited one-time offer for senior leaders. It ended up being offered globally many times due to internal demand.

Strategic Change and CPS. Leading engagement teams to produce more creative solutions is one thing. Changing the frame of mind of state police from a force to a service provider is another. Luc DeSchryver, our Belgian colleague, student and mentee of Scott was using CPS in his work with the Belgium Police. The Belgium Police had been with the South African Police Force to help bring about a strategic transformation of the South African Police Force into the South African Police Services. This shift would require a significant mindset shift in officers from applying force to engaging in community problem solving. Luc approached Scott with the idea to train officers and senior officials in the police in how to facilitate CPS. The goal was to integrate the CPS framework, language and tools within their daily policing to help shift their minds and behaviors from applying force to facilitating problem solving.

We spent a week in South Africa delivering a five-day course in CPS facilitation teaching officers and senior members of the police in how to facilitate the CPS framework, language and tools. It was an amazing week watching participants absorb the training, taking on the skills of CPS facilitation and experiencing the power of a creative problem solving frame of mind. It was an honor to be part of the event. There were members of the Zulu tribe in the group, one of which was the main client for the event. At the end of the course, he announced that they wanted to give me a Zulu name. It was Tshepo (pronounced 'Tepo'), which means *believe*. He said they gave that name to me because I believed and lived Creative Problem Solving and helped them in the south to believe that their success lies in exploring CPS. Checking in a year later, those who were trained were continuing to make progress on the transformation.

New Product Development and CPS. The practice of CPS was not limited to designing and driving change within organizations. It has also proved powerful for helping organizations better serve customers. We have used CPS to develop new products and services that have impacted the lives of millions of people around the world – likely including yours. From how laundry soap is dispensed to how credit unions serve customers, we have used CPS to produce tangible outcomes with lasting impact. One such project took place back in the early 2000s and had a profound impact on the way people communicate with each other on a daily basis. Scott was approached by a company that had a new piece of technology and were trying to decide how best to use it. The technology was able to receive a signal in one format, such as an email or voice mail, and send it away in a different format such as a text message. At the same time, the breadth of signal for mobile phones was dramatically increasing. The company wanted to know what consumers would want to be able to do with this increased breadth of capability.

Scott used CPS to design an approach to understanding consumers' priorities and interests. I had the pleasure of being a member of the facilitation team and the process involved identifying needs and generating ideas to address those needs. We had a number of interesting observations about the

research when it was over. For example, the team noticed how difficult it was for many of the participants (mostly in their 20s-40s) to put their cell phones down during the 3-hour workshop. Participants often told stories about sleeping with their cell phones and their desire to stay connected all the time. When the research concluded, we shared the results with the organization. Later, we were excited to learn that the research was being used to develop applications for the first version of Apple's iPhone. Following up, having the insights about the needs of consumers reduced the development time from two years to eight months. Apple was also able to use the results to determine what functions to ultimately include in Siri.

Applying CPS in organizations has added great value to organizations in many different ways. The wide range included developing corporate strategy and tactics, to building organizational capability for innovation and change, to increasing capacity to develop new and innovative products and services. However, it also provided the basis for continuous improvement of a series of practical resources (Isaksen, 2000; Isaksen, Dorval, & Treffinger, 1998; 2000; 2011; Treffinger, Isaksen, & Dorval, 2000; 2006) that could be used within our own programs, but also for others teaching courses on creativity and CPS. The applied work on CPS also provided numerous opportunities to reflect on that practice (Isaksen, 1998a; Isaksen & Treffinger, 2004; Treffinger & Isaksen, 2005). It also stimulated networks of practitioners within and across CPSB client organizations working together to further their own skills and improve their practice of CPS. It also results in networking conferences and communication across networks with the publication of the international newsletter *Communiqué*.

Working with real-life applied challenges within organizations provided the basis for continuous improvement of a series of practical resources (Isaksen, 2000; Isaksen, Dorval, & Treffinger, 1998; 2000; 2011; Treffinger, Isaksen, & Dorval, 2000; 2006) that could be used within our own programs, but also for others teaching courses on creativity and CPS.

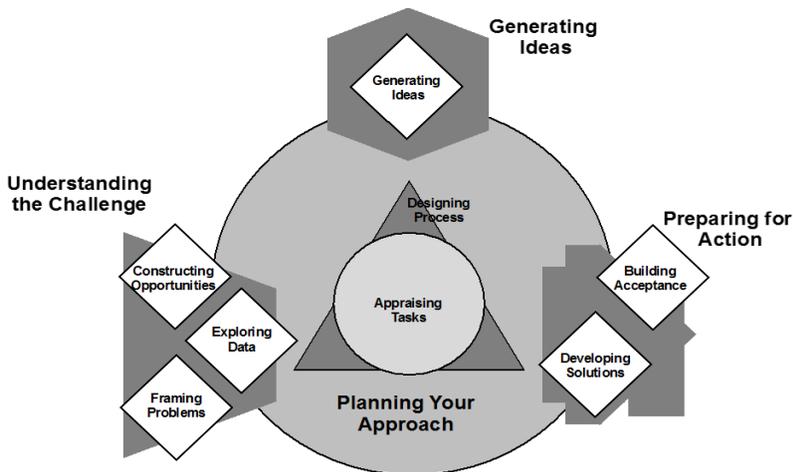


Figure 3: The Current Model of Creative Problem Solving

In 2000, Scott was given an award by the European Association for Creativity and Innovation for the best book on creativity (Isaksen, Dorval, & Treffinger, 2000). At the same event, Joe Tidd received the award for the best book on innovation. Scott and Joe sat together, but neither of them knew anything about each other's work. They eventually collaborated on a book that sought to better understand and integrate the relationships between creativity and innovation (Isaksen & Tidd, 2006).

In addition, the applied work in organizations stimulated a new level of activity focused on building powerful assessment tools that could be used by practitioners to target and design their applications of CPS.

Development and Validation of the SOQ. Research on the creative climate project continued at CPSB, in close collaboration with Göran Ekvall. Scott and Göran had worked initially on the early translation and preliminary examination of the psychometrics, internal reliability, and validity of the CCQ while at the Center. Many of the CPSB services provided the opportunity to apply the climate assessment within organizations, and support further inquiry. Numerous iterations of the initial CCQ lead to the further development of the SOQ (Isaksen, 2007b; Isaksen & Ekvall, 2010; Isaksen & Lauer, 2001; 2002; Isaksen, Lauer, & Ekvall, 1999; Isaksen, Lauer, Ekvall & Britz, 2001). An updated technical manual was created (Isaksen & Ekvall, 2007), and eventually a series of technical resources were developed so they could be downloaded from the SOQ website (e.g. Isaksen, 2019; Isaksen & Ekvall, 2015a&b). One of these included an annotated bibliography of the hundreds of studies on the CCQ and SOQ (Isaksen, 2019).

Since the SOQ was integrated into numerous practical engagements within organizations, the links with leadership became very clear (Isaksen, 2007a; 2017; Isaksen & Akkermans, 2011; Swinnen, Teirlinck, & Isaksen, 2019). Its usefulness in helping to examine organizational engagement (Lofquist, Isaksen, & Dahl, 2018), talent development (Isaksen, Stangl, & Hoßbach, 2020), and other strategically important aspects (beyond creativity and innovation) for organizations also became quite clear. Many hundreds of organizations and teams around the world have completed the SOQ to help them identify dimensions of a climate for creativity that are supportive or that need some attention, as well as other factors in their work environment that are helping or hindering their creativity at work. They also have been able to identify concrete steps that can be taken to improve the ability to make change, innovation, and creativity happen within their team or organization. The data from these applied projects are also being used by advanced graduate students and faculty colleagues for their research studies.

The work on creative climate also provided an opportunity to build on the conceptual model that Ekvall originally proposed (e.g. Isaksen, 2013), and to help clarify the growing amount of research being conducted on the broad area of the work environment for creativity and innovation (e.g. Isaksen, Hoßbach, & Neyer, 2019).

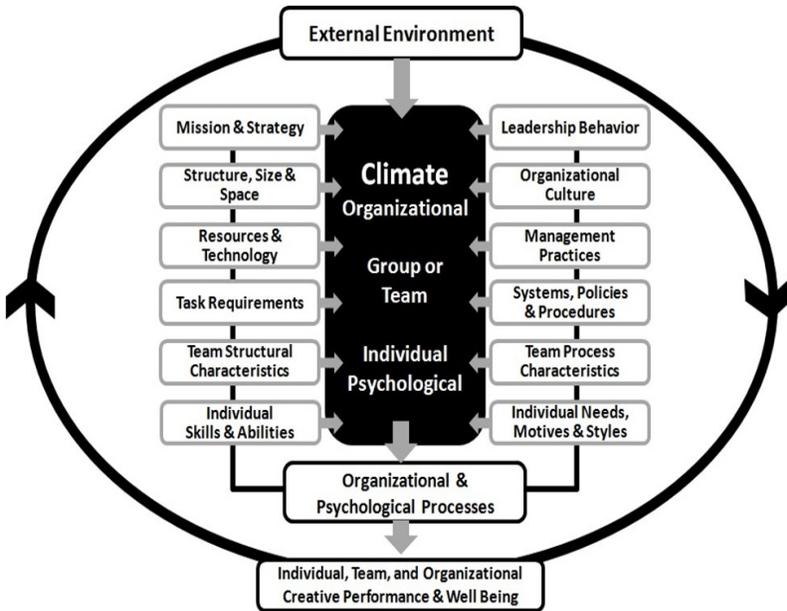


Figure 4: A Climate-Centric Model of the Work Environment for Creativity and Innovation

Development and Validation of VIEW. The Cognitive Styles Project also continued at CPSB. On one of Scott's trips to the UK, he visited Michael and Veronica Kirton. They went to a local pub for dinner and to continue their conversation. After a few pints, Scott asked Michael what was missing from the KAI. He quickly pointed out that there were two major concepts that were not included: the first related to introversion-extraversion; and the other related to hard (thinking) and soft (feeling) decision-making. This insight was completely consistent with Scott's own findings (and that of others) regarding use of the KAI and the MBTI (e.g. Isaksen, Lauer, & Wilson, 2003). Scott's overnight visit concluded with Kirton insisting that Scott go back and engage Don to encourage him to attend another KAI certification course.

Scott returned and caught up with Don and Ed Selby. Ed and Don were interested in making adjustments to the KAI so that it could be used with students in educational contexts (Selby, Treffinger, Isaksen, & Powers, 1993). Scott joined their meeting while they were working on a new assessment. After a long and energetic debate (and the creation of walls of flip-charts!), the three of them decided that they should overcome their reluctance to add yet another style assessment to the mix. They agreed that it was time to create an assessment that fit the need to help people understand their preferences when engaging in a creative kind of problem solving (Selby, Treffinger, & Isaksen, 2014).

After years of basic research, VIEW: An assessment of problem-solving style (VIEW) was ready for use (Selby, Treffinger, Isaksen, & Lauer, 2002; 2004a; 2004b; 2004c). The authors of VIEW collaborated together,

and with many others, on a wide variety of research, publication, and application projects (see Isaksen, Treffinger & Selby, 2019, for a bibliography of many of these). Their work has led to an expanding program of research and development (see: Isaksen, Selby & Treffinger, 2021, for a summary of the evidence).

Scott continued to make his own contributions to this effort by studying the relationships between VIEW and CPS (e.g. Isaksen & Geuens, 2007) and engaging in translations of VIEW (e.g. Isaksen, De Schryver, & Onkelinx, 2010). Scott also continued to work on the deeper conceptual foundations of problem-solving style (Isaksen, Kaufmann, & Bakken, 2016; Selby, Treffinger, & Isaksen, 2021; Treffinger, Selby, & Isaksen, 2008).

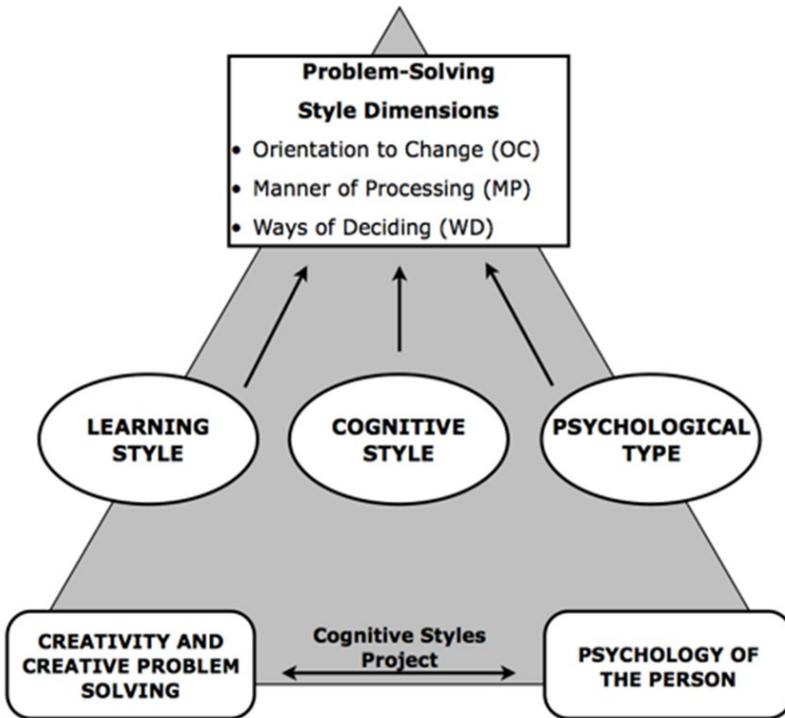


Figure 5: A Conceptual Model for VIEW: An Assessment of Problem-Solving Style

This work resulted in a powerful new tool with a profound impact on the individual level helping people to understand their creativity and problem solving preferences, as well as groups and organizations stimulating new levels of teamwork and collaboration. Given its conceptual clarity as an assessment of creativity within people, independent of any specific model of the creative process, VIEW was helpful when applied to our work with CPS, but also more generally for leadership development and creative collaboration more broadly. The practical benefits are clear. Many thousands of people

around the world have completed VIEW to help them gain insights into their problem-solving preferences. Many hundreds of teams have been able to apply these insights to improve their ability to collaborate creatively (see Main, Delcourt, & Treffinger, 2017, for a sample experimental research study). The results from these efforts are also being applied for research projects by master and doctoral level students.

Linking Person and Place. Taking an interactionist and open-systems approach to our practice resulted in a fundamentally new and improved way to more broadly apply CPS, and to help others learn how to ignite creative potential (e.g. Isaksen, 2020). These applied efforts also led to the development of new assessments to better understand people (for whom; VIEW) and place (under what circumstances; SOQ). With the availability of these new tools, the natural next step was to examine the integration of people and place.

Scott's initial study used the KAI and CCQ (Isaksen & Kaufmann, 1990) and found only a few small correlations between style and climate. Clapp and Kirton (1994) were critical of this initial study and stimulated a more comprehensive follow up (Isaksen & Lauer, 1999). The next wave of research applied VIEW instead of the KAI (Isaksen, 2009a). The hope was that a multi-dimensional measure of style could yield more interesting results. The interesting outcome was that there were meaningful differences found within the narrative qualitative results, but few strong quantitative differences.

In order to tease out some meaningful distinctions, the next wave of research focused on those with more extreme climate scores – those who assessed their best and worst-case climates, and those with more clear style differences (Isaksen & Aerts, 2011). This study confirmed significant differences between best and worst-case climates, and also found some significant differences in these results for a number of problem-solving styles. Yet, this study only utilized a quantitative analytic approach. The next study (Hoßbach, 2019) used a multi-method approach with a larger sample. The general results from this line of research is pointing out that people with different problem-solving styles have distinct requirements from their work environment in order to actualize their creative potential. This is important as a continued research effort, but also for organizations facing increased need to lead creative change efforts (e.g. Lofquist & Isaksen, 2019).

Key Reflections

I asked Scott to reflect on his 50 years of experience and work in the creativity field to see what his key learning has been thus far, and insights to guide future work in the field. After 50 years of contributions with significant impact on the field of creativity and CPS, Scott continues to look to the future.

Everything Comes from Somewhere. Scott used to ask his graduate students to identify their antecedents to their own work on creativity. He would share the many people that influenced the work of Alex Osborn as an example. Then, he would share his own. The big idea was to identify that work in

this field does not occur *ex nihilo*. We are all building on the previous work of others – giants and trailblazers.

Too many in our field seem to think that acknowledging the influence of others somehow diminishes their own contributions. Some refer to this as the ‘lone-wolf’ phenomenon or the innovator-explorer bias. Scott’s own experience is based on celebrating the powerful influence and collaboration with others. Many have drawn water from the same lake – the Osborn-Parnes tradition of CPS. Scott is happy to acknowledge the value of that tradition, and the people who contributed – standing on the shoulders of giants – as he has worked to take the best of that tradition forward. He said: “Our achievements are not diminished by recognizing and acknowledging the inheritances from others.”

So, while he has published many milestones, he makes a point to recognize those upon whose work he has built. He hopes that others will do the same, so that people can see how things are all connected.

Deliberate Development of Creativity. We’ve come a long way over the past 50 years. We can be confident in asserting that we can deliberately develop creativity. Yet, many questions remain. Creativity is a complex, multi-level (individual, teams and groups, and organization) and multi-faceted phenomenon. We need to seek coherent complexity and take an interactionist, ecological, or systems approach to improve our understanding and development of this important human ability. Scott hopes to continue to work on answering his: What works, for whom, under what circumstances? Question.

Babies, Bathwater, and Brainstorming. Scott tells the story of delivering a paper at the Third International Conference on Creative and Innovative Management at Carnegie-Mellon in 1987 (Isaksen, 1988). During one of the opening addresses, the head of the National Science Foundation looked right at Scott and asserted that “...and we all know that brainstorming is nothing more than executive entertainment!”

Brainstorming is one of the most researched, and least understood aspects of CPS. It is a tool for group creative collaboration, and includes four clear guidelines that can be applied throughout the CPS process to set the stage for generating many, varied, and unusual options. Awareness of brainstorming among practitioners is nearly ubiquitous. Yet, when asked to identify the four guidelines, most people fail to do so. Scholars do not do much better. Although they often cite Osborn, it appears that most have never read, personally applied, or tested his full description of brainstorming.

Sid would often relay to Scott that Osborn asserted that brainstorming ‘wagged the tail’ of CPS! In fact, many people think that brainstorming **is** CPS! Brainstorming is one tool in the toolbox for CPS. The current approach to CPS is an open systems framework that allows for the use of many generating and focusing tools that are fit for purpose through the design and application of appropriate language and guidelines to obtain clarity, generate ideas, or plan for action. Its use is driven by appraising the task and designing the process – all informed by the people involved and their unique circumstances (e.g. Isaksen, 2020).

Art and Science of Facilitation. Osborn was very clear: brainstorming should be applied, guided by a trained leader (we call a facilitator). This escapes most researchers. We would go so far as to assert that the effective group application of CPS requires a trained facilitator. But, what is a trained facilitator? Fortunately, there is an expansive literature that outlines the skills and behaviors that facilitates CPS (we provide a Compendium of the literature as a free download at cpsb.com). We have hundreds of CPS tools! Each tool can be modified to fit a variety of applications – something we call technique. A facilitator knows when, why, and with whom to use what tool. Some research can guide these choices, but the best source is actual experience.

The actual use of CPS tools generally operates at the level of cognition. Applying the systems-level of CPS demands metacognition (thinking about thinking). Facilitation of CPS moves to social metacognition – creating shared mental models or schema for creative collaboration. Again, an example of the multi-level nature of creativity in problem solving. Much more research and learning must be done here to move informed practice forward.

The Rigor-Relevance Divide. Most academics are aware of this great debate. Taking a deliberate stance to be ‘in the middle’ is a precarious balancing act. Pure academics see you as a mere practitioner, while pure practitioners see you as an academic. People from both camps have influenced our work, yet the most influential folks have sought synergy between them. Given the tremendous need for creativity as a life skill, the demands for creative collaboration in teams, and the necessity for organizational resilience, we need more focus on integrating research and practice within the creativity domain.

Trailblazers explore and forge new paths for others to follow. They take from the past that which will make them better in the present. They develop new understanding, establish best practices, and set new standards in the process. They practice what they preach and build methods and tools others can use to carry on. They create successful organizations and build the next generation of leaders. They bring people and organizations together and form new alliances. In a nutshell, they leave the field better than it was when they entered it. And they do it all for the love of doing it. This just scratches the surface of what Scott has accomplished over the past 50 years. His contribution to and impact on the field of creativity, the practice of CPS, and the countless number of people with whom he has collaborated, has thus far been profound. And the journey continues.

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CHAPTER THIRTEEN

ABOUT BEING CREATIVE... AS EXPERIENCED BY RICK KANTOR

LARRY KEISER

Preamble

It was a joyful-sorrowful experience to edit and minorly contribute to the following chapter based on Rick's thoughts and life. When it was confirmed that Rick was to deservedly be included as a current "Trailblazer" in the field of creativity and I to author the chapter, I approached Rick to be interviewed. My conversation with him was very in-depth but, as seemingly occurs with so many conversations when talking to a fascinating individual, it quickly became disjointed. Various rabbit holes were traversed as each anecdote led to another captivating anecdote, one after the other.

Realizing that our convoluted conversation would be difficult to untangle, Rick volunteered to put pen to paper – or rather, fingers to keyboard – and additionally share some of his thoughts on creativity in writing for me to use in crafting the chapter. In Rick's musings, he not only shares his philosophy and thoughts about creativity, but he also shares its connections to all things of value. More importantly, Rick shares glimpses into the various worlds that shaped who he is including his development into becoming a mentor to many, a motivator to most, and a good and loyal friend to those whom he loves...and who love him.

I have attempted as much as possible in my narration to stay true to Rick's words. In fact, the title of the chapter is the original heading that he used for the document he sent me. Rick created the document in a time of stress, and, to my thinking, as a distraction from the myriad upheavals of his life – most imposed upon him – including the death of his beloved husband, Richard, in April 2020; the California drought and fires that Rick could see burning for weeks on end from his home in Penngrave, California; and all things COVID-19 related. As creativity research points out, constraints – welcome or not – are often the catalyst to creativity and innovation breakthroughs. In Rick's case, these imposed constraints ultimately resulted in his creating a self-imposed constraint to downsize his possessions, pack up the remainder of his belongings and put his home on the market in spring 2021. (The gorgeous home that he and Richard painstakingly created over years, sold in mere hours.) In recollecting our conversations, my take is that Rick believed that all things and events that had previously occurred unearthed a new path to explore and exploit on his continuing personal, creative journey.

As you continue to read, I am confident that you will find Rick's thinking and thoughts surrounding creativity inspiring and illuminating. All thoughts in the following chapter are Rick's. His exact words are *italicized* throughout. Let us explore Rick's thoughts about "being creative" in context of his experiences together.

-- Larry Keiser, PhD

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Introduction to Rick's Philosophy

“Every morning there is a bird that walks to the bird-feeder I put out for (them), easily reached by one who doesn't fly. (They) probably envy the other birds who fly deftly to their hanging feeder, take their fill then soar skyward. Such a talent, such a gift to be born with that aptitude, (they) think. There's no self-pity or judgment, just an appreciation for the skillsets and abilities that others have. Abilities (they) will never have. Because (they) previously lived as a pet in a cage, where wings were not a desired ability. (They) had their wings clipped. Now, even with their freedom restored, taking flight is no longer possible.”

This is an analogy for how Rick sees the origins of individual creativity: *As humans, we were all born with creative capacity, as surely as a bird has wings that enable it to fly. It has feathers, we have an amazingly complex brain. Both are intended to let us soar, one as physical flight, the other as flights of imagination and problem solving.*

Rick views creativity as a choice: *The idea that creativity is a talent doled out to a few, the oft heard comment that, “I am not at all creative,” or the belief that one receives creative impulses via Muse or epiphany is as uninformed as our landlubber bird, who is ignorant of how his early years in captivity forever keeps (them) from being skyward bound. The difference is the bird is now anatomically unable to reclaim his flight. For humans, as long as (they) are breathing, creative impulses and actions are easily within (their) realm if (they) choose.*

In Rick's thinking, it is important for every person, particularly the young, to believe in their own ability to be creative. He is a proponent that each should be taught to understand their own CQ (creative quotient) and believe in their own creative self-efficacy. The belief in themselves would free every person to spend a lifetime choosing to engage in creative exercises and tasks while pursuing their day-to-day lives of listening to their own creative voice. The alternative would be unthinkable and akin to: *putting young people in cages or classrooms where they pick up the messaging that conformity matters, not sticking out from the crowd brings praise, and following someone else's rulebook is how the game should be played.*

With understanding and belief in one's own CQ, Rick's experience is that the result is often in a life where graduating from high school or college is a gateway to work and personal opportunities that values innovation over followership and that allow for one to flex and allow their “creativity muscles” to grow and develop. When not the case: *those muscles are stiff from inactivity. Perhaps even permanently stifled in the self-belief of all those school years, or strict familial ideas about limiting exploration, curiosity, or*

playfulness. Look around at all the institutions and personalities that take aim at that child. It's no wonder so many are content to get a paycheck that allows them to walk up to a birdfeeder and consider themselves successful. Until one day, perhaps, they wonder what's missing.

The Early Years – Choose the Course You are Most Afraid of Taking

Rick shares he speaks from experience in his schooling and upbringing when it comes to experiencing the push to conform and inability to overtly exercise his creative muscles. He was an introvert as a young boy and man. Rick recalls that it was being a loner that provided him ample time and opportunity to indulge himself with creating.

“I was handed all those confining messages. However, I felt safest in my room where I could draw on a chalkboard, make buildings out of kits, use my hands to make any form of art or craft. I was introverted enough to allow myself the time to be alone with my materials, paper and drawing materials. This was where I felt safe. Sometimes I would receive an accolade from a parent, a teacher or friend when I had accurately copied a cartoon character. [I started] with all the Flintstones, later the Peanuts characters. It wasn't exactly art, but it got me into the arena to at least pick up some skills. Being alone, I learned to self-motivate, to spend hours without socializing, just building hand eye coordination, and experiencing the pleasurable reward of making something. Something that looked like what I wanted. Even if it wasn't completely original [e.g.] a Campbell's soup can and hang it on my wall. To cut hundreds of pieces of Styrofoam spray painted green to make a ceiling high bamboo tree glued to my teenage bedroom wall. To go with the leopard bedspread.

This should paint a picture of a teenage boy who was what creativity loves – the “other.” In 1965, this was being a closeted gay outcast in a Long Island neighborhood of seemingly identical houses and families. When you're an outcast, outwardly or inwardly, the rules of conformity don't apply, because eventually, and if you're lucky, you fail at them anyway. This opens the door to a soul-searching, fumbling in the dark to find your own path where you're quite sure no one else has probably gone. When you don't know anyone like you, eventually you figure out that their outfits won't fit you so why bother trying them on? Throw those creative doors wide open, engage the curiosity to hunt down and find anybody even remotely like yourself.

The fear of claiming your creativity, of believing in your own thought process is another form of living in the closet. We should have creative coming out parties for students who risk "to show" themselves, who dare to speak their truth, who risk alienation or the harsh judgment of peers or teachers and other adults. Creativity takes bravery, to stand proud in what we made, who we are, what ideas we come up with no matter how offbeat they may appear to the average conformist. Breaking free of the status quo is a right of creative passage and deserves the badge of freedom. Freedom to stop hiding, freedom to trust one's intuition. Freedom to fail and to celebrate the attempt."

Like many creatives, Rick recalls the pivotal fork in the road moment in his youth that he decided to follow creativity wherever it would lead him. It was shortly after he entered college while on a backpacking excursion in Europe.

"I know the moment the locks flew off the shuttered doors of my creative freedom of expression. It was 10 at night on a train in Switzerland, under a bright moon that made sequins of the mountain snow. I took out the course catalog for Oberlin College's Spring term to find classes upon my return [to the States]. Nothing sparked any interest, nothing seemed relevant compared to traversing Europe with a backpack and an open mind. The deadline for registering meant I had to choose. A second time through the entire printed catalog yielded nothing. I closed the book, and stood to stretch, anxious about what to do, while bathed in that blue-white light of the Swiss mountain and moon. The answer came inwardly, intuitively: "Choose the course you are most afraid of taking and sign up for it." With that direction, page-by-page I reviewed the choices. Halfway through the Catalog, I turned the page to see a black and white photo of mirrors, a ballet barre, and men and women dancers in leotards taking a modern dance class. An uncontrollable gasp and suck of oxygen told me I had found my fear. The closeted Caucasian male from upper middle class Long Island was about to take a dance class."

For Rick, that was it; he fell in love with dance. He took a personal risk and began training as a dancer including modern, postmodern and experimental dance. Dancing became Rick's escape into a world where both his creativity muscles and his physical muscles could, and would, be stretched and developed. Rick openly shares he loved using his body to "express" in new ways that he had never been taught and thus had never even considered. He began performing with the Oberlin Dance Company and through dance, Rick developed a new sense of himself as a creative artist. However, perform-

ing on stage put him in conflict with his family, particularly his father, who ridiculed and maligned any choice Rick made that called attention to himself.

“Pursuing dance also put me in direct conflict with my societal and familial plan for living my best life as a professional, and it didn’t matter what profession, either. Finding the courage to trust my own voice, to stand up to those who would have me be their version of successful provided the required accompaniment to risk taking – trusting one’s own vision, one’s own interpretation not another’s judgment handed down to you.

With these cartographer’s tools wrapped in my diploma, I set out to make a roadmap to beginning life in New York City, 1975. It was like being on that Swiss train again, but this time in New York City and I wanted to sign up for every single course. In post-Stonewall, pre-Studio 54 New York City, there was no shortage of experiences to push my edges, explode my limitations and preconceptions. Here was my creative internship and it was exhilarating and limitless.”

The Middle Years – Making Connections, Ponytails and Big Business

Rick’s first job was in the “Gift, Stationery and Novelty” industry for a young “avant garde” startup stationery and card company where he designed paper products, gift items and Christmas and Halloween novelty products. He believes that he was well suited for the position and industry which complemented his sense of humor and satire. Rick was particularly delighted that the company thrived on creative designs and required that he connect the dots differently than others and grabbed the attention of the audience. Rick believed that his position embodied the traits creativity requires, i.e.:

“...a diversity of experiences and perspectives that allowed me to make novel connections between ideas. When you want your creativity to reach your audience, thinking remotely is good as long as it’s not too far a stretch for the audience. They have to be struck by the idea in 10 seconds or less. Playing with original juxtapositions is required but only works when everyone understands where your connection making has brought us all to a funny and unexpected intersection. To successfully do this in designing products, you need a diversity of experiences and perspectives to draw upon, a willingness to come up with lots of bad ideas without judgment or loss of enthusiastic motivation, a tolerance for not knowing until you do; something we call tolerance of ambiguity, or ‘I’m OK with incubating on the problem without rushing to have to know the answer.’”

Rick is adamant that ‘creativity’ is most often readily attributed to ‘connection making’ rather than ‘originality.’ He shared this anecdote as an example of his point.

“A popular Christmas Card I designed well describes where creativity sometimes comes from. I designed this as my own Christmas card in 1979. I knew I wanted to do something fun and satirical featuring my hero, Santa Claus. This was in the fall. My choreographer partner at the time was watching the Miss America beauty pageant. He had a secret, closeted obsession with beauty pageants, an unexpected fetish. I’m thinking about “Santa Claus.” He’s thinking of “tiaras” and that unmistakable waving to the crowd from the new Miss America. Connect these 2 images and what do you get? Santa Claus Pageant – naturally. In my cartoon, walking the runway wearing a tiara while holding a bouquet of roses and waving is Santa Claus, who is backed by the losing contestants: Santa Anita, Santa Marguerita, Santa Ana, Santa Fe, and a dozen more. The Santa Pageant. Connect the dots. One of the recipients of my card was a colleague friend at Paper Moon Graphics who then bought the rights to sell it in their line.”

Making connections is essential to creativity. When one is practiced in being creative, the brain can make connections easily. However, Rick believes that when one’s own ‘creativity muscle’ is stiff or for whatever reason unable to naturally make unique, random connections, the use of creativity tools can force the connections, i.e., the use of Forced Connections. Sometimes the connections are so obvious they are overlooked as exemplified by the following example.

“In 1977 during the Jimmy Carter years, there was a lot of talk about failed bureaucracy, and all the red tape of government and organizations. Red Tape became a prevalent phrase and was blamed for any ill in our society. I proposed to my boss at the Stationery company that we take a scotch tape dispenser and replace the clear tape with red tape that had printed on it, “Red Tape”. It was gift boxed with a clever booklet that satirically described all the ways you get your frustrations out by using Executive Red Tape on bills, correspondence, unnecessary paperwork. It followed on the heels of the successful Pet Rock the year before. It sold almost as many units.”

Creativity also has the need for diverse experiences, the more diverse the better. Rick shares the following advice and confluence of experiences and connections for one of his very successful ventures.

“Experience different domains, meet the people who live in that world, expand your range ...a choreographer

with a thing for women in high heels and bathing suits... taking pottery classes... vacationing in Madagascar... driving a formula car. Who knew, ...you'll make a fortune making ceramic formula car coffee mugs. As my grandmother used to say, 'You just never know.'"

By 1991, Rick had gained extensive experience in and around retail, gifts and novelty. He credits himself at that time as one who: *...knew a good idea when I saw it. My mind constantly came up with new ideas to take to market or try and sell to other companies. I knew how to keep my eyes open, how to experience the world not as I think it is but to see what is actually "there."*

Rick suggests that a good way to learn this visual skill is to read the groundbreaking book, "Drawing on the Right Side of the Brain," by Betty Edwards. (Better yet, he encourages signing up for one of the Betty Edwards' company workshops and learn how to see what is in front of you to draw.)

"This skill of openness to seeing without assuming you know what it is prepares you to spot thousands of opportunities every day. With your eyes alert, your mind receptive, inviting in newness and curiosity, many new possibilities will start grabbing your creative mind."

This insight directly relates to the next chapter in Rick's life. Exiting his home around 7am on a February morning in 1991's New York City with intent to head to his then job, Rick paused on his front stoop at 73rd Street. He glanced East toward the Broadway crosswalk.

"There, like a snapshot being taken by my brain, I saw three men taking long strides in the white striped crosswalk. One was behind the other and they were alone, -- these three, in the crosswalk. What was notable was that all three young, middle-aged men were wearing baseball caps...and each of them had a ponytail that was pulled through the back of the ballcap. The facsimile of this scene to the cover of the Beatles' Abbey Road album was uncanny, at least to me."

In Rick's thinking, it was notable that the zeitgeist of the nation seemed to have hit the societal tipping point regarding "hair length acceptability." For decades -- the mid-60's through the 80's -- where men sporting long hair was politicized and unacceptable in corporate America, the "ponytail" had become a statement of the counterculture:

"...finally, men could grow their hair without reprimand or comment. The timing for creative ideas is everything, like the short window for consuming fresh vegetables. I recognized the opportunity staring me in the face, 'Let's make fun of this new fashion trend of male ponytails by sewing a fake ponytail onto the back of a baseball hat!'"

It was an idea that would not leave Rick. The next day, he shopped around New York City and purchased several different colored wigs and a half dozen baseball caps with which he would use to create prototypes of his vision. As fate would have it, that evening:

"...I went to Broadway theatre. Sitting directly in front of me in the Mezzanine was a middle-aged executive-type guy who kept his baseball hat on throughout the show. Of course, his ponytail was pulled through the back opening. I stared for 2 hours at the seams of the hat, the way the hair came out, and what a good ponytail looked like."

Rick made his prototypes and created a company, Pony Express Creations, Inc., to show off his new product. Understanding that it was a huge risk to start a manufacturing company, Rick's inner voices "knew" that everything that his creation had *"hit the societal funny bone bullseye."* The total of his life experiences gelled into his believing that men would love getting a quick laugh from their friends by showing up in or unexpectedly putting on the hat. As Rick put it, *"Now anyone, including military guys on leave and grandfather golfers, could look completely different whether for a new identity on leave or for a laugh on the first tee."*

Rick, however, also understood and accepted that there was major skill set difference between what is needed to be the creative idea person from one capable of running a successful company.

"Having a creative idea is different than running a successful company. The blue skies ideator, which I am, often has less skill with follow through and implementation. Instead, they are on to the next idea, and the next and the next. They (I) can get stuck in the weeds managing all the details involved in manufacturing, shipping, invoicing, and the accounting. Pony Express Creations was a huge success because my Co-CEO was that Beauty Pageant loving choreographer who happened to be an outstanding implementer. I could come up with endless new creative ideas for hats, but without his expertise as an implementer, none of them ever would have gone to market."

Rick is adamant in his belief that every person is each creative in unique ways. He references Gerard Puccio's Foresight Assessment which Rick boils down to essentially four distinct roles in the process required for a creative idea to happen and become a successful product or innovation. The first is the Ideator or "creative." They are the blue skies dreamers that never ship anything; they're generally off to the next idea. The second is the Clarifier. They make sure that the creative product is addressing the right problem and knows what the product aims to do and why. The third role is that of the Developer who reviews and assesses all the Ideator's ideas, selects one, and then adjusts and tweaks the product with the eye of a perfectionist to make it the best it can be. The fourth and final role is that of the Implementer, who –

as Rick puts it, "...just wants everyone else to hurry up so they can make it, ship it, and sell it." Without the Clarifier, the Developer, and the Implementor, the Ideator's creation would not make it to market.

"Pony Express grew continually for the nine years my Richard and I owned it. It developed into a major player in the growing Halloween industry once we realized that the concept of attaching hair to hats had a whole other marketplace waiting for it. Because of the endless creativity we displayed year after year, we were proud to have Cirque du Soleil, Disney theme parks, and Universal Studios ask us to design lines of hats using their proprietary characters and licensed designs. The continual growth of the company to become a multimillion-dollar success story was based on a single simple idea of attaching hair to a hat. The real growth happened when we kept asking the key phrase of creativity, "What else might we do with hair and hats?" At some point we asked, "What if we did hair without hats?" Like a bolt from the blue, 'WIGS!' That dramatically increased the product line and our markets."

Rick is quick to point out that those who have or currently study and research the field of creativity make a point of highlighting that creativity is ubiquitous going far beyond the domain of art and artistry. However, when asked about being creative, the response of the average American will often make a comment along the lines of, "I can't even draw a straight line," or "I'm not at all creative but my sister is a painter." These are the typical responses of the everyday person although corporations and businesses from manufacturing to accounting to professional musicians or high-tech developers are stating that they recognize the need for and importance of creative thinking in their organizations.

"Innovation is the mantra of the day and has wildly favorable connotations for people. Creativity [however] remains misunderstood. It is too often seen as superfluous, a soft skill, a feminine/crafty kind of ability. The scientific research and study of creativity seeks to dispel this tethered connection in peoples mind to the Arts."

Rick believes he understands why the populace holds tight to that thinking. He is, in fact, a diehard proponent of using artists and the Arts as a tool to break the commonly held view of creativity as being art-and-artist-bound and to stretch creative thinking. He credits this to his own "...well exercised creative brain..." through his own study of Art that includes a BFA in painting and mixed media art making, his years studying illustration and sculpture, and his experiences in the world of dance. In fact, Rick believes that the biggest breakthrough in his own creative process occurred in the final year of his BFA program at Sonoma State University at the age of 50.

"After two years of full-time study, I entered my third and final year, about to begin deciding what my first

piece would be. That old voice from the Swiss train came back as I contemplated what I would set out to make. Feeling uninspired and overly analytical about my art making, the voice said to work completely from the unconscious. I didn't know what that would mean but it intrigued me. I began by thinking about what the substrate would be for my work. The result was a porous, cementitious looking 8-foot high by 6-foot-wide surface to work on. I sat back pleased, with no idea what came next.

I contemplated my "canvas." What did it look like? What connections did I make? What called out to me? I didn't rush to come to closure. I kept revisiting the blank surface that was looking more and more like a tombstone. This was also 2002 and this country was embarking on a new war in Iraq. Tombstone.

The striking piece became a commentary on the dichotomy of the advertised world of the good life we are being sold and the reality of men and woman going off to war to die. Selling coveted iPods and new technology to make our lives better while shipping bodies overseas with little discussion of our clashing values. Fifty years earlier, to the month, I came to realize as I worked intuitively on this, it was the start of the Korean War, yet we were selling ourselves the idea of the modern American suburban good lifestyle. Here was 'the why' to my unconscious choices. I juxtaposed the cast letters to spell out the names of Korean War dead over the 1950's images of prosperous America."

Rick is adamant that a component of 'the solution' is to expand creativity more widely beyond the arts domain in the public eye. However, he also challenges the creativity field gatekeepers and researchers seeking to expand the use of creativity into the business and corporate world to not lose sight of the worlds' need for artists and their endeavors nor relegate them to the sideline for not being 'corporate enough.' Rather the gatekeepers and researchers should embrace artists and their role in the creativity process and stop fighting against the view of 'Artists' as being 'the Other' – as indeed they are – but rather celebrate it. It is the Artists' strength and job definition to make creative things and processes, e.g., paintings or dances or videos or music.

"Creativity is their whole game and career. Who better to inspire us all? If we study how certain artists (as not all inspire in this way) came to see what they did, and follow their creative thread and see what manifested, might we find the creations of experts handing us processes and ideas that might be relevant to our own

searches? These are experts at creative thinking. Let's use their expertise and wisdom as a catalyst to our own thoughts. Might there be value in seeing what they are thinking about? Might it be applicable to our organizations' challenges? Might these creative individuals be pushing on the same walls holding us back, and have something of value to speed our own work? I think so."

According to Rick, accepting the concept of 'not knowing' is the greatest creative gift we can give ourselves, "*When we know, we stop asking or looking.*" That is, when we think we have the answer, we have no need to question or search for a new or better way. In essence, we go on autopilot and no longer observe the world around us. Referencing Betty Edwards again, Rick shares:

"[Betty] teaches us how to accurately draw an object by disconnecting our brain's thinking that it knows what it is drawing. Don't draw a chair; draw the spaces and lines that your eye sees, and how they relate to each other. Draw that well and the result will be a chair without even trying."

According to Rick, great leaders often can do 'not knowing' very well. As an example, Rick cites as a comparison the way that John F. Kennedy handled the Cuban Missile Crisis as a 'not knower' versus how George W. Bush and his administration handled the 2001 9/11 attacks. In Rick's view, Bush's administration was so adamant and sure that Iraq was to blame for the 9/11 attacks on United States that their response, which Bush accepted, was to initiate the Iraq War. There was no broad spectrum of opinion from the administration, no ferreting out other points of view. It was a steamroller of like-minded strategists and politicians, "*...marching the Nation right off the cliff;*" with lasting repercussions still impacting the world today. Kennedy conversely convened a broad range of thinkers, military, and strategists that included both hawks and doves when the then Soviet Union threatened the United States by deploying nuclear-armed missiles in Cuba. Kennedy withheld action and sat and listened in a large conference room to each opinion. Kennedy withheld judgment, letting the input incubate until his decision emerged and a crisis was diverted.

Rick's Kennedy/Bush comparison highlights that collaboration and diversity of thought is the bedrock of workplace creativity, as well as the importance of resisting premature closure and tolerating ambiguity.

"If one person's ideas can be heard, bounced off or, tweaked or serve as a catalyst to another's creative thoughts, then together we can go someplace far beyond where the solitary mind goes. Leveraging the power of the team is essential. The more diverse those individuals, the greater the chance a spark will ignite from unexpected connection making."

Honing and mastering these skills can be a lifelong pursuit as it has been for Rick. He has noticed that the ‘real-world’ is beginning to clamor for such skills, that are often addressed and encouraged under the title, “ongoing learning.” It is now common for large companies to embrace and promote new collaborations, diverse activities, and opportunities for their employees, e.g., Hallmark supports employee sabbaticals to travel or learn new skills. “*They, and others like Pixar and Disney, have their own in-house classes on everything from drawing to yoga, literature to music making, and storytelling to pottery.*”

The Current Years – Looking Back, Lessons Learned, and Looking Forward

Overall, Rick has spent his life to date in search of new experiences and events rather than accumulating the creature comforts many seek. This was especially true in his 20’s and 30s.

“I never stayed in one career or job too long. The result was that I got to work on a cruise ship going to Egypt teaching art class; managed a Baskin Robbins store; served dinner and cocktails to New York’s biggest celebrities at gala private events; I bartended at discos and worked at the summer playgrounds of the rich and creatively successful. I’ve decorated skyscrapers with Christmas décor and thrown parties for 300 people. I’ve auditioned for shows and produced Broadway theatre. I’ve started multiple companies and ran retail stores on Madison Avenue.

Every one of these has given me a bigger and deeper bedrock of ideas and understandings. Each might randomly serve as a metaphor on an unrelated product or point to a solution across domains. Every day I look to find something new I haven’t seen or heard before, something to wonder about. To see a new color on a leaf, to smell a new spice, to taste a new food, or smile at a person I’ve never met. To be creative is to be fully alive. But the reverse is also true: to deny our creative impulses, is to be a little bit dead inside. Auntie Mame said it this way: ‘Life is a banquet... and most poor suckers are starving to death.’”

Creativity is not linear in Rick’s view. He also believes that the reason that many organizations have difficulty supporting ‘it’ is because they have difficulty rationalizing the amount of resources needed to move a creative project forward – particularly if the project does not specifically yield a product of any use.

“To be creative is to be willing to lose time, money, sleep, and a relaxed state of mind in the hope that maybe you’ll find something new or worthwhile. You might.

Or you might not. Will the process be worth it either way? Absolutely, in my view. You just might not know when and how your return on investment comes. This sounds a lot like “faith”. I have faith in the rewards of the creative process. I just can’t tell you how or when. A song lyric says, “Isn’t faith believing all power can’t be seen?” I have faith in the power of creativity to serve us individually to lead fuller lives; faith in creativity to serve our societal best days ahead. I have faith because the alternative is the status quo. That inertia invites inevitable entropy while creativity grows new life.”

Because creativity is not linear, and because it often takes many iterations and efforts to manifest “*the creative ‘new,’*” Rick actively encourages all to learn to embrace ‘risking’ and ‘failing.’ He encourages others to dive into the creativity waters fully understanding that doing so may well involve anxiety and doubt and knowing that the sometimes one will emerge from the waters empty handed. Rick also has an answer for those who ask, “*Why would anyone choose this angst, this self-judgment, this feeling of not good enough, not creative enough, this not being up to the task at hand. Why go there?*”

Because the alternative is certain complacency and a kind of comfort that is a liability not an asset. Certainty is its own conceptual prison. If there is a pot of soup on the stove, I can enjoy a bowl ladled out from the top of the pot. Or I can dig down to the bottom with that ladle and come up with delicious chunks of the unseen chunky stew, the meats and vegetables settled at the bottom. How deep we go into the creative soup determines what we’ll be enjoying for dinner.

As I shared at the start of this chapter, Rick lost two loves of his life at the start of the pandemic. The first was his and husband’s 15-year-old labradoodle. The second was his Richard, his husband of 33 years. It was an honor attending Richard’s memorial service that celebrated Richard’s life and Richard and Rick as partners in life. Although it was held on Zoom due to the pandemic, a silver lining – if one could say that there was one – was that family and friends from near and far were able to participate and share in the moment. However, when it was over, Rick was sitting by himself in an empty house.

“Alone and isolated at home, I faced a very altered emotional and physical reality. Can creativity help with these life experiences? How can I use my creative capacities to cope with the loss of a love?”

I believe creativity is a survival skill. It’s man’s greatest tool, it’s what let the caveman outsmart the hungry dinosaur. It starts with suspending judgment and accepting the reality we’re given. In creative process we are

always looking for what's next, then next, then next. One idea or foot in front of the other. Iterate. Course correct. That means being in the moment so that you can experience what it feels like once you're there. Not pre-arranging or deciding in advance what you'll do when you're in a place you've never been before. Some people book their vacation down to the last meal well in advance. I can't do this. How will I know what "vacation" will feel like to me until I'm there and the weight of my current reality has lifted. Maybe I'd prefer to stay in for dinner one night rather than dining at the appointed time and restaurant."

Rick is currently making choices as he goes and focused on experiencing life living alone at age 67 and single. At this point, there is no real plan. As Rick shares, he doesn't know what his life will look or feel like until he is living it.

"It's different in many ways than I might have planned for. It's different each day. I choose to take creativity's approach which is to suspend judgment and to accept that some days are harder and others delightful. Until I packed up and moved, how would I have known what I would feel like living alone in my new house. It's been 3 weeks and I'm not rushing to decide anything accept to honor the process. My process. To trust what is true for me, what it feels like to me, to be authentic and honest. To be autonomous in how I proceed but to seek collaboration and support at the same time. These are creative concepts. To find new motivation that is intrinsic, not something directed at me from outer forces."

The most creative approach I can take to my current unexpected circumstances is to use the metaphor of sky-diving. My circumstances are unique though we probably all feel that way. I chose to sell our home of 21 years on a mountain in Sonoma. I chose to move near the ocean. With those decisions made, I embarked as if I was jumping from a plane with a parachute on. But when to pull the ripcord?"

Rick points out that circumstances and finances allow him the freedom and luxury to stay in freefall for a while – *"IF I can live in the "not knowing."* He has chosen to not immediately go to work, and although it might seem the perfect 'time' to travel, his travel options are still greatly limited by COVID-19.

"What meaning will I make out of this aloneness in a new place where I know no one? Can I trust that "not knowing"; have faith that the weightless freefall will stir the creative brain to find the new, the next best life for

me? Or will I rush to old choices that used to work and cling to their familiarity? It's tempting. Ultimately, there's no way I could do that. I'm a die-hard, creative enthusiast who believes the creative process inside us yearns to be put to work, which sometimes looks like doing nothing at all. Except listening. Being curious. Not knowing. Not judging. Celebrating my bravery to stumble along, eyes wide open in the dark.

That's the miracle of Creativity."

Note:

Larry Keiser, Author, based on conversations, emails and a document received from Rick, "About Being Creative...as Experienced by Rick Kantor, July 9, 2021."

CHAPTER FOURTEEN

AN INTELLIGENT APPROACH TO IQ AND ACHIEVEMENT TEST CREATION— DR. ALAN KAUFMAN

CAROLINE SCHEIBER & JENNIE KAUFMAN SINGER

ABSTRACT Alan S. Kaufman’s creative contributions revolutionized the field of intelligence testing. The 1983 Kaufman Assessment Battery for Children (K-ABC) was the first clinical test of intelligence to be built from theory. It was founded primarily on the integration of Luria’s neuropsychological theory and Sperry’s psychobiological theory of right-brain vs. left brain processing; later, the Cattell-Horn-Carroll (CHC) cognitive theory of multiple abilities was added into the mix. The K-ABC’s theory-based model shifted the focus of assessment from a content-based approach (verbal-nonverbal) to a process-based orientation. Perhaps most importantly, the K-ABC was the first intelligence test to successfully reduce ethnic bias with the result that the differences in global test scores on the K-ABC between African American and White students were cut in half; differences between Hispanic and White students were reduced to 3 points. The development of the K-ABC only scratches the surface of Kaufman’s influence on the field. He introduced the term “intelligent testing” which changed the way a generation of psychologists interpreted test profiles. This innovative approach combined quantitative psychometrics with qualitative clinical principles. Kaufman challenged the view that emphasized IQs and interpreted single subtests in isolation; instead his intelligent testing approach incorporated contextual analysis of the examinee’s strengths and weaknesses. This perspective aided the development of interventions that were translatable to real-world settings. Kaufman’s many groundbreaking contributions were innovative, statistically sound, and clinically relevant. His creations set the stage for major changes in IQ testing and thus put Kaufman among the few giants in the field.

Keywords: Kaufman Assessment Battery for Children, IQ Testing,

Introduction

Born in Brooklyn, New York and raised on Long Island, Alan Kaufman obtained his bachelor’s degree from the University of Pennsylvania in 1965, his master’s degree in educational psychology in 1967 from Columbia University, and his PhD from Columbia University in 1970. He majored in Psychology (psychometrics, statistics, & evaluation), under Robert L. Thorndike. As

Assistant Director at The Psychological Corporation (1968 to 1974), Kaufman worked directly with Dr. Dorothea McCarthy on the development of the *McCarthy Scales of Children's Abilities* and with Dr. David Wechsler on the revision of the Wechsler Intelligence Scale for Children (WISC-R). He then joined the school psychology faculty at the University of Georgia, where Dr. E. Paul Torrance was chair; Kaufman's elite doctoral students (1974-79) included future international leaders in the broad field of clinical assessment, spanning cognitive, behavioral, personality, and neuropsychological domains—Drs. Bruce Bracken, Patti Harrison, Randy Kamphaus, Steve McCallum, Jack Naglieri, and Cecil Reynolds. Starting in the 1980s, he trained graduate students in school and clinical psychology at the University of Alabama, California School of Professional Psychology, Yale University, and the University of Connecticut. Since 1997, he has been Clinical Professor of Psychology at Yale's Child Study Center. At the University of Alabama, he mentored future international leaders Drs. Toshinori Ishikuma (Japan), Soo-Back Moon (Korea), and Abdallah El-Mneizel (Jordan).

Dr. Alan Kaufman is one of the giants in the field of intelligence testing who has had an enormous influence in a variety of ways. He pioneered the concept of *Intelligent Testing*, which “became the gold standard for psychometric test interpretation and clinical assessment” (Fletcher-Janzen, 2009, p. 15). Kaufman's innovative approach—which was introduced in his landmark book *Intelligent Testing with the WISC-R* (Kaufman, 1979b)—combines quantitative psychometrics with qualitative clinical principles. The methodology and philosophy that he introduced in the 1970s transformed how a generation of psychologists interpreted IQ test profiles. Even more importantly, the intelligent testing approach paved the way for the more sophisticated methodologies that reflect the state of the art on the contemporary assessment scene—most notably the Cross-Battery Assessment approach, originally developed by Drs. Dawn Flanagan and Kevin McGrew, that is firmly rooted in Cattell-Horn-Carroll (CHC) theory and has an abundance of high-quality research investigations to support its validity (Flanagan et al., 2013; McGrew & Flanagan, 1998).

Kaufman not only transformed the interpretations of existing tests but, with Dr. Nadeen L. Kaufman, he also developed his own series of intelligence and achievement tests, most famously the 1983 Kaufman Assessment Battery for Children (K-ABC) for ages 2½-12½. The K-ABC was revised and re-standardized in 2004 (KABC-II) and is currently in its third iteration (KABC-II Normative Update). The KABC-II NU enjoys popularity on the current assessment scene, as does the Kaufman Test of Educational Achievement—3rd Edition (KTEA-3) and the Kaufman Brief Intelligence Test—2nd Edition (KBIT-2) (Kaufman & Kaufman, 1983, 2004a, 2004b, 2004c, 2014, 2018).

It is noteworthy that, historically, comprehensive individually administered intelligence tests in the Binet-Wechsler tradition have been developed from a practical perspective with a fairly haphazard selection of tasks. By contrast, the K-ABC was the first clinical test of cognitive abilities to be built from theory. It was founded on the integration of theories from clinical

neuropsychology (Alexander Luria) and psychobiology (Roger Sperry’s distinction between right-brain and left-brain processing that emerged from his cerebral specialization research). Cognitive theories of serial versus parallel processing also formed part of its theoretical base. The Binet-Wechsler legacy emphasized the content of the stimuli (verbal, nonverbal, numerical). The theory-based K-ABC shifted the focus from the traditional *content-based* approach to a *process-based* orientation. That shift to how individuals process information and solve problems has been incorporated into virtually every IQ test developed after the K-ABC, starting with the Stanford-Binet IV (Thorndike et al., 1986) and the Woodcock-Johnson—Revised (Woodcock & Johnson, 1989), and ultimately extending to recent versions of Wechsler’s scales, such as the Wechsler Intelligence Scale for Children—5th Edition (WISC-V; Wechsler, 2014).

Further, the K-ABC was exceptionally sound psychometrically; it successfully reduced the ethnic differences in intelligence test scores yielded by “traditional” IQ tests, an advance in test development of paramount socio-cultural importance; it included a novel set of child-oriented tasks; and it introduced “teaching items” to make sure that everyone—regardless of age, background, or ability level—would understand exactly what was expected of them on each subtest. Kaufman’s creations set the stage for major changes in IQ testing and interpretation and transformed the field for decades to come. Noted theorist Robert Sternberg, an early and harsh critic of both the K-ABC and its theoretical foundation, would later state:

If one were to ask who are the people who most have influenced and impacted ability testing, almost certainly Alfred Binet would be #1. David Wechsler would probably be #2. In my mind, Alan Kaufman would be #3. And in terms of productivity, he surpassed Binet and Wechsler relatively early in his career (Sternberg, 2009, p. 113).

Alan’s Partnership with Nadeen

It has been said, that behind every great man, is a great woman. For Alan, this woman is Nadeen Kaufman, a cognitive psychologist with a doctorate in Special Education; she is known for her work in learning disabilities, psychoeducational assessment, and is a well-established researcher and published author. She is well recognized for her exceptional case report writing skills. Nadeen wrote all of the illustrative case reports in their first book, *Clinical Evaluation of Young Children with the McCarthy Scales* (Kaufman & Kaufman, 1977), and again in Alan’s *Intelligent Testing with the WISC-R* (Kaufman, 1979b). Among Nadeen’s notable contributions is her direct role in the development of the testing and standardization of the WISC-R. Working with Alan, Nadeen contributed her experience as a university professor, clinical director, and specialist in school psychology and learning disabilities to enhance and broaden Alan’s perspective. Together they combined their expertise in psychometrics, test construction, and clinical assessment to develop the original K-ABC. They also co-authored and co-edited many noteworthy books in the field of specialized assessment interpretation and learning disability as well as serving as co-editors of Wiley’s popular *Essentials of Psychological Assessment* book series, translated in many languages and used

all over the world. Alan and Nadeen also shared the same passion for mentorship of graduate students and have each fostered the early careers of many talented psychologists.

Nadeen's creativity was notable in the Kaufmans' various test development projects such as the 1985 K-TEA (now the KTEA-3). For example, her innovative, real-life approach to measuring written comprehension via thematic story-telling techniques has contributed greatly to the popularity of the KTEA-II and KTEA-3 (Kaufman & Kaufman, 1985, 2004c, 2014).

Further, Alan reveals in the Foreword to *Intelligent Testing with the WISC-V* (Kaufman, Raiford, & Coalson, 2016)--titled "On the Origins of Intelligent Testing"--that he had already formulated the philosophical, statistical, and clinical aspects of his new interpretive system, thanks to his mentors Alexander Wesman, Robert L. Thorndike, and David Wechsler. What he lacked was the *method*. He states:

The method came from Nadeen, courtesy of her doctoral program in the emerging field of learning disabilities at Columbia University. Nadeen had a brilliant mentor in the Special Education Department, Margaret Jo Shepherd . . . Nadeen was taught about strengths and weaknesses in the cognitive profile. About looking for consistencies across subtests to uncover hypotheses about a person's *relative* assets and deficits and to focus on how to best capitalize on the assets to ameliorate deficits in cognition as well as in reading, math, and writing. . . . What became the 'Kaufman method' of interpreting the WISC-R, the veritable backbone of the intelligent testing philosophy, was a merger of the psychometrics I had learned in my psychology courses and the clinical applications that Nadeen had internalized from her learning disabilities clinic with Jo Shepherd. (Kaufman, 2016, pp. xi-xii).

Working with David Wechsler on the WISC-R

Kaufman's psychometric and creative roles during the development and standardization of the Wechsler Intelligence Scale for Children—Revised (WISC-R; Wechsler, 1974) contributed much to the quality of the instrument, as did the analogous roles he played working with Dr. Dorothea McCarthy on the *McCarthy Scales of Children's Abilities* for ages 2½-8½ years (McCarthy, 1972). Both McCarthy and Wechsler were brilliant clinicians, who mentored Kaufman on the clinical aspects of test administration, scoring, and interpretation. McCarthy shared her expertise as a developmental psychologist, one whose specialty was preschool children; Wechsler focused more on adolescents and adults and always conveyed the axiom that intelligence was an aspect of personality

Kaufman valued both mentors, but always knew that working hand in hand with Wechsler the Genius was an opportunity of a lifetime and he never forgot Wechsler's influence on everything he would ultimately contribute to the clinical assessment of intelligence and profile interpretation. He speaks highly of his opportunity to work alongside Wechsler as helping to

shape the development of the intelligent testing approach, largely because of Wechsler's devotion to clinical practice and his oft-repeated mantra that his IQ scales were "first and foremost clinical instruments" (Kaufman, 1994). Wechsler, although also statistically and psychometrically gifted, having studied under Charles Spearman and Karl Pearson, famously identified himself as being "just a clinician" (Kaufman, 2016, p. 718, originally from Kaufman 1992). Apart from Wechsler's clinical and psychometric talents, he was also a wonderful mentor. Kaufman (2016, originally 1992) recollected:

Dr. Wechsler possessed a rare blend of humility and grandeur. From the first day I met him, he treated me with kindness and with a respect I had not yet earned. He was soft-spoken, yet every word was carefully measured and carried authority. He was a man of unusual compassion and unflinching integrity (p. 715).

Kaufman would later take the next step, inspired by his mentors McCarthy and Wechsler, and bridge the gap between clinical and psychometric perspectives—and between theory and practice—with his own research, writing, and test development career.

Kaufman's Early Psychometric Research

Apart from his nearly all-encompassing test development work with Drs. McCarthy and Wechsler, Kaufman was a prolific researcher, publishing an array of psychometric studies on the Wechsler Preschool and Primary Scale of Intelligence (WPPSI; Wechsler, 1967), McCarthy Scales, WISC-R, and tests built from Piaget's and Gesell's theories of child development (e.g., Kaufman, 1971, 1972, 1973b, 1975a, 1976a; Kaufman & Hollenbeck, 1973). These studies often used the normative samples obtained during the standardizations of comprehensive intelligence tests, but many of his early studies also focused on clinical samples (Anderson et al., 1976; N. L. Kaufman & Kaufman, 1974; Van Hagen & Kaufman, 1975). From the beginning, he addressed issues of test fairness (Kaufman, 1973b, 1978; Kaufman & Di Cuio, 1975; Kaufman & Hollenbeck, 1974; Kaufman & Kaufman, 1973), theory-based assessment (Kaufman, 1971, 1973a, 1979a; Kaufman & Kaufman, 1972), and brief IQ tests (Kaufman, 1972, 1976a, 1977). With a colleague, he published what was possibly the first study of how test norms change over time (Doppelt & Kaufman, 1977), even before Flynn (1984, 1987) had published his ground-breaking research on what would later be named the Flynn Effect.

Standardization data provided the unique opportunity to understand the mental functioning of normal or typical children and adolescents. His philosophy was, "How can we understand the abnormal if we don't have a true picture of what is normal?" He also wanted to understand the theoretical underpinnings of what IQ tests measure, and quickly came to the conclusion that general ability or *g*, as reflected in any global IQ, is far less important than the factors that underlie the battery. His WISC-R factor-analytic study was extremely popular (Kaufman, 1975b), as were his studies on Verbal-Performance IQ differences and subtest scatter (Kaufman, 1976a, 1976b, 1976c).

Kaufman's departure from the single score IQ, as reflected in his 1970s research on factor structure and scatter, blazed the way to a new way of interpreting individual patterns of strengths and weaknesses. Kaufman never stopped pondering and he continued to define and refine the most helpful ways of using cognitive scores. It was common for him to conduct his own research whenever he found gaps in knowledge and available data. As noted, Kaufman helped clinicians understand the difference between normal and atypical scatter, both when evaluating V-P IQ differences and when analyzing the highs and lows of a subtest profile (Kaufman, 1976a, 1976b). Previously it was commonly thought that V-P IQ differences of 15 or more IQ points "proved" that a child or adult suffers from a neurological impairment or a learning disability.

However, based on Kaufman's own findings it became apparent that approximately 25% of normally developing children and adolescents had a discrepancy of 15 or more points between their V and P IQs. Thanks to Kaufman's research efforts, clinicians were able to understand that the average person has a discrepancy of 7 scaled-score points (± 2) between the highest and lowest scaled scores in their WISC-R profiles (findings that were later upheld for all ages from preschool to old age). For years, clinicians would diagnose a learning disability if a child's scaled scores ranged from, say, 5-12 or 8-17. Now it was discovered that these so-called abnormal ranges were, indeed, normal. His research thus saved children and adults alike from being over-diagnosed with learning or brain abnormalities. Kaufman provided a framework for what was, in fact, normal variability in test scores and IQs; clinicians could understand whether the IQ or subtest discrepancies earned by a child or adolescent was within the normal range or not.

The Emergence of the Intelligent Testing Philosophy

When Kaufman entered academia in the mid-1970s, he had the opportunity to teach graduate students and to expand his approach beyond his psychometric research. His studies had been influential, especially his publications on factor analysis of the WISC-R (Kaufman, 1975) and on the substantial amount of subtest scatter in the WISC-R profiles of typical children and adolescents (Kaufman, 1976b). But now, without the pressures of an 8:00am to 5:00pm job in industry at The Psychological Corporation, he had the time to write books and to integrate the clinical with the psychometric. He was especially concerned about the moat that separated theory from practice. He could not understand why tests of intelligence could remain isolated from theories of learning and intelligence.

Whereas the rest of the field of clinical assessment of intelligence largely remained stationary, Kaufman was among the few psychologists who incorporated a blend of multiple psychological theories, sophisticated psychometric techniques, and clinical observations of behavior to guide the development of a method to interpret intelligence tests intelligently (Kaufman, 1979b). The primary theories previously incorporated into the interpretative process were Spearman's (1904) general intelligence or *g* theory, as well as

psychoanalytical theories in which performance on intelligence tests was sometimes used to diagnose paranoia or schizophrenia (Mayman, Schafer, & Rapaport, 1951; Rapaport, Gill, & Schafer, 1945-1946). Kaufman observed this lack of a reality-based focus in the field of test interpretation, coexisting with a remarkable statistical naiveté (e.g., an examiner might treat a scaled score of 11 as a strength and a score of 9 as a weakness, without ever examining whether the differences were statistically significant). Children and adults were identified as being highly distractible simply by scoring low on “Kaufman’s Freedom from Distractibility factor”—even if they were never once *observed* to be inattentive or distractible during the entire evaluation. And even though Jacob Cohen named the factor in the 1950s (e.g., Cohen, 1957). And even though the absurdly named factor had no tie to theory. What nonsense!

Kaufman (2018) stated:

Battling over-interpretations of scatter (peaks and valleys in a person’s profile of test scores), literal-mindedness, and the namesake of an atheoretical factor, I gathered my courage and challenged a previous generation of ‘WISC Masters’ in *Intelligent Testing with the WISC-R*” (p.200).

With the publication of *Intelligent Testing with the WISC-R*, a new approach to test interpretation was born (Kaufman, 1979b). The innovative methodology combined quantitative psychometrics with qualitative clinical principles. Kaufman was among the first wave of IQ psychologists to infuse cognitive models into interpretations. He focused on a plethora of theories, notably Guilford’s (1956) Structure of Intellect Model, Sperry’s (1968) cerebral specialization theory, Luria’s (1970, 1973) neuropsychological processing approach, Osgood’s (1953) psycholinguistics model of communication, and Bannatyne’s (1971) factor-analytic approach to the identification of students with reading or learning disabilities.

In *Intelligent Testing*, Kaufman challenged the reductionistic view that encouraged an over-emphasis on IQs and that fostered over-interpretation of single subtests; for example, a low score on Picture Completion allegedly meant that a person had difficulty “distinguishing essential from non-essential details” and a high score on Comprehension or Picture Arrangement meant that the person had well-developed “social intelligence.” Further, in the traditional approach to test interpretation (e.g., Glasser & Zimmerman, 1967), statistical significance was applied sporadically and profile interpretation was neither integrated nor personalized to the individual.

With the intelligent testing approach, Kaufman incorporated contextual analysis of the examinee’s relative strengths and weaknesses, always integrating clinical interpretation of observed test behaviors and key referral and background information into the statistical analyses of test scores. His approach stressed drawing conclusions based on a broader view of evidence and a more nuanced interpretation of what truly underlies a person’s strong and weak areas of functioning. Ipsative analysis, as distinct from normative analysis, was encouraged to evaluate a person’s cognitive abilities relative to their own overall functioning, whether that level was gifted, average, or intellectually disabled. To identify statistically significant strengths and weakness-

es in Wechsler profiles, Sattler (1974) dusted off old formulas developed by Dr. Frederick B. Davis (1959), one of Kaufman's mentors at Columbia. These formulas were perfect for identifying scaled scores in a Wechsler profile that were either significantly higher, or significantly lower, than a person's own mean scaled score. Those formulas were incorporated into the intelligent testing methodology. The net result of intelligent testing was to help bridge the gap between psychometrics, theory, and clinical practice and guided practitioners to use psychometrically defensible methods of test interpretation. This system facilitated the development of tailored and pragmatic interventions that were potentially translatable to real-world settings and helpful for clinicians and students alike—although that topic is controversial and widely debated in the field, as is Kaufman's ipsative approach (Schneider & Kaufman, 2017; Watkins et al., 2005).

Naysayers aside, intelligent testing offered clinicians and school psychologists the opportunity to follow a step-by-step approach to test interpretation. It allowed clinicians to analyze a person's subtest profile based on their relative strengths and weaknesses and within the context of the clinician's behavioral observations of the child (e.g., Was the child anxious? Bored? Distractible? Impulsive?). Intelligent testing integrates theory and clinical observations of behavior into the interpretive process. For example, Digit Span, a measure of short-term and working memory, is known to be vulnerable to distractibility, anxiety, and poor attention span. When a person scores significantly low on Digit Span, it might be due to a poor memory or to an intrusive behavior. Before deciding on the best interpretation for a particular person, intelligent testing demands that the examiner look carefully at test scores on other subtests that are vulnerable to similar kinds of behaviors (Coding, Arithmetic, timed nonverbal tests); evaluate the person's behaviors during the testing session (Calm? Anxious? Attentive?); consider the reasons for referral (Memory problems? Attention deficits? Suspected ADHD?). Then make a judgment that is consistent with the multiple sources of information. And, whenever feasible, the examiner should attempt to interpret the person's array of strengths and weaknesses in terms of a sound neuropsychological, cognitive, learning, behavioral, or communication theory.

Kaufman (1979b, 1994, 2004a) repeatedly emphasized the following tenets of intelligent testing: (a) the clinician and not the test is at the top of the hierarchy; (b) test scores are meaningless, and the time spent with a person is wasted, unless they are interpreted by sophisticated clinicians and astute observers; and (c) the clinician needs to interpret scores within the context of their knowledge in child and adult development, cognitive psychology, neuropsychology, and personality development, as well as on their own personal experiences as a teacher, or speech & language therapist, or counselor, or special educator, and so forth. Reducing complex systems such as human behavior and cognition to a single test score, or to an array of test scores, was the central concern that led Kaufman to develop the intelligent testing method. Comprehensive tests of intelligence are administered individually; so, too, should be the test interpretation be individualized and personalized.

Much of the IQ controversy that reigned in the 1970s and 1980s surrounded issues of test bias and test fairness, topics that were also very much on Kaufman's mind and in his research program (Kaufman, 1978; Kaufman & Di Cuiro, 1975; Kaufman & Hollenbeck, 1974). But the other controversies rested on the burgeoning field of learning disabilities assessment. A learning disability was typically diagnosed when there was a significant difference between an individual's global IQ and achievement scores. As a result, the IQ became overused and magnified as a central marker not just of intelligence but also parsimoniously of learning disability (Berninger & O'Donnell, 2005). Kaufman himself maintained that, "the global IQ on any test, no matter how comprehensive, does not equal a person's total capacity for intellectual accomplishment" (Kaufman & Lichtenberger, 2006, p.20). Needless to say, Kaufman found the overinterpretation and overemphasis on Full Scale IQ both clinically and statistically unsound—clinically unsound because of the failure to consider the factor-analytic research, the analyses of normal scatter, and the available theoretical foundations; statistically unsound because of the casual dismissal of measurement errors (Kaufman, 1994).

Ultimately the goal of any cognitive testing should be to provide answers to the referral questions and, ultimately, to derive interpretations to improve quality of life of the examinee. Ideally, examiners should strive to create a tailored intervention plan based on the individual's capabilities and identify how those patterns translate into everyday life (Hale et al., 2004; Kaufman & Lichtenberger, 2006; Reynolds, 2007). Kaufman asked examiners to use IQ tests more intelligently and flexibly when it comes to the diagnosis of learning and cognitive disabilities (Berninger & O'Donnell, 2005; Flanagan et al., 2006; Hale et al., 2004).

Since the introduction of intelligent testing, Kaufman has received well-deserved praise from other professionals in the field for his approach to test interpretation (Flanagan et al., 2000; Fletcher-Janzen, 2009; Mather, 2009; McCloskey & Perkins, 2013). In fact, intelligent testing—namely the integration of quantitative, qualitative, clinical, and theoretical factors—has been adopted by a number of tests, including the Wechsler scales (Flanagan & Alfonso, 2018; Kaufman et al., 2016; Lichtenberger & Kaufman, 2013; Wechsler & Naglieri, 2006); the Binet-5 (Roid, 2003); and the Cognitive Assessment System—2nd edition (CAS2) (Naglieri et al., 2014). And, as noted earlier, it formed the foundation of Cross-Battery Assessment (Flanagan et al., 2013), the contemporary gold standard for test interpretation.

The Kaufman Assessment Battery for Children (K-ABC)

Being at the heart of the IQ testing movement in the 1970s, and its highly publicized controversies about test bias, Kaufman reveled in the seminal test development and research he was doing at The Psychological Corporation. He didn't, however, understand why the test publisher he worked for ignored his pleas to develop new tests that might reduce or eliminate ethnic differences in IQ, or his push for theory-based tests (at that time he was still in awe of Jean Piaget's developmental theory of intelligence). Nor did he appreciate the lack of emphasis on innovation or theory in the "same old-same old" tasks

that were used to measure intelligence for nearly a century, ever since Alfred Binet began developing mental tasks for children in the late 1800s (Terman, 1916; Terman & Merrill, 1937; Wechsler, 1949, 1974, 1981). Sequels of the original Wechsler-Bellevue (Wechsler, 1939) closely resembled their predecessor and the Stanford-Binet remained remarkably static until its fourth edition (Thorndike et al., 1986). As Kaufman (2018) noted:

Ultimately the tasks that Wechsler used to measure IQ were an aggregation of other people's tests. He took subtests (often exact items) from the Binet and Alpha to form his Verbal Scale and from the Beta and Individual Performance Scale to create his Performance Scale. Aside from the rare exception (Block Design, for example, was borrowed from Kohs, 1923), about a dozen tests developed in the early 1900s remained the bread-and-butter measures of the IQs of children, adolescents, and adults well into the 1990s (p.198).

As Kaufman continued to study and update the intelligent testing approach, he began developing his own intelligence test. The Kaufman Assessment Battery for Children (K-ABC, Kaufman & Kaufman, 1983) was the first individually administered intelligence test based on theory, followed that decade by the Stanford-Binet Intelligence Scale-4th edition (Binet-4; Thorndike et al., 1986) and the Woodcock-Johnson Psycho-Educational Battery – Revised (WJ-R; Woodcock & Johnson, 1989) followed this theory-based approach. The K-ABC, as mentioned earlier, was built primarily on neuropsychological and psychobiological theories. The Binet-4 and WJ-R were both developed from John Horn's (1989) revision and expansion of the Horn-Cattell theory of fluid and crystallized intelligence (*Gf-Gc*) (Horn & Cattell, 1967).

The K-ABC and the *Gf-Gc* tests came at a time when the field of IQ testing had no clear theoretical foundation. It was the first time that clinicians began realizing that intelligence could be conceptualized as cognitive processes (sequential and simultaneous) or as cognitive abilities (e.g., crystallized knowledge, fluid reasoning, short-term memory), and not solely based on the content of its items. The K-ABC, as the first in the series of theory-based tests, represented a shift from test scores to a focus on how children learn. Furthermore, the K-ABC was the first test to include dozens of validity studies in the test manual, meaning that essential aspects of construct and predictive validity were documented prior to its publication; previously, test manuals included one or two correlational studies, with the bulk of validity studies conducted by researchers in the field over the next decade or so. Perhaps most importantly, the K-ABC was geared towards reducing ethnic biases that had inundated the field of intelligence testing since its inception. The K-ABC was developed specifically with the goal to reduce the differences in scores between White and ethnic minority children by having every child understand the tasks given and developing tasks that were engaging for children of all cultural backgrounds. And, notably, the K-ABC included numerous tasks that were innovative or adapted from tests used in laboratory research—not simply the same recycled subtests that dominated the first three-quarters of the 20th century.

Apart from its theoretical basis, the K-ABC revolutionized the field of assessment by substantially reducing ethnic differences in test scores (Kaufman & Kaufman, 1983, Tables 4.36 and 4.37). That reduction in test bias was, in part, a function of creating tasks that emphasized abstract reasoning, spatial visualization, and memory rather than facility with language or the acquisition of facts learned in school. Also, the K-ABC introduced “teaching items”—the first two items administered to any child, whether Items 1 & 2 for a young child or Items 10 & 11 to a school-age child. This break with tradition allowed examiners to use their own words and teaching strategies (perhaps using a foreign language or signing) to ensure that virtually all children understood what was expected of them on every subtest. As a result, the K-ABC became increasingly prevalent for use with ethnically diverse children as it helped reduce the gap between the number of minority and majority children in special education classes.

Although the K-ABC was highly controversial upon its publication, lavishly praised by some but damned by others (Miller & Reynolds, 1984), its innovations became trendsetters for future IQ tests. Subsequent measures of cognitive abilities, almost universally, were built on theory, incorporated teaching items, focused on process rather than content, and documented the test’s validity in the test manual prior to its publication. Ultimately, this has led to a broader relevance of testing materials and the subsequent utility of their interpretations.

The original K-ABC was designed for ages 2½ to 12½ years; the second edition (K-ABC-II, Kaufman & Kaufman, 2004a) expanded the range to include adolescents (ages 3-18 years). More recently, the KABC-II was given a normative update to ensure that the standardization sample was current and not subject to the Flynn’s (1984, 1987) well-known Effect (KABC-II NU; Kaufman & Kaufman, 2018). The K-ABC-II stayed true to its precursor’s focus on theory but differs in conceptual framework and test structure. The K-ABC was based on the simultaneous-sequential processing dichotomy embodied by both Luria’s and Sperry’s theories. By contrast, the KABC-II is built on two distinct theoretical models, one neuropsychological and the other the popular factor-analytic CHC multiple abilities model. The neuropsychological model is an expansion of the K-ABC’s two-pronged Luria model; it continues to measure simultaneous and sequential processing, but adds scales to assess learning ability and planning abilities as well (Luria, 1970, 1973; Naglieri & Das, 1997). The CHC model (Carroll, 1993; Flanagan, 2000; Horn & Noll, 1997; Schneider & McGrew, 2018) includes a measure of crystallized intelligence as well.

The original K-ABC did not consider language and factual knowledge as aspects of intelligence and relegated them to an Achievement Scale, separate from its global intelligence score, the Mental Processing Composite (MPC). The K-ABC-II’s Luria model retains the essence of the original K-ABC, namely to provide fair assessment of intelligence for all children. Its global score, the Mental Processing Index (MPI), excludes the Knowledge/Gc Scale. Examiners are encouraged to use the Luria model, and interpret the MPI as the best measure of intelligence, for children who have not had the same educational and cultural opportunities as mainstream children.

The CHC model yields a Fluid-Crystallized Index (FCI) that includes five scales—the same four that compose the MPI plus Knowledge/Gc. The FCI is quite similar to traditional global IQs, such as Wechsler's Full-Scale IQs. Like the K-ABC, the KABC-II offers a global Nonverbal Index (NVI) that is intended for children who have speech or language problems, are hearing-challenged, or who do not speak English well. Consistent with Kaufman's intelligent testing philosophy, the KABC-II elevates examiners above the tests, and offers them the flexibility and clinical judgment to select the theoretical model to administer to each child or adolescent referred for evaluation.

In addition to changes in theoretical foundation and scale structure, the KABC-II retained only eight of the original K-ABC subtests while adding 10 new ones. The changes facilitated better psychometric and clinical assessment of the new constructs of learning ability and planning ability and allowed effective measurement of gifted high school students. These radical modifications in test structure and test content illustrate Kaufman's continuous striving for improvement by revising his own tests to reflect the latest research and theory in the field and to be responsive to criticisms of the K-ABC that sometimes appeared in the literature or emerged during Question-and-Answer sessions following invited addresses or workshops.

Despite the many changes from the K-ABC to its second edition, all global scales on the KABC-II and the KABC-II NU continue to cut ethnic differences in half; and that includes the FCI, despite its cultural and language loading (Kaufman & Kaufman, 2004a, tables 8.6 and 8.7). Furthermore, when test bias is defined as differential *predictive* validity—i. e., does the prediction of achievement differ based on ethnic background?—all global scores, including the FCI, were excellent predictors of academic achievement for African American, Hispanic, and White children and adolescents (Scheiber, 2017; Scheiber & Kaufman, 2015). Apart from reduced differences in test scores and comparable predictive validity, the KABC-II passed a third important "test" of fairness—i. e., whether or not the abilities that underlie the battery are the same regardless of ethnic background (differential *construct* validity). Confirmatory factor analysis was employed to confirm the factor structure of the K-ABC-II and verify that the groupings supported the organization of subtests into the designated scales. Separate factor models were evaluated for several age groups and research was conducted to confirm the factor structure for different ethnic groups. Indeed, the KABC-II yielded comparable factor structures for mainstream students and ethnic minorities across the age range (Scheiber, 2016).

In addition to the K-ABC and K-ABC-II, Kaufman and his wife co-authored numerous other neuropsychological tests that span the range from preschool to old age. Most notably, they developed widely used achievement tests and brief measures of IQ. The Kaufman Test of Educational Achievement (K-TEA) had both Brief and Comprehensive versions, as did the KTEA-II and KTEA-3 (Kaufman & Kaufman, 1985, 1997, 2004c, 2005, 2014, 2015). The Kaufman Brief Intelligence Test (K-BIT), now the KBIT-2, paved the way for reliable, valid, and well-normed brief measures of intelligence

(Kaufman & Kaufman, 1990, 2004b). The K-BIT was followed about a decade later by the Wechsler Abbreviated Scale of Intelligence (WASI; Psychological Corporation, 1999), and by other brief IQ tests of excellent psychometric quality (e.g., Glutting et al., 2000; Kamphaus & Reynolds, 2003). The K-BIT and its successors rendered as obsolete the popular practice of administering various Wechsler short forms whenever a comprehensive battery was unnecessary (J. C. Kaufman, & Kaufman, 2001).

Kaufman Test of Educational Achievement

Like the K-ABC and KABC-II, the K-TEA and its subsequent versions rival Wechsler's achievement tests and also the Woodcock-Johnson series of cognitive and achievement batteries. Like the K-ABC, the K-TEA covers a comprehensive number of domains and provides information via the error analyses and Q-Global scoring and interpretation system that offers psychologists and special educators a wealth of information. When diagnosing specific learning disorders, the K-TEA-3 Comprehensive version (Kaufman & Kaufman, 2014) allows the clinician to look at all aspects of an individual's knowledge of math, English, reading, writing, spelling, phonetics, grammar, memory, and fluency. The ease of administration and scoring helps to make the KTEA-3 a go-to for many educational and clinical psychologists who want to be able not only to diagnose, but to help remediate and accommodate any type of learning disability. The K-TEA-3 is based on a clinical model of academic skills assessment and covers broad areas of reading, mathematics, written language, and oral language.

The KTEA-3, like the previous two versions, follow the CHC and Information Processing theoretical assessment approaches. The Kaufmans updated and expanded the KTEA-3 subtests to be able to assess learning disabilities according to the Individuals With Disabilities Education Improvement Act (IDEIA; 2004) and the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-V; American Psychiatric Association" [APA], 2013) criteria (Frame et al., 2016). It is very convenient to quickly identify what areas are strengths and weaknesses for the individual being assessed, and exactly how these results relate to diagnosis and conditions that can qualify a student for an individualized educational program (IEP) or 504 Plan. When just a general idea of achievement is needed, the K-TEA-3 also has a brief version (Kaufman & Kaufman, 2015) that is quick and easy to administer. Although the Wechsler achievement tests now have easier scoring, the overall approaches to administration and scoring were pioneered by the Kaufmans. In true test development mode (beginning with Wechsler) other test authors borrow liberally when a new system or style is created as was introduced.

In a 2017 survey of 1317 practicing school psychologists in the U.S., the KTEA-3 was the 8th ranked instrument in terms of average usage per month, where the overall rankings included both formal and informal measures of intelligence, achievement, behaviors, and other domains. Among comprehensive measures of intelligence and achievement, the KTEA-3 trailed only the WISC-V (Benson et al., 2019).

Kaufman Brief Intelligence Test

Just as innovative and helpful for psychologists and special educators is the wide-ranging and useful Kaufman Brief Intelligence Test (Kaufman & Kaufman, 1990, 2004b). The K-BIT-2 is one of the easiest tests to administer, and with no reading involved is very adaptable to administration in any language. The new Verbal Knowledge subtest in the second version is a “cleaner measure of verbal ability” (Bain & Jaspers, 2010, p. 167). It is normed for ages 4 through 90 and is perfect for when a psychologist or special educator needs a valid and brief measure of verbal and nonverbal intelligence. The nonverbal subtest, Matrices, provides information on an individual’s success in recognizing and analyzing visual patterns. With the new Q-Global resources, it has been a lifesaver during the pandemic for assessments performed over Zoom or other tele-health systems that have a share-screen function.

Notably, the K-BIT-2 is excellent for use during a diagnostic assessment for autism spectrum disorder or for attention deficit hyperactivity disorder when the individual has already been assessed by the school district using a traditional length cognitive test. The K-BIT-2 is also a great way to assess cognitive abilities for treatment for criminal justice-involved individuals. When a psychologist is recommending different rehabilitative treatments it is important to understand the cognitive abilities of the individual. It is also very important to have a brief measure of intelligence for understanding the level of risk a former offender has for committing future crimes and for understanding the level of culpability someone has when they have committed a crime. It is rare for forensic psychologists to have the time available to give an entire cognitive battery, especially when the assessment is virtual or there are limitations in the testing environment, such as when the individual is currently incarcerated.

Kaufman’s Professional Legacy

For more than a generation, the Kaufmans’ intelligence and achievement tests have been popular worldwide. Their impact on the field of intelligence and cognitive testing extends to all continents except Antarctica. The K-ABC and KABC-II have been adapted and translated into a plethora of different languages and have been standardized for use in more than 30 nations. Their other tests have been adapted and normed in European and Asian countries, including the KTEA-II in Japan; the K-BIT in Spain; the Kaufman Short Neuropsychological Assessment Procedure (K-SNAP) in the Netherlands and Germany; and the Kaufman Adolescent and Adult Intelligence Test (KAIT), also in Netherlands and Germany (Kaufman & Kaufman, 1990, 1993, 1994). Additionally, the Kaufmans developed a computerized test directly for young children in France and other French-speaking nations (K-CLASSIC; Kaufman & Kaufman, 2007).

Kaufman’s diverse, highly popular books on intelligent testing, Wechsler’s scales, the Kaufman tests, adult assessment, learning disabilities, and report writing have been translated worldwide—as have most of the vol-

umes that comprise Alan and Nadeen's extensive *Essentials of Assessment* series. Also, Kaufman is a frequently invited keynote speaker at national and international conferences. His interpretations on the Wechsler and Kaufman tests, as well as his take on the diagnosis of learning and cognitive disabilities, have been widely praised and celebrated in a variety of countries, such as Germany, Sweden, Japan, Spain, Israel, Canada, Russia, and Egypt.

Kaufman's creations did not stop with the development of high-quality psychological tests, innovative methods of interpreting test profiles, or his impact on the classification and definition of learning disabilities; they are also reflected in his outstanding abilities as a mentor, as discussed in the next (and final) section of this chapter. As mentioned previously, his students have furthered his legacy through publishing numerous psychological tests and scientific papers, founding prestigious journals, becoming high-profile professors at major universities, and authoring some of the most widely-used psychological tests in the United States and worldwide.

Drs. Cecil Reynolds and Randy Kamphaus triumphed with their creative contributions to the field of behavioral assessment, namely the mega-popular *Behavior Assessment System for Children* (BASC; Reynolds & Kamphaus, 1992). In Benson et al.'s (2019) survey of over 1,000 school psychologists, the BASC-3 Teacher Rating Scale ranked as the #1 most popular test in the U.S., and the BASC-3 Parent Rating Scale was #3 (the WISC-V was #2). Dr. Jack Naglieri made a profound contribution to cognitive and neuropsychological assessment with his Luria-based PASS theoretical model and the theory-based Cognitive Assessment System (CAS & CAS2; Naglieri & Das, 1997; Naglieri et al., 2014). Naglieri (1985, 1997) is also a pioneer in nonverbal assessment. Both Reynolds and Naglieri have published literally dozens of tests that span the entire field of clinical assessment and that have amazingly wide use throughout the nation.

Drs. Bruce Bracken and Steve McCallum founded the influential *Journal of Psychoeducational Assessment* and developed a leading nonverbal intelligence test, the *Universal Nonverbal Intelligence Test* (UNIT & UNIT-2; Bracken & McCallum, 1998, 2016). Dr. Patti Harrison has been a world leader in the assessment of adaptive behavior, serving as research supervisor of the second edition of the *Vineland* scales and co-authoring the popular ABAS, now in its third edition (ABAS-3; Harrison & Oakland, 2015). And all of these former students have won prestigious awards from APA's Division 16, and other national and international organizations, and have served as high-ranking officers for diverse professional organizations. Internationally, Dr. Toshinori Ishikuma introduced the field of school psychology to Japan in the early 1990s and has co-authored diverse Japanese translations of Wechsler's and the Kaufmans' scales. Dr. Soo-Back Moon has played a similar leading role in South Korea, and has been an international spokesperson for the Korean K-ABC and Korean KABC-II.

All of these former students, and many others in the course of his almost half-century career, have continued the tradition of Alan Kaufman and taught future clinicians and researchers; they have greatly reshaped the field of assessment themselves. With that, Kaufman's influence on the field was direct through his own work and his partnership with Nadeen, but also indirect through his mentoring efforts.

In sum, Kaufman did not spend his career copying and duplicating what has already been done; instead, his innovations revolutionized the field of intellectual assessment. Kaufman's principles of intelligent testing have been widely quoted; his intelligence scales helped evolve IQ testing; and his contributions to the field of test development and test interpretation include the innovative decision to introduce teaching items, one of the reasons that the K-ABC and KABC-II helped reduce ethnic bias. Ultimately, his brilliance was in combining theory and clinical practice with psychometric and statistical soundness. Kaufman openly acknowledged the limitations of intelligence tests and developed methods to try to correct them. He transformed intelligence testing by consistently going beyond just the numbers and by urging examiners to interpret test profiles based on clinical utility, to help make the scores useful for clinicians, teachers, parents, and the examinees themselves.

Kaufman combined his superb knowledge of psychometrics and statistics with his wife's clinical understanding of child development and learning disabilities. He was greatly influenced by his mentors—(1) Dr. David Wechsler's clinical insights; (2) Dr. Dorothea McCarthy's desire to make mental tasks truly interesting to young children (she measured nonverbal sequencing with a toy xylophone, departing from the tradition of tapping cubes); (3) Drs. Robert L. Thorndike's, Frederick B. Davis's, and Elizabeth Hagen's psychometric and statistical brilliance (Dr. Hagen taught both Alan and Nadeen their first Tests & Measurement course at Columbia); and (4) Dr. Alexander Wesman's sage guidance, both personally and professionally, as Kaufman's boss at The Psychological Corporation—not to mention Dr. Wesman's (1968) coinage of *intelligent testing*.

Despite the success of his tests and his contributions to test interpretations, Kaufman never stopped defining and redefining his concepts and approaches. Alan Kaufman's innate drive for innovation and creativity are at the core of his commitment to cutting-edge research and theory that continues to shape his approach to assessment and interpretation of IQ. His evolved approach to existing testing methods, along with the innovative development of his own tests, ranks among the greatest achievements in intelligence testing over the past century.

Alan's Personal Legacy—Recollections by the Chapter Authors

Caroline Scheiber

Alan Kaufman was an outstanding mentor to me. He possessed a rare combination of humility and excellence. From the first day I met him, he treated me with kindness and respect which I felt I had yet to earn—to mirror what Alan said about *his* mentor in his 1992 tribute, *Dr. Wechsler Remembered*. We met at a restaurant somewhere in a San Diego mall while his wife Nadeen was getting a haircut (ever since I have known Alan, he and Nadeen have never been far apart, and appear committed to each other on a level that I have always admired). As a fledgling first-year graduate student in psychology and recent immigrant, I had no idea who I was sitting across from. I did not know much about the history of psychology, let alone of intelligent and IQ testing

in the United States. My introduction to Alan Kaufman was accidental in that I had just finished my first class in psychological assessment, Intelligence Testing 101, with my professor who was an avid fan of David Wechsler. His clinical approach to test interpretation mentioned one of his students, Liz Lichtenberger, as working closely with the well-known Alan Kaufman. My initial hope was to perhaps connect with Liz Lichtenberger on a research project due to my fascination with IQ testing. Liz Lichtenberger, to my surprise, and ultimately to my blessing, introduced me to Alan. I remember the introduction went something like this: “just wait, Alan and Nadeen will make you part of their family... that’s just what they do.” And she couldn’t have been more right about that prediction.

I remember Alan and I had a phone conversation prior to our first in-person meeting for which I was understandably nervous. He called me out of the blue as I was taking a walk and I anxiously let him know that I was not yet prepared to speak to him. His response to that was “Don’t worry, I am not prepared either,” which is an example of his way of making people around him feel comfortable and at ease. Again, to paraphrase what Alan’s 1992 remembrance of Dr. Wechsler: Alan was kind and every word was carefully thought out and carried authority. He is a man of unusual compassion and unwavering integrity. He instilled in me a sense of integrity and commitment to scientific research when, for example, he told me the story of how he testified on the effects of lead poisoning on IQ.

He was initially hired as an expert witness for the large lead companies, arguing that research did not support a meaningful relationship between low levels of blood lead and IQ loss. Then he conducted his own research on the topic, where he found a small but significant relationship between decrease in IQ and lead exposure, contrary to his original belief and testimony. He said he would testify about his new findings if the prosecution pressed him on his “true” beliefs about the effects of low levels of lead. He didn’t testify in that case, or ever again, for the lead industry. Alan has been flexible and humble enough to allow for his own beliefs to be overturned by new research and findings. One of the things I have always deeply admired is Alan’s commitment to research integrity and to his own personal values.

There are so many things to thank Alan for because more than any professor or mentor, he inspired me as a person and professional. I have clear images of spending hours with him at his home, working and revising my research papers and doctoral paper until one day he exhaustingly told me: “I am officially done editing your dissertation.” (I am sure it was no easy task to edit a 200+-page document of a foreign student whose first nor second learned language was English). As I am reflecting over my research process and the time spent at Alan’s house, I also cannot let Nadeen go unacknowledged. Her warmth and kindness are unparalleled and readily apparent to everyone who meets her. She helped me tremendously when I prepared for several internships and took her time reviewing my reports which was a true honor given her exceptional expertise in clinical assessment. She always made me feel welcome in her house and consistently showed confidence in my ability to be successful in all of my endeavors.

Alan’s wisdom, patience, endless support, and commitment have been invaluable in my professional as well as personal life. In addition to his

indiscernible excellence and expertise in the field of intelligence testing, it has been his friendship and caring nature that ultimately made the greatest difference in my life. His high standard, generosity, and understanding were inspiring and motivating to continually improve myself and the quality of my work. His trust and confidence in my abilities helped me to have faith in myself, which is an invaluable gift and one I will always be grateful for.

Jennie Kaufman Singer

It was definitely interesting growing up as the child of two celebrated psychologists who created intelligence and achievement tests. Everyday tasks and experiences could be viewed through the framework of subtests; family pictures, games, and activities might become fodder for the creation of a new subtest. As a young person, watching my father and mother in the act of creation was exciting and inspiring. When they developed the original K-ABC, we were living in Athens, Georgia. In 2021, Athens is a growing town with several shopping plazas. In the 1970's we had Sears. My mother loved to shop, and my father was always amenable to read his Sporting News while waiting for my mother. On the way to and from Atlanta (about an hour to hour and a half trip), while packed into the backseat with two younger brothers (one of whom, James Kaufman, is a widely known psychologist specializing in creativity), I heard them banter back and forth, sharing ideas, dreams, knowledge, and their creative flow. I remember taking a wide variety of subtests in my father's classes where he taught his students both by pretending to be a very hard-to-test young boy and also by bringing his children in to be testing subjects. I have always enjoyed watching my father speak – at the American Psychological Association, in front of his classroom, and at a variety of professional events. He is as engaging a speaker as he is a creative researcher, and his ability to explain complex concepts has always been a wonderful quality. Now that I am a clinical psychologist working in the field of assessment, I look back on my parents' conversations where they talked about melding the fields of psychometrics, learning disabilities, neurological brain disorders, educational and clinical psychology, and special education to create testing instruments that would add greatly to the field of assessment. It has been very special to realize the extent to which my father and mother have enhanced this important field and how their ideas continued to expand and morph as new technologies were developed and theories were revised and extended.

Aside from being such a creative and academically talented man, my father also used his knowledge (including being a grammatical guru and APA style wizard) to help me many times in my life and career. He helped me to become a better writer in general, and along with making the numerous and painstaking edits throughout my high school and college careers, he helped me immensely as I used yet another of his tests (the Kaufman Adolescent and Adult Intelligence Test, or the KAIT) for my dissertation study. He generously gave me great information to use when setting up my study, helped me with any test-related questions, and then spent hours editing the entire 200+ pages of dissertation through too many edits to count. After I graduated and

ended up being a professor myself (at the California State University, Sacramento) in Criminal Justice he again spent hours reviewing my work. He helped me to improve manuscripts and chapters, frequently giving me ways to make the premise more interesting or important. When I decided to try my hand at fiction, he spent time reading my work and making helpful suggestions. My father is a wonderful writer. He spent most of his career writing articles, chapters and books on the clinical assessment of intelligence and achievement, as well as working with my mother as prolific editors of the Wiley *Essentials* book series. Then, when he started working less over the past several years, he decided to write personal essays about events in his life. I have been delighted to read his very interesting essays and I enjoy editing his work. It has been very enriching and a privilege to have such an intelligent and creative father. It has also been very inspiring, even though I had to overcome my fear that I could never live up to his brilliance. Luckily, my father is as humble as he is an intellect, and he has always made me feel that I had big enough feet to walk in his footsteps. For that, and so much more, I will always be grateful.

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CHAPTER FIFTEEN

JAMES C. KAUFMAN 101: TWO PATHS TO CREATIVITY

DOWON CHOI & MARIA AVITIA

ABSTRACT James C. Kaufman's contributions to the field of creativity are numerous and diverse; so, it is challenging to distill them to a specific area. If the creativity field could be broken into multiple divisions, he might fit into the divisions of "general creativity" or "diversity in creativity." Paradoxically, however, he is one of the scholars who moved forward the concept of domain-specific creativity, emphasizing the importance of developmental processes of creativity. Kaufman is abstract enough to theorize creativity models, guiding our understanding of the construct. Yet, he is a master communicator, able to translate these abstract concepts for lay people in a humorous and accessible way. Additionally, Kaufman focuses his research on everyday creativity. His recognition of this facet empowers creative people from diverse backgrounds and increases fairness in education. However, there is a lot more to James Kaufman than just creativity research; he is also a producer of creative works. Originally starting college as a creative writing major, he has written many plays that have been produced around the world, including a musical that was produced off-Broadway. Furthermore, Kaufman is a master collaborator, bringing different groups of people together to produce over 40 books. But most of all, he is a welcoming friend and advisor, opening the world of creativity research to those who want to be a part of it. In this chapter, Kaufman's incremental contributions to the field of creativity research, along with the path that led him there, and who he is as a person, are summarized.

Keywords: Four C model, Sylvia Plath effect, creativity 101, social justice

James Kaufman 101: Two Paths to Creativity

James Kaufman is an influential American psychologist in the field of creativity. He is an expert researcher, prolific author, theorist, creator of assessments, mentor, commentator, creative writer, and colleague. His balance of expertise and humility has allowed him to move the field of creativity forward both by his own contributions and by supporting and inspiring the work of many other researchers. In this chapter, we will take a look at his journey and discuss some of his many contributions to the field.

Two Paths to Creativity

James Kaufman was born in 1974 as the youngest of three children. His parents, Alan and Nadeen Kaufman, are internationally renowned psychologists who have created numerous popular and widely utilized intelligence and achievement tests (e.g., the Kaufman Assessment Battery for Children, the Kaufman Test of Educational Achievement, and the Kaufman Brief Intelligence Test). James Kaufman mentioned several times that his father taught him numbers and statistical analysis through baseball, and his mother nurtured his creative writing with detailed written feedback after reading every single story he wrote (e.g., Kaufman, 2017c).

Kaufman entered college at the young age of 16, skipping his senior year of high school as part of a program offered by the University of Southern California (USC), majoring in Creative Writing (N. Kaufman, personal communication, May 21, 2021). According to J. C. Kaufman (personal communication, May 14, 2021), there were two people at USC that he had heard of and wanted to meet; one was a novelist, Tom Boyle, and the other was a psychologist, John Horn. Kaufman took fate into his own hands and searched out both professors, meeting Horn the first week of school and Boyle within the first month. John Horn quickly took him under his wing. (Although, for the first year and a half, Horn's mentorship was not related to psychology.) Similarly, shortly after meeting Tom Boyle, Kaufman became his research assistant for the next four years.

Like his parents, these two men contributed to two different parts of Kaufman's development. His education and experience diverged between the arts and sciences and yet converged into one topic, creativity.

His Path to Psychology and Creativity Research

Kaufman became a researcher long before he went to college. Unintentionally, as a child, he even started contributing to the field of psychometrics by solving new IQ test items that his parents created to develop their assessments (A. Kaufman & N. Kaufman, personal communication, July 17, 2017). He was only an adolescent when he and his father Alan Kaufman started researching and publishing articles—not in psychology, as one might presume, but rather in Baseball. Alan Kaufman (personal communication, May 25, 2021) shares a story of James Kaufman's first steps into the world of research:

As a 12- or 13-year-old, Jamie and I began to be a research team studying Major League Baseball. (James has always been Jamie to me, still is.) First, we wrote research articles and started getting articles accepted by Baseball Digest, Baseball Research Journal (yes, there really is a BRJ!), and a half dozen other magazines. We even published one in Playboy—not an easy feat—and Jamie had to sneak that issue into school to show his friends. We actually published a few articles in psychology journals, using multiple regression to predict award winners or Hall of Fame candidates (I taught Jamie lots of statistical procedures using baseball stats). We presented pa-

pers at local and national Society of American Baseball Research (SABR) conferences. But mostly we collaborated on a book called *The Worst Baseball Pitchers of All Time*, first a 1993 edition published by McFarland, then a 1995 Revised Reprint for Citadel Press. Jamie was able to find the addresses of about 80 pitchers who qualified for our book (guys like “perfect game” Don Larsen who once had a season where he won 3 games and lost 21). Jamie insisted we write to them and ask them to fill out a questionnaire. He also wanted to ask for their phone numbers and have telephone interviews. I said that it was a fool’s errand, that no one would do that. But he convinced me. . . . And he was right! We got many completed questionnaires with great quotes. More than a dozen agreed to phone interviews. I called, got rapport, and teenage Jamie conducted hour-long interviews. . . . We had a great time first writing, then revising, the book. Jamie’s creativity was in full bloom.

As mentioned in the introduction, John Horn became Kaufman’s undergraduate mentor. Horn is one of the contributors to the Cattell-Horn-Carroll model of intelligence. To Kaufman (personal communication, May 14, 2021), “he was one of the more amazing and brilliant mentors [he] ever met.” During an interview conducted on May 14th in 2021, Kaufman shared detailed stories about the roots of his career related to creativity. Kaufman began doing research on crime with Horn late in his sophomore year. Kaufman said if he was ever going to pursue psychology, it would be in forensics. After considering English Literature and Law, Kaufman double majored in psychology in his junior year, largely attributed to the influence of Horn and his parents. However, when he had access to a large dataset under Horn, he was not sure what topics to explore in the data. He went on PsycINFO and searched for intriguing topics. Many of them were related to mental health, and Kaufman soon began to volunteer at mental health hospitals. As he found this new direction interesting, he applied to clinical programs. He also applied to some programs in social psychology, cognitive psychology, developmental psychology, and experimental psychology. Although he did not get into any of the clinical programs, he was accepted into the other areas at Yale, Harvard, Penn State, and the University of Virginia.

Kaufman’s strong life connection with cognitive psychology finally led him to pursue his Ph.D. degree under Robert Sternberg at Yale University in 1995. An internationally renowned cognitive psychologist, Sternberg (1996, 2010, 2020) has developed theories and applications to recognize more diverse and global human abilities and skills (e.g., creativity, wisdom, and street smartness), going beyond routinely measured analytical thinking skills often measured on high-stakes standardized tests. For the first two years, however, Kaufman floundered. Although he worked on two papers with Sternberg on human ability and intelligence, (one of which is still on his top 10 most cited works), he had not yet found an area he was passionate about and enjoyed. He was not yet good at getting his own ideas. For his first master’s at Yale, which had to culminate in an experiment, he picked one of the ideas that Sternberg suggested. James said that he “did a terrible job and hat-

ed it." It was boring to him. He was used to at least being decent at things, but he was not on this. He was close to dropping out.

Near the end of his second year, the idea of researching creativity emerged. Although it was perhaps obvious in retrospect, since Sternberg studied creativity, Kaufman had not considered it. Sternberg printed out his *Handbook of Creativity*, which at the time had not yet been published, and recommended Teresa Amabile's *Creativity in Context*, Finke, Smith, and Ward's *Creative Cognition*, Dean Simonton's *Greatness*, and Mihaly Csikszentmihalyi's *Creativity*. Kaufman spent that summer reading. It was a life-changing summer. He said about this new topic, "It was the first academic stuff that I ever liked, that never sucked, that ever actually interested me. Those five books were and remain a very big influence on me." During his second master's, this time writing a literature review, he decided to focus on creative writing. This was before the full text was available on PsychINFO. However, Sternberg had the entire run of creativity research journals and let him borrow them a year at a time. Going through every article, Kaufman read everything on creative writing. This thesis not only became his first solo-authored accepted paper, but also this line of research ended up becoming the Silvia Plath effect.

Kaufman started applying for professor jobs during his last year of graduate school. However, creativity was, and as he says, "still is", a weird thing to study. Creativity as a research topic did not yet have its place at the university. After not being able to find a suitable teaching job at a university, he accepted a job with Educational Testing Service (ETS) as an associate research scientist in 2000. Although it was not his dream job, it paid well. While at ETS, Kaufman worked at the Center for New Constructs which consisted of examining learner characteristics that were not yet being measured by the existing tests. More specifically, he focused on finding ways to incorporate certain constructs into current tests (e.g., creativity). During his two years there, two major things happened. Firstly, he and a colleague received a grant to analyze writing. The project brought in John Baer as a consultant, who continues to be one of his closest colleagues. Secondly, he realized that working at ETS was not what he wanted and began applying to other jobs.

With more experience, Kaufman had more success. He applied for a professorship in cognitive psychology at California State University San Bernardino (CSUSB). However, given his previous experience, he was encouraged to apply to be the director of the Adult Learning Institute, later renamed the Learning Research Institute. Though he was hesitant, he took on the challenge. This allowed him to have a lower teaching load, access to resources, the opportunity to do larger-scale research projects, and publish many articles. Ultimately, this position helped him figure out who he wanted to be as a scholar. Although Kaufman was not bringing in many grants, he was publishing, distributing new knowledge, and gaining media attention for the university. He stayed at CSUSB for 11 years. However, he wanted to mentor Ph.D. students as well, which CSUSB could not offer him. In 2013, he moved back to New England to the University of Connecticut as a tenured professor of Educational Psychology in the Neag School of Education, joining creativity colleagues Jonathan Plucker and Ronald Beghetto. Kaufman currently remains in this position.

Since starting at the University of Connecticut, four of his advisees have completed their Ph.D. degrees. Three more students are in the process of completion, and two students will be starting in the fall of 2021. Additionally, he has received several distinguished awards: the *Choice Outstanding Academic Title*, from the American Library Association (2015, and twice in 2018); the *Neag Distinguished Scholar*, from the University of Connecticut in 2018; the *Florence L. Denmark Award for Significant Contributions to Psychology*, from Pace University, New York in 2018; and the *Rudolf Arnheim Award for Outstanding Achievement in Psychology and the Arts*, from the American Psychological Association, Division 10 (Society for Psychology of Aesthetics, Creativity, and the Arts) in 2017.

Scholarly Contributions

Kaufman's scholarly work can be conceptualized in many directions due to, in part, his prolific and diverse contributions in the field. However, his scholarly work can be distilled into three descriptors: inclusive, developmental, and balanced for social justice and educational fairness. Kaufman and his colleagues rekindled unrecognized but meaningful personal levels of creativity in their frameworks (e.g., mini-c) and assessments (e.g., Kaufman Domains of Creativity Scale's everyday creativity) to foster hidden creativity. Not only did he include individuals' creativity, but also multi-levels of social aspects of creativity, ranging from interpersonal levels to a bigger cultural context (Kaufman & Glăveanu, 2020). His theoretical perspectives on creativity were reflected in his assessments. Supported by his empirical research, Kaufman (2010, 2018) argues that assessing students' creativity can increase educational fairness, going beyond a traditional construct of general intelligence. This summary of scholarly work is divided into four areas: theories, assessments, educational applications, and mental health.

Theories to Understand Creativity: Between Mini and Big

The CASE model, developed by Kaufman and Glăveanu (2020), sheds light on some previously-shaded areas of creativity by suggesting some conditions of fully crystalized creativity for all. For example, even if one's idea is new and useful, the person's creativity can be overlooked. CASE represents the four conditions of recognizable creativity: capital, awareness, spark, and exceptionality. This model amalgamates an individual's awareness of creative potential, the role of audiences, and sociocultural context to understand why certain creativity stays undiscovered and how important is an individual's belief on the creative potential for society. Hopefully, the CASE model can play a role in reducing our habitual thought patterns towards certain groups' creative expressions and prototypes that can create a vicious cycle for ethnic minorities and women, as the creators mentioned below.

Finally, although there are no differences by gender or ethnicity if creative products are anonymously evaluated (Kaufman, Baer, & Gentile, 2004), creative work that is thought to be by Caucasians (Kaufman, Baer, Agars, & Loomis, 2010) or men (Proudfoot, Kay,

& Koval, 2015) is assigned higher ratings – regardless of the gender or ethnicity of the actual creator. (p. 32)

The Four C model, a developmental conceptual framework, was completed by Kaufman and Beghetto (2009) based on Beghetto and Kaufman's (2007) previous work. The model's name, *Four C* (mini-c, little-c, Pro-c, and Big-C), appears witty due to similarities with one of the classic creativity research models, the *Four P* model (person, product, process, and press; Rhodes, 1961). Also, the similar names between Four P and Four C may imply their incremental contributions to the creativity field. Previously, creativity research was divided into two broad levels. Big-C originated from a long history of studies about creative geniuses to learn about the nature of creativity (Csikszentmihalyi, 1996 & Simonton, 1994). Richards (2007) and Runco (1996), on the other hand, were more interested in everyday creativity, or little-c. In between these two dichotomous concepts, Kaufman and Beghetto debuted mini-c (i.e., creative potential or developmentally meaningful individual creativity) and Pro-c (i.e., professionally successful creativity) in their model. Thanks to the duo, researchers, educators, and parents can recognize our personal and professional creativities. Mini-c and Pro-c levels of creativity can be important since they are distinctive steppingstones to be developed for a higher level of creativity. The following is their own words about how the model moved the field forward:

We recognize that adding two additional distinctions (mini-c and Pro-c) to traditional conceptions of creativity adds a level of complexity to the field of creativity studies. At the same time, we argue that the additional complexity that comes with the Four C Model is necessary for continued maturation of the field of creativity studies. (Kaufman & Beghetto, 2009, p. 8)

The Amusement Park Theory (APT) of creativity was developed by Baer and Kaufman (2005) to logically organize and combine the somewhat incompatible concepts of domain-general creativity and domain-specific creativity. Historically and traditionally, creativity was researched as a general cognitive ability (e.g., measuring divergent thinking as creativity), similar to general intelligence. Thanks to the APT of creativity, creativity was better understood in more specific skills. In Kaufman's book *Creativity 101*, he asks a humorous, thought-provoking question to help readers understand the perspective of domain-specific creativity: was Anton Chekhov, an eminent Russian playwright and story writer (Big-C), a creative physician?

Their model's structure can be similar to the hierarchical Cattell-Horn-Carroll (CHC) intelligence model since it incorporates general intelligence alongside a broad spectrum of cognitive abilities in a hierarchical manner. However, compared to the CHC model, the APT model seems easier to understand due to Baer and Kaufman's poetic sense to use the metaphor of an exciting amusement park. Suppose creativity can be viewed as (1) domain-general creativity (e.g., basic intelligence, motivation, and learning opportunities), (2) domain-specific creativity (e.g., undergraduate psychology major), and (3) micro domain-specific (e.g., graduate psychology major). In their amusement park metaphor, they are analogous to, respectively (1) a type of

park (e.g., zoo), (2) a specific park (e.g., San Diego Zoo), and (3) a specific attraction within a particular park (e.g., Animal encounters activity at San Diego Zoo). The following is their explanations for the APT's purposes and applications:

If the objective is to help nurture students' creativity in a wide variety of domains—that is, if the program is not specialized to one domain or one thematic area—then activities should draw on diverse domains in different thematic areas. The APT model can help program developers avoid the all-too-common mistake of focusing on one area to the exclusion of others. (p. 159)

The Propulsion Model of Creative Contributions originated from Sternberg (1999) who divided seven types of creative contributions across domains based on interactions between creative products or ideas and their fields. Sternberg, Kaufman, and Pretz expanded the original model to creative leadership (2004) and the arts and letters (2001). Numerous and colorful examples in those articles depict gradations of leaders, painters, and writers' creative work to help understand creativity in context. Later, Kaufman and Skidmore (2010) updated this model with more examples from the domains of media and technology.

Creativity Assessment: Between Specific and General for Fairness and Equity

Essentials of Creativity Assessment (Kaufman, Plucker, & Baer, 2008) is a monumental book to help creativity researchers understand historical and contemporary creativity assessments comprehensively. This book was translated into Korean as well (Kaufman, Plucker, & Baer, 2008/2011).

K-DOCS (Kaufman Domains of Creativity Scale) was created by James Kaufman (2012). This 50-item self-reported questionnaire covers five domains of creativity: Self/Everyday, Scholarly, Performance (including writing and music), Mechanical/Scientific, and Artistic. This measurement's reliability and validity were supported in the United States, some European countries (Mckay, Karwowski, & Kaufman, 2017; Kaufman, 2012; Mckay, Karwowski, & Kaufman, 2017; Şahin, 2016; Silvia, Wigert, Reiter-palmon, & Kaufman, 2012), and Asian countries (Susanto et al., 2018; Tan, Tan, Cheng, Hashim, & Ong, 2021). Regarding applications of this domain-specific measurement, a Czech Republic study (Dostál, Plháková, & Zášková, 2017) found that Self/Everyday creativity was significantly correlated with empathy and Mechanical/Scientific creativity was related to systemizing skills. Another study (Şahin, Özer, & Deniz, 2016) with identified gifted students in Turkey found a similar result that Self/Everyday creativity was linked with emotional intelligence. These findings support Kaufman's effort to illuminate hidden and unrecognized-yet-important small creativity at the community or society levels. Recently, K-DOCS was successfully normed in the United States (Kapoor, Reither-Palmon, & Kaufman, 2021).

CAT (Consensual Assessment Technique) is an evaluation method in which experts judge creative work, reflecting particularly on the context of the creative products (Amabile, 1983). After Kaufman's own research on the

CAT, the technique would become one of his preferred creativity measurements due to its relatively accurate, domain-specific, contextual, and fair qualities. He empirically tested this technique in many different populations and for various purposes: to determine the reliability of the CAT (Kaufman, Lee, Baer, & Lee, 2007), to investigate undergraduate students' potential bias on creative writings (Kaufman et al., 2010), to discover commonalities/differences between expert and non-expert raters (Kaufman, Baer, Cole, & Sexton, 2008), to examine the accuracy of gifted students' ratings on others' writings (Kaufman, Gentile, & Baer, 2005), and to explore gender and ethnic differences on different types of writing (Kaufman, Baer, & Gentile, 2004). We can take a glimpse of Kaufman's weighted value on fairness over efficiency since he tried to figure out how to compensate for the weaknesses of the CAT (e.g., inefficiency), suggesting that quasi-experts (e.g., MFA candidate in Art, experienced writing teachers, and Rotten Tomatoes reviewers for movies) may be one solution (see Kaufman & Baer, 2012).

Creativity in Education: Between Cognition and Social Interaction for Growth

Creative Metacognition was created by Kaufman and Beghetto (2013). Creative metacognition has two broad components: (1) self-knowledge about one's own creative strengths and weaknesses and (2) contextual knowledge about appropriateness depending on a specific situation. In other words, these creative skills are similar to a wise decision based on the evaluation of one's own creativity and the specific situation. This useful construct has three major benefits. Firstly, teachers and educators may be able to realize their potential implicit biases toward their students' creative expressions in class. Secondly, we can understand why certain creative expressions in school settings can be discouraged and even smothered unwittingly. Finally, students can develop their creative metacognition to fulfill their creative potential.

Kaufman and Beghetto explained this complex concept with the metaphors of Superman and Clark Kent. They argue that students can learn to utilize their creative metacognition to judge when (and where) to fly and when not to fly (e.g., making judgments on the optimal time and place to exert certain levels of creativity).

This construct was tested with certain groups of people's performance related to domain-specific creativity tasks (Kaufman, Beghetto, & Watson, 2016), intelligence (Karwowski, Czerwonka, & Kaufman, 2020), self-efficacy (Anderson & Haney, 2020), self-concept (Beghetto & Karwowski, 2017), emotions (Puente-Diaz & Cavazos-Arroyo, 2020), and so forth.

Between the Dark Side and the Positive Power of Creativity

The Sylvia Plath Effect describes the historical phenomenon that eminent female poets were significantly more likely to present symptoms of mental disorders, compared to other types of eminent writers and individuals in other careers (Kaufman, 2001). His findings in this area have gained much attention in the media, such as *The New York Times* and CNN (Kaufman, 2017a). Indeed, the link between general creativity (including scientific domains) and mental illness has been a hot topic for a century without the emergence of any

clear conclusions (DeYoung, Grazioplene, & Peterson, 2012; Greenwood, 2020; Webb et al., 2005; Witty & Lehman, 1930).

This association has not been clear because, in part, the levels of creativity (e.g., genius vs. successful professionals) and domains of creativity (e.g., art vs. science) were all mixed up in literature; for example, Terman's (1922) high-IQ children and Simonton's (1994) full-blown eminent geniuses are too different to compare. Regarding domains, Feist (1998) found that artistically creative and scientifically creative professionals may have different profiles of personality. Unfortunately, however, the Sylvia Plath effect was used to strengthen a negative stereotype about creative female poets. Kaufman expressed his regret and responsibility for the stereotype (2017a). This creativity myth (e.g., the image of the crazy female poet) could have motivated him to try to push the future directions of the field of creativity research toward more healthy and balanced positive outcomes. The following is from his book, *Creativity 101* (2009):

Does creativity have a dark side? Sure. Everything has a dark side. . . . there have been a tremendous amount of resources spent detailing those eminent geniuses who have also been mad. But I am not convinced by the highly inconsistent research literature that a strong and steady connection exists between creativity and mental illness. . . . It is important to re-emphasize that even if all of the "mad genius" literature is true (and I would hope that most readers will not assume this point), it is a further leap to think that the average person who is creative is more likely to be mentally ill. . . . Whether or not creative genius is connected to illness will likely have no impact on most people's lives. (pp. 138-139)

Indeed, Kaufman's (2014) edited book, *Creativity and Mental Illness* debunked many myths about the negative stereotypes of creative people and explained the possible origins empirically and historically.

Empowering Everyday Creativity for Social Justice is one of Kaufman's most meaningful contributions in the creativity field. In the special issue to celebrate the 50th anniversary of *The Journal of Creative Behavior*, Kaufman (2017b) wrote an article entitled "Looking forward: The potential of creativity for social justice and equity (and other exciting outcomes)." In the article, he highlighted the positive outcomes of creativity. Particularly meaningful to Kaufman, people can use their creative potential to overcome their life struggles, perform better, and achieve personal growth. For example, Kaufman (2018b) looked at meaning-making in life as an active creative process. Although the process may not be clearly observable, it can be important to one's psychological health and well-being. He also noted that not only top-down, genius creativity but also bottom-up, everyday creativity can transform society.

Meaningful at a societal level, he argued that creativity may reduce inequity issues related to gender and ethnic biases. Going beyond the dark side of creativity, Kaufman's (2018a; 2018b; 2018c) series of articles focus on the benefits of creativity by introducing empirical studies to support the connection between creativity and positive outcomes.

Other Contributions to the Field

Perhaps one of the reasons James Kaufman has been so successful in the field of creativity is because he knows how to get the word out about the research he does. Whether it is through written work, leadership positions, invited addresses, or media, he is able to convey the message to a wide audience. According to Google Scholar (n.d.), Kaufman was cited 2996 times in 2020 alone; he has received more than 2000 citations a year since 2015. The following sections will dive deeper into these contributions.

Written Work

Kaufman is a prolific writer, as evidenced by the over 200 articles, 33 encyclopedia entries, 19 chapters, 15 reviews, and 14 books he has written/co-authored (not including those currently in press). However, he is also a successful editor having edited/co-edited 32 books, including two series: the *Psych 101* series and the *Exploration in Creativity Research* series. His wife Allison Kaufman (personal communication, May 19, 2021) shared her perspective on why he is such a good editor:

James is a total introvert, but I think he's really talented at understanding people. He loves to mentor people because he sort of sees how they work and how to help them work their best - what motivates them and interests them or inspires them. How to fit the person to the project. It works that way with his projects too - the reason he edits so many books is that he loves putting them together - fitting the authors and topics together into the book so they create a story or demonstrate an idea. He sees how people and their ideas work in ways other people don't.

Kaufman indicated that one of the valuable lessons from Robert Sternberg was editing books. Working with Sternberg made him ready to become an expert editor. "You learn how to do it, you pick up the tips, you have a vision for it, and you reach out. It's fun" (J. C. Kaufman, personal communication, May 14, 2021). During the interview, Kaufman was asked whether he likes writing books more or editing them. He stated:

They are just different beasts. Editing a book, the fun part is planning it. The actual editing is good, you can read some good stuff, but that can be a little more, 'more'. Writing, particularly like [*Creativity*] 101, was me writing it in my voice, I mean, on one hand, I love it. On the other hand, it's all-consuming. I am very much not a perfectionist, except for a very few couple of projects, and [*Creativity*] 101 is one of them. . . . Writing is a very personal act. It is something that you do on your own. Even in the books I have co-authored, it's me doing my stuff, and them doing theirs, and then we meet. Where editing by its nature is collaborative.

Leadership Positions

Kaufman has founded and co-founded, respectively, two peer-reviewed scholarly journals, *Psychology of Popular Media Culture* in 2011 and *Psychology of Aesthetics, Creativity, and the Arts* in 2008. He has also served as

the editor of the *International Journal of Creativity and Problem Solving* from 2008 to 2019. Additionally, he has been an associate editor on four additional journals and served on 20 editorial/advisory boards for peer-reviewed journals. Kaufman commented that what he likes about editing journals is his ability to shape them and through that the field itself. “Being able to find interesting papers and help expand and diversify the field. It also keeps you on top of the latest literature” (J. C. Kaufman, personal communication, May 14, 2021). He has also contributed to the field by being an ad-hoc reviewer for over 50 journals. Additionally, he has reviewed conferences, manuscripts, grants, and workshops.

In terms of professional services, Kaufman has sat on and or chaired committees for various divisions of professional organizations ranging from the American Educational Research Association’s (AERA), *Division D: Measurement & Research Methodologies*; to American Psychological Association’s (APA) *Divisions 10: Psychology of Aesthetics, Creativity, and the Arts*, as well as *Division 46: Media Psychology and Technology*; and National Association of Gifted Children (NAGC) *Creativity Division*. Most notably, he served as President of APA’s *Divisions 10: Psychology of Aesthetics, Creativity, and the Arts* From 2012 to 2014.

Invited Addresses

Another way Kaufman continues to shape the field of creativity research is through invited addresses at conferences, schools, and universities. In addition to the different academic and research conferences, he has spoken at the 92nd Street Y, Boys and Girls Club of America National Conference, the P21 Summit, and even Comic-Con International in San Diego. Additionally, he has traveled the world going to over 12 different countries, including Brazil, Chile, France, Germany, Qatar, South Korea, Spain, Sweden, Taiwan, and Turkey. For someone who has said that he does not love to travel, he has been able to spread the word about creativity research worldwide. His international efforts to connect creativity researchers led him to steer some conferences: The Marconi Institute of Creativity (Italy) and the International Conference on Knowledge, Innovation, and Enterprise (Czech Republic). Additionally, he is a board member of the Webster Center for Creativity and Innovation (Switzerland) and the Institute for Creativity and Innovation, University of Applied Management (Germany).

Media

Kaufman has appeared on shows, documentaries, newscasts, videos, and has been quoted by magazines and news outlets. Most recently he narrated the documentary *Independents: A Guide for the Creative Spirit*. Additionally, he was an on-camera creativity expert for Season 1 Episode 2 of *Redesign My Brain*. He appeared on CNN as a creativity expert and tested Dr. Sanjay Gupta on camera. He co-wrote, co-produced, and appeared in *Creativity in the Classroom*, a documentary produced by the American Psychological Association, and has appeared in multiple *Brainwaves* videos. Off-camera he has been a guest on *National Public Radio* four times and on multiple podcasts including *This Past Weekend*, *The Psychology Podcast*, *Creativity in Crisis*, *Psych Crunch*, *Table to Stage*, *Tent Talks*, and *The Falconer*. Kaufman has

had multiple in-depth interviews and profiles written on him appear in the *Roeper Review*, *Tech Trends*, *APA Monitor*, and *Scientific American* just to name a few. Additionally, he has been quoted or had his research appear in *The New York Times*, *Newsweek*, *Los Angeles Times*, *O!*, *Wall Street Journal*, and many more.

His Path to Creative Works

We have discussed James Kaufman's academic and research accomplishments at length. However, Kaufman is not just a creativity researcher, but he is also a producer of creative works. As mentioned above, he started college as a creative writing major. Kaufman (personal communication, May 14, 2021) expressed his passion as a young man for writing by saying, "I was always interested in writing: anything, stories, some poetry, essays. I got really into journalism in school and fell in love with theater."

To begin, Kaufman has been writing from a very young age. By the age of seven or eight, he was already writing copiously. When he was in fourth grade, he had a yellow binder full of stories and plays. His mother Nadeen Kaufman (personal communication, May 24, 2021) shared a story of the young writer:

When James was about seven years old, he read Anne Frank's diary and became a bit obsessed with her. He decided to write his own novel about her. . . . He wrote over seventy pages on lined paper with a pencil. He wrote many short stories throughout the years, but in Middle School, he began asking me for constructive feedback. For a few years, I read everything he wrote (which included poetry) and corrected spelling and grammar. Sometimes I was amazed at how fully developed a character would be; his observations of people, their problems and desires, were astute. In retrospect I know that I was hard on him, expecting adult products. I'm sorry about that. He wasn't as interested in spelling and grammar as I was; he wanted feedback on the story itself. And there I was, red marker in hand. Luckily, his creative drive was (and still is) powerful.

However, sometime around his junior year, Kaufman (personal communication, May 14, 2021) realized that he was "good at creative writing but wasn't good enough." When he thought of writers, two categories emerged: the great writers and the not-so-great writers; he realized that he was not quite on the promising trajectory. He indicated that, in some ways, this was the genesis of the Pro-c in the Four C model. After his realization, he wrote to two of his favorite writers for advice. They both essentially said the same thing: "If you want to be a writer then write. But right now, you are not in a good mindset" (J. C. Kaufman, personal communication, May 14, 2021). He decided that he did not want to write fiction, but maybe he could write plays instead.

Nadeen Kaufman (personal communication, May 24, 2021) states that during this time, James Kaufman wrote the story and lyrics to the musical, *Discovering Magenta* which would later be performed off-Broadway. While at the University of Southern California, she was incredibly excited to be in the audience for a reading of the play, including the song lyrics, by an

array of undergraduates. Like a supportive mentor, John Horn was in the audience as well. Kaufman loved writing and though he felt that he was not great, he was still good, so he applied to various Master of Fine Art programs in creative writing. One sent back a little note that in essence said, “If you can do anything else, do that other thing” (J. C. Kaufman, personal communication, May 14, 2021). So, he pursued psychology instead.

As mentioned in the previous sections, the first few years of graduate school were tough for Kaufman. He hated what he was doing, and he felt that he was not good at it. He was still writing plays, and some were being put on all over the world: the U.S., Canada, Australia, and the U.K. This was early in the internet era, and he was one of the first to start posting his content online. About 50-60 productions overall were performed by high schools, colleges, local theater groups, and theater festivals; he directed at least eight productions himself. The plays varied from 10–15 minute plays, to one-act plays, even a couple of full-length plays. Two were performed off-Broadway, *Discovering Magenta* and *My Very Elegant Mother*, the latter of which was also turned into an audiobook.

Soon after he discovered his niche in creativity research, he slowed his pace on his creative works, but he did not stop. He and his friend Michael Bitterman continued to submit the musical *Discovering Magenta* that they had continued to refine in graduate school. Finally, it was accepted in 2015 as part of a theater festival. Once it was accepted, they had to rewrite most of it, revising the plot and including new songs. Kaufman indicated that the re-working of the play was the first creative writing that he had done in over a decade. They co-produced the play, recruited a director, and hired actors. Kaufman (personal communication, May 14, 2021) shared:

Often when something special happens to you, you are not aware of it until later. But this was one of those. . . . I knew it was special and . . . You know it was a limited run, about three performances, but I enjoyed every second of it.

Although the musical is over, Kaufman finds ways to stay in touch with the world of theater. He is currently working on writing a book with Dana Row, one of his favorite musical theater composers. They are now working on a book about creativity for people in the world of theater. To Kaufman, this is some of the most fun that he has had on a writing project, and he loves to be able to talk theater with one of his favorite composers.

Another line of interest in writing for Kaufman is journalism. Not only did he work on his middle and high school newspapers, but he also worked as a stringer, writing freelance articles for two local newspapers covering sports. For the weekly newspaper, he would write articles about local teams and events. For the larger daily paper, he tended more often to confirm scores and obtain quotes for things that they had on the byline. As a high school journalist, he interviewed several well-known actors, cartoonists, and authors by mail. Although a part of him loved it, he realized that it was not the lifestyle that he wanted to live. Indeed, the best stories tended to be the upsetting ones. However, many of the things that appealed to him about journalism are things that he can still do as a psychologist: editing books and journals, getting quotes, and doing research.

James the Person

This section reflects the person behind the researcher, as such, we will do away with formalities and address James Kaufman by his first name. We will discuss what some of his friends and collaborators have to say about him along with some of his former students. Although this is by no means an exhaustive list (and we apologize to those whom we could not reach out), it provides an overview of who James is as a person.

Friend and Collaborator

Some of James's friends and well-known collaborators were asked for quotes or short stories to include in this chapter. To avoid reducing any of the thoughtful submissions, full quotes from his friends and collaborators will be included at the end of this chapter and the content will be summarized in this section.

As mentioned above, James has published a large amount of work on creativity across domains and has done research, published articles, and written books on many different topics, such as learning, engineering, sports, love, and neuroscience. John Baer (personal communication, May 20, 2021) states, "I can think of no one in the creativity research field who has worked in so many different areas." His ability to be flexible and find ways to include creativity in almost any topic may be one of the things that makes James so great as a creativity researcher and advisor. James (personal communication, May 14, 2021) states, "Most of these types of crossovers, if not all, it's someone who I think is cool and interesting and I think 'Oh I want to work with them.'"

James also connects other researchers with each other. Zorana Ivcevic Pringle (personal communication, May 20, 2021) shares:

When Alex McKay did a social network analysis of creativity researchers, there was a central node in the network. All the researchers in the room immediately looked at James. It was clearly him. James is a connector in the world of creativity research.

David Cropley (personal communication, May 25, 2021) agrees, "He has created around himself a network of colleagues, spread around the world, that he connects together. James is able to join the right people together, for the right projects."

James has also been able to bring new researchers into the field of creativity, whether they are early career researchers or were researchers from a different field. Zorana Ivcevic Pringle continues:

My graduate advisor was not a creativity researcher and James became a mentor who invited me to take part in an APA symposium he was organizing. . . . My career would not be the same without James. He opened the door to the field of creativity scholarship for me.

David Cropley also notes:

I first got to know James Kaufman when I received an email from him, . . . inviting me to submit a chapter for a book he was editing (Creativity Across Domains). . . . I was relatively new to the field of creativity research and replied to him asking if he had mistaken me

for the “other” Cropley (my father, Arthur Cropley, who really is a creativity researcher). However, James assured me that he meant me. His interest had been piqued by what was probably my only publication on creativity at that stage: a study of creativity in engineering students (I teach engineering). . . . My own career as a creativity researcher comes down to the influence, in equal measure, of my father, Arthur, and James. Without the collaboration and the connections to other researchers that James has facilitated, it’s unlikely that I would still be working in this field.

James’s colleagues also note how he can work well with students. Although that will be discussed in more detail in the next section, here are a few things that his friends have observed. David Cropley (personal communication, May 25, 2021) writes:

Wherever he has worked I have seen students gravitate to James. At California State University, San Bernardino, James created a loyal, dedicated, and highly competent cohort of Honours and Masters students. Many of these came from non-traditional (in a university sense) backgrounds. . . . However, it is not surprising to me that out of this cohort there are now half a dozen, or possibly more, PhD-qualified scholars spread around the United States.

His friend Jonathan Pluckers (personal communication, May 21, 2021) shares:

[James] is the most student-centered professor I have ever met. . . . He goes out of his way to provide opportunities to students. . . . This is most impressive to me because he doesn’t think of it as “going out of his way,” but rather as standard operating procedure. . . . He encourages students to believe in themselves as much as he believes in them, and the results are often amazing.

In terms of his work itself, his collaborators indicate that “Working with him is so effortless, or at least it seems that way. He makes the work more fun, and his portion of the work is always so good that it takes little effort to get something great done!” (R. Reiter-Palmon, personal communication, May 24, 2021). Additionally, David Cropley (personal communication, May 25, 2021) shares:

James is a prolific generator of new knowledge in the field of creativity. I think this comes down to the fact that he is not only deeply knowledgeable about the field, but he is also an excellent writer, a fluent statistician, and perhaps above all, a skilled integrator. . . . Of course, none of this would work as well as it does if James’s own research was not of the highest calibre.

Based on the quotes provided, it is difficult to separate the collaborator from the friend. Roni Reiter-Palmon also mentioned that “I consider James more than a colleague. He is a good friend and great collaborator.” John Baer (personal communication, May 20, 2021) shares:

The field would be so much less interesting were James not at the center of so much of it, both because of his brilliance and because he

is just such a great human being, someone everyone wants to hang out with and work with.

His kindness has been observed by many. Vlad Glăveanu (personal communication, May 18, 2021) states: “James is one of the main reasons why I tell all my academic friends that the creativity community is the nicest and most welcoming group I have ever been part of.” His honesty was also noted by David Cropley (personal communication, May 25, 2021):

Over the years I have also stayed with James, sometimes for several weeks, and he is an amusing, engaging, and loyal friend. He is also honest and forthright as a colleague: he’ll tell you if an idea is stupid or a waste of time, just as he will support good ideas. James is one of those people who is interesting to be around. In the end, the field of creativity research is immeasurably enhanced by having James Kaufman in it.

One of James’s oldest and closest friends in the field of creativity, Jonathan Plucker (personal communication, May 21, 2021) shared an essay about him. He starts with: “James and I met so long ago that I honestly don’t remember when or how. But we immediately struck up a friendship that has only become stronger over the past couple decades, and I am grateful for that.” He indicates that “You would be hard-pressed to find a warmer, more interesting person with whom to talk . . . he is endlessly curious about the interests of his friends. Having a boring chat with James is simply impossible! He is a fascinating, captivating thinker.” He shares that his loyalty is unconditional. “His colleagues and friends trust him implicitly – once James Kaufman is on your side, he stays there for life!” and “he is willing to help anyone at any time. If someone needs a professional favor, even a new acquaintance, James immediately steps up to provide assistance.”

Mentor

Some of James's friends and collaborators have mentioned James's ability to mentor students and how well he works with them. James was asked what he has learned in the process of mentoring students. He indicated that one of the biggest lessons to being a good mentor is being a human being. He first started mentoring students when he was at California State University, San Bernardino (CSUSB). These students were a different type of student than those he had taught at Yale when he was a graduate student. At Yale, the students were absolutely brilliant, however, he was not important to them; no one in the room needed him. All the students were going to be fine. However, many people attended CSUSB because they lived nearby. Many were working, returning students, first-generation college students, or had kids. “The same students who were working and raising kids or helping a parent or whatever, were the same ones who were apologizing for missing an assignment because they were in the ER or something” (J. C. Kaufman, personal communication, May 14, 2021). This shaped his philosophy greatly. He would rather trust a student than possibly make it worse for someone who was already having the worst moment of their life. That part has continued. No matter where you are,

all students face difficult personal and life challenges, and it is important to him to be sensitive to that.

For James, one of the things he likes the most about mentoring is finding the students who are the diamond in the rough, those who were incredibly smart, passionate, and dedicated, and who had not been given the same opportunities. One of his research topics is meaning. “What makes a life or a career so important? One pretty big one is feeling like you are helping people. That what you are doing matters” (J. C. Kaufman, personal communication, May 14, 2021). James has been privileged with great and brilliant parents, and great teachers and mentors. If he is in the position to help those who are interested in the thing he loves, creativity, he will. One of his current doctoral students, Sarah Luria (personal communication, May 28, 2021) summarized his mentorship succinctly, “James is a gifted advisor who always has his students' best interests in mind. He cares deeply for his students and nurtures their potential.” Below are words from some of his former students or “diamonds.”

I suppose James was the first "real" academic advisor I ever had. He was the guy who decided to give me, who was at the time when I started my Master's training a naive young man, a chance to get off the ground in terms of my scientific knowledge, which allowed me to become more prepared for what would become my scientific/academic career. I learned a lot from him. Furthermore, due to his autonomy-promoting 'hands-off' approach to advising, I was able to have the freedom to discover the area of study in which I pursued and achieved my doctoral degree: Cognitive-Motor Neuroscience. From that title it may sound like I've left creativity behind, but I still have a genuine interest in the field and may decide to pursue it once again in the future. In the meantime, I want to at least continue to share the knowledge James helped me acquire about creativity with the next generation of students. I just finished running a 'special topic' week in my introductory psychology class on the subject of creativity, which exposed students to James and some of the work he has done. Perhaps because of that, some of them will become inspired and look further into this fascinating area of study. (Kyle Jaquess, personal communication, May 6, 2021)

James was my advisor in the MA program and has continued to be my informal mentor ever since (for the past 12 years or so). He has been my greatest source of support in my academic career and has had a profoundly positive influence on my life in general. When I met James, I was a first-generation college student with an art degree and debilitating social anxiety trying to get an MA in psychology. I think it's unlikely that I would have gotten my Ph.D. without his support and guidance. Coming from a background where the vast majority of people you know never graduated from college, let alone with an advanced degree, can make the labyrinth of academia seem impossible to navigate at times. In addition to teaching me about research, James taught me about surviving in academia. He provided a lot of guidance about what would help me advance at different

stages of my career and lots of opportunities for professional development (beginning with things like co-reviewing journal articles or guest lecturing in his classes). He also made a point to introduce his students to a lot of important researchers in the field. He is still the first (and frequently only) person I go to for advice about my career. He is one of very few researchers I've worked with who actually gets excited about research ideas. Talking about creativity research with him is always enjoyable and I always walk away feeling inspired and motivated. (Christa Taylor, personal communication, May 10, 2021)

When I think of an adviser who truly cares for their students, who types/writes faster than a cheetah, and is dedicated to science, I think of Dr. James Kaufman. I want others to know that he is not only a leader in the field of creativity but also among his former students and trainees. He provided guidance, resources, and training to me in the areas of psychology research and outreach. One of my biggest regrets is never taking one of Dr. Kaufman's classes, especially his class on film at California State University, San Bernardino. Many of the students I knew had him as a professor, and they would tell me how his class fueled them to think and engage in psychology. Dr. Kaufman is a leader who has not only contributed to creativity research and literature but also to the many students who fondly just call him James. (Joseph J. Armendarez, personal communication, May 18, 2021)

James has provided a great source of mentoring to me when I was an undergraduate and a grad student. His ability to share and describe creative theory makes it easily understandable. Also, his ability to share personal experiences made it seem like I could be a person that could earn a Ph.D. and that it was not merely reserved for grizzled wizards or research. He had a very caring personality and was interested in fostering student's research goals. Additionally, his network of other creativity researchers was vast and was great at connecting students to work with others and collaborate on projects. He always lets people know about projects that would be beneficial for their academic development. It was a great experience to be mentored by him. (Ryan Holt, personal communication, May 19, 2021)

There is so much to say about Dr. Kaufman, but I will share a brief story. Prior to going to college, I had some negative experiences in education, even hearing my own high school counselor that I was not "college material". Although I did eventually go to college, I was not very sure of my abilities. Shortly after I met Dr. Kaufman, my outlook towards education began changing. Dr. Kaufman was a great mentor in the whole sense of the word, he not only saw me as a student, but also a person. I still remember the day I was in his office, and he told me that he saw my academic potential. Those sim-

ple words made such a difference in how I saw myself. A year after meeting him, I was leading my one research project, involved in research preparation programs such as McNair and thinking that maybe a Ph.D. was very much a possibility. In many ways, it was his mentorship that not only allowed me to believe in me, but he also inspired me to want to one day do the same for other students. I don't think I would be a university professor today if it wasn't for the genuine support Dr. Kaufman gave me. Thank you, Dr. Kaufman, for believing in me and allowing me to now do the same for other students. (Tatiana Pumacchua, personal communication, May 28, 2021)

As the second author of this chapter, what can I say that has not already been said? I remember meeting Dr. Kaufman in a class in which he guest lectured. I knew that I needed to find an advisor; I thought creativity was cool, and he seemed very approachable. After the class, I went up to talk to him. I cannot remember what I said, but we walked back to his office, and I left with a literature review to work on. We continued meeting; he advised me on my classes, and I took his class on creativity and intelligence. Two of the readings were his *Creativity 101* book and his father's Alan Kaufman's *IQ Testing 101*. I was so nervous when I went into his office one day to tell him that I was more interested in his father's work than his. He laughed, and the next time his parents were in town, he introduced me to Drs. Alan and Nadeen Kaufman, who have also become great mentors to me. Although James was my undergraduate advisor, he continues to be my mentor, even now that I have completed my Ph.D. He takes a personal interest in his students, invites them into his home, and essentially makes them a part of the family. He will fight for his students when they have been wronged and will write a letter of recommendation at the drop of a hat despite having so much to do. Like many others, I truly do not feel I would be here today without his influence and support.

The Roads Continues

As can be seen, Kaufman has already contributed so much to the field of creativity. Only time will tell what creative projects and research ideas he comes up with next. Although this chapter may have been somewhat unconventional in the amount of personal information provided, the authors felt that to understand James Kaufman's success in the field of creativity, the readers had to understand James himself, who he is, and where his passions came from. His love of writing has helped him produce countless publications. His love of creative writing and theater fueled his interest in the field of creativity. His ability to organize thoughts, and his ability to connect people together, has resulted in many collaborations and edited books. His caring nature and mentorship qualities have benefited not only his students and early career creativity researchers but also the field itself by helping it grow and diversify.

In conclusion, James Kaufman has helped many in the world to appreciate that creativity is everywhere and in every moment. It is impossible

to capture all of his creative work and contributions in the field of creativity. Similarly, we could not seize all the creative moments that people have had with James Kaufman. As Kaufman's graduate advisor Robert Sternberg (personal communication, May 18, 2021) so eloquently states, "He combines being the top scholar in the field of creativity today with being one of the nicest and kindest human beings I have ever met. Hard to top that!"

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Appendix

Full Notes from Friends/Collaborators and Family

Vlad Glăveanu, Ph.D. Associate Professor and Head of the Department of Psychology and Professional Counseling at Webster University Geneva

James is one of the main reasons why I tell all my academic friends that the creativity community is the nicest and most welcoming group I have ever been part of. I still remember meeting him, for the first time, at the APA congress in Washington, in 2014. We had some brief email exchanges before and, to be frank, I was rather intimidated by the idea of meeting 'the' James Kaufman, the person who had his name on the cover of every other book about creativity I had ever read. And there he was, surrounded by people, smiling, laughing, inviting me to join and wanting to talk privately, later on, if I had a moment. I was over the moon and, when we did talk, we immediately decided to collaborate on theory and many other projects, including to write a paper about the 4 C and 5 A models coming together (side note, that paper was published many, many years later, but we kept being busy with other exciting pieces of writing in the meantime). And we kept meeting. Pre-pandemic I visited James's house and family once, he came two times to Switzerland to speak at the Creativity Week. And, as you can imagine, these were great opportunities to eat chocolate, enjoy some good cheese, and develop more theory. And to drink milk! In fact, one of my fondest memories from my visit to Connecticut - beside drawing on and signing James's wall of 'key creativity visitors' to his house - was our trip to the nearest milk bar. While the correlation between writing efficiency and drinking lots of flavoured milk has not been tested yet, James and I could easily have provided some good pilot data. We sat there for hours, writing different pieces of text, exchanging it, re-reading, editing, and drinking milk. And I've been looking for opportunities to relive this experience ever since! (personal communication, May 18, 2021)

John Baer, Ph.D. Professor at Rider University

I have never met anyone with so many original ideas, and so much energy to pursue new ideas, whatever their origin, as James. I can think of no one in the creativity research field who has worked in so many different areas. Some of us in the field are sort of one-trick ponies—that's probably a fair description of my work—but James is just the opposite, a whole corral full of different and exciting ideas. The field would be so much less interesting were James not at the center of so much of it, both because of his brilliance and because he is just such a great human being, someone everyone wants to hang out with and work with. (personal communication, May 20, 2021)

Zorana Ivcevic Pringle, Ph.D. Senior Research Scientist at Yale School of Medicine

I submitted a study from my dissertation to a mainstream journal and got desk rejected. Off I was, sending the paper to a different journal, feeling rather insecure. What I can tell with distance, but was not aware of then, is that the

paper used person-centered analyses at a time when this was not common and mainstream personality journals were not very interested in creativity.

James was a blind reviewer for the article, but signed it and asked me to get in touch. I was thrilled about the positive review, but even more than that, looking forward to meeting James. My graduate advisor was not a creativity researcher and James became a mentor who invited me to take part in an APA symposium he was organizing and all those conference informal events where you meet people in the field.

Since, we became friends and collaborators. He invited me to contribute to edited volumes and we worked on research studies. When I was organizing a conference, I called him to join the fun of bringing a terrific group together to Spain.

My career would not be the same without James. He opened the door to the field of creativity scholarship for me. In the two decades since we first met, I have seen him pull in many graduate students and early career scholars.

When Alex McKay did a social network analysis of creativity researchers, there was a central node in the network. All the researchers in the room immediately looked at James. It was clearly him. James is a connector in the world of creativity research. Objectively. And I can attest to it personally. (personal communication, May 20, 2021)

Jonathan Plucker, Ph.D. Julian C. Stanley Professor of Talent Development at John Hopkins School of Education

James and I met so long ago that I honestly don't remember when or how. But we immediately struck up a friendship that has only become stronger over the past couple decades, and I am grateful for that. James's productivity and the tremendous impact of his work are discussed elsewhere in this chapter, so I will focus on some of the personal characteristics that make him both an extraordinary scholar and wonderful person.

First, and much like myself, James is a bit of an introvert. But once he becomes comfortable with you, you would be hard-pressed to find a warmer, more interesting person with whom to talk. His interests are broad and deep, so a conversation may jump from psychology to baseball statistics to family to graphic novels to a cool research project to musical theater and back again. And perhaps more to the point, he is endlessly curious about the interests of his friends. Having a boring chat with James is simply impossible! He is a fascinating, captivating thinker.

Second, James's loyalty to friends and colleagues is legendary. In any professional setting, one usually has to watch their back, and higher education is no different. It's not common, but having someone you trust steal an idea, request help then never reciprocate it, etc., is not rare. You never have to worry about that with James. His colleagues and friends trust him implicitly – once James Kaufman is on your side, he stays there for life! I often advise my doctoral students and early career colleagues to find two types of friends: One who tells you the hard truth even when you don't want to hear it, and one who tells you that you are a good, valuable person regardless of how badly you screwed up. James is the unique friend to whom I can turn for both types

of support: When the sky darkens, he is the first one on the scene to lend support (and tell you it isn't your fault!), and when the clouds part, he is the first person to offer suggestions for how [to] solve the problem differently in the future (because it probably was your fault!).

Third, James's compassion and warmth are also obvious when he works with students. He is the most student-centered professor I have ever met. This was apparent when he taught at California State University, and I saw it firsthand when we worked together at the University of Connecticut. He goes out of his way to provide opportunities to students, frequently providing both undergraduates and graduate students with research and writing opportunities. This is most impressive to me because he doesn't think of it as "going out of his way," but rather as standard operating procedure. In addition, he is not judgmental when working with students – if they are dealing with difficult personal problems, professors often avoid them; James does the exact opposite, offering assistance and helping the students work through their struggles. He encourages students to believe in themselves as much as he believes in them, and the results are often amazing.

Finally, he is willing to help anyone at any time. If someone needs a professional favor, even a new acquaintance, James immediately steps up to provide assistance. He readily uses his vast, international network of researchers and friends to help people make connections, and as noted above, he is quick to offer a shoulder to cry on when personal issues go awry. I have personally experienced his generosity of spirit more times than I can count, and I have observed him provide assistance to others on many, many occasions.

Saying "finally" in the previous paragraph is not a great word choice, because I could go on at length about James's other impressive qualities. But these are four aspects of his character that immediately come to mind when I think about why he is able to have such an impactful career: He is both intelligent and creative, his loyalty is unconditional, he is devoted to students, and he will offer you the shirt off his back. For these and a million other reasons, I am grateful for his friendship. (personal communication, May 21, 2021)

Roni Reiter-Palmon, Ph.D. Professor and Director, Industrial/Organizational Graduate Program at University of Nebraska Omaha

I consider James more than a colleague. He is a good friend and a great collaborator. Working with him is so effortless, or at least it seems that way. He makes the work more fun, and his portion of the work is always so good that it takes little effort to get something great done! (personal communication, May 24, 2021)

David Croypley, Ph.D. Professor of Engineering Innovation at University of South Australia

I first got to know James Kaufman when I received an email from him, probably in 2004, inviting me to submit a chapter for a book he was editing (*Creativity Across Domains*). At that stage, I was relatively new to the field of creativity research, and replied to him asking if he had mistaken me for the

“other” Cropley (my father, Arthur Cropley, who really is a creativity researcher). However, James assured me that he meant me. His interest had been piqued by what was probably my only publication on creativity at that stage: a study of creativity in engineering students (I teach engineering).

It wasn't until about 2 years later that I was passing through LA that I tried to meet up with James face to face for the first time. I had a free day before flying back to Australia, and thought I'd rent a car and drive out to see him in San Bernardino. It wasn't until I was at the desk of the car rental company at LAX that I discovered I had misplaced my driver's license. No license, no car. I ended up retiring to a hotel room, and rang James. We ended up talking for an hour, and I resolved to try and make sure that my next visit would be in person.

I did end up meeting James, in LA again, a couple of years later, but it was in 2010 that I managed to organize a visit of several days. By this stage, James and I knew each other quite well, and I had also become more deliberately focused on creativity research. In fact, in 2008, James and I, along with Arthur, had published what has become quite a seminal paper, kicking off a wave of interest in what we called “Malevolent” creativity. That then led to an edited book on *“The Dark Side of Creativity”*, and this was the first time that I began to really experience James's unique qualities in the field of creativity.

James is a prolific generator of new knowledge in the field of creativity. I think this comes down to the fact that he is not only deeply knowledgeable about the field, but he is also an excellent writer, a fluent statistician, and perhaps above all, a skilled integrator. I mean this in the sense that he has created around himself a network of colleagues, spread around the world, that he connects together. James is able to join the right people together, for the right project, always contributing and adding value himself, as well orchestrating and curating. The proof of his effectiveness as a key focus of creativity research can be seen in the number of people who intersect with him: as co-authors, co-editors, or contributors. Of course, none of this would work as well as it does if James's own research was not of the highest calibre.

We also see evidence of his effectiveness in the students that he has attracted into his network. Wherever he has worked I have seen students gravitate to James. At California State University, San Bernardino, James created a loyal, dedicated, and highly competent cohort of Honours and Masters students. Many of these came from non-traditional (in a university sense) backgrounds – perhaps the first in their family to attend university, or having come to university through different, non-traditional pathways. However, it is not surprising to me that out of this cohort there are now half a dozen, or possibly more, PhD-qualified scholars spread around the United States. James attracts strong candidates, regardless of where he is, and turns these strong candidates into successful scholars.

The same is true not just of graduate students but of other researchers. My own career as a creativity researcher comes down to the influence, in equal measure, of my father, Arthur, and James. Without the collaboration and the connections to other researchers that James has facilitated, it's unlikely that I would still be working in this field. Over the years I have also stayed

with James, sometimes for several weeks, and he is an amusing, engaging and loyal friend. He is also honest and forthright as a colleague: he'll tell you if an idea is stupid or a waste of time, just as he will support good ideas. James is one of those people who is interesting to be around. In the end, the field of creativity research is immeasurably enhanced by having James Kaufman in it. (personal communication, May 25, 2021)

Allison Kaufman, Ph.D. Wife

James is a total introvert, but I think he's really talented at understanding people. He loves to mentor people because he sort of sees how they work and how to help them work their best - what motivates them and interests them or inspires them. How to fit the person to the project. It works that way with his projects too - the reason he edits so many books is that he loves putting them together - fitting the authors and topics together into the book so they create a story or demonstrate an idea. He sees how people and their ideas work in ways other people don't. (personal communication, May 22, 2021)

Nadeen Kaufman, Ph.D. Mother

When James was about seven years old he read Anne Frank's diary and became a bit obsessed with her. He decided to write his own novel about her... He wrote over seventy pages on lined paper with a pencil.

He wrote many short stories throughout the years, but in Middle School he began asking me for constructive feedback. For a few years I read everything he wrote (which included poetry) and corrected spelling and grammar. Sometimes I was amazed at how fully developed a character would be; his observations of people, their problems and desires, were astute.

In retrospect, I know that I was hard on him, expecting adult products. I'm sorry about that. He wasn't as interested in spelling and grammar as I was; he wanted feedback on the story itself. And there I was, red marker in hand.

Luckily, his creative drive was (and still is) powerful. In college he began focusing on playwriting and wrote the story and lyrics to the musical "Discovering Magenta" (which would later be performed off Broadway). But at the University of Southern California, it was incredibly exciting to be in the audience for a reading of the play, including the song lyrics, by an array of undergraduates. Memorably, Dr. John Horn was in the audience. (James "skipped his senior year of high school and went directly to USC at age sixteen).

At Yale for graduate work he continued playwriting and one of his professors played acting roles. That professor is now President of Yale University. This creativity continued steadily, leading to many professional productions. It's no wonder that he has written so many professional books and chapters. (personal communication, May 24, 2021)

Alan Kaufman, Ph.D. Father

I learned firsthand what it means to be the parent of a truly gifted and creative child. And Jamie was that, from a very early age. (James has always been Jamie to me, still is.) Nadeen and I often took him with us to conventions,

and always had to carry at least one large suitcase full of books for him, or else it would be a long 3-4 days for all 3 of us. As a 12 or 13 year-old, Jamie and I began to be a research team studying Major League Baseball. First we wrote research articles and started getting articles accepted by Baseball Digest, Baseball Research Journal (yes, there really is a BRJ!), and a half dozen other magazines. We even published one in Playboy—not an easy feat—and Jamie had to sneak that issue into school to show his friends. We actually published a few articles in psychology journals, using multiple regression to predict award winners or Hall of Fame candidates (I taught Jamie lots of statistical procedures using baseball stats). We presented papers at local and national Society of American Baseball Research (SABR) conferences. But mostly we collaborated on a book called *The Worst Baseball Pitchers of All Time*, first a 1993 edition published by McFarland, then a 1995 Revised Reprint for Citadel Press. Jamie was able to find the addresses of about 80 pitchers who qualified for our book (guys like “perfect game” Don Larsen who once had a season where he won 3 games and lost 21). Jamie insisted we write to them and ask them to fill out a questionnaire. He also wanted to ask for their phone numbers and have telephone interviews. I said that it was a fool’s errand, that no one would do that. But he convinced me; I agreed as long as we were upfront about what our book was about, “We are writing a book about pitchers who had terrible seasons, like you did in 1938 and 1941.” He agreed to my ground rules. And he was right! We got many completed questionnaires with great quotes. More than a dozen agreed to phone interviews. I called, got rapport, and teenage Jamie conducted hour-long interviews, one with 95 year old Milt Gaston, who was Babe Ruth’s teammate; one was 86 year old Si Johnson, who roomed with Dizzy Dean (“actually”, Si said, “it would be more accurate to say I roomed with Old Diz’s suitcase”). We had a great time first writing, then revising, the book. Jamie’s creativity was in full bloom. We awarded an annual Skunk Stearns Award to the worst pitcher of each season, starting in the 1870s (named after Bill Stearns, a truly awful old-time pitcher). Jamie coined the Asa Brainard Humpty Dumpty Award for pitchers who experienced fantastic success and then tumbled into oblivion. He named the award after the Cincinnati Red Stockings pitcher who led the first professional baseball team to an undefeated season in 1869, earning an audience with President Grant. The term “ace”—a team’s best pitcher—was named for old Asa. Then in 1874, in the first professional league, Brainard had a record of 5 wins and 22 losses for the Baltimore Canaries. And he deserted his infant son and wife (the woman who sewed the red stockings for the whole team), leaving them destitute. Humpty Dumpty Award indeed. Nice memories of Jamie! (personal communication, May 25, 2021)

CHAPTER SIXTEEN

KYUNG HEE KIM: SEEING FURTHER BY STANDING ON THE SHOULDERS OF “GIANTS”, HER PARENTS, MENTORS, AND FRIENDS

SUE HYEON PAEK, ROBERT PIERCE & EMILY ROMERO

Dr. Kyung Hee Kim is a creativity researcher who studies creativity-thinking assessment and how culture plays a role in creativity development. Her academic journey started 25 years ago and still continues. She has worked as a full professor in the Department of School Psychology and Counselor Education at the College of William and Mary since 2014 after she served as an assistant professor at the Eastern Michigan University for two years. She earned her Ph. D. in Educational Psychology with an emphasis on Gifted and Creative Education at the University of Georgia in 2004 after she received her Master’s degree in Counseling Psychology and Bachelor’s degrees in English/German Education back in South Korea.

Besides the fact that Kim is a well-recognized scholar in creativity and education with her numerous publications, when we are asked to think of her, the first thing coming up in our mind could be a woman in red. It is not hard to find a woman who is dressed up all in red from the head to toe at the annual conventions of the American Psychological Association. The red color that she chose for herself stands not only for her passion for her work and life but also indicates what she pursues in her research. On the last day of the 63rd annual convention of the National Association for Gifted Children that took part in Orlando, Florida 2016, Sue Hyeon asked her why she likes to wear all red. She answered.

“No one wears all in red. That’s odd. However, being odd is where different thoughts start to burgeon. Unless you push yourself hard to be and think differently, you easily get to think and live as you used to think and live. As I want to think differently, I wear all red.”

Being different or being tolerant for being different is the main theme running across her research in creativity and education. She adds precision to assessing creative thinking and using the assessment outcomes to foster creativity in people of any age. More importantly, she has made endeavors to disseminate and translate creativity research into plain language that anyone with no academic background can understand and apply to their everyday life, including teaching and parenting. The changes that she can see in the real world make her thrilled and inspire her to continue her work in a hope that people can free themselves to think as creatively as they can and live their life fully.

This chapter aims to introduce her intellectual contributions to creativity research and focuses on three directions of her research: creativity assessment, fostering creativity, and the roles and impacts of cultures in creativity development. The second half of the chapter covers how she has contributed to adding diversity to the work and perspectives that she has taken in creativity research through her presence as a female scholar of color.

Legacy Continues in Creativity Assessment

Kim's passion for creative assessment dates back to her graduate training at the University of Georgia in Athens, a vibrant college town with bright minds from all over the world. The University of Georgia is where Dr. E. Paul Torrance taught and studied assessing and cultivating creativity. After his death, his legacy has continued through the Torrance Center for Creativity and Talent Development, which is full of passionate scholars and students, including Dr. Bonnie Cramond, who mentored Kim on her dissertation as well as research on creativity assessment. They became life-long collaborators.

As Dr. Cramond has deeply engaged in research and trainings on the Torrance Test of Creative Thinking (TTCT), Kim too has studied the TTCT, including its theoretical underpinnings, psychometric promises and challenges, and educational applications. She has both researched about the TTCT as well as served as a trainer. Not surprisingly, one of her main research topics is creativity assessment. While she studied and worked at the Torrance Center, Kim incubated many research ideas that later bore fruit in a series of publications based on empirical evidence and up-to-date methodologies on the TTCT.

The TTCT properly gets the credits for providing a framework and a measurement of creativity. Otherwise, the idea could have remained merely conceptual (Kim, 2006). However, research methodologies were less developed when Dr. Torrance originally began assessing creativity with the TTCT in 1960s and 1970s. The lack of advanced psychometrics hindered the progress in providing rigorous empirical evidence on the TTCT.

In Kim's early work (Kim 2006c), she investigated the latent structure of the TTCT-Figural and found that the TTCT-Figural consisted of two constructs, Innovative Creativity and Adaptive Creativity, not the six independent factors originally suggested by Torrance: fluency, originality, elaboration, abstractness of titles, resistance to premature closure, and creative strength checklist. She also found that TTCT results are not substantially different by gender, though they are by age. The confirmatory factor analysis and a measurement invariance test being used in this study showed the rigor of her work, which a highly reputed journal in a measurement field approved. Thus, she continues the legacy of Dr. Torrance on creativity assessment by strengthening it according to current standards of academic rigor.

Kim has been prolific in communicating about the promises, challenges, and various implications of the TTCT in educational placement and interventions. The TTCT receives some criticism for being outdated or irrelevant for the 21st century because it was developed and validated in early 1960s (Baer, 2011a, 2011b). She continued compiling the empirical evidence on the TTCT using contemporary psychometrics (Kim, 2006b, 2006c). In

addition, she provided a comprehensive overview of the history, purpose, norms, validity, reliability, and merits of the TTCT and has suggested future possibilities for it (Kim, 2006a, 2008a, 2010, 2011a, and 2011b). She had an interesting debate with Dr. John Baer in the special section of the APA 2009 Division 10 debate. That debate was published in volume 5 of the *Psychology of Aesthetics, Creativity, and the Arts* journal in 2011.

Though uncovering many aspects of creativity assessment, Kim also stunned the academic world when she revealed, based upon the TTCT data archive, that creative thinking in the U.S. is declining (Kim, 2011c). She later included these results in her book (Kim, 2016), *The creativity challenge: How we can recapture American innovation*. Her work, “The Creativity Crisis” revealed a decline in creativity across generations using data from the TTCT. Her work has gained considerable media attention. Her findings ignited national and international discussions of how to nurture creativity in children at various venues. The global response suggests that her work speaks to serious academics and those with a more practical focus, K-12 educators and parents.

What Did She Take Out of the Box?

Kim uncovered previously untold stories about creativity in a massive dataset in “The Creativity Crisis” (Kim, 2011c) and revealed the striking decline in creative thinking across generations. Empirically based findings are what researchers do that helps to get closer to the truth. However, she seems as passionate to suggest what we could do to foster creativity as she is about digging in data. She took core messages out of the box of creativity research and processed them in ways which ordinary people can understand.

For instance, the dual process model of convergent and divergent thinking, well known among creativity researchers, is one of the topics that has been intensively investigated. Scholars use this jargons to accurately communicate conceptual models. These scholars are well understood, as their audience usually academically trained and use the same jargon in their work. Most ordinary people, including our parents, teachers, siblings, and children who may benefit the most from creativity research do not know this jargon. Thus, she relabeled convergent thinking as inbox thinking, divergent thinking as outbox thinking, and creative thinking as newbox thinking, language that anyone can understand with no intensive training in creativity research.

As an educational psychologist, Kim has focused on informing and improving educational practice to support better creative students, who often do not receive full support when standardized tests are used as main metrics. For instance, many people believe that smart people tend to be creative and, therefore, that high intelligence is key to creativity. This belief is particularly prevalent when identifying gifted students in K-12 educational settings. Teachers typically nominate academically talented students for gifted programs but are reluctant to do so with creatively talented students, who are often considered to be troublesome or have behavior problems (Kim & Pierce, 2013). She refuted this notion in her meta-analyses showing that the relationship between intelligence and creative achievement is not as strong as many believe (Kim, 2005a, 2008b).

Instead, Kim tries to bring attention to environments that meet diverse learning needs and promote creativity in students. In her work, she often talks about talented students who are struggling at schools that are only academically oriented. She elaborated on how similar the characteristics of gifted underachievers are to those of creative students and suggested that creative students may be at risk because their learning needs are not met in schools (Kim, 2008c). Later, Kim and Michael Hull (2012) empirically confirmed that creative students struggled with anticreative environments at schools and were likely to end up dropping out of high schools. This line of her research has inspired her to talk to parents and teachers about how to support better creative students or any students who come with various learning needs that are unconventional (Kim, 2019; Kim & VanTassel-Baska, 2010). She directly helps teachers and parents to learn what creativity is and how to promote it in children in their instruction and parenting. For instance, she offered Gifted/Talented teachers and practitioners a super session with Dr. Cramond on how to foster creative attitudes and thinking skills beyond just advancing students' academic skills at the national venue where teachers and practitioners in gifted education get together (Kim & Cramond, 2013). She continues to meet teachers and parents at national and international venues.

When Kim talks to teachers and parents, she uses everyday language that anyone, even without a strong academic background, can understand. She avoids professional jargon or statistics, when possible. In *The Creativity Challenge*, she structured the book on an analogy of gardening to explain what creativity is and how to foster it. She is candid and gets to the point in her book that translates the myriad of creativity research into real-world teaching and parenting. From an interview with her, she underlined that she did not want to remain as a scholar in the ivory tower but wished to speak in plain languages such as inbox, outbox, and newbox thinking to real people.

Creativity research is highly interdisciplinary across economics, neuroscience, psychology, arts, education, and several other disciplines. Nurturing creativity through education is as important as in other areas in creativity research. However, educational perspectives have not gained as much attention as other perspectives in creativity research (Plucker et al., 2004). Given the lack of rigorous educational research, her research and dissemination endeavors on creativity in education have garnered high praise.

Kim as a Female Scholar

Men and women are equally intelligent. Yet, certain practices in academia suggest otherwise. We examined one issue, February 2021, of one of the most prestigious creativity journals and then counted the number of articles where women were the primary authors. Only five of 16 articles have a female as primary author. In other words, men were more than twice as likely to be credited as the primary author than women. Unfortunately, this gender bias is commonplace in creativity research and in many other fields.

Despite of this gendered gap, Kim has been prolific in her scholarship as the author of over 100 books, book chapters, and scientific articles and has brought the female perspective to creativity research for decades.

Indeed, she has contributed significantly to the representation of women in scientific authorship. From a young age, she has been aware of the need for female representation in scholarship and academia. In her rural South Korean town, girls were expected to enter the work force and specifically to manufacture socks after eighth grade. However, because of her innate senses of both justice and curiosity, her eighth grade English teacher saw potential in her and made six home visits to convince her parents to enroll her in high school. Thus, she became the first person from her town to attend high school and college. Today she emphasizes that with the right climate, everyone, without exception, has the potential both to learn and to be creative.

Today, Kim's teachings emphasize that a person's creative environment, not intelligence or school achievement affects the potential for out-of-the-box thinking. Her experiences as an educational pioneer for girls in her town support her assertion that environment and mentoring play a larger role in the fostering of creativity than does demography. Indeed, her pioneering experience has uniquely positioned her to ask research questions and form hypotheses about issues relevant to those under-represented in the STEM and creative fields, women included.

Kim's experiences as a student who was not expected to succeed but then was noticed for her potential and eventually succeeded tremendously as a scholar is in a unique position in the field of education. She is strongly in favor of the fostering creativity in all students, and she recognizes the creative potential in every person worldwide. For decades, she has provided a female voice to the previously male-dominated field of creativity research and is expanding her research into the field of sexuality. Although little is certain in research, we can be sure that she will continue to be a positive voice for female scholars in both the fields of creativity and sexuality research.

Kim as an International Scholar

Kim also is noted for being an international scholar. Since the era of the "Republic of Letters," scholars have considered themselves as part of an international community whose members make their research available to all. However, in practice, not all scholars make an international impact. Either they work in a language known to few outside their linguistic community, or they focus on issues of only local, regional, or national interest. Kim is one of the former, someone whose interests and work have had a reach far beyond her home country, South Korea, and far beyond her adopted home, the United States. That she was interested beyond the local began in her undergraduate days, when she studied English and German. For over ten years, she taught German and English as a middle and high school teacher in South Korea. The nascence of her impact as an international scholar occurred in 2000, when she moved to the United States to pursue an American advanced degree. She first attended the University of South Florida and studied reading education before entering the University of Georgia's doctoral program in educational psychology and in gifted and creative education. Her work in creativity is what has brought her international acclaim.

One way that Kim has built her reputation around the globe is through her active work disseminating her research and that of others. She is

an editorial board member of *The Gifted and Gifted Education*, *Open Psychology Journal*, *World Journal of Behavioral Science*, *Creativity Research Journal*, and *Psychology of Aesthetics, Creativity, and the Arts*. She is currently a co-editor of the *World Journal of Behavioral Science* and the *Creativity Network Newsletter*. She serves as an advisory board member and columnist for *The Creativity Post*. Since 2004, she has been a reviewer for number journals: *Art and Design Review Journal*, *Asia Pacific Education Review*, *Creativity and Innovation Management*, *Creativity Research Journal*, *Journal of Business Ethics*, *Journal of Creative Behavior*, *Journal of Educational Psychology*, *Journal of Secondary Gifted Education*, *Learning and Individual Differences*, *Open Psychology*, *Psychology of Aesthetics, Creativity, and the Arts*, *World Journal of Behavioral Science*, *Creative Education*, and *Frontiers in Psychology*, among other journals. She has also served as a reviewer for conference proposals for many conferences, most notably the American Psychology Association, American Educational Research Association, and the National Association for Gifted Children. Through her active involvement with numerous journals and conferences, she has connected with and influenced scholars from around the globe.

In 2004, the year Kim completed her PhD at Georgia, she was an invited speaker at four conferences in Korea, in Jeonju, Daegu, Youseong, and Daejeon. Her series of addresses introduced Torrance creativity testing to teachers and encouraged teachers to foster creativity in their students. One address was titled "How to encourage your students' creativity." Others were "What is creativity?" "Who is creative? Characteristics of Creative Children," and "Culture can also affect creativity." For the next ten years, most instances when she was an invited speaker was in the United States. Then, in 2011, with the publication of "The Creativity Crisis: The Decrease in Creative Thinking Scores on the Torrance Tests of Creative Thinking," demand for her skyrocketed. In that same year, she gave two invited addresses to the annual conference of the European Council of International Schools in Istanbul, Turkey. In 2012, she was invited to return to the annual conference of the European Council of International Schools, this time in Nice, France. In 2013, she was invited to speak three times at the African Leadership Academy in Johannesburg, South Africa, and the same year, spoke at the annual conference of the Near East South Asia Council of Overseas Schools held in Bangkok, Thailand. Since then, her international engagements have become common, and she has been an invited speaker to conferences in Australia, Italy, the Netherlands, United Kingdom, South Korea, Turkey, and the United Kingdom, in addition to those countries already mentioned.

The Role of Culture

Kim has researched many aspects of creativity. A leitmotif throughout, when not the direct focus of many of her research projects, is the role that culture plays in fostering creativity. She has been especially focused on comparing traditionally Asia culture, dominated by Confucianism, and Western culture, particularly that of the United States. Kim (2005c) argued that Confucian qualities of conformity, gender inequality, hierarchy, obedience, and suppression of expression inhibit creativity. M. Kirton (1976) asserted that creativity

exists in two types, innovative and adaptive. Kim (2005c) argued that Confucianism inhibits adaptive creativity more than innovative creativity. She is not wholly critical of education in countries with Confucian cultures. These countries get many elements of education right, such as the high value they place on education, the high degree of school funding, strong family support, belief in effort, respect for teachers, effective teacher-student relationships, and a right balance between centralized systems and local control (Kim, 2005b). However, in countries with Confucian cultures, education relies on rote learning, is set in a context of extreme competition, separates work and play (work cannot be playful), and devalues play. In other ways, especially family life, emphasis on hierarchy, rigid expectations about gender roles, a hierarchical social structure, and a silence ethic, Confucianism stifles creativity (Kim, 2005 b).

Kim's comparative work extends in other directions. In *The Creativity Challenge* (2016), she used an interesting measure of creativity, recipients of Nobel Prizes. She notes that, as of 2014, only 5.3 percent of Nobel laureates have been women, and only 2.6 percent of Nobel laureates have been women working in scientific fields (2014, p. 164). The fact that so few women have received Nobel prizes raises the question of whether women are as creative as men. She then considered the examples of two noted female physicists, Marie Curie and Mileva Marić. In the first case, that of Curie, she was nurtured in what Kim called a "4s climate": diverse resources and experiences (soil), inspiration and encouragement (sun), high expectations and challenges (storm), and freedom to be alone and unique (space) (2016, p. 12). As a result, Curie's creativity blossomed, and in 1903, she and her husband, Pierre, were awarded Nobel prizes in physics. In 1911, she received another Nobel prize, this time in chemistry. Their daughter Irene, growing up in a 4s climate fostered by her mother, became a scientist in her own right, and in 1935 Irene and her husband received Nobel prizes in chemistry.

The case of Marić contrasts sharply with that of Curie. Like Curie, Marić was a brilliant physicist and excelled at her undergraduate studies at Zurich Polytechnic. There, she met and fell in love with another physicist, Albert Einstein. The relationship, however, was plagued with issues that created the opposite of a 4s climate. Though, after their relationship began, she managed to audit classes at the University of Heidelberg for one semester, where she learned ideas that she later communicated to Einstein and which influenced his thinking on relativity, "she eventually abandoned her own needs in favor of Albert's—bowing to the patriarchal norm of the dutiful housewife." (Kim, 2016, p. 168). In 1903, Einstein and Marić married. Even though Marić had been an important source of ideas and inspiration for Einstein, in 1905, when he published his four famous publications of the so-called "miracle year," he only acknowledged only Michele Besso. Einstein called him "the best sounding board in Europe" for scientific ideas (Calaprice & Lipscomb, 2005, p. 24). The marriage between Einstein and Marić eventually turned sour. They separated in 1914 and divorced five years later. In 1933, Einstein left for the United States and took a position at the Institute for Advanced Study in Princeton, while Marić remained in Europe and cared for her and Albert's schizophrenic and difficult-to-manage son Eduard. Late in

life, she suffered a mental breakdown and was hospitalized. When she died, she was alone.

From these two examples and other research, Kim argues that women are not innately less creative than men, but rather that patriarchal climates kill women's creativity. Patriarchy does so in several ways. Patriarchal climates "brainwash" women into believing that they are the inferior sex (Kim, 2014, p. 170). Because of patriarchy, society sets different expectations for boys and girls and allocates resources unfairly to girls. Patriarchy assigns women, or at least their focus, to the home, tells them that they should be submissive, and pressures them to put the needs of others ahead of their own. Patriarchy fosters in women a conforming attitude and inhibits their nonconforming attitude, a result of which is that women experience lesser intellectual autonomy and defiance. Too often in patriarchal climates women must choose between career or family. Curie received extensive support from her husband and father-in-law and did not have to shoulder the burden of the household on her own, while Marić received no such support or help in her unhappy marriage to Einstein. In patriarchal societies, women often have few mentors and "sounding boards," as many men consider them inferior and few women advance in their professions or fields of study. Finally, patriarchal climates do not celebrate, and in fact often ignore, the accomplishments of women. The example of women is another way in which culture influences creativity.

Kim used this same measure, number of Nobel prizes, to make another comparison, that of Jews to Confucians, people from China, South and North Korea, Japan, Taiwan, Hong Kong, Macau, Vietnam, and because of high numbers of immigrants, Singapore, parts of Malaysia, and Mongolia. The comparison is eye-opening. Though Jews make up only .2 percent of the world population, between 1901 and 2014, 194 individuals who had at least one parent identifying as Jewish received Nobel prizes. These Jewish recipients make up 22.6 percent of all 860 Nobel recipients in those years. Confucians, on the other hand, who in 2015, made up 23.4 percent of the human population, only received 37 Nobel prizes between 1901 and 2014, a mere 4.3%. In other words, Jewish people are 625 times more likely to win a Nobel prize than a Confucian (Kim, 2016, p. 173-174).

According to Kim, what sets the two groups apart, Confucians and Jews, is culture. She knows both cultures well. For the first 33 years of her life, she lived in South Korea, today the most Confucian culture of them all. Then, upon entry into the United States she extensively researched Jewish culture. She interviewed many Jews, lived with a Jewish family for three years, read influential Jewish texts, visited synagogues, and participated in many Jewish services, ceremonies, and holidays. Kim argues that Jewish culture and parenting styles foster the type of 4s culture that fosters creativity. Jewish parents provide diverse resources and experiences, provide inspiration and encouragement, set high expectations and nurture a self-efficacious attitude, and give their children freedom to be alone and unique. Confucians, on the other hand, have a very different parenting style, one that insists upon hierarchical relationships, promotes academic diligence and achievement, expects filial piety, and encourages harmony and conformity. Jews are not more intelligent than Confucians, or vice versa. However, Jewish culture of

parenting is profoundly different. “Tiger moms” may elicit achievement out of their children, but they do not foster creativity (Kim, 2016, pp.195-196).

International mindedness

Central to Kim’s work as an international scholar is her routine cultural comparisons. She moved abroad too old to be a “third-culture kid,” (Pierce, 2014) but she nonetheless has certain similarities. She does not feel fully at home in her passport country (South Korea), but she is fully aware that as a Korean in the United States she is in a minority. Like many immigrants, she welcomes contact with fellow Koreans here in the United States, even though as a researcher and an inquisitive person she is eager to learn about other cultures and other peoples. Finally, as inclusiveness is central to fostering creativity, she is welcoming to all, in the classroom, at a microphone, or on YouTube.

Kim’s work with the African Leadership Academy in 2013 is characteristic of her international mindedness. A secondary school located in Johannesburg, South Africa. The African Leadership Academy works with 16 to 19-year-olds mostly from across Africa and but includes students from rest of the world. According to its website, the school has alumni from 46 different countries. Its vision and mission states “African Leadership Academy (ALA) seeks to transform Africa by developing a powerful network of young leaders who will work together to address Africa’s greatest challenges, achieve extraordinary social impact, and accelerate the continent’s growth trajectory.” The school’s senior management and student body are largely people from sub-Saharan Africa, but far from exclusively so. When invited to speak at the ALA in 2013, Kim gave three talks: “Creativity strategies in classrooms,” “Fostering creativity in young leaders in Africa,” and “Creative thinking strategies for solving African problems.” Here, Kim did three things. She spoke to teachers about how they make changes in their classrooms to foster creativity. Second, she spoke to all adults in the community, in their pastoral roles, about how to nurture creative leaders and, to the students, how they could become creative leaders. Finally, she asked all in the community about how to turn creativity into a mechanism for addressing pan-African problems. In her work with the ALA, Kim reached out to a diverse group of students and educators, addressed issues of equity and inclusion, which create the 4s environment, and brought a mix of theoretical and practical to making the world a better place.

Whereas Kim has remained at the center of the creativity community in the United States and in the rest of the world, from Africa to Australia and points in between, she has almost singlehandedly made creativity a topic in South Korea. She has published two books on creativity in Korean, *Education for the Future* (2019) and *Let Them Play Outside the Box* (2019), both of which were well-recognized in Korea. And, before the Covid-19 pandemic, especially 2018 and 2019, she was invited speaker at dozens of conferences and workshops in South Korea. In 2019, she spoke about “how to change classrooms to foster students’ creativity” on a nationally broadcasted Korean television show, *Talk Concert with The Superintendent of the Seoul Office of Education*. In a curious turn of events, Kim, a South Korean, elevated a quality traditionally characteristic of Americans and of central importance to them

(Kim & Pierce, 2013) and exported this interest back to her education-obsessed home and has made creativity part of the Korean national conversation.

Changing the Conversation

Kim has humble origins. Her parents were poor, and she grew up in the shadow of the Korean War and the American military presence. Because she was the best student in her middle school class, she received a scholarship to go to high school, and her parents sacrificed mightily to enable her to be successful. She went on to earn merit scholarships to attend college and, later, fellowships to attend graduate school in Korea. All her time in Korea, however, she felt as though Korean culture oppressed her, as a woman, as a thinker, as a scholar. Thus, she made the decision to go to the United States, where she discovered her passion and blossomed. In her work, she has attained a towering reputation as a scholar, has spoken to people all over the world and has influenced educators and students in Africa, America, Asia, Australia, and Europe. Most satisfying of all to her, perhaps, is that she has changed the national conversation in Korea. The culture that once stifled her and caused her to leave is now thinking in new ways about how to rear and educate their children.

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CHAPTER SEVENTEEN

CELEBRATING GIANTS AND TRAILBLAZERS: A-Z
OF WHO'S WHO IN CREATIVITY RESEARCH AND
RELATED FIELDS: STANLEY KRIPPNER

GLENN GRAVES

I write of the dreamer, the advocate, the humanist, a good-natured, self-actualized man, and a Hero's Journey complete. Being a humble Hero, Stanley Krippner would not want me to write at length of all his good deeds. In fact, many of his greatest triumphs have already been memorialized in a tribute book to him, *Stanley Krippner: A Life of Dreams, Myths and Visions*, edited by Jeannine Davies and Daniel Pitchford (2015). His accomplishments are also recognized in his numerous specific awards and multiple lifetime achievements awards. There are too many of these to list in a brief chapter, and I do not think Krippner would want me to. His awards can easily be seen at <www.stanleykrippner.weebly.com>.

I believe Krippner would want me to be concise in my tribute to this awe-inspiring Talisman. Having done my Ph.D. dissertation on the Life Story of Stanley Krippner, I will simply offer what I discovered about his contributions to Creativity Studies and share insights into his many creative feats.

While writing my dissertation, *Stanley Krippner's Odyssey: His Contributions to Humanist Psychology* (2017), I had the pleasure of sitting with Krippner for hours, in many cafés, on long drives, and in his cozy living-room library. One feels as if one is in an Ashram, sitting amidst the buzz of spirits of authors who adorn his shelves, many of whom are his personal friends, as each book is signed and gifted personally to Krippner. For those who are curious, he has given this entire personal collection to the University of West Georgia, to be shared with others and to capture a beautiful piece of American history in psychology and the humanistic movement. So, for this chapter on what makes Stanley Krippner a major contributor to Creativity Studies, I have chosen to capture the highlights from his epic journey, which should stand as a testament to his original, natural, generous, and often other-worldly creativity.

Krippner was not even a professor of mine or an official mentor in Saybrook University's Psychology of Creativity doctoral program. He was simply this mystical figure on the periphery, walking from lecture to lecture with a throng of people trying to get a minute of his time. If they only knew how divine his calling and mission really were! Like many, I found my way to join him during lunchtime gatherings, at early morning dream sessions, or in his San Rafael home along with motley groups of musicians, authors,

shamans, dreamworkers, and psychologists. Eventually, this would lead to a friendship that brought Krippner and me to ancient temples in Cambodia and Laos, to peace conferences in St. Petersburg, and to dream workshops in China.

In each of these places, Krippner was surrounded by a throng of fascinated followers, but what captivated me the most was that so many of them had been personally helped by Krippner. Many of them were authors published because Krippner encouraged their epiphanies and co-nurtured their budding ideas into a palpable theory, research project, or story. He would help them design and edit their research efforts, sometimes even finding funding if necessary, and linking them to appropriate people in his amazing network. These efforts helped them get their ideas off the ground and into a published book, a dissertation, a cutting-edge research project, or simply access to education.

For these efforts, I want to pay tribute to Krippner both for being personally creative and for cultivating the creativity in numerous students. The actual number is difficult to calculate for a man of nearly 90 years, who has been actively captivating audiences since his first forays into magic shows in his teens.

Krippner has often reiterated the well-known model of creativity that highlights the 4 p's: *process*, *product*, *person*, and *place*. Simonton (1990) added *persuasion*, and Runco (2003) added *potential* to make up 6 p's (p. 24). A similar model expands one of the p's, *person*, to *personality*, which includes intrinsic motivation, wide interests, openness to experience, and autonomy (Barron, 1995; Helson, 1972).

I would add another p, namely, *purpose*; clearly, the intention of creative individuals often includes their *innovative* and *visionary* abilities. This is in concord with Krippner's observation of shamans' abilities to, at will, access information in ways not available to other community members, for example, by means of what he calls the "five Ds of shamanic practice": dreaming, drumming, dancing, drugs, and deprivation (as in sensory deprivation). He suspects that shamans are "fantasy-prone" and can use any number of methods to heal community members or to protect them against enemies (Krippner, 1980).

Whereas many writers have claimed that shamanic "visions" were the result of mental illness, Krippner asserted that they were a manifestation of creativity; otherwise, the shamans would lose respect and support from their communities. To advocate for this position, he pushed the envelope at every opportunity, even getting his message into the *American Psychologist*, the flagship journal of the American Psychological Association (Krippner, 2002b). This position, now held by many others as well, seems to have prevailed.

It is not surprising, for a visionary, that many of Krippner's predictions have found their place in contemporary scientific and therapeutic literature and practice. As far back as 1972, Krippner predicted that marijuana would be legalized. In other publications, he stated that psychedelics would ultimately find their way back into scientific research (Krippner, 1968a). Indeed, medical marijuana is now used in the treatment of cancer, AIDS, multiple sclerosis, and other conditions; furthermore, several states have legalized

marijuana for personal use. Moreover, as Krippner predicted, psychedelic research is again being undertaken, as well as being used in psychotherapy (e.g., Wolfson and Hartelius, 2016).

Just as Krippner and the shamans he researched are *intrinsically* motivated towards an expansion of their awareness, they are equally *extrinsically* motivated to help their communities. “It can be said that social psychological factors are important in creativity and among these, the most crucial may be those that either lead people to concentrate on the intrinsically interesting aspects of a task or lead them to concentrate on some extrinsic goal” (Amabile et al., 2018).

In 1950, *Psychological Abstracts* had 11 listings under “Creativity,” less than .2% of the total number of articles abstracted. In 1960, this category represented .4% of the total; in 1966, it accounted for .8%, and, by 1970, creativity articles made up fully 1% of all publications listed. However, few of these studies were experimental, and even fewer concerned social-psychological factors. Between 1976 and 1978, no articles on creativity were published in the *Journal of Experimental Psychology* or *Psychological Review* (Amabile et al., 2018).

What the above information tells us is that people like Stanley Krippner were literally sticking their necks out to do work and research in areas that were hard to understand or quantify. Indeed, Krippner was a member of the University of Wisconsin’s “Stick Out Your Neck Club” when he was an undergraduate in the conservative 1950s. Later, he became a major contributor to helping the word *creativity* find its way into scientific journals at a time when mainstream scientists hardly regarded the word or much less understood it (e.g., Krippner, 1968a, 1968b). So, let us look at Krippner’s contributions and their significance.

I have chosen two themes to highlight Krippner’s concepts and contributions: intrinsic and extrinsic motivation. I use the term *motivation* to reflect intention and purpose (Zelazo, Astington, and Olson, 1999), two key concepts in humanistic psychology.

Intrinsic motivation: Learning about and fulfilling one’s potential

- Yearning for Learning
- Sensory Awareness
- Creativity and Human Potential
- Altered States of Consciousness and Creativity
- Dreamwork
- Consciousness Studies

Extrinsic motivation: Sharing one’s knowledge with others to help them fulfil their potential

- Personal Mythology
- Humanistic Psychology

Yearning for Learning

Picture Krippner as a young boy playing amidst the spirit-infused fields on the family farm, which was once Native American territory. This may have been one of the first times Krippner realized how freely his imagination could travel. Indeed, it may have evoked a curiosity that led to Stanley Krippner's becoming a voracious reader and desiring to own a set of World Book Encyclopedias. Krippner (1977) has written about the heartbreak he experienced when his parents told him that they were not financially able to accommodate his wish. But most people who know him would consider Krippner himself a "living encyclopedia." He has the visual, auditory, and kinesthetic memory that defies most humans' abilities. He can talk eloquently and astutely on any number of topics. He is often one step ahead. It is like playing chess and thinking you are about to checkmate your opponent, only to realize he was just trying to keep the game exciting for both of you.

Krippner's passion for taking advantage of his own life opportunities for their own sake, as well as to benefit others, is evident in the dozens of dissertations he has chaired and the thousands of dollars of his own money he has sent around the globe to sponsor education for needy people or organizations. One might say that he went into the deepest depths of the jungle, not to bring back gold or a commodity to sell or to tout authority over a more vulnerable group, but to help others to go there more safely and securely. For those who cannot or have not yet or do not have the same opportunity, Krippner brings his own experience back as a gift. But it is his creativity ability that allows him to be the right messenger for these culturally sensitive experiences. One cannot just travel to an indigenous group and extract its essence. Like Krippner, one has to be open, humble, sensitive, innovative, intuitive, adaptive, articulate, and, perhaps above all, respectful. I would say that all these traits are helpful in manifesting Creativity with a Big C, which can be a fully immersive experience that can be felt, understood, interpreted, translated, and articulated into both a subjective and an objective outcome. This is Krippner's art.

Krippner's Magic

An early creative adventure in Krippner's childhood was his interest in sleight-of-hand, which led to his ability to captivate other people's imaginations. There are many anecdotes about Krippner and his sister and assistant Donna performing feats of magic for the pure fun of it, as well as for the delight and puzzlement of their audiences. Through these experiences, Krippner began to understand how intuition can reflect sensory cues, sometimes unconscious in nature. Legerdemain is built upon the misdirection of an audience's attention, its inbuilt assumptions and expectations, and its psychological manipulation by the magician. All these principles eventually led Krippner to explore the field of psychology, whereupon his "yearning for learning" took a more disciplined form.

Creativity and Human Potential

Having overcome a frontal lisp in his adolescence, Krippner was motivated towards helping others overcome obstacles to their well-being that could be

ameliorated. He was originally drawn towards working with children with speech problems and did work as a speech therapist for two years. In 1957 he was granted a fellowship at Northwestern University, where he earned his doctorate in counseling and guidance, with a special focus on special education and learning disabilities. It was there that he began to work with Paul Witty, a pioneer in an uncharted field known as *creativity*. The first item in Krippner's 175-page bibliography is a study of the interests of children and youth, with Witty (1960) as the first author. This study was conducted through a grant awarded by the U.S. Department of Health, Education, and Welfare (HEW), established in 1953; the data served as the basis for several doctoral dissertations, including the one Krippner completed in 1961.

Krippner has been honored for his work with several awards, including those from the National Association for Gifted Children and the Foundation for Gifted and Creative Children, and a commendation from the U.S. Office for the Gifted and Talented. When interviewed for this chapter, Krippner wrote:

My work with gifted children was one aspect of my initial interest in creativity. I ran about half a dozen workshops for children emphasizing creativity, sponsored by churches, parents, or the Foundation for Gifted and Creative Children (in Rhode Island). Those workshops employed various types of media (painting, drawing, clay, even film in one workshop) along with tutors who served as resource personnel. The three awards you note can be briefly explained. Of course, I received an award from the Foundation for Gifted and Creative Children because I was its most vocal consultant. It was a radical group, for its day, and objected to children with different cognitive styles being diagnosed with learning disabilities. This was partially correct, partially incorrect. On the other hand, the National Association for Gifted Children (NAGC) was a mainstream organization and gave me the award because of my articles on the topic and for my work at the Kent State University Child Center (in Ohio). Most of the children we saw were manifesting various types of learning disabilities, but a few of them were gifted – and their schools and parents simply did not know how to assist them, and so my graduate students and I provided suggestions and resource materials. The U.S. Office for the Gifted and Talented was short-lived, and I was given the award before it was phased out” (Krippner, personal communication, May 10, 2021).

My work in education has focused on helping students to make the maximum use of their potential. People come into the world with what I have called “an empty backpack.” Their genetics and their environment (always working together) constitute the nature and limitations of that backpack. The task of educators is to help them fill the backpack with abilities and attitudes that will help them navigate their way through the world, a life-long endeavor. Very few people have a backpack containing the elements needed to be a concert pianist or a soccer champion. But most backpacks contain the potential for people to become kind, loving, and wise players in their lifelong journey.

Some writers prefer the “seed” metaphor. Not all seeds are alike, but all can be germinated one way or another. For me, the seed metaphor contains the implicit assumption that all seeds are basically good, positive, and benign. I do not think this is necessarily so, because there can be “bad seeds.” The backpack metaphor allows for greater freedom of choice. If someone becomes destructive, those parts of the backpack can be tossed out and more positive elements can be added. This is not always the case with the “bad seed.” The backpack metaphor is consistent with many Buddhist teachings as well as the psychological school of social constructionism (Krippner personal communication, May 15, 2021).

One of the first books Krippner read on the topic of the human potential perspective was Gardner Murphy’s (1958) *Human Potentialities* (Krippner, 1977, p. 14). Krippner and Murphy met when Murphy spoke at Northwestern University and developed a long-lasting friendship; Krippner discovered that Murphy gave considerable emphasis to creativity and felt that it often occurs in altered consciousness states. This prompted Krippner, who already had an interest in altered states, to search for ways in which such states could enhance creativity (Krippner, 1990).

Altered States and Creativity

Hypnosis seemed to be one way in which people might become capable of moving beyond their perceived limitations. Krippner’s study of hypnosis indicated that this held true even if the practitioner did not use the word *hypnosis*, but employed imagery and made encouraging remarks. He took formal training in hypnosis and soon was helping friends and students overcome tobacco addiction. But he also used hypnosis for creativity enhancement. One of his legendary experiences was working with Mickey Hart and Bill Kreutzman, the drummers for the Grateful Dead rock band, to enhance their drumming through hypnosis. Even earlier, he wrote an article for *The Family Weekly* titled “Can Hypnosis Help Your Child Learn?” (1963, August 11).

Krippner was known for sticking his neck out and taking risks that could impact his career and reputation, but his priority was to promote an understanding of where the limits lay in reaching one’s potential (or “filling one’s backpack”). Some would say that Krippner is the “strange attractor” to which he often refers when speaking about Chaos Theory, as well as in terms of initiating the so-called “butterfly effect” (Krippner, 2014; Krippner, Richards, and Abraham, 2012). In other words, Krippner’s impact often goes beyond what he has deliberately attempted by creating “ripples,” many of which never even reach his awareness.

Dreamwork

Krippner’s most controversial creative work has been in the field of parapsychology, the disciplined approach to studying peoples’ reported experiences that, if accurate, cannot be easily explained by conventional scientific frameworks. One category, “poltergeist phenomena,” involves the observed movement of objects that seem to have a “life of their own.” In 1961, Krippner and his colleague Arthur Hastings described their investigation of a house where

the great number of ostensible flying objects and strange noises led to its occupants abandoning the premises. The duo's investigation revealed that the occupants' grandson was unhappy to have been assigned a "baby-sitting" role vis-à-vis his aging grandparents. When the investigators told the family about their conclusions, the "poltergeist phenomena" came to an abrupt halt. However, Krippner did find a few studies where similar phenomena were not so easily explained and wrote about them in several articles on the theme of creativity and "psychic phenomena" (e.g., Krippner, 1963).

Krippner moved to Brooklyn in 1964 to accept a position as Director of the Dream Laboratory at Maimonides Medical Center, where he was given the task of designing research studies to investigate psychic phenomena during dreaming. This began 10 years of research that led to many cutting-edge and controversial findings, which chartered a path for many researchers to follow (Storm and Rock, 2015). There had been numerous reports of so-called "telepathic communication" in dreams, and a distinguished psychoanalyst, Montague Ullman, obtained funding to examine this phenomenon in a scientific setting.

When Krippner was asked about the challenges faced in his decade at Maimonides, he replied:

The creative challenge for the dream/telepathy studies was to create an experimental design that would produce, under controlled laboratory conditions, an opportunity for the dreamer to incorporate contents of a randomly selected target (in most cases, an art print), on which a staff member was focusing. In anecdotal reports, this happened between therapists and clients (e.g., the psychoanalyst Montague Ullman and his clients) or between two people who were intricately connected (e.g., family members). The challenge was to attempt to make a connection between the "receiver" and the "sender" before they were separated. We attempted to evoke this rapport by having them meet for dinner before the experiment. Then they were separated, the "receiver" entering a soundproof room and the "sender" going to a distant location with a sealed envelope containing a randomly selected art print. The receiver's (or dreamer's) brain activity was monitored by an EEG, and the dreamer was awakened when rapid eye movements indicated a dream was taking place. His or her verbal report was tape-recorded and later transcribed. A team of "judges," who had not been present during the experiment, tried to match each night's dreams with each of several possible art prints. The average experiment consisted of eight nights (Krippner personal communication, May 15, 2021).

One of the most highly reported research projects at Maimonides was described in my doctoral dissertation (Krippner, Honorton, and Ullman, 1973). This was a pilot study Krippner and his colleagues conducted with the well-known rock group, The Grateful Dead. It involved thousands of participants during a six-night series of rock concerts at a venue 45 miles from Maimonides. About an hour into the concert, the audience witnessed a series of slides projected on a screen. They were told about a dreamer who was sleeping at Maimonides and asked to "send" him the image that would be flashed

upon the screen. Six different art prints were used, and the “judges” were able to make enough correct matches so that the results were “statistically significant.” Most of the other studies were conducted over at least eight nights, making the results even more provocative.

The allure of dreams and parapsychological phenomena sustained one of Krippner’s most creative decades. How many psychologists would have suggested using an experimentally oriented dream laboratory to determine if a Grateful Dead audience could “send” messages miles away to a sleeping dreamer in a laboratory? Krippner responded to this question with his customary modesty, noting that the Grateful Dead’s leader, Jerry Garcia, had suggested the study. Nonetheless, it was Krippner who designed and executed it.

In 2018, the *International Journal of Dream Research* published an article reviewing half a century of research into dreams and psychic phenomena. Contrary to skeptics’ claims, the replication rate of the Maimonides experiments was highly significant from a statistical point of view, matching replications of better understood psychological activities (Storm et al., 2018).

Consciousness

Krippner may have been among the first to call for a better understanding of consciousness with his article, *An Expansion of Consciousness and the Extensional World* (1962). With his usual modesty, he does not consider himself an expert on either the neurology of consciousness or its phenomenology, but the topic has been a recurrent theme in his work, especially in terms of its connection to creativity. Husserl (1965) stated that *consciousness* is not a “thing” and, therefore, cannot be easily quantified. Rather, the term describes how people encounter others and their world; since there are elements of subjectivity in this encounter, the notion of “objectivity” is problematic. Early on in his work, Krippner bridged consciousness studies with transpersonal studies, noting that transpersonal psychology pays special attention to the concepts of spirituality and religiosity, and focuses on a personal connection with “something higher, broader, or deeper than the individual, something that transcends ordinary experience and provides meaning and a means of transformation” (Krippner, 2016, p. 1). Krippner (2002) wrote:

There are other epistemologies, “ways of knowing,” relying on the body, on feelings, on intuition, and on transpersonal and anomalous experiences, that are capable of taking us to realms that mainstream science has yet to acknowledge, much less to appreciate. (p. 2)

Krippner’s contributions to the study of creativity and altered states were recognized when he was asked to write two entries for the prestigious *Encyclopedia of Creativity*. They were “Creativity in Dreams” (Krippner, 2011b) and “Creativity in Altered and Transitional States” (Krippner, 2011a).

Personal Mythology

Krippner (1977) has observed that Greek and Roman mythology, American Indian legends, and science fiction novels made up a good part of his early understanding of mythology. He would read, sketch, compose music, and write poetry in his free time. Having grown up in farm country on an orchard,

he reported that the land was rich in its mythologies, such as the arrowheads he would find after his father had plowed their farmland. He spoke of the nearby Lake Ripley, where, he said, “sea serpents were supposed to have reared their heads.” He was inspired by his parents’ deep respect for the Earth and their cultural sensitivity and openness at a time when many people held fast to their racial prejudices. His father was one of the first to use “organic agriculture” in managing the family farm and orchard. His mother supported the inclusion of a member of a new African American family in the neighborhood’s “ladies society,” but was voted down.

These experiences prepared Krippner to be the perfect collaborator for completing David Feinstein’s model of personal mythology. Feinstein asked Krippner to help nurture this model into a powerful working tool for personal growth and change. Both men deserve full credit for an incredibly creative and effective self-help program. One close to Krippner can see how his sound scientific method and his overall playfully creative approach impacted Feinstein’s psychotherapy-based personal mythology model (Feinstein and Krippner, 1988).

Krippner’s contributions to the *Personal Mythology* book were a culmination of some 30 years of research related to dreams and consciousness studies. This book, which went through several revisions (Feinstein and Krippner, 2006) became a bestseller in its genre and eventually earned its two authors the *U.S. Book News* Best in Psychology/Mental Health Book of the Year Award. This became Krippner’s main contribution to the field of “experiential psychologies.” In various locations, such as the famous Esalen Institute on the Pacific Coast, Feinstein and Krippner’s participants sought inner counsel from their *Inner Shaman* regarding a problematic area of their life that needed addressing. This counsel was approached through guided contemplation, visual imagery, and deep reflection. A number of *personal rituals* are performed, some of which use so-called “power objects” (such as a stone or a feather) to construct and enhance the evolving mythologies. This is combined with the use of body movement and dance in order to include somatic experiences. In my own practice as a therapist, life coach, and facilitator of various personal mythology workshops, and as a participant in many other “transformational” workshops, this is by far the best one to inspire a person’s own creative ability to complete the experience.

Krippner (2006) was invited to present several papers at the International Symposium on the Occasion of the 100th Birthday of Albert Hofmann. In one of them, he stated:

Personal myths are somewhat like what chaos theorists call “attractors.” They are constellations of thoughts, feelings, images, motives, values, and priorities. They take the form of narratives (spoken, written, painted, danced) that address existential human issues. Old myths are frequently challenged by counter-myths in cultures, in families, in institutions, and in individuals. (para. 6)

Humanistic Psychology

As described in my doctoral dissertation, “Krippner has contributed more than 1,500 articles, essays, books, and studies, and over more than six dec-

ades of research addressing the deepest levels of what it is to be human. In addition, one might also point to his work as a mentor to hundreds of students to demonstrate Krippner's influence on humanistic psychology."

Krippner and Gardner Murphy (1973) wrote an article citing the key concepts of humanistic psychology as follows: (a) the study of the person as a whole; (b) the course of human life as a whole; (c) human existence and intentionality; (d) motivation and goal setting, integrative constituents, and creativity; and (e) goal setting. This perspective is supported by Amabile's (1993) study, "Neuroticism-Extraversion-Openness Five Factor Inventory to a Group of Creative Artists." The results of this study indicated that creative individuals could be described as autonomous, flexible, self-efficacious, open to experience, and curious.

Krippner (personal communication, March 26, 2017) explained that the variety of approaches to humanistic psychology focuses on the experiencing person and the meaning of experience to that person. There are several "humanistic psychologies," but they all emphasize the human qualities of such conditions as choice, creativity, values, and self-realization. Human behavior is intentional, aims at goals, and seeks meaning, value, and creativity.

Krippner has written several articles on humanistic psychology and creativity, such as "Future Opportunities for Humanistic Psychology" in *Self and Society* (2013), and "Chaos and Creativity While Waking and Dreaming" (2014). In a tribute book edited by Davies and Pitchford (2015), Krippner's long-time colleague Harris Friedman affectionately wrote:

As I looked at various productivity indicators, it became apparent that Stanley was supervising almost as many Saybrook students as, literally, all the rest of the faculty combined. And his students' evaluations were amazing—simply put, not one student gave less than glowing feedback to his work. And all this occurred while Stanley wrote prolifically and engaged in speaking all over the world.

Another testament to his prolific writing, presenting, research, and academic career is in his recognition by credible bodies in various fields. He has received as many as 25 honors and awards from associations in the United States, and another 18 from associations in nine foreign countries: Brazil, Chile, China, Colombia, India, Mexico, Russia, Spain, and Sri Lanka. Examples include the Lifetime Achievement Award (International Association for the Study of Dreams, 2006), the Award for Distinguished Contributions to Professional Hypnosis (Society for Psychological Hypnosis, 2002), the Award for Distinguished Contributions to the International Advancement of Psychology (American Psychological Association, 2002), and the Outstanding Career Award (Parapsychological Association, 1998).

The noted existential psychologist Kirk Schneider (2002) wrote:

Stanley opened my horizons to areas of psychological study. I admired his willingness and ability to investigate the most exotic, the most unusual, hidden realms of human experience. It became action, through his early teaching career, and 40 years with Saybrook.

Krippner's exotic wanderings continue. In 2021 he was senior editor of the anthology, *Advances in Parapsychological Research, Vol. Ten*, and co-author of *Understanding Suicide's Allure: Steps to Save Lives by Healing*

Psychological Scars. The latter book makes a number of creative contributions to the literature on suicide, such as including two chapters on psychedelic-assisted therapy along with single chapters on shamanism and “soul loss,” descriptions of how a teenager’s immature brain can be nourished by parents and teachers, personal mythology and suicide, and treating nightmares through creative imagination, along with short case studies on creative people such as Jimmy Stewart, William Styron, and Colin Wilson, who pulled themselves back from suicide, and others who did not (Ernest Hemingway, Anthony Bourdain).

Krippner’s Creativity Summarized

Let us consider this excerpt from the book *Cambridge Handbook of Creativity* by James Kaufman and Robert Sternberg (2010): “When comparing theories of creativity, we need to differentiate between levels of creative magnitude with smaller c for a subjective view, versus larger C for a more objective view” (Csikszentmihalyi, 1998).

Some would argue that the creative experience represents the more subjective forms of creativity, possibly never resulting in a tangible product, never undergoing external evaluation, or never traveling beyond an individual’s own personal insight and interpretation (Beghetto and Kaufman, 2007). However, overlooking these experiences for a more objective product runs the risk of excluding theoretical consideration of creative and new discoveries (Runco, 2007), thereby maintaining myths and misconceptions about the nature of creativity. In the opinion of another major contributor to creativity studies, Ruth Richards, the essence of Big C (eminent creativity) vs. little c (everyday creativity) is that big C refers to unambiguous examples of creative expression. In contrast, little c focuses on the creativity of everyday life. Ignoring little c has obvious implications re excluding opportunities to be creative. (Richards, 2007).

In the drive toward self-actualization and creativity, the focus is often on the experiencing person and the meaning of experience to that person. This focus emphasizes the human qualities of such conditions as choice, values, and self-realization in terms of problems that are meaningful to humans and are ultimately concerned with valuing their dignity and worth. Humans are intentional, aim at goals, are aware that they cause future events, and seek meaning, value, and creativity.

Once Krippner had tapped into his creative potential at a young age, he then incorporated this creativity into his research, his academic work, and his career in child development, as well as in his personal life. He sought spiritual and transpersonal growth through experiential research. His pursuit of knowledge is illustrated by the variety of topics listed in his 175-page bibliography. Krippner embodies Goldstein’s (1934) concept of self-actualizing; realizing one’s full potential is achieved through expression of creativity, quest for spiritual enlightenment, pursuit of knowledge, and the desire to give something back to society. This is a process that resembles Campbell’s *hero’s journey* archetype, which Krippner (personal communication, May 23, 2017) noted as a theme found in many shamanic accounts (see also Krippner, 2002).

Krippner has co-edited important books, such as *Healing Tales: The Narrative Arts in Spiritual Traditions* (2007b) and his well-known *Varieties of Anomalous Experience* (Cardeña, Lynn, and Krippner, 2014). His contributions to the topic of healing are less focused on how a therapist or physician could help people end their suffering and more on exploring ways in which people could use their inner potentials to heal themselves (Krippner, Bova, and Gray, 2007; Krippner and Feinstein, 2007).

Krippner's (2007a) history was rich with unusual experiences, both first-hand and as an observer. Krippner (2002b) wrote:

There are other epistemologies, "ways of knowing" relying on the body, on feelings, on intuition, and on transpersonal and anomalous experiences that are capable of taking us to realms that mainstream science has yet to acknowledge, much less to appreciate. (p. 2)

If we pay attention to the multi-dimensional body of his work, we will again see how Krippner knew many years ago that society would be advancing towards a renewal of what indigenous groups have practiced for hundreds of years, namely, tapping into people's innate ability for healing and preserving a close connection with Nature. Around the world, many groups are embracing workshops and retreats, conducting research, and writing articles and books that advocate incorporating a natural approach to healing and a more creative approach to self-discovery. The use in therapy of expressive art, somatic energy, bi-lateral tapping, naturopathy, herbs, sound healing, and crystals has grown exponentially in popularity and effectiveness. Krippner was clearly one of the main researchers and authors of research during those early days of exploration into innovative healing methods. Had Krippner not remained open to the subjective c in creativity and held his respect of the objective C, some parts of the scientific community might never have taken these advances seriously. It is possible that these advances would otherwise have fallen out of practice due to scrutiny and lack of support for research and a place in academia, which they now have thanks to creativity-minded people like the Great Stanley Krippner.

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CHAPTER EIGHTEEN

TODD LUBART: CREATIVITY ... A WORTHWHILE INVESTMENT

SUSAN BATASTINI

ABSTRACT: Lubart is a leading pioneer in the field of psychology and creativity and has made his mark internationally by his research in some of the most important and exciting areas in the field. His work has included and continues to explore the multivariate approach to creativity, the creative process, ways to identify creative potential, and creativity across cultures all within what Lubart (2018) suggests as a seven C's framework. This chapter will explore Lubart's education and background, summarize his most influential work and contributions in the field of psychology and creativity, and zoom in on a handful of his most compelling collaborative concepts (see references) including the Evaluation of Creative Potential (EPoC) assessment, the Investment Theory, the seven C's of creativity, and creativity and computers. Lubart's past and present research stresses the importance of each individual's creative potential, the nature of these individual differences and examining environments that support and value creative work.

Keywords: Creativity, creative potential, creative process, creativity across cultures, creative environment, creative development, potential and creative giftedness, co-creativity and curricula, Investment Theory, multivariate approach and creativity with robots.

Introduction

"The topic of creativity ... is viewed as a capacity that can contribute to personal development, daily problem-solving, occupational success, and societal growth."

- Lubart (2018, p. 134)

Todd Lubart, a professor of psychology at the University of Paris Descartes, has made a significant impact in the field of psychology and creativity in profound ways over the past 25 years. Marconi Institute for Creativity (2021) gives a brief yet important summary of Lubart's professional accomplishments and Lubart's (2021) impressive and comprehensive curriculum vitae fills in the remainder. His research is extensive and covers such areas as:

Creative potential, the creative process, cultural differences and the multivariate approach, and the impact of the creative environment.

Lubart is the current president of the non-profit scientific society, International Society for the Study of Creativity and Innovation (ISSCI) and has more than 200 publications on creativity including books, book chapters, and scientific journal articles. He continues to be acknowledged for his distinguished work in research, editorial activities and teaching in the field of psychology and creativity and is a leader among his students, colleagues, and vast audiences worldwide.



The Journey to Creativity

Lubart is an American and grew up in upstate New York. He graduated with his Bachelor of Arts in Psychology from Brandeis University in 1987, a Master of Science in Psychology from Yale University in 1990 and a Yale Masters of Philosophy in 1991. He earned his doctorate of Philosophy (Ph.D.) in Psychology from Yale University in 1994 under Robert Sternberg's guidance. Lubart then headed to France to do post doctorate work at the University of Paris Descartes in the field of creativity in children which began his journey examining the creative potential in individuals. He was an Assistant-Associate Professor of Psychology from 1995-2001 before becoming Full Professor at the University of Paris Descartes in 2002 (Lubart, 2021).

Since this time, Lubart has been a prominent figure at the University of Paris Descartes being the director of the LATI (Laboratoire Adaptations Travail-Individu) from 2010- 2018, head of the individual differences teaching group in psychology (2002- 2015; 2019-2020), co-director of the Masters specialty program, Economics and Psychology (2011 – present) and director of the Masters Artistic Creation program (2015 – present). He continues to empower and make a huge impact on his Ph.D. students giving them the tools to be creative leaders and co-collaborators in the future. Lubart continues his own research and work on grants and projects involving the creative process, the environmental impact on creative work, and the evaluation of creativity and innovation in response to the COVID-19 crisis (Lubart, 2021).

Creative Potential

“...each person designs his or her life path and sculpts who he or she is, as an ongoing, life-long creative work.”

- Lubart & Thornhill-Miller (2019, p. 278)

Lubart, Barbot & Besancon (2019) explained potential as the “probability to develop, achieve or succeed to reach a desired future state” and creativity

“involves the generation of original ideas that have meaning and value in the context in which or for which they are produced” (p. 541). Furthermore, according to the multivariate approach, creative potential for a task is seen as the confluence of several specific but interrelated capabilities (Lubart, 1999, Sternberg & Lubart, 1995; Lubart, Mouchiroud, Tordjman & Zenasni, 2003), which will be briefly explored in this section and in more depth later in this chapter.

The resources for creativity or capabilities are referred to as ingredients (Lubart, 1999a; Sternberg & Lubart, 1995) and cover the aspects of: Intelligence, knowledge, cognitive styles, personality, motivation, affect, and physical and socio-cultural environmental contexts (Lubart, Zenasni, Barbot, 2013). These capabilities can be organized into cognitive factors, conative factors, affect-related characteristics and environmental factors (Lubart, Barbot & Besancon, 2019). Cognitive characteristics may refer to an individual’s knowledge of diverse topics relevant to the creative work in question, analogical and metaphorical abilities, or their mental flexibility and conative characteristics can be described as an individual’s personality traits such as openness, perseverance, and risk-taking behaviors. Lubart et al (2019) go on to describe the affect-related characteristics as linked to an individual’s mood and emotions whereas the environmental characteristics are considered the physical or social aspects in an individual’s life that can support or hinder creativity.

Lubart (1994) also recommended that when examining creative potential, it is not only important to look at the ‘ingredient’ but also the creative process in which the ingredients are involved to yield creative works. In other words, the ingredients must not only be present but also be put into action in a productive manner (process). A simplified view of this process can be defined according to two concepts that occur in cycles and they are: Divergent-exploratory thinking and convergent-integrative thinking (Lubart, Besancon & Barbot, 2011). The creative process will be discussed in more detail in the coming pages.

Measuring Creative Potential

Lubart, Zenasni & Barbot (2013) initially proposed that there are two main ways to measure creative potential. The first is more process-based and holistic whereas the second is more resource-based and analytic. The first approach involves asking individuals to produce creative work in an assessment situation where the individual is engaged in a timed, standardized task and the individual’s work is compared to other individuals who have completed the same assessment. Description of the second approach follows this section.

In 2011, Lubart, Besancon & Barbot developed the Evaluation of Creative Potential (EPoC) to assess children and adolescents’ creative potential and the battery offered a contextualized measure of divergent and convergent thinking processes covering many content domains. Initially, there were two domains of creative production evaluated and they included: graphic-artistic and verbal-literary. Soon after, five other domains were added including: social problem-solving, scientific, musical, mathematics and body movement (Lubart, Barbot & Besancon, 2019).

The two types of tasks in each of the domains include divergent-exploratory tasks and convergent-integrative tasks. With the divergent thinking tasks, the goal is to generate as many original ideas as possible using one prompt whereas with the convergent thinking tasks, the goal is to generate one elaborated production that takes into account all of the elements provided. Lubart, Barbot & Besancon (2019) expressed that the comprehensive creative process involves both of these two types of thinking.

Scoring high (two standard deviations above the population mean) on this measure is considered having high creative potential where creative giftedness can be identified (Lubart, Barbot & Besancon, 2019). The EPoC model is statistically validated as the different tasks originate from the four main factors of: Divergent Graphic, Divergent Verbal, Integrative Graphic and Integrative Verbal. These factors are then grouped by domain (Verbal vs. Graphic) which can determine an individual's creative potential in a specific field (Lubart, Barbot & Besancon, 2019).

In the second approach to creative potential, the ingredients or resources of creativity are inventoried rather than assessing an individual by having them produce samples of creative work. In this approach an individual undertakes several tasks to assess specific cognitive and conative resources and these resources combine in an interactive manner which results in a creative profile shown in Figure 1 (Lubart, Zenasni & Barbot, 2013).

The five cognitive resources include: Divergent thinking, analytic thinking, mental flexibility, associative thinking and selective combination or the capacity to synthesize disparate elements in new ways. The five conative resources include such components as: Tolerance of ambiguity, risk-taking, openness, intuitive thinking and motivation to create (Lubart, Zenasni & Barbot, 2013). It is further noted that the creative profiler approach for adults consists of measuring the likelihood that an individual's profile is relatively the same to an "optimal" creative profile for a specific kind of creative work in a given domain. In this approach, an estimation can be given of an individual's creative potential without having the individual participate in an actual creativity activity.

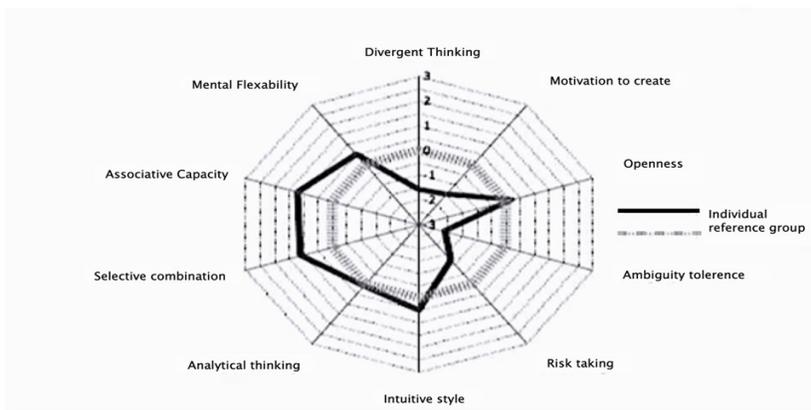


Figure 1: Creative Profiler (Lubart, Zenasni, Barbot, 2013)

Lubart, Barbot and Besancon (2019) indicated that there are three; not two, main ways to assess creative potential and they are: i. portfolio of creative accomplishments, examining the individual's ingredients of creative potential and ii. measurement of the creative process. Since the ingredient and creative process methods have been reviewed above it is worth focusing some time here on the creative portfolio.

The portfolio method of evaluating creative potential examines an individual's portfolio of creative works that is typically assessed by qualified judges within a specific field or domain. Self-report biographical inventories of past accomplishments might also be used with this method where individuals indicate whether they have or have not experienced any of the listed accomplishments considered creative (Lubart, Barbot & Besancon, 2019).

Lubart, Zenasni, & Barbot (2013) asserted that creative potential can be defined and measured. For children and adolescents, the EPoC can be used to measure their creative potential whereas the creative or multivariate profiler approach can be utilized with adults focusing on the ingredients or factors that underlie creativity. On an individual level, measuring creative potential allows individuals to identify tasks and domains where they may have the greatest creative potential and thus helpful for career planning. In addition, the EPoC allows for creative giftedness to be identified (Lubart, Barbot & Besancon, 2019). On a larger scale, examining creative potential in both children and adults can be beneficial for future educational and training programs.

The Multivariate Approach

It is clear there are large individual differences in creativity and there is constant and ongoing debate on the extent to which the same basic components underlie the diverse expressions of creativity (Lubart & Thornhill-Miller, 2019). Furthermore, variations on the quality and quantity of each component, along with the combination of the multiple ingredients, can lead to a wide range of creativity observed across individuals (Kaufman & Beghetto, 2009; Sternberg & Lubart, 1995).

Sternberg and Lubart (1996) found that most approaches on the topic of creativity have been unidimensional focusing on one or another aspect of creativity without considering other aspects. The tendency to isolate a single element of creativity has had the effect of distorting the findings of research where the single feature is taken to be the entirety of creativity, while other equally critical elements are ignored. It is Sternberg and Lubart's (1996) recommendation that confluence theories should guide the field of creativity along with these theories being developmental if they wish to achieve their full purpose (see figure 2 on the next page).

The multivariate approach to creativity has been progressively considered since the 1980s. Lubart, Mouchiroud, Tordjman and Zenasni (2015) summarized the main factors of this approach in a general model, as depicted in Figure 2, including the cognitive, conative and emotional profile of an individual as they interact with the creative requirements of a specific field. This is what determines the creative potential of an individual within a certain do-

main. Furthermore, according to Lubart (1999) the interaction and relationship among the factors varies according to the respective theories.

Cognitive factors take into account an individual's intelligence (IQ) and conative factors comprise cognitive styles, personality and motivation. Emotions also play a role in this configuration and the interaction between these three factors can potentially result in a creative production (Kirsch, Lubart & Houssemand, 2016). The total value of this result can be assessed by the respective social context, which can include the family, work or school environment, and society and culture from the broadest and macro-level perspective.

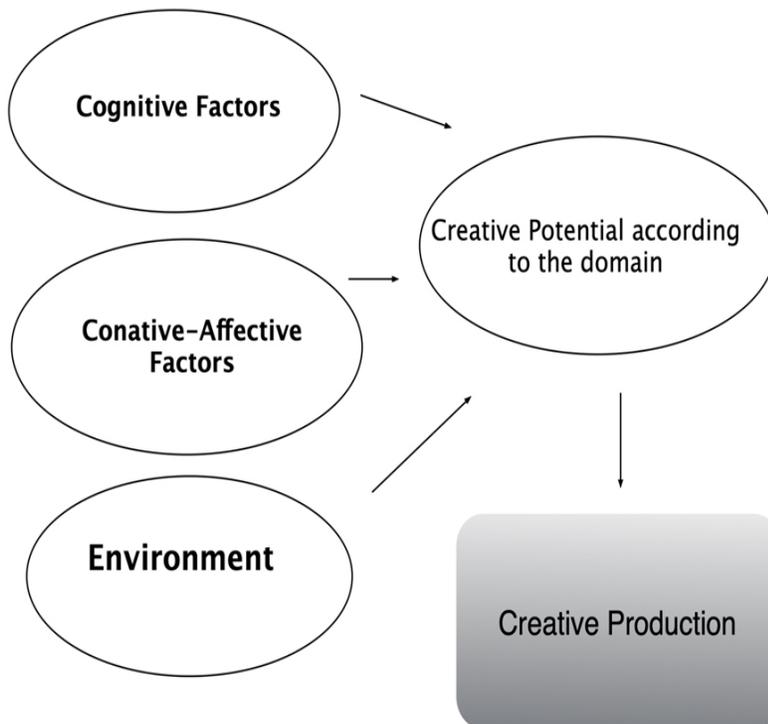


Figure 2: Multivariate Approach to Creativity (adapted from Sternberg & Lubart, 1991; 1995 and Lubart, Mouchiroud, Tordjman & Zenasni, 2015)

To summarize, the multivariate approach examines more closely the multiple factors necessary for creativity and the interactions of these factors during the creative process to determine the wide range of creative achievements (Amabile, 1996 and Lubart, 1999). More than a century of research has now investigated these factors and the role they play in creativity and this research will likely continue in the future in hopes of gaining additional clarity.

Seven C's of Creativity

To “sail the seven seas” is applied to the field of creativity by describing the main lines of research by using a comprehensive approach as compared to the seven main bodies of water on earth (Lubart, 2018a; Lubart & Thornhill-Miller, 2019). The seven C's include the Creators (characteristics), Creative process (creating), Collaborations (co-creating), Contexts (environmental conditions), Creations (nature of the creative work), Consumption (adopting of creative products) and Curricular (developing creativity). These most important factors within this creative thought plan are worth highlighting with some elaboration and examples.

Creators and their creative potential

Creators simple refers to the people who create (Lubart, 2018a) and the notion of creative potential is that every person can be characterized as a creator and as having creative potential (Lubart & Thornhill-Miller, 2019). This may show up in an individual's personal life, professional life or occur at a more intimate intra-personal level. It is also possible to view an individual's life path and development of self as a creative act, event or process (Lubart & Thornhill-Miller, 2019). Furthermore, Lubart & Thornhill-Miller (2019) explained that there are person-centered and context-centered factors that provide the basis for an individual's creative potential and can also be latent and not even available unless an individual actively engages in a creative task. Table 1 provides a comparison of Person-centered and Context-centered ingredients.

<u>Examples of Person-centered Ingredients</u>	<u>Examples of Context-centered Ingredients</u>
Divergent Thinking	Openness to Experience
Convergent Thinking	Idiosyncrasy
Mental Flexibility	Risk-Taking
Analogical & Metaphorical Thinking	Tolerance of Ambiguity
Associative Thinking	Creative Self-Concept
Analytic-Evaluative Thinking	Intrinsic Motivation
Knowledge	

Table 1. Person and Context-centered Ingredients (Lubart & Thornhill-Miller, 2019)

Creative potential can also be thought of as the resources that an individual can profitably invest in any given activity, such as writing a piece of music or coming up with an invention and Lubart and Thornhill-Miller (2019) related that a process, called creating, ultimately needs to lead to a resulting creation or product. Lubart (2018a) indicated that his goal over the past quarter of a century has involved creativity from an individual-

differences perspective to grasp the essential nature of the *homo creativus*. Using this term highlights the fact that humans are, by nature, constantly producing new ideas and actions (Lubart, 2018a).

Lubart (1994) and Steinberg and Lubart (1991, 1995) have summarized numerous research investigations that have supported the importance of certain personality attributes for creative functioning and these include but are not limited to the following: Self-efficacy, a willingness to overcome obstacles and take sensible risks, and tolerate ambiguity. These important characteristics go along with the Investment Theory that will be presented later in this chapter that emphasizes the creative individual as the person willing to stand up to conventions (Sternberg & Lubart, 1999).

Sternberg and Lubart (1995) further have pointed out that the creative individual is often not recognized until long after they become successful. However, in almost every instance those individuals have had to sustain courage and perseverance over long periods of time in order to reach the level of achievement needed to be recognized and appreciated. These are important skills for the creative individual.

The Creative Process & Resulting Creations

Lubart (2018b) suggests that the creative process is the sequence of thoughts and actions that are involved in the production of new work that is considered both original and valuable. Many personal accounts of creative activity connecting observations and theories have been closely examined across domains in order to demonstrate the broad perspective on the creative process (Lubart & Thornhill-Miller, 2019) and Lubart's (2018b) work has sought to compare and contrast the creative process across domains.

Early on in 1926, Wallas described the creative process as having four distinct stages including: preparation, Incubation, Illumination and Verification. Preparation refers to the collection of background knowledge and active thinking; Incubation is the reworked mental activity of ideas; Illumination the "eureka" moment when a new thought or idea emerges; and Verification where new ideas are tested and refined (Lubart & Thornhill-Miller, 2019). However, Lubart (2018a) indicated that the creative process is by nature highly individualized and these reflections have led to theoretical and empirical contributions to process issues.

In describing the creative process, Lubart and Thornhill-Miller (2019) discussed the critical components of divergent and convergent thinking and some of the process-oriented measures of creative thinking. These creative thinking measures were developed to assess the degree to which individuals can engage in the creative process. Lubart, Besancom, and Barbot (2011) proposed the Evaluation of Potential Creativity (EPoC) based on the process-oriented approach that was discussed earlier in this chapter.

Emotions in the Creative Process:

Lubart and Thornhill-Miller (2019) added the importance that emotions play in the creative process. For example, it was suggested that individuals may better be able to express their emotions while participating in creative productive work. On the flip side, engaging in creative productive work may lead individuals to experience emotions resulting from their creative thinking pro-

cess. A large number of studies have examined this also with mixed results but one main finding seems to be consistent and that is enhanced divergent thinking productivity occurs in the presence of a positive mood state (Lubart and Thornhill-Miller, 2019).

Lubart (2018a) also discussed his work that involved a specific model of creative associative thinking focused on an individual's emotional experiences. Lubart & Getz (1997) found that emotional traces in memory can serve as cues to connect concepts that are cognitively distant but emotionally similar. This demonstrated the idiosyncratic associations that can enter into the creative process since emotional experiences are both complex and individualized (Lubart, 2018a).

Diversity in the Creative Process:

Lubart and Thornhill-Miller (2019) also recognized the importance of diversity with which the creative process can unfold while also understanding that the creative process varies from individual to individual and across tasks and within different domains. In addition, each individual creator can engage in their own personalized sequence of the creative process rather than following a strict formula.

Lubart and Thornhill-Miller (2019) share that the creative process is a meaningful personal endeavor with purpose and goals and the creative process in general results in a new state (outcome) from which it originated. This new outcome will be substantiated by a production or creation of something that was not present at the onset. "These creations are traces indicating that a process was engaged" (Lubart & Thornhill-Miller, 2019, p. 291) and the production can be tangible or intangible. What will determine the creativity of the work however is the extent to which the resulting creation is deemed original and valuable.

Creations refers to the "productions that result from creators engaging in the creative process" (Lubart, 2018a) and the literature encompasses many studies that have examined the nature of work that leads to it being identified "creative". A production can be explored in terms of its formal characteristics and compared with other similar works or as a result of judges' evaluations of the creative work. Current work and trainings are underway in this area to support inter-judge agreement (Lubart, 2018a).

Creative Context

Lubart (2018a) suggested that the physical and social worlds provide the context in which creators create and it can be described as a multilayered environment (Lubart & Thornhill-Miller, 2019). Some of Lubart's (1990, 2010) early work in this area identified different influences that macro-level cultural variation can have on creativity such as the differences between the *Western* and *Eastern* views of creativity.

Lubart & Thornhill-Miller (2019) stressed that all contexts need to be looked at including the more intimate family, school and work environment along with the bigger geographical – national and international – contexts. Environmental factors and features in these contexts impact creativity and access or limitations to affordances in an environment also plays a part in a creative context.

In terms of the context of work, Sternberg and Lubart (1995) reviewed research that examined the many variables in one's environment that affected creativity. For instance, an environment rich with stimuli encourages creativity and cues in the environments (including physical, visual or auditory) are important to consider, along with the type of environment, such as a relaxed versus a playful environment. Having a sense of humor was also discussed as being an important part of creativity. Ideally, choosing the environmental design and cues to fit the specific kind of creative work being accomplished would be considered the ideal scenario.

Lubart (2018a) shared some of the research he has been co-collaborating on involving the impact of virtual reality work environments on creativity. The research has investigated creative thinking in multiuser virtual settings and in some cases involving avatars. Since more workplace environments are moving towards virtual settings, this research looking at certain environmental conditions and the impact on creative performance will offer valuable information now and in the future.

Sternberg and Lubart (1995) further suggested that an individual's school environment can inhibit creativity due to a low tolerance for failure; thus, leading to students that are risk averse. Risk aversion can develop early on and escalate as students progress throughout their education. Good work tends to be rewarded whereas failure often is punished. In addition, risk-taking tends to be discouraged in school which results in students opting for the safe route rather than the more challenging one.

“One of the problems with the culture of the schools. ... is that students never learn how to take sensible risks, a skill that will be needed if they are going to do genuinely creative work”.

- Sternberg & Lubart, 1995, pp. 48-49)

There has been a vast amount of research conducted in this area, along with research on cultural variations and creativity as Lubart (1999b) has discussed. The differences in the creativity definition, domains in which creative work is valued and the extent to which creativity is encouraged can be seen across cultures where some cultures solely value the creative act where other cultures place more value on evidence of creative thinking. Still, other cultures value individual creative feats while others value the collaborative model. Lubart, Glaveanu, De Vries, Camargo & Storme (2019) found that some cultures express a strong need for respect of tradition, which then may place lesser value on risky or culturally new endeavors.

In sum, when looking beyond to all cultures, it is easy to discover how deeply creativity is tied to cultural context (Lubart, 1999b). Culture is not only involved in defining the nature of creativity but also the creative process. The Western definition tends to rely on a product and originality-oriented approach whereas the Eastern view of creativity can be more viewed by the expression of an inner truth in a new way or of self-growth.

Collaboration

“The process through which two or more people, often with different or complementary skills, engage in shared creation, frequently producing something that they could not or would not produce on their own.”

- Lubart & Thornhill-Miller, 2019, p. 286

Lubart (2018a) indicated that the term collaboration refers to all of the social contacts that a creator has with other individuals who participate directly in the creative work and it is believed that the future of human work will be more collaborative and creativity-focused. The creative genius working solo may still exist in some fields but for the most part, factors such as globalization, the complexity in technology and the concomitant specialization of expertise has led to collaborative work becoming more of a necessity. With that in mind, Lubart and Thornhill-Miller (2019) suggested that understanding creativity should not be confined to just the intra-individual investigations but must also be viewed at the more sociologically inter-personal and systemic levels.

Collaborating with Computers & Robots

The topic of collaboration is not necessarily limited to human-human interactions and Lubart (2005) reflected on the ways that a computer could support or contribute collaboratively to the creative work. He examined the different ways computers can be involved in creative work and developed a classification based on four categories of human-computer interaction to promote creativity. The four categories include: Computers may facilitate 1) the management of creative work, 2) communication between individuals collaborating on projects, 3) the use of creativity enhancement techniques and 4) the creative act through integrated human-computer cooperation during idea production (Lubart, 2005).

Fast-forward fifteen years, Lubart, Esposito, Gubenko, and Houssemond (2021) examined the interaction and collaboration between creativity in humans and robots and related that the field of human-robot interaction overcomes the focus on individuals and puts creativity in a more social context. In this research, Lubart and his colleagues examined three ways that robots can interface with creativity. First, it was indicated that social robots can be designed to interact with humans. Second, social robots can be seen as creative agents with humans supporting the robot’s production and lastly, they suggest that there can be a collaborative or action in the divided work for creative projects. These three categories – humans supported by robots, robots supported by humans and human-robot teams called humbots – can mutually complement and empower one another.

Future research in this area of collaborating with computers (robots) is important with many opportunities to develop each category. An example would be examining existing creativity techniques to implement in social robots. In addition, robot creators can develop more advanced technology to boost robots’ creative productive capacity and agency (Lubart et al, 2021). What will be critical is that there will be a shared understanding of human

goals and intentions and the ability to perceive them. This will require a multi-disciplinary effort from many areas of expertise and collaboration to address this creative social-interaction model of the humbots which are socially situated artificial agents (Lubart et al, 2021).

Consumption of Creativity

Consumption refers to the “adoption of novel productions by the public, in the marketplace of ideas or goods” (Lubart, 2018a). It involves the audience and its characteristics. Consumption has also been known to be a creative act in itself as consumers bring something to the product by adapting it in some way and making it meaningful.

The term consumption highlights the link between creativity and innovation and Lubart & Thornhill-Miller (2019) discussed this topic at both the macro- and micro-economics level which is reiterated here. At the macro level, the consumption of creative goods has been recognized as one of the main sources of long-term economic growth (Lubart & Getz, 2011). In general, novel productions that meet a need will attract attention and create economic growth (Lubart & Thornhill-Miller, 2019). At the micro-economic level, consumers are thought to be attracted to creative goods for their stimulating value. The consumer is thought to value the unknown and discovery-oriented experience. However, like with anything, some individuals will be more likely to adopt new ideas, products or processes (Lubart & Thornhill-Miller, 2019).

Curricula and Enhancement of Creativity

An important topic in the literature is how to develop and teach creativity (Lubart, 2018a). All levels of the educational system are asking this question and Lubart and Thornhill-Miller (2019) have summarized an overview of what is being accomplished in a broad global sense such as with active learning methods and pedagogies of creativity training to a more personal investigation of inter-related skills and characteristics of creative individuals.

Creativity training can take various forms where knowledge and expertise on creativity can be taught with the goal of raising awareness or by teaching through role-modeling of creative behaviors. Teaching specific creative techniques or strategies are often focused on the adult population in workplace contexts. However, it does appear clear that creativity can be developed and enhanced through training and education and boost original thinking in both children and adults. Besancon & Lubart, 2015; Besancon, Lubart, & Barbot, 2013) explored several ways that can be pursued to enhance the development of creative ability both in children and adults.

Creativity and the Investment Perspective

“Buying low and selling high can be a way of life – it’s an attitude toward living. Some people choose to live creatively, others don’t ...you can choose to follow the crowd, or you can choose to go your own way.”

- R. J. Sternberg & T. LuBart (1995, p. 76)

The standard advice in the financial world, “buy low and sell high” may seem obvious to most, however Sternberg and Lubart (1995) demonstrated this is not always the case. Investors and individuals in general have to be bold and willing to take risks that others are not willing to take and it has been shown that being bold can be difficult as it involves risk-taking.

Successful creative performance has a lot to do with buying low and selling high as this means actively pursuing ideas that are unknown but at the same time have tremendous growth potential (Sternberg & Lubart, 1995). In addition, selling high involves knowing when to move on to new projects. This occurs when others recognize the value of a highly creative idea and when it becomes highly sought after. Taking risks comes to the forefront as initially strange or bizarre ideas become what people now want. This paradigm shift can be seen in many different domains, not only observed in the financial world but in other fields such as business and art and at all levels in an organization. No matter what field, those that are succeeding are doing so because they find a way to distinguish themselves from others.

The same principles of buying low and selling high can also be applied to one’s personal life (Sternberg and Lubart, 1995) and for relationships to thrive, there needs to be a creative component where there are new shared experiences occurring consistently. Becoming stagnate or continuing to do the same thing over and over will not help a relationship grow and it is the changes and creative risks that will keep relationships alive and moving. When one deviates from the norm (buying low) and feels a sense of uncomfortableness this is a step in the right direction to selling high.

Furthermore, Sternberg and Lubart (1995) encouraged individuals to not think in terms of just safety in numbers and adopt the views of a group but rather think for themselves and open up to seeing things differently. The creative solution lies in the ability to fight against the tendency to do what is expected. The rewards of creative work are often minimal, especially at the start, and the short-term payoffs are for going with the crowd. However, the ability to delay gratification even if that means spending years on a project will contribute greatly to a creative production.

Resources for creativity

Sternberg and Lubart (1991) discussed the investment theory of creativity as being conceptualized on four different levels including resources, competencies, projects and evaluation and related how they are intertwined. The six creative resources include: Intellectual processes, knowledge, cognitive style, personality, motivation, and the environment. When these six resources come together, they give rise to creative competencies which then can lead to creative projects. Sternberg and Lubart (1991) further related that the evaluation of a product is based on social consensus from various constituents (judges) in a particular environmental context.

Lubart et al. (2015) indicated that creative resources belong to four main categories which include: cognitive resources, conative resources, affective resources and environmental resources. Furthermore, Sternberg and Lubart (1995) considered the expression of creativity as more than just the sums of its parts by indicating that below a certain threshold of a single resource (knowledge or motivation) creativity will not be able to manifest itself

despite how prominent the other resources might be. This can be summarized by making the assertion that compensation among resources is limited and resources only act in the presence of other resources and is determined by their interaction.

The six resources for creativity including: aspects of intelligence, knowledge, thinking styles, personality, motivation and the environment can be linked into the single concept of buying low and selling high. Essentially, to be creative an individual needs to buy low and sell high in the world of ideas similar to the financial world where successful investors must do the same. However, it is the few creatives that actually do this.

Thinking style in this theory refers to a preference for thinking in novel ways and one in which rises above just following the crowd. For an individual to prefer this thinking style they need a certain type of personality that is capable of defying the crowd and the motivation to be persistent to overcome the many obstacles that will be encountered in any creative endeavor (Sternberg & Lubart, 1995). Furthermore, the environment that is most conducive to creativity is one that reduces some of these obstacles, reduces the risks inherent with a new idea, and rewards the individuals who are courageous enough to take the risks that are still involved.

**Recipe for Creativity:
Investment Theory of Buying Low & Selling High
(Sternberg & Lubart, 1995)**

- Generate options that others don't think about and recognize the good ones (intelligence)
- Have knowledge of what others have done (or not done) in your field (knowledge)
- Enjoy thinking and acting in creative and contrarian ways (thinking styles)
- Be willing to take risks and overcome obstacles throughout life (personality)
- Have extraordinary drive to put thoughts into action (motivation)
- Work, live and be amongst others that allow creative endeavors (environment)

Sternberg and Lubart (1995) indicated that there is a recipe with specific ingredients when looking at creativity from a “buying low and selling high” perspective. This conceptualizes what is known as the Investment Theory which involves six creative components or resources working and interacting together for the ultimate creative result or product. When these ingredients come together, it will allow the perfect recipe to emerge that will be sought after by creators far and wide.

Concluding Remarks

The field of psychology has intertwined with creativity in many important ways over the years and Todd Lubart is a huge influencer with bringing these two fields together. Lubart's depth of research and work on numerous grants and projects in the two related fields over the past 25 years has impacted the way we view traditional psychological and creative processes. He has clearly demonstrated the importance of not only bringing the fields of psychology and creativity together but also the experts in collaborative ways for enhancing our learning. Lubart has also shown tremendous personal creativity by continuing to emphasize, employ and build upon his seven C's model and connect these concepts into his teachings and research. These concepts include the importance of viewing creativity from a multivariate approach and considering the many elements of creativity such as: the creative potential of an individual, the creative process, the creative and collaborative environment, the curricular creative activities and creations and the consumption of creative ideas, products, and processes. Lubart also keeps moving with forward thinking by encouraging the future examination of important topics such as collaboration with computers and robots and curricular global advances.

Although Lubart has over 200 publications, this chapter brought to light just some of his work to provide a glimpse of his comprehensive and broad views and concepts. This chapter brings in the research not only from Lubart, but also from his colleagues, past mentors and students and other researchers and well-known authors in the field of psychology and creativity that he has collaborated with over the years. Lubart clearly practices what he preaches in terms of collaboration.

Creativity indeed has a unique meaning to each individual and in turn challenges society as a whole to expand and build upon the already existing work related to creative thought, co-collaborative endeavors and problem-solving. Lubart's work has encouraged his colleagues, students and future researchers to continue to expand their knowledge and by keeping an open mind in the process and taking creative risks to enhance not only their personal lives but society as a whole.

Author's Personal Note and Impact

I am extremely grateful to have been asked to write this chapter on Todd Lubart, who has contributed a wealth of influential research in the areas of creativity and psychology. As I underwent this focused journey on learning more about one of the most important pioneers in the field, I found myself immersed into my own creative process involving both divergent and convergent thinking throughout my own research, reading, and writing. I found myself leaving intentional room to incubate on my own new learning and examining how I can better apply the concepts in my everyday life. Being immersed and doing this intentional work continues to shine the light on the importance of creativity and the strong impact that so many experts in the field like Lubart has had not only in my daily personal life but also on my students who will be the future leaders of tomorrow.

My goal was to do great work by highlighting the many achievements of Todd Lubart and bring attention to some of his most important creativity concepts and theories over the last quarter of a century. My hope is that this chapter and small glimpse into his work did his amazing work the justice that it deserves. Lubart is not just an exceptional professor, researcher, and author in his field, he is a true creator, co-collaborator, and leader in psychology and creativity. Todd Lubart has made his mark on millions of individuals around the world and will no doubt continue to influence many more for years to come.

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CHAPTER NINETEEN

CREATIVITY IN ORGANIZATIONS: COGNITION, LEADERSHIP, AND MULTILEVEL ISSUES – THE WORK OF MICHAEL D. MUMFORD

RONI REITER-PALMON, SAM HUNTER, KELSEY MEDEIROS &
GINA LIGON

Biography

After growing up near West Chester, Pennsylvania in Brandywine Hills, Mike Mumford earned his Bachelor's degree from Bucknell University in 1979 before advancing to earn his Ph.D. in Industrial and Organizational Psychology from the University of Georgia in 1983. He began his career at Advanced Research Resources Organization, and then joined the faculty at Georgia Institute of Technology in 1985, before moving to George Mason University (GMU) in 1989. He was granted tenure and promoted to Associate Professor, and was at GMU until 1994, when he joined American Institutes for Research (AIR). During his time at AIR he worked on a number of projects including O*NET. He joined the faculty in the psychology department at the University of Oklahoma in 1999 where he currently holds the George Lynn Cross Distinguished Research Professorship. Throughout his career, Mike (or Mumford as his students fondly refer to him), has published over 300 articles on creativity, leadership, ethical decision making, and planning. The overwhelming majority of these articles are with student coauthors, indicating his penchant for mentoring and development of emerging scholars. His h-index is 102, and his i10-index is 333. His work has been cited 44,416 times to date, and over half of those citations have occurred in the past five years. He served as Editor of *The Leadership Quarterly* from 2005-2010 and currently serves as the Editor of *The Creativity Research Journal*. Mumford is a fellow of the American Psychological Association (Divisions 3, 5, 10, and 14), the American Psychological Society, and the Society for Industrial and Organizational Psychology. In 2002, he received the Society for Industrial and Organizational Psychologies' Myers Applied Research Award. Mumford has received more than \$20 million in research funding from government and corporate sponsors, such as the Department of Defense, the Department of State, the Department of Labor, the National Institutes of Health, the Office of Naval Research, General Electric, Home Depot, and Duracell. He serves on the Corporate Advisory Boards of ePredix, Previsor, and Skills-NET. Mumford also serves on Fellowship committees of major scientific organizations in the field of psychology.

On a personal note, Mumford married Mary Shane Connelly in June of 1994, another high impact industrial and organizational psychologist who studies leadership, emotions, and the spread of terrorist propaganda. They have two children Quin, who is at Pitzer College, and Kennis, who will be a high school junior in Norman, Oklahoma. The family makes time to play with their English Setters, and they vacation where fly fishing is the best such as Vermont, Colorado, Pennsylvania, Washington State, and, of course, Oklahoma.

Cognitive Processes of Creativity

Mumford's early work on creativity has focused primarily on the cognitive processes that facilitate creative production. In 1991 he published an influential paper in *Creativity Research Journal* (Mumford et al., 1991), where he integrated the existing literature on creative cognitive processes and expanded one these models to develop a unified framework (e.g., Basadur, 1995; Dewey, 1910; Guilford, 1967; Newell & Simon, 1972). This unified framework included multiple creative processes and went beyond just idea generation, which has been the focus of his research.

Problem Construction

Prior to his work on problem construction, the work in this area was limited (Getzels & Csikzenmihalyi, 1975; Okuda, Runco, & Berger, 1991). While the creative process model (Mumford et al., 1991) suggested that problem construction was a critical aspect of creativity, additional work was necessary. The first step was to develop a separate process model of problem construction (Mumford et al., 1994). The problem construction model provides a nuanced understanding of how individuals identify and define ill-defined problems that facilitate creative thought. Problem construction starts with attention to external cues that signal to the individual that a problem exists and must be solved. Attention and perception of environmental cues trigger problem representations, which are knowledge structures based on past problem-solving efforts and include four types of information (a) the goals and outcomes associated with the problem-solving effort, (b) information required to define and solve the problem, (c) procedures and operations performed on the information in order to solve the problem, and (d) constraints and restrictions on the problem solving effort (Holyoak, 1984). Elements from problem representations are then selected and recombined in new ways that leads to a novel way of viewing the problem.

Early work by Mumford on problem construction has focused on determining the effect of problem construction on creativity through active engagement (Redmond et al., 1993; Reiter-Palmon et al., 1997), and personality characteristics related to effective problem construction (Mumford et al., 1993; Reiter-Palmon et al., 1998). In addition, elements of the problem construction were tested. Specifically, the role of cues in problem construction creativity (Reiter-Palmon et al., 1997) and the effect of selecting specific elements from the problem representation (Mumford et al., 1996). The findings provided initial support for the model by suggesting that inconsistent cues

lead to increased creativity, likely as a result of eliciting multiple and divergent problem representations. Further, the selection of high quality and high originality elements, specifically constraints, was critical for creative problem solving. More recently, Mumford has focused on the role of constraints in creative problem solving (Medeiros et al., 2014; 2018).

Importance of Problem Construction. While previous models of creative problem solving have all acknowledged the importance of this process, empirical work in this area was limited. Since the publication of the Mumford et al. (1991) process model, research focusing on problem construction has grown significantly. A recent meta-analysis (Abdulla et al., 2020) indicates the problem construction is a good predictor of creative performance across a variety of measures. Similarly, Ma (2009) identified problem construction as one of the best predictors of creativity. The increase in empirical research on problem construction is directly tied to Mumford's interest and theoretical and empirical work, which then revived interest in this process. Current work has focused on the conditions that make problem construction more effective and will lead to greater creativity (Vernon & Hocking, 2014, 2016), team problem construction (Reiter-Palmon & Murugavel, 2018), and problem construction within specific domains such as science or music (Barbot & Lubart, 2012; Hu et al., 2010).

Idea Evaluation

Similar to the work on problem construction, the importance of idea evaluation and understanding of the process was limited. Creative process models included idea evaluation, but empirical work was focused on idea generation. Mumford, Loneragan, and Scott (2002) proposed that idea evaluation and selection include three major activities: forecasting possible consequences and outcomes of selecting and implementing an idea, judging how well the characteristics of an idea fit with specific standards and criteria, and choosing, revising, or rejecting the idea as a solution. The idea evaluation and selection process is typically viewed as more convergent, but also includes divergent elements, due to the need to forecast and planning (see next section). The idea evaluation and selection process is considered part of the late cycle processes associated with creativity, which allow the transition for creativity to innovation. This process is critical for organizations, as many ideas can be generated but only a few can actually be implemented, making the idea evaluation and selection important (Sharma, 1999).

One important issue that Mumford has focused on is how people evaluate creative ideas and the errors they make when doing so. Blair and Mumford (2007) found that individuals are more likely to reject creative ideas as they are perceived as riskier, and that ideas that conform to social norms are more likely to be chosen. This finding has been replicated and extended (Benedek et al., 2016; Berg, 2016). Another error identified is that individuals underestimate the originality of the creative idea (Licuanan et al., 2007) or the resources required for implementation (Dailey & Mumford, 2006). These studies indicate that one important difficulty with creativity is the reluctance of individuals to choose those ideas for implementation. If organizations want to have creative products or solutions, it is therefore important to identify

how individuals can be encouraged to choose creative ideas instead of avoiding them. Thus, it is not surprising that a significant amount of work by Mumford has focused on understanding how we can encourage choosing creative ideas. For example, individuals are more likely to select creative ideas if they are instructed to choose creative ideas (Lonergan et al., 2004).

Importance of Idea Evaluation. As indicated, idea evaluation and idea selection have important implications for organizations, as most ideas never get past this stage and to the implementation stage. Accurately predicting which ideas will be creative and beneficial for the organization is critical for organizational survival and success. However, this process has been neglected relative to the significant amount of research focusing on idea generation. The work by Mumford has indicated that attention to this process is critical.

Planning (implementation planning)

As creativity research made headway in the late 1990's and early 2000's on expanding and understanding the creative processes supporting idea generation, Mumford began to consider a more complex and rich perspective of creativity, one that went beyond generative processes alone. In particular, he began work on the study of planning and establishing operations to *implement* those ideas that had been generated.

There are a number of definitions for planning as a process (e.g., Read, 1987; Hayes-Roth & Hayes-Roth, 1979; Simons & Galotti, 1992) but Mumford identified a series of themes common to the range of approaches. One theme that was consistent across operationalizations was that planning was a largely cognitive act of mental simulation whereby goals are considered and refined to minimize competition among those goals. Ultimately, he defined planning as "the active, conscious construction or mental simulation of future action sequences intended to direct action and optimize the attainment of certain outcomes" (Mumford, Shultz, & Van Doorn, 2001, p. 214).

Mumford also introduced a planning process model that provides a detailed description of the activities comprising planning. The process is theorized to begin with scanning, moving to monitoring models, leading to gathering information and then the activation of broader or global mental models. With these mental models triggered, an individual's cases are activated and analyzed, leading to the formation of a more specific or localized mental model. This is where the mental simulation largely begins with forecasting of ideas and how they may play out, including evaluating those forecasts. Specific actions are considered and sequenced ultimately resulting in a plan that is remembered and stored for future utilization. These basic steps are also influenced by monitoring activities, the development of alternatives and back-up plans and consideration of key causes and drivers at each stage. The model is rich and detailed, providing scholars with a peek inside the "black box" of planning. Mumford has been adept at a number of scholarly activities, with making the implicit or mysterious explicit and known.

Despite such detailed model development, on the surface the very notion of planning and *creativity* as partner activities may seem contradictory (Hunter, Gutworth, Crayne, & Jayne, 2015). Indeed, planning evokes images

of structure and rigidity while creativity conjures up notions that are dynamic, organic, and spontaneous. This conceptual tension, however, reconciled with a careful consideration of how planning is defined. As outlined above, planning is a cognitive simulation and as such, is an essential partner to more generative processes. More specifically, generated ideas can be simulated to explore potential flaws that allow for revision and refinement in the generative process (Osburn & Mumford, 2006). Planning also allows for contingencies or “back-up plans” to be made, further expanding idea generation opportunities that may result novel solutions. That is, planning is a form of idea generation where possible routes to implementation are considered and, in that process, novel approaches to implementation may be identified. Thus planning, although seemingly a rigid activity, is actually quite fluid, dynamic, and organic. As such, planning is a critical partner to creative idea generation.

Why planning was important to the study of creativity: Linkages to innovation. Implicit in the exploration of planning as both a more general activity critical to all types of performance (Mumford, Shultz, & Van Doorn, 2001) as well as creative performance specifically (Osburn & Mumford, 2006; Mumford, Mecca, & Watts, 2015) is that planning represents a key process linking early-stage activities and late-stage activities in performance. Specific to creativity, planning is a core component of innovation or the implementation of creative ideas.

To understand how impactful Mumford’s work on planning was, and continues to be, it is important to bear in mind that most work on creativity has largely focused on earlier stage generative processes. Topics such as divergent thinking, brainstorming, and individual difference predictors of creativity have all focused on identifying who and under what conditions novel and useful ideas are generated. Mumford’s work was critical and impactful in how it moved the focus from idea generation to idea implementation. His work on planning was an essential bridge in developing a more applied focus in the field of creativity. Such effort may seem intuitive now but was quite groundbreaking in the early days of his work.

Leadership and Creativity

As Mumford expanded our scientific understanding of the essential processes of creative problem solving, he also expanded our understanding of *who* needs to be creative. In a time when a large majority of creative scholarship remained focused on creativity in the arts, sciences, and technology, Mumford began arguing for the need for business and organizational leaders to demonstrate and develop their creative problem-solving capabilities (e.g., Mumford et al., 2000). This mental model for how leaders think was shaped in Mumford’s late teens, when through a family friend, he was allowed to read some of the private letters and writing of Benjamin Franklin. Reading hundreds of pages of Franklin’s thinking--from creating the first library to establishing a diverse team of elites to influence social change--established Mumford’s early views that to be create enduring social structures, creative problem solving was a necessary (but perhaps not sufficient, as his later work on planning and decision making would show) component of leadership.

Almost twenty years after he read these primary, archival documents of Franklin's thinking, he published a seminal work analyzing them, "Social innovation: ten cases from Benjamin Franklin," in *The Creativity Research Journal* (Mumford, 2002). During this period, which coincided with the leadership field conflating interpersonal appeal with leadership, Mumford quietly advanced the literature on the equifinality of leadership as he published "The leadership of pragmatism: reconsidering Franklin in the age of charisma," in *The Leadership Quarterly Journal* (Mumford & Van Doorn, 2001). However, his work on leader cognition began ten years prior as he conceptually combined literature on creative problem solving and leadership.

As early as 1991, Mumford argued that organizational leaders face a range of complex, ill-defined problems that require creative solutions, necessitating creative thinking for effective leadership (Mumford & Connelly, 1991). Mumford summarized leader creative problem solving in his 2017 paper on the nine critical cognitive skills for leaders – highlighting the key role of creative problem solving (Mumford, Todd, Higgs, & McIntosh, 2017), advancing the notion that leadership is not solely what leaders say and do, but also what they think about. Perhaps his most significant impact, however, lies with this emphasis on the role of leader cognition in creative efforts. Known for his contributions to the leadership cognition literature more broadly, he characteristically underscored the need to understand creativity, and the leadership of creativity, through a cognitive framework (Mumford et al., 2009). It is through this lens that we emphasized the importance of leader expertise and sensemaking capabilities. Given the complexity and ill-defined nature of creativity, he argued that leaders must be experts in both the domain of exploration, as well as creative problem solving.

Further, he highlighted the impactful role of sensemaking in forming a coherent problem definition that could guide the problem-solving effort (Mumford et al., 2002). In 2009, he addressed the question, *what do leaders of creative efforts think about?*, presenting a complex model of cognitive processes (Mumford et al., 2007; Byrne et al., 2009). He summarized these cognitive activities in 3 key categories: 1) defining problems, 2) structuring creative problem solving, and 3) managing idea development. Since his initial read of Ben Franklin's decision making and planning, the view that leader creative problem solving is an essential part of performance has gained significant traction, with his publications on leader cognition specifically cited over 15,000 times. This literature endures as leader scholars advance the work on the cognitive processes that underlie leader strategic decision making, planning, and ultimately, organizational performance (Reiter-Palmon and Illies, 2004; Hunter and Cushenbery, 2011; Lovelace & Hunter, 2013; Fairchild & Hunter, 2014; Watts, Steele, and Mumford, 2019).

While expanding the reach of creative problem solving to leadership more generally, Mumford also dug deeper into how leaders *facilitate* creativity of others. A pioneer in this line of work, Mumford has systematically investigated and revealed the leadership necessities for successful creative efforts. Mumford broadened the discussion of creative leadership from one simply about what we can see leaders *do*, to a conversation about both the observable factors of creative leadership *and* the unseen cognitive processes required for effective creative leadership. It was through this broader perspec-

tive that he wove a complex yet elegant tapestry of leader behaviors, skills, and cognitive processes required for successful creative efforts.

In his now groundbreaking work on the subject of creative leadership behaviors that facilitate employee creativity, Redmond, Mumford, and Teach (1993) identified leader activities that led to decades of research on each: problem construction, information gathering, concept selection, conceptual combination, idea generation, idea evaluation, implementation planning and solution monitoring. In 2002, he extended this model with one of his most highly cited publications, “Leading creative people: orchestrating expertise and relationships,” which was nominated for Best Paper in *The Leadership Quarterly* (Mumford, Scott, Gaddis, and Strange, 2002). This paper described the job responsibilities of such leaders as, 1) leading the work, 2) leading the people, and 3) managing the organization. For example, not only did Mumford define behaviors such as those involved with project selection to ensure the work was intellectually stimulating and allowed for autonomy, he also emphasized the role of the leader in *protecting* creative employees from organizational constraints, politics, and resource decisions. Mumford later went on to discuss the importance of interpersonal behaviors such as mission definition, support, structure, feedback, and outreach (Byrne et al., 2009). It is here where he places a large emphasis on the social skills demanded of leaders of creative efforts, arguing that leaders must possess the requisite social skills needed to build support for creative endeavors with organizational stakeholders, as well as the social discernment required to identify problems and evaluate potential solutions.

Multilevel efforts: Creativity & Innovation

As research efforts were made to understand how creative ideas were generated and what caused individual ideas to be generated, Mumford took a more expansive approach. In particular, he integrated growing interest in multilevel phenomenon with the study of creativity. As a start to this process, he introduced a comprehensive chapter on multilevel influences of creativity (Mumford & Hunter, 2005) that Sternberg (2005) referred to as a “*tour de force* regarding the prickly subject of creativity in organizational settings” (p. 93). In the chapter, Mumford outlined creative antecedents at the individual, group, organization, and environment levels of analysis. In providing this comprehensive review, something rather profound occurred. He recognized that what predicts creative performance at one level of analysis would often conflict with that predicted creativity at another level of analysis. Consider, as an example, individual differences associated with creativity that are often a bit prickly and not particularly social (e.g., competitiveness, domineering styles). These trends contrasted with predictors at the group level (e.g., cohesion) indicated that organizations pursuing creative efforts will experience tension across levels of analysis. This observation would only emerge when viewing creativity and innovation through a multilevel lens. In doing so, he opened up an area of research that continues to evolve and lead to new discoveries (e.g., Hunter, Thoroughgood, Meyer, & Ligon, 2011; Steele, Hardy, Day, Watts, & Mumford, 2021).

The multilevel approach to studying creativity has had a notable rippling effect in the study of creativity and innovation. More specifically, three general trends have emerged based on this work. First, as scholars think about the phenomena of creativity and innovation, they now include a more comprehensive lens in that process. Consider, as an example, recent work by To and colleagues (2015) who examined transformational leadership, affect and creativity. In their framing, the authors reference the comprehensive framework outlined by Mumford. Second, the notion of paradox and tension has emerged as a central theme in modern creativity research (Beghetto, 2019; Miron-Spektor, & Erez, 2017). Although a number of influences are at play here, Mumford's work on multilevel creativity and innovation are clear driving forces. Third and finally, the discovery of paradox using a multilevel lens was impactful and, as such, has led several researchers to apply a multilevel lens to similarly complex phenomena. Consider, as illustrations, Mumford's recent work on ethics education (Mumford, Steele, & Watts, 2015) and Hunter's work on leader error (Hunter, Tate, Dzieweczynski, & Bedell-Avers, 2011). On the whole, Mumford's work on multilevel issues in innovation have resulted in direct outcomes linked the study of creativity as well as more diffuse but nonetheless impactful, influences.

Conclusion

In this chapter we have tried to summarize a research career that spans 40 years and collaborations with numerous colleagues and students. Mike Mumford has made significant contributions to a number of areas of creativity in general and in I-O Psychology specifically. His work on creative cognition spans both basic research and applied work, while his work on leadership and creativity and multi-level issues is of particular significance to organizations due to its important implications.

An Interview with Dr. Michael D. Mumford

Roni: *What led to your interest in creativity? How did your research start?*

Mike: This is a long story, believe it or not. Where I grew up at the time I grew up was little North of Wilmington, Delaware. That's significant because of DuPont, 30-40 miles West of Philadelphia. So, a rather large number of artists and scientists lived in the area. It was a major arts colony and a major scientific colony because of DuPont. Having said that, we also had a lot of DuPont's in the area and we also had a lot of mushroom pickers and steelworkers, there was exposure to creative people regardless of where you went and it was respected. Particularly among the scientists and the creative and the artists. That's kind of a latent thing that kind of hovers in the background. I had no class in creativity and innovation in college. But when I walked into grad school, I had half a master's degree because of where I went to undergrad, which was Bucknell. So Bill Owens being Doc (AKA Bill Owens), decides, he's going to give me a large stack of articles that he knew I knew nothing about. This was intentionally designed to humble me, and it was very effective. And I recommend that as a teaching strategy, by the way. However, sitting in that pile of articles was an old study he had done looking at creativi-

ty amongst mechanical engineers and conceptual combination vis-a-vis machine parts, which produced very large relationships and was thoroughly ignored by everybody else in the world. But that article stuck in my mind. Then I'm in individual differences and Doc was going through divergent thinking, which aggravated me to no end, because I said I can offer a kid a lollipop and get lots of divergent answers, which Doc thought was a rude comment, but I meant it, which gave me an opinion, which was a contrast thing between his old study and divergent thinking. So that got me interested.

Then the next part of this was being at IBM. At IBM, I was developing tests to select computer techs and you got to bear in mind, this goes back a ways. IBM was going to pay for two years in college, at full salary for each computer tech. This is expensive and they get a big raise afterwards as they get in the program. So they're doing a systematic selection thing where the sponsor was the research and development vice president. My supervisor at headquarters tells me to go down and talk to the VP for R&D who is a really nice guy and really helpful. Meeting went great. He looks at me and says, look, anything you need, talk to Sandy. She's my administrative assistant. She will make sure no one harasses you and that you get everything you need. I go great, thanks. And I'm walking out the door and he goes, one thing there's Mike, I don't go to headquarters. My jaw dropped. And I say but you are R&D. He goes, I don't go to headquarters. I'm still young. If I was older, I just would've left. I go, why? And he goes, because there are too many suits there. I put my head down laughing. He goes, I appreciate your laughter. I walked out and left, but that stuck with me. The R&D VP really was trying to keep away from corporate headquarters. And he meant it. Later actually I saw him again. I asked him how he integrated with corporate headquarters and his comment was, the president comes here. I'm like, wow. I mean, he really does not want to talk to these people. From there, is still not doing much with creativity until I got to my generals. I had been reading on it, particularly career development and creativity because of background data. I had a question the gist of which is take a look at Lehman's findings on agent creativity, critique his findings, explain how they would influence the development of creativity theory. I wrote a bang up answer. I mean, it was the best answer I wrote in my generals questions. I mean, far and away. The generals go real well. And everybody gives me fives and everything, except Doc who gave me a four on that particular question. So I'm mad about this. Now I go and I go Doc, come on, man. That was my best answer. He goes "Yeah, it was". I go, well you gave me a four. He goes, well, you missed the bias. I go, what bias? So he spews the bias. I go, yeah, I missed it. All right. At this point I'm annoyed. I decided I would write up my general's answer as an article and submit it and see if it got published, which it did with basically no revisions.

At that point, I had a defined interest in creativity, but then I had to go off and work with Fleishman in DC, which was a different deal because that was doing a study for the air force, doing a study of leadership for the army, and then a revision of Sergeant major's Academy curriculum. Nothing really came with the officer development program at that point. And that particular project died. There was an inkling in my mind that creativity is clearly important to this because the other side is trying to out creative you. And if they out creative you, they will kill you, and therefore they have won. I know

that sounds simple, but that was way too non-traditional to bring up in an army meeting. Then when I went to Georgia Tech, Larry James asked me, Mumford, what are you going to study? And I, at this point, because of that one paper on conceptual combination, a memory of IBM, and the inklings from the army, I looked at James and I said, I'm studying creativity. Period. The first year at Georgia Tech was great. I mean, department ran smoothly, everything functioned pretty well. And I spent about nine months of that year in the library because Georgia Tech had everything that had ever been written on creativity at that time. If it had been written on creativity, it was in their library. And I read it all. Every, every piece of it. It's complicated. I do admit it is a complicated career history. Part of it is that mechanical article. And part of it is the generals. And then part of it is IBM, that IBM really kind of upset me. That was weird.

Roni: *Looking at your research history, it seems that you began your career by exploring monkey urine. Can you share more about how you found your way from monkey urine to creativity and how that influenced you as a researcher?*

Mike: For the purposes of this discussion, I have had many comments over the years about, about the monkey scent marking study technically, one of which by Barry Tenopir who is one of Bob Gilford students. Barry's comment was "Mike remove that article from your vita". Which I have not done because believe it or not, it is relevant. So, I had two advisors at Bucknell. One was David Milner, who did a lot of stats at Bucknell. The other was Douglas Candland, who did animal behavior, which was mostly with monkeys, some in the lab, some in the field. I'm in Florida in the field and you're chasing monkeys through the trees. Literally chasing them through the trees because the monkeys moved through the trees in this reserve. It's a primate reserve in South Florida, and your eyes are up, you know, you've got binoculars and you're watching monkeys dance through the trees, right? You know the paths well, you know, like I've been in this path 20 times before, so you don't even look down, you just keep your eyes up. I step in this little stream, and the thing I stepped on, which should have been mud moved and I jumped back fortunately, and the alligator went away fortunately. No, I'm not kidding, this really happened. The alligator goes away and I continue to chase monkeys, but my take, and this is twofold. One, a job that requires you to step on alligators might be quite physically dangerous. Part one. Part two. I am not sure that I want to spend the rest of my life studying monkeys because it's not especially practical. Where I went to college though, they didn't do applied psychology, no one taught applied psychology, the closest they came was statistical analysis. When I was applying to grad school, I got into Harvard in urban and regional planning. I got into Columbia communications, I got to Carnegie Mellon in quant. University of Georgia was the only place I applied in I/O psychology. And the only reason I applied to Georgia was because it said applied psychology, which clearly fit with my preference at this point. Doc took me, as a student, but I don't really know if I knew what I was getting into until I took my first class in individual differences, which was my first semester, which I absolutely adored. I loved that class, everything after that was absolutely great. It was the right field for me. It was the right thing to

do. And creativity is clearly a big part of individual differences, so I was fine after that. What I did want to do is do something that made a difference in the world. Simply chasing monkeys, despite my alligator adventures, you know, it, it has some vague value, but it's very vague. It is not like improving the effectiveness of R & D organizations. It's not like making art galleries function better. I've got no questions on the career path. It is a strange way to get there. It's still a problem by the way. I have had students from Harvard. I've had students from Columbia. I've had students from Bates at OU part-time because no one is teaching applied psychology at their schools.

Roni: *When I tell people that, um, there are no I/O programs in like the major Ivy leagues, like Harvard, Yale, Stanford, they don't believe me.*

Mike: No, there are none. Never have been. It's foolish on their part by the way, but probably makes life a little easier for all of us too.

Roni: *Who were your mentors and inspirations and how did they influence your research interest and research trajectory?*

Mike: First one here is going to sound weird. That was Mr. Riley at an amusement park I worked at, but if it was a slow day, he would allow me to read. And we had a lot of slow days at amusement parks in the summer. I mean, it can get slow, it's usually like four days at least. I had to sit there and take tickets and I'd read with my hand out and turn the page. That was important by the way, partly because I had a lot of free time to read, but partly because Mr. Riley's view was as long as I can keep every machine operating for 15 minutes, I was doing my job. And I can keep a machine operating for 15 minutes with duct tape, glue, popsicle sticks, et cetera. The machine might not work permanently after my things, but I could get it to work for 15 minutes. His trust and him letting me do stuff on my own intellectually. That was important. David Milner at Bucknell, gave me a great appreciation of numbers, big appreciation of numbers, big appreciation of what you could do with numbers, and was incredibly kind. He would put up with stuff from me that I would never put up with from any of my own students, incredibly kind man. Doc, I'm going to go through these guys in chains, I've talked a little bit about already, but the thing to realize about Doc is he was an academic Bear Bryant. He dressed like Bear Bryant with a little hat like Bear Bryant, who was an old football coach. My first week in grad school, the older graduate students had not really been doing anything for a few years. And it was an NIH grant. Doc was very upset with them. I walk into the, I think it was the first grant meeting is on. He walks in, looks at me. He says, Mumford, you're new. You're out of this. His eyes then narrow and he has very light blue eyes. And when they narrowed, it looked like he was going to kill you. And he proceeded to pretty much, ream out all of the other graduate students in graphic terms for all of their failures and scared me to death. What I did take from that, though, it is a good thing to get your work done. With Doc, you got your work done. If you didn't, there would be a problem. As a major professor though, he was very supportive, very good. He was, though, demanding. Remember I got two degrees, I got a degree in psychometrics and I got a degree in IO psych. They did that intentionally to keep me busy, but it was excessively good training.

Next one is Fleishman. Ed is an ambiguous person. He really is. At one level I adore Ed, and Ed introduced me to operations in applied psych by which I mean granting operations, who to talk to, who should talk to you, why should they talk to you, et cetera, all of which has turned out to be incredibly important career wise.

[I wouldn't] say Larry James was a mentor. I would say Larry James was a friend. Which is a very different statement.

While working with Ed, Colonel Reid Wallace who was absolutely a true Southern gentleman, but a Southern gentlemen who introduced me to the intricacies of working in large organizations and pretty much bailed me out with the army Sergeant majors. We're doing the revision of Sergeant majors Academy, we're meeting with our panel of Sergeant majors. Your average Sergeant major is like 5' 8", and very mesomorphic. They're all like late forties to mid-fifties and they're all very physically fit. This is important by the way. I walk in with Reid and at this point, I'm two inches shorter than I am now. I was still growing till I was 30. I weigh 115 pounds. His sergeants look at Reid and one of them had been a master Sergeant with him and he looks up and goes, Colonel Wallace. What the hell are you doing bringing a shave tail from Westpoint here. Reid's face drops. He goes, Mike, leave the room. I go, okay. I leave the room. Half hour later, Reid comes out and he looks at me, goes, they're going to give you a chance, but I hope to God, you don't screw this up. I go in. I run the SME panel. Apparently, it went okay, because they then took me to Juarez, Mexico. We didn't need passports in those days to go to Mexico, where they decided that second lieutenant initiation processes were in play. And I would be drinking tequila with that. These are very big guys. I'm a very little guy. I hurt for three days after that adventure, on the other hand, Reid looks up the next day. Every time I started to turn green, he would take over the meeting until I stop turning green and the Sergeants stopped snickering. That sort of stuff, particularly with creative organizations is critical to learn.

When I'm working with Volvo, when I'm working with Pfizer, I want to know the people in the plant. I want to know the people in the R & D unit, how they operate, what they're doing. And Reid taught me that and it was important. It hurt a lot, but it was important. Frank, very different. Frank was operations for how you get grant work done. And Frank was skilled at it, I do not think the second large army grant would have gone anywhere near as well if Frank hadn't been there. He did the same with all you guys actually, he really did.

The final person was Mary Tenopyr, very quiet in the background. Mary was always very supportive. Always was there, if there was an issue or a question I couldn't deal with. It was a sad thing when she died. Actually, we named, we gave Kennis, my daughter, the middle name Mary because of that. Those are my mentors. They were all important. Mr. Robinson important, David Milner was important. Ed was important. Doc was important. Frank, Reid, and Mary, all of them.

Roni: *You conducted research on creativity in organizations at a time when that was not a major topic of study or of interest. What were your early experiences with creativity research? I remember those days.*

Mike: Here would be the gist. No one in I/O Psychology cared anything about creativity in any way, shape or form. In fact, for studying creativity, I was considered strange. I was. They liked my background data work, they liked the job analysis work, but they thought my fascination with creativity was an absolute waste of time. And people would tell me it's a waste of time. I was once in a job interview and someone, and the person who did this will remain nameless by the way, they're dead now, but I'll still keep them nameless. And he looks at me and he goes, you seem like a bright young man, why don't you study something useful? I go useful like how. He goes, like performance appraisal. At which point I grabbed the side of the car door and I went in my head. I didn't even make campus yet. And I go, this interview's over. There is no way I'm working for this man. That's how bad it was though. They viewed creativity as a technical waste of talent. They did. I did not care actually, and I did not believe the feedback actually at all. And it is a function, I think of two or three things. One, at this point I'm working with, for Larry James and Larry had done some very good creativity work very early in his career, so he was supportive.

The other thing that hovered in the back of my head was IBM. Why is the VP for R & D trying to keep his people away from HR because I'm supposed to be an HR person. And this guy who was very effective and who I had a great deal of respect for would not let HR near his people. In a certain sense that, between those two things my response was, you guys were wrong. It, and that's the personal part. The technical part is also important because there's a technical issue I had here. All of I/O psychology at that point in time was basically focused on lower level production workers, particularly selection, job analysis, and bias in selection. They cared not at all about creativity or creative workers. They didn't care about engineers. They didn't care about scientists. They viewed them as special people who, HR did not need to be concerned about. And I did not buy that. I had too many friends from growing up who were scientists, who were engineers, telling me nightmares of their lives, even when I was a kid. I, literally just did not buy the litany. I mean, it was fortunate I turned out to be right in the long run, but I don't know that the field was especially receptive. And in fairness to IO psych, let us remember. This is the period where a journal of creative behavior is publishing the infamous ninja secrets of creativity article. The creativity literature had in a sense, gone into a spin, coming out of the late seventies and was at the nadir of that spin. At that point in time, there was me, there was Teresa Amabile, there was Tom Ward, there's Mark Runco, there as Bob Albert. There is Dean Simon-

ton. I mean that might've been the whole pool of people doing anything significant. What I will say is that pool of people have been dedicated to the field and dedicate, and Bonnie Cramond I'm forgetting Bonnie, have been dedicated to the field and cleaning up the field to make it a technically sophisticated field with a very strong belief that unless you protect the people who are building the original stuff, there isn't going to be any economic progress. And I, you know, the shift from Dean Simon-ton to me and Mark to Teresa, that's a big joke. I mean, we all do very different stuff, but with that group of seven or so people, I think there was a very, very real concern with how do we protect and develop those who are doing creative work.

Roni: *You've done a lot of work on the cognitive processes of creativity. What are some of your more interesting or meaningful findings?*

Mike: Wow. That's a big question. The first key finding here is the process model and that's because it organizes creative cognition. We, the field now knows exactly what are the key processes in creative problem solving. Nobody at this point argues with that model. You know, they don't cite the Friedrich and Mumford study enough, but no one really debates that. And that's important. That is very important. The second part of that is the conceptual combination studies, really all four of them, because that is the fundamental basis for producing new ideas. The third is problem definition, problem construction, which is often ignored in creativity.

I wouldn't say that it's not ignored at this point, but it was years ago. Oddly enough, the next contribution here is most studies of creativity actually had nothing to do with initial idea generation. Because before you get to idea generation, you have to define the problem, gather the information, identify core concepts/core cases, combine and reorganize those concepts before you get to idea generation. The net of the creativity literature was focusing really on a late cycle process, not the early cycle processes that allow you to be creative in the first place, which is a contribution. I really do believe that is a contribution. The skills work is just as important. Actually, is the process work. You know, causal analysis, sort of everybody kind of quickly accepts. They go creative people must know key causes, and they all go, yes. And that's fine, but it's not quite that simple. There are other skills involved and those other skills are critical. Forecasting, absolutely critical. It has big effects on creative performance. We know that those who lead creative efforts, we know those who do creative efforts forecast downstream, big time. All our creative efforts are heavily constrained. We know that people who are creative, obsess, literally obsess about constraints. We've got maybe 15, 20 studies on constraints, maybe 15 or 20. They all are important by the way.

I think the two meta-analyses, both the education meta-analysis and the climate meta-analysis were important content wise, but I would also say they were important methodologically because prior to that, no one was really doing meta-analyses in the creativity area, and those have proved to be quite productive when they're done. Final thing it's more recent, but significant, most creative work fails. I mean, it's absolutely clear most creative efforts fail and fail pretty miserably.

I forgot one. Sorry, I got jumped back. The leadership of creative efforts and the organizational planning for creative efforts, both the planning part and the leadership part have proved to be incredibly pragmatically important. Bear in mind, they didn't think you could plan for creativity in the old days, which was not good for organizations by the way. They didn't think you needed to lead creative people where the data says that's probably more important than anything else. Um, wanted to segue back to those particular topics. The other area is errors. Creative efforts often fail, and the work we've done on errors, the work we've done on biases, it's new. I believe in the long term it's important. Partly because the biases don't always mess up creativity, some biases do, some don't, um, people can control errors they make in creative work if they're given appropriate training. So that work is valuable.

Roni: *What paper or chapter are you most proud of? I know it's like asking, which of your children do you love the best, right?*

Mike: There's like 400 some of them. I mean, it's not quite that easy. Probably the Scott Lonergan and Mumford piece. Partly because it was a conceptual combination study, partly because it's the clearest example, tying conceptual combination strategies to knowledge structures that's been done. It tends to get cited for conceptual combination. Oddly enough, it doesn't get cited enough for knowledge and, what knowledge base you're using, but I am particularly proud of that paper to this day.

Roni: *A lot of people find planning to be boring and to some, an obvious topic. What led you to focus on this process in particular?*

Mike: I realized they'd find it to be boring. and the most amazing part of this is the article Sven Hemlin did and just the article, very simple article, he was doing a critical incident study in academic labs and commercial labs and microbiome. So, part of the study was they asked the leaders which activities they would delegate. They would delegate everything. And I mean, everything, except planning. That is the only thing they would not delegate if they were not involved in a plan, they were not going to do it. Planning is boring, but it is also critical. That is the first issue. And it is literally so critical that someone who's leading a creative effort will under no circumstances delegate it. Part one. Part two, all creative efforts in the real world are, ultimately become very large efforts involving multiple parties in multiple ways. That has to be planned. The mistake the creativity literature has been making is you just have to lead the creative people. The creative people actually have to educate the other functional units. They have to consult with the other functional units. Somebody in the creative team has to sell top management to invest in the creative effort. The creative people have to sell other people in the firm to bring them in at the right time, in the right way, such that the cross-functional teaming occurs at exactly the right time with exactly the right people. This is a very, very complex planning process. And it plays out, bear in mind, the timeframe of most creative efforts, which is, you know, on average, probably about seven years to play out, from initial development to full fielding. you're talking about seven-year timeframe with constant sales, constant education, constant recruitment, and replacement. If you don't plan, there's no creative product. None. Zero. And the creativity people have been arrogant about that. And they're ignoring that the requirements for implementing and developing creative ideas in an organizational context go well beyond the creative thinking processes per se. And what is clear is planning, part one and part two forecasting again. The O'Connor study is quite real. If you look at people who've led creative R & D efforts producing radical innovations, the clearest finding was the people running those efforts could forecast downstream. And that means they're planning. If you look at the history of AT&T's bell labs, the planning of the research was exceptional. And this has led me to a very basic view, by the way, anybody studying creativity should go out and read Walt Disney's biography. Anybody studying creativity should go read the history, which is now quite well written, by Gertner on bell labs. Anybody studying creativity should go out and read Isaacson's book on Steve Jobs. Those three books all make the same point. There's creativity

involved, but that creativity requires planning. It requires effective execution. It requires effective execution over very long periods of time. It requires systematic introduction of people at certain points. It requires systematic introduction of technology at certain points. In reading what actually has to happen in the real world would be very, very good for many people studying creativity. I admit not everybody is as fascinated with engineering planning as I am. But look, Disney planned. He was really good at it too, by the way. He used to sit in parks and play in his amusement parks as he watched his daughters on a merry-go-round. I realize not everybody's going to be fascinated with engineering planning. I don't think you can ignore the planning of execution of creative ideas in organizations, the evidence doesn't say you can. And the problem here is the creativity people don't want to think about development of the idea. They do not. And the IO people think planning is boring. There's this big vacuum area, and people need to start filling the vacuum area. Sorry. I'm on a roll about this.

Roni: *Your work also evaluated the role of the leader on creativity. What are some important implications of your work for leaders?*

Mike: That's, this is actually interesting. I teach a class at MIT and Stanford, it's a continuing ed class for R and D VPs. In a sense that class is about leading for creative efforts. That class makes a big difference to those R and D VPs. And these are people who've been around a long time. These are all people with PhDs. It is very hard to manage creative projects. One thing that comes out of the creativity literature is it's a real finding and it goes to Feist's work. Let's face reality here. Creative people are not nice people. They're arrogant, they're driven, they're competitive, they're ambitious, they're domineering. Domineering gets better as you get older. That I do believe is true, but that is true. These are not the ideal employees. They really are not, no one wants to manage these people. Part two, the organizations righteously are suspicious of any creative efforts and they should be. Most of them fail. They're very expensive. They're often even if successful, incredibly disruptive of organizational processes. You have suspicion on the part of the organization, you have a group of people who are very difficult to manage under the best of circumstances. And then you have to plan out a series of projects, where any project single project is going to take seven years, but you have to build a portfolio of projects where those projects have to interact with each other in a timely and effective fashion. This is a big problem. This is very difficult for people to do.

Where the creative leadership literature is at the moment is itself problematic though. I will say this. There are three basic models of creative leadership. One is leader behavioral styles. The second model is leader functions. The third model is leader skills. Almost all the attention on creative leadership has gone to leadership styles. That's 90% of the studies. And what they're doing is they're handing out transformational leadership measures. They're handing out leader member exchange measures. They're handing out servant leadership measures. They're correlating that with usually managerial reports, surveys on creative performance. The findings are routine. In that area, pretty much you get what you would expect from a basic understanding of creativity. Leaders supporting a creative climate is good. Leaders having a

positive style leads to people employing creative processes more. None of this is surprising. The functional model though describes what the leaders have to do. That is surprising and it is very important. They have to plan those little different activities. They have to advocate for certain fundamental themes. They have to recruit literally 50 to a 100 million dollars from the top management team to support the work. Please note that means they have to be able to champion the creative effort. That champion thing is very important. They have to be able to educate the rest of the organization on what the creative project means. They have to recruit people from those units. They have to know how their creative efforts will disrupt the normal process in those units. We need to get far more attention, not to leadership styles, but to what the leaders actually have to do. Leading a creative effort. The second thing is the skills here are complicated. These people are, have to be technically as good or better than their creative people. They have to have more expertise because the creative people will only respond to expertise. They need wisdom. They need to know what they can sell, where they can sell it, how they can help people, how they can't. We don't commonly think of creative leaders being wise. Wisdom is important for them. What I hope to see in that literature is a dramatic shift away from behavioral styles to functional requirements placed on creative leaders and to the skills that leaders have.

The other reason for that shift is something that comes up all the time when you train R and D VPs. And that is, where at, Mumford? Where am I supposed to get these people from? Every time. It's the common question at the end of the class. Where can I get these people from? Because my HR department is not helping me and you're telling me they need to do all this stuff, and I agree with you, but I don't know how I got this job and no one prepared me for it. We have to start taking the development of creative people in the real world seriously. You are not done when you get a PhD, you are not done when you get an engineering degree. And I hope that work sets a framework up for doing that, but there certainly have not been enough studies on it. There's not enough work done. You know, the only exception there is really the old army study, and that study is important. But it is looked at as a leader development study, but in the context of the army, it's creative development. We're not doing enough with development. And I hope ultimately the people reading the leadership of creative efforts literature take it to mean we have to do a lot more for real world development of creative talent than we're currently doing. To see how significant this is, this goes back to the IBM comment actually. One of the common things that comes up when you teach these guys is, man we hate the organization. We don't want to talk to them, we just want to go do our thing and I'll send someone out to talk to them. So after the end of this session, they'll often go, you know, we've been doing okay with that, but we got to do better and I go good. But then they go, where can I get support? Where can I get intervention techniques? Where can I get guidance for this? And my answer is, I don't know, guys, it's not out there and it should be.

Roni: *There are a lot of misconceptions about creativity. What are the most common, with an emphasis on those that annoy or upset you?*

Mike: I can give you a lot of these. Creativity only involves the production of multiple ideas. In organizations, that doesn't work that way. Let's remember what the definition of creativity is. It is the production of, note the wording here, quality, original, and elegant solutions, and this is the important part, to complex novel ill-defined problems. What this means is that a well done, high quality solution and only one idea behind it works just great. And it's highly creative. Stop ignoring quality, start focusing on the problems. Stop worrying about multiple solutions, focus on solutions that are to complex, novel ill-defined problems. Second thing that annoys me, creativity is in everyone and everyone should be creative. Really? I have seen no hard evidence of that ever. There are many judgments of creativity. There are Oscars. There are Pulitzer prizes, there are biographies. All of these things are markers you have been creative, not many people get any of those awards. Now having said that, that tells you most people are not going to be creative, externally. Saying that everybody is creative basically says, you don't educate for creativity. It says you don't manage for creativity because everybody can be creative. No, most people can't be creative. And that is a reality because ultimately creative products are also competitive products. If you don't believe me in this, go talk to any five real-world, and I'm not using business here, any five real-world artists. And they will tell you how competitive the arts world is, in graphic terms often with swearing.

A second issue ignoring how competitive is to be creative is problematic. This third issue here is, creativity is a spontaneous and wonderful thing. Something that happens to you, and a mystical experience. Now I figured this was done with Weisberg's work and Emily Dickinson. I just figured that and put this to rest. No, it's still out there. They're all out there having mystical experiences. The problem with that is as long as that hovers there, no, one's going to systematically develop the self to be creative. I'm on a roll now. It is very important for creative people to succeed. No, not really. It's important for creative people to succeed every once in a while, but what's way more important is to learn from your failures to be creative. But the field focuses predominantly on success, not on what people are learning from their failures. Again, a problem. My favorite one, this is my absolute favorite one. We must motivate creative people because motivation is very important. No, absolutely incorrect technical statement. Creative people are already highly motivated. They're already highly disciplined. They're already very well-educated. These are not people who need motivation. They have ample motivation. From the perspective of the real world, the issue is not motivating creative people, it is channeling their motivation along productive lines. But, the bulk of the research on motivation and creativity is about level of motivation. That's a mistake. It really is a mistake. It drives me crazy, actually.

My next favorite flaw, [is the statement that] I am studying creativity. Creativity is one overall thing. Not true at all. There is a general set of processes involved in creativity. Everybody agrees with that. However, some processes are important for some fields. Other processes are important for other fields. Doing a global assessment and calling creativity one thing is a terrible, tragic error because you actually don't know the specifics about what you're making the statements about, but that gets translated through the whole literature. The conditions that promote effective problem definition are not

the conditions that promote effective idea gap. They are different conditions. Failure to specify exactly, precisely what you mean by creativity in this particular piece of work is not a good idea. A final thing, and I have applied this at CRJ and I mean it. If you don't show me the creative product, I am not publishing your manuscript. PACA applies the same rule. If I can't see your creative product, I am not publishing your manuscript. Well, there was real good reasons for that because given the fact that it is very difficult to get people to specify exactly what they're studying vis-a-vis what processes, at least if the reviewers can see the product, they can draw reasonable inferences in that regard.

Are there any other global things that really set me off here? Yes. And I do not care about your opinions about the beauties of creativity. That one also sets me off. Actually, if you talk to most creative people, they suffer a lot. It's hard work. It's very painful. And talking about the beauties of the creative product, doesn't address the pain and agony of getting to the creative product. Put differently, let's remember, Van Gogh cut off his ear. Now, well I would not recommend cutting off your ears routinely to be creative. I would recommend study, not looking at creativity as something inherently beautiful, I would look at it as something inherently difficult. And whenever I hear the words, beauty and creativity I cringe. Related to this is actually intuition, which I also find problematic. Intuition is predominantly an impact of expertise vis-à-vis the discipline. And the people who say creativity is beautiful will also say it's highly intuitive. And there isn't much evidence to support either of these views. I think I'm done with the things that really set me off. Motivation thing really sets me off by the way, I actually get so upset with that I block on it.

Roni: *You have trained a number of researchers on the topic of creativity, many of whom are continuing this work. Why do you think this topic resonates so strongly with students and potential students?*

Mike: The very short answer to that is students are dumb. I mean, they are dumb vis-a-vis the field, which they are naturally, that's why they're students. But they're not, about the world. Frequently students actually perceive creativity innovation to be more important than say I/O psychologists in general. And I think it's because they actually see the world a bit more as it actually is, as opposed to a discipline they're involved in. That's one answer. I think the world has changed, and I really do mean changed. It is apparent that the educational system, it is apparent that the business system, it is apparent that the government system all place a much higher weight on creative work than they used to. And the incoming students are aware of that. The third reason is frequently the students that land in my shop, unsurprisingly often have professional parents and they're used to hearing their parents talk about the demands of creativity or used to watching their parents work it through and they actually do want, go, wow, this is hard, how can I help them? I think it's all three things. They don't want, you know, well I'll take that back. Some of them do like emotions, which always troubles me. We do have a few of those, but I would say they are more disciplined than people give them credit for. The students studying creativity at this point are far more serious, far more disciplined then generally speaking, they were when I started.

Roni: *You served on an editorial as an editorial board member, associate editor, and now editor of many, if not all of the creativity journals, what publishing trends and creativity have you noticed behind the scenes?*

Mike: There's less work done on divergent thinking than we used to be, a lot less, which surprises me. I think that might be a mistake because there are an awful lot of divergent thinking tests out there, and those tests are not being thoroughly explored, and that does trouble me, but there's a lot less divergent thinking stuff. There is less creative processing stuff, and again, that troubles me, but for very different reasons. There's sort of this view of what we now know that these are the creative processes and then they sort of go, well, we're done. We don't know anything about how people select cases. We don't know how they select concepts. We know concept selection and case selection is important, but we don't know the contents creative people use. I mean, that's an obvious gap. We know conceptual combination is important. We have some feel for the key strategies in conceptual combination, but we don't know much about how elaboration occurs. We don't know why people choose to elaborate A as opposed to B. Those are key issues in conceptual combination. We know adaptive monitoring is absolutely critical, but we have absolutely no studies that I can identify that have looked at how creative people monitor their environment, what types of cues they use, et cetera. My point being, I don't see creative processing work being anywhere near finished. I just think we have a good baseline. I don't think we have enough work on what directs people to pursue certain types of creative work and when they're willing to pursue it. I don't know that we have enough work on intellectual stimulation techniques, which appears to be a key attribute of climate. We have enough work in peer support, but we don't have enough work in intellectual stimulation.

We don't have enough work on development of creative potential broadly speaking. It's very good up to 10th grade. There's actually a lot of studies on gifted kids and development of gifted kids up to 10th grade. Then it stops. There's this big black hole for the rest of their lives. That gap has to be fixed. We have to look at what is creative development in high schools. We have to look at what is creative development in college. We have to look at what is creative development once you're within an expertise field and those studies are not being done. Anything else really? We don't have enough time series studies of creativity. I mean, Teresa Amabile's diary study was a good idea, but it's one study. We need a lot more diary studies than we have, and we need to have them look that in time series models, because you're not per se, what we know with regard to creative production is it emerges over time with very different conditions with varying mark shifts, and we simply don't have enough evidence there, and none of those studies are coming across my desk. And I doubt they're coming PACA.

I did the negative trends is actually where I went to. The positive trends are, it's gotten much more domain based, at least within the creativity literature people are looking at creativity within specific domains, and they're sometimes drawing specific cross domain comparisons, which is good. I'm seeing more articles than traditionally was the case on the arts. That bothers me a little bit because I'm not seeing as many articles on engineers. I'm not seeing as many articles on scientists, but I'm seeing a lot in the arts. There is

more historiometric work being done, because it used to be Dean Simonton was the only person who really did that. And it was a great work, but Aaron Kozbelt's doing that. I wish some of my Doctoral students would do that, but very few do. There is a good literature in the history of science and we should be looking at that more in studies of creativity. We should. What other stuff are people doing well these days? There's more neuroscience stuff going on, but, and I say this with impression, there's more going on than there was, I don't think they're making any substantive progress, bluntly put. The effects are small, they're inconsistent. I realize people are fascinated by MRI machines, but I'm not sure that creativity is ever going to lend itself to one area of the brain consistently lighting up. I just don't think that's going to be the case. We are finally, which is good news, seeing the national science foundation finally rolling over and playing dead, and are accepting the fact that creativity might be required and might be important in STEM education. This is relatively recent. It's really only in the last three to five years, but that is important. That sets up a stable funding stream. That is very important. We are seeing far more methodological studies of creativity than we have in the past. A lot more, and generally they're well done and they're informative. Silvia's work has been very formative for divergent thinking. Reiter-Palmon and Kaufman's work has been very informative for like background data, life history, measures of creative performance. The methods for studying creativity have been much better worked out. What else are we seeing a lot of? We're seeing enormous number of poorly conducted studies on organizational creativity. Occasionally there's a good one, don't get me wrong. There are occasionally some that are decent, but I would say that's the largest incoming to CRJ, far and away, is organizational studies. The other area that's very active is personalities of creative people, specifically looking at more narrowly defined traits than Big Five traits. I'm seeing a lot of that come in the door. And then education, particularly not as much in the US, much more European, middle Eastern, but I'm seeing a lot of creative education efforts come out of Europe, a lot coming out of the middle East. That'd be a fair summary, that's probably not as informative as you would like it to be.

No, it's just you get a very different mindset when you're doing the senior editor gig, because it's like read the manuscript, you'll know where I started with was where the really bad things coming from. And what's missing was the other issue. Senior editors default to do I send this thing out for review or do I desk reject it? I actually think it destroys our minds. I do, I think it does great damage to it. You read a lot, but I'm not sure you process it quite the same way the associate editors do.

Roni: *Our last question, and you started a little bit in the previous one, so what's next? What does the field need to address? Where should we go?*

Mike: I'll reiterate a couple things I said there. I would like to see all motivation research drop level of motivation and focus on directional motivation measures. Level was ridiculous here. It's just, why are you doing this? And the problem organizations have is what direction to get people to go in on creative projects and how do you get them to go in that direction? The second issue is the creative process stuff I talked about. It's not that there are no studies on it, but there are fewer. And the assumption is, well, we have a nice

outline of the processes, well we do, as an outline of the processes, but we don't know enough about the specifics of what's going on in each and every one of those processes. Related to the above fact, we need to stop studying, pretending that everyone will be creative. It's one reason I don't trust many of the articles published in the IO literature and actually, it's a common reaction with you guys, actually. I can watch someone go from an entry-level grad student say it's a creativity article in JAP to five years later they go, oh, Mike, they've written a stupid JAP article on creativity. This one's really bad. And then I go compared to what? The reason they're going there, is two reasons frequently. One, the creative product isn't clear, which is the first issue. The second issue though, and it's literally a fair number of the studies. It is not clear that they're actually studying creative work. McKay is right about this, this is the McKay Kaufman piece. If you're going to study creativity, you got to isolate what are the creative tasks on the job? I know literally personally of no study, none, that has isolated the critical creative tasks on any job. The exception that maybe the army to a certain extent, but outside of that, I haven't seen it. We don't really know exactly what the creative tasks are, how those tasks are being executed, what are the contingencies on those tasks? We have a global impression, the wording impression, of creativity. That's problematic to me. This is going to get very random. I'm going to give you good things and bad things now. I do want see more work on specific, I do want to see more historiometric work on creativity. I do. Every time we've had a well done historiometrics study and I'll use Bob Weisberg as an example, that work has turned out to be very important. For some reason, people don't seem to want to go to library or execute historiometric research. I don't understand it cause we all got libraries. I think we need more studies realizing the difficulty of being creative, which covers a lot of sins. It's studies of errors and creativity. We don't have enough of them. It's studies of constraints and creative work. It, bearing in mind that constraints stimulate as well as inhibit creativity. We don't have enough studies of criticism of creativity and or self-criticism, but every step of the five studies that have been done, they all say it's real important. How does that relate to creative self-efficacy? I don't know, the studies haven't really looked at it. How does that relate to openness? Don't know. How does that relate to the source of the criticism? I don't know. The point here being, we need studies that look at the harder parts of creativity, but also the specific production requirements people deal with in the real world. To illustrate, when, and this has been key to the work I've done in creativity. If you remember, when we were making up the initial process model, one thing I did is call my brother [ed note: Dr. Mumford's brother is an artist]. I did. And I go, Mark, we think this applies pretty well to engineers. Do you think it works for you guys at all? That was my question. I had no idea. I am not an artist, so I really had no idea. My brother stopped dead and said, no this is deadly accurate, works great for us because when we stare at things, we're doing problem definition. But we don't have enough direct contact with people actually doing creative work. And I think that would improve things a lot if we did. The historiometric stuff actually might serve very similar purposes actually. I don't think we've effectively covered what I would call real world contingencies on creative efforts. I think what we do is we take, it's a lot like the process stuff actually. We'll get one or two findings.

They'll make pretty good sense. And then we drop the topic because we assume it's the same everywhere, and it's not. [When] I talked to leaders of creative efforts, they'll tell me frequently, we typically under resource creative efforts a little bit, because we use it as a trick to force them to think creatively. There's still enough there. We came a little short. We know it's a little short because they'll think more creatively. It seems to work for them. But do I have evidence to support that? No.

Similarly, I try to be supportive of my people, up to a point. And the point is when we have production pressures and when we go into prototyping, I'm not going to be indulgent. When we go to prototyping, it's gotta work. So yeah, it's gotta be supportive. But, it's tricky how that's conducted in the real world at different points in time. We need to be researching that.

Next thing, which really does trouble me a great deal. We tend to look at creative performance as being isolated in a single performance, part one. Or part two, isolated from the rest of the world. Both of these are mistakes. Creative people are always working on programs. It's always a program. Artists are always programmatic. They're far more programmatic than we give them credit for by the way. They're trying to execute a style vis-a-vis a certain image and they're trying to manipulate that and improve it over time. Scientific research, always programmatic. Engineering work, always programmatic. But I don't have studies of those programmatics, and that troubles me. We're isolating to create a product, but we're not looking at the programmatics that let you get to that creative product. The opposite end of that is we isolate the creative effort from the real world. Meaning the big world. Csikszentmihalyi was right about this. I've got no studies, like zip, on the impact of professions on creative performance. And there literally is nothing out there. Once you get done with the mentoring literature, that's the closest you get. The impact of professional norms, the impact of professional expectations, the impact of professional review demands. There's nothing on that. Similarly, in the artistic world, my brother tells me they all hate art gallery dealers. They all detest them because they're critics of their work and their view is they take money from them. but we don't know studies of the impact of gallery operators on artistic creativity. Why we don't? I don't know. What I do think we isolate ourselves too much and don't look at those external influences. The third example of this is life space. We're not, bearing in mind, I am not known for my gender sensitivity since I treat pretty much all you guys the same. Having said that, there's an absolute consistency among my female students. That is, they're always 10 years behind my male students in careers. Always. Every one of you has been. And what happens is, you have kids, and for the first 10, until that kid can drive a car, you are spending a tremendous amount of time with the kid. So you get this divergence, you guys' careers pick up late after little kiddies go out of the house. As my male students, creativity goes down as the kids get out of the house. Now my point with this is not to be completely and utterly sexist about this. My point is the life space, we're not looking at people's life spaces and how they influence creative performance. Remember creative performance comes in cycles. The other thing we need more work on, although I'm not sure if it's creativity, people can do it on their own, is create, the possibility of creative production and the type of creative productions that can occur, seems to be timed in a rather specific

way, actually, and Maxwell's initial development principles of magnetism and electricity, uh, done late 1850s. You don't see Edison coming along until the 1880s. Then you don't see widespread distribution of electrical products till the 1920s. But this isn't that different then medical genetics. The timing almost looks identical actually. You know as the 1950s, you get a feel for DNA. It's the 1970s, 1980s when you start to see initial genetic therapies, it's the early two thousands when you see them actually being applied in medicine. We need more studies of the timing, but we need more studies of what type of creative effort is possible at what point in time, given where things are. That, by the way, would be highly useful. Um, related to that, uh, when you can accelerate those development cycles and when you can decelerate them. Studies along those lines would be very valuable. What I hope the field does not do, and I'll criticize my other field. Fran Yammarino makes a good comment. It's an accurate comment. And he goes, you know, Mike, the problem with leadership is leadership theories don't die until the person who made them up dies. It was bad, told me that I started to laugh and I go, yeah, that's so true. There's going to be another LMX study until George Grean, Bob Liden and Mary Uhl-Bien all die. And then after that point, we might have fewer LMX studies. Although I doubt that. But I would like to see more creativity amongst creativity researchers. When I say more creativity that should not be taken as being undisciplined. It should not be taken as doing poor method. It should be taken as thinking outside the standard box, hate to use that analogy, but I will here, and applying the best methods to understanding new phenomenon because we frankly haven't really. The way creativity research progressed is a very brief burst of it in the 1910s to the 1920s. It's pretty good work. It was early work. It adds some value. Then it dies through the depression of World War II. Then from 1950 to about 1967, lot of very good studies done. Then it dies again. Literally this time almost went off the cliff. What has happened since really 1990, is over 30 years of creativity, field has pretty much totally rebuilt itself. It's much more effective, much more timely, much more objective, much more practical. I hope that continues. I mean, the fear I always have is that we will do another one of these productive and death scenarios. Get 10 years of productivity that will die for 15 years. We have 10 years of productivity and die for 15 years. Systematic, well done, methodological research that builds incrementally on the work done, is what's gonna allow the field to become stable and effective. And I hope that's the case. I do. I mean, I think it probably will be. That's the word. You can hear the fear in my voice. I hope it will be, but I am somewhat, I don't trust people and systems. I just don't. And I hope it will because that is what has allowed it to become very successful over the last 30 years. And another way to see this is, if you look back 40 years ago. R & D VPs didn't go to courses on creativity and creativity leadership. They did not. They do now. National Institutes of Health did not ask for policy studies to support and encourage medical creativity like Mike West. The army did not think its officers had to be creative. And that has really changed. It really has changed. And I think the one thing we have to do as a field as well, is we have to be responsible and respond to those changes with both viable research and development and viable practical programs. If I had a good practical program research coming into CRJ, I would publish it immediately. I would. It just doesn't come in the door.

Roni: *Those were my questions. Anything you want to add? Any questions I didn't ask that I should have?*

Mike: Ah, my brother, he wants acknowledgement.

Roni: *Your brother wants acknowledgement. You referred to him a number of times in this interview so.*

Mike: His full name is Mark Mumford. And I will point out that in the Seattle art museum on their entryway, the words of one of his pictures are on their entryway, but you must give my brother some acknowledgement.

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CHAPTER TWENTY

DR. KOBUS NEETHLING: THE AFRICAN BEYONDER

TARA GREY COSTE & MISSY KETTELL

Early Years

Kobus Neethling is renowned for being the innovator of deliberate creativity in South Africa. Born and raised in Cape Town (Basson, 2017), Neethling attributes his journey into creativity to his parents and the way he grew up with his brothers and sisters. His mother was described as loving, neat, orderly, and organized. His father was more unorthodox and funny with a high level of energy and a flair for the unexpected. At meals, Neethling and his siblings were encouraged to play and would stack glasses to see who would reach the ceiling first and throw raw eggs at each other across the table. Neethling states that they lived a life filled with fun things, and as a child, he thought all families did. Looking back, he recognizes that he had the best of both worlds with his mother as the anchoring force of the family while his father would push the edges (Team Coaching Zone, 2015).

As Neethling himself says:

I can recall many moments in my childhood that impacted my creativity choices in later years. But I believe that the Neethling family culture and the family environment played a decisive role in my study and career decisions in the short and long terms. I felt as a child that discipline, structure, and order were always part of my young years but that the freedom to explore the edges was also inherent in the family culture. My favorite childhood memories are linked to dinnertime in the Neethling home. My mother who was a caring intellectual represented the structured left-brain in the family; my father, a brilliant sportsman, was the edge seeker—the breaking of the boundaries mentor. He would always do something out of the ordinary, a few handstands, or a somersault, or throwing cups to all of us sitting round the table. And that is where it all started for me, trying to make sense of this integrated world we live in where order and disorder, preserving and changing, details and “big picture” live side by side. (personal communication with Kobus Neethling, June 14, 2021)

As a result of his parent’s influence on him, Neethling wanted to better understand human potential, wanting to know how far you could go, how close to the edge you could go, and how to not stop before you got there

(Team Coaching Zone, 2015). Neethling studied human behavior at the University of Cape Town and then at the University of Potchefstroom, where he earned his doctorate (Basson, 2017). In total, Neethling would wind up earning six university degrees (Hebert et al., 2002)

Beginning his career as an educator, Neethling taught at two high schools before becoming a lecturer at a teachers' training college. He also did work in other sectors, serving as Deputy Director General of Communication to the Minister of Police (Hebert et al., 2002). However, it was to be as a student and researcher of creativity that he found his true calling.

During his initial foray into this realm, Neethling became a mentee of Paul Torrance. Neethling first met Torrance in 1980 when he was on a sabbatical to research successful gifted programs in the United States and Europe (Neethling, 2019). He credits meeting Torrance as a turning point in his life, and with this blue-chip mentorship, Neethling discovered the value of adding creativity to everything you do (Team Coaching Zone, 2015). Torrance believed that creativity is the highest form of mental functioning, and the Torrance Creativity Center at the University of Georgia was considered the number one creativity program in the world (Venter, 2020).

In 1980 in South Africa, there were not any gifted education programs available to students. Neethling was appointed to be the Education Planner for Gifted Education in South Africa. Neethling's sabbatical and research were highly successful and clearly made an impact in South African education. In 1981, an independent research team declared that gifted education should be considered a high priority in the country. Within five years, they were able to make notable progress with gifted education in South Africa and developed a training program for undergraduate students in their third year of study and in-service training of teachers in more than 90% of province schools (Neethling, 1985).

In 1983, Neethling located to University of Georgia to embark on a master's program and conduct post-doctoral studies with a focus on identifying and developing creative behavior. He became quite close to his mentor Paul Torrance and embarked on twenty years of mentoring and friendship that truly changed his life. Meeting Torrance set the tone to make "Torrance Creativity" the essence of Neethling's programming in South Africa (Neethling, 2019). When Neethling returned to South Africa in 1986, he formed the South African Creativity Foundation, which has had significant impact in the decades since its founding (Wood, 2002).

One of the Neethling's defining accomplishments was being asked to train Nelson Mandela's staff on the creative perspective when Mandela became president. As South Africa emerged out of Apartheid and became a democracy, creativity was desperately needed to avoid revolution and bloodshed (Wood, 2002). By this time, Neethling was regarded as the leading creativity expert in South Africa and often spoke on "The Importance of Creativity and Innovation in a New South Africa" (Agrella, 2020).

Neethling's work was not confined to South Africa. With another mentor, Sidney Parnes, he gave speeches all over the world. Parnes, co-creator of the Creative Problem Solving (CPS) method of deliberate creativity, became a close collaborator. He encouraged Neethling to move from thinking about creativity as problem solving to creative opportunity finding

(Basson, 2017), putting a positive thought process on the process of problem solving. And when Mandela became president, Parnes and Neethling were asked to create a television show to explore why South Africa did not devolve into revolution from the creativity perspective. Together, they wrote the T.V series, *Creating a Miracle*, answering this question and showing the benefits of creativity to a nation hungry for this information (Basson, 2017).

In addition, he brought the world to a newly reopening South Africa. In 1992, Neethling held his first creativity conference in South Africa. He asked Dr. Morris Stein to be a keynoter and workshop presenter for this conference. Stein was well known in the United States for his work in the field of creativity, and Neethling asked Stein to assist him in recruiting other eminent presenters. During the first week's sessions, presenters were frequently called upon for interviews on radio and television, and each morning workshop was attended by 30-40 people. Afternoon activities were designed to provide hands-on experiences with what was discussed by the keynoters (Stein, 1993). During the second week of the conference, groups could request speakers with audiences for these sessions ranging anywhere between 5 and 200 people. The people who attended the conference were hungry for high quality information (Stein, 1993), leading to the development of an annual conference in South Africa three years later.

Beyond

One of Neethling's primary efforts was working on the Beyond project with his mentor, Paul Torrance. Torrance started this work in 1958 when he launched a longitudinal study of a group of children that lasted until adulthood. Every couple of years, Torrance would contact the children and conduct creativity testing with them to assess if there had been changes in their creative ability with an eye toward discovering when it is that we start to lose our creativity (Venter, 2020). Neethling was asked to assist with this work, and Neethling and Torrance worked closely together on this endeavor. Neethling started his research using Torrance's "Your Style of Learning and Thinking" instrument and from there developed his signature instrument the Neethling Brain Instrument (NBI) (Arendse, 2013). Neethling was interested in both when creativity is inhibited within people and how we can get it back. He believed we never really lose the ability to be creative, that it is always there (Venter, 2020). He expanded from the base of the beyond work to seek the connection between creativity, thinking styles, and brain dominance (Arendse, 2013).

The Neethling Brain Instrument (NBI) was a result of Neethling's research into a way to understand thinking preferences (Team Coaching Zone, 2015). It consists of an innovative battery of instruments that strive to develop whole brain thinking in individuals (Agrella, 2020). Under the supervision of Torrance, Neethling analyzed the responses of a large group of people to specific stimuli, and in doing so, he was able to identify four different thinking styles. He developed the Neethling Brain Preference Model and the Neethling Brain Preference Profile (NBPP) instrument to measure self-perceived thinking preferences. The test was administered by giving four possible responses to the list of subjects, with the participants arranging their

personal thinking preferences from strongest to weakest. The choices that they had to choose from fell into four different quadrants: L1, L2, R1, and R2. There was a numeric value placed on each quadrant, indicating the strength of the preference (Herbst & Maree, 2008). Creativity is linked to people's ability to move in and out of the quadrants, regardless of their preferences. Although the NBI was initially created for adults, over time it has been adapted for different ages and uses pictures for very young children (Team Coaching Zone, 2015).

With Neethling's whole-brain profiling, you are able to determine if your preferred thinking approach is emotional, analytical, structural, or strategic. Neethling discovered that this helps explain why certain elements of education, hobbies, or employment are easier or more appealing to particular individuals. Neethling's work in whole-brain profiling demonstrates how people's personal thinking preferences influence their communication, decision-making, problem solving, and management styles. It helps explain why people think, learn, communicate, and make decisions differently (Neethling, 2009b).

Neethling's research eventually brought him to develop the Neethling Breakthrough Line, which furthered the creativity model that divides different types of thinking as either below the line or above the line (Puja, 2019). Neethling believes that we are all responsible for our thinking choices and that in order to change the way we are thinking, we need to be able to identify when we are thinking negatively. Below the line thinking is considered negative thinking. This type of thinking will not get us anywhere; it is the type of thinking that prevents success. Below the line thinking is counterproductive, destructive thinking. Below the line thinking inhibits creativity. In contrast, above the line thinking means choosing positive alternatives and making the right choices. When you are using above the line thinking, change is not viewed as a threat but as an opportunity for growth (Puja, 2019).

Researchers define creativity from different outlooks or perspectives, but Neethling has a broad definition of creativity that does not define creativity in a singular way. He believes that creativity can be manifested into almost anything. For example, it could be how you serve your clients, develop new products, or teach your students. Creative thinking comes down to how you interact with people, how you connect with others, social creativity. Creativity is looking at something with a fresh pair of eyes, the ability to see things differently. It is the art of connection and the ability to connect anything with anything (Venter, 2020).

Neethling feels that people are born creative, almost a primary trait, and that a child is immediately creative (Wood, 2002). However, he feels that the human potential for creativity decreases with age, starting in childhood. He argues that the cause of this decrease in creativity is partially due to parenting because parents are not taught to nurture and promote creativity in their children. In fact, in order to keep their children safe, parents will discourage exploration. And kids are increasingly told to color inside the lines and learn how to answer questions the way their teachers want them to (Venter, 2020).

Fortunately, Neethling's creativity training has made its way into schools and to schoolchildren's parents. Parents may attend workshops in

which they can discover their levels of creativity and how to stimulate creativity within their children so that their children may reach optimum levels of achievement in school and life. Neethling believes that by encouraging and simulating creativity within the home, the family will see their children learning how to solve their own problems and improving their communication skills (Denney, 2001).

Clearly, Neethling has found an answer to a society that squashes creativity in its inhabitants. He has experienced high levels of success in turning around poor performing organizations and aspiring individuals. His work demonstrates that anyone can be creative. However, he notes that creative abilities must be nurtured to flourish. He believes that you become what you believe, and if you believe in yourself, you will be able to achieve your goals. He uses the example of Nelson Mandela who in embracing his leadership position found that the world respected him as a healer, a leader, and the father of democracy in South Africa (KN Institute, 2019).

Of course, creativity can be applied to many sectors, schools, businesses, and sports to name just a few. Neethling has trained all of these sectors in his techniques. For example, Neethling got involved with a poorly performing school in an impoverished area of South Africa. Before his intervention, the school regularly received the worst results in final year exams. However, after Neethling trained the teachers in his techniques and involved the students' parents, the results were astounding. The teachers told Neethling that they had become the number one school in the province (Seamus, 2002).

Neethling educates people in how success and happiness go hand in hand and feels that it comes down to how people think. He suggests that it is important to both think positively and learn how to transform negative thoughts to be expressed positively. He argues that transforming how young people think is especially important because the language you use shapes the person you are becoming (Seamus, 2002), that thinking is linked to emotions and is the essence of the human being. He also advocates for seeking out how other people think because if you do not understand how others in your orbit are thinking or feeling, you might misinterpret what they are doing as simply wrong (Venter, 2020).

Major Contributions

Through the pursuit of openness to alternative ways of thinking, Neethling's contributions to South Africa and the rest of the world have been countless. When he delivers a training, he teaches whole brain communication, whole brain relationship building, creative problem solving, and solutions finding (Hesketh, 2016). This work has been so successful that *Forbes* recommend the Neethling Brain Instruments as one of the best set of assessment tools in the world (Venter, 2020). After this training, organizations have evolved into more productive forces with increased sales and notably stronger bottom lines (De Pauw et al., 2011). Neethling's whole brain training shows people how to develop a multi-dimensional mindset, with a better understanding of thinking patterns that will help people be more successful in the workplace and in their personal lives.

Neethling's work does not stop with the NBI. In the process of working with different organizations, he realized that there are at least ten critical factors that an organization must address if it is to achieve success: trust, learning, gratification, language, ownership, energy, change, interaction, creativity, and communication. He used these factors to create the Organizational Wellness Instrument (OWI) assessment and analysis structure (Arendse, 2013). Along with the OWI, Neethling uses the Neethling Breakthrough Line to determine if the organization is below or above the line in each factor. Using this process, organizations can see where they are strong and where they need to improve. Furthermore, organizations can map how they are doing over time. Essentially, the process allows organizations to look at their wellness profile, allowing them to determine what areas they want to work on (Arendse, 2013).

This work eventually led to the development of The Kobus Neethling Creativity Guide, a creativity curriculum with the goal of improving innovative thinking for employees across all levels of any business (KN Institute, 2019). Teams perform better when they can effectively work together, regardless of skill. The training allows organizations to pinpoint entire domains where they would like creativity to grow and prosper (Hesketh, 2016).

This work has not been confined to the consulting realm. For 25 years, Neethling's foundation has hosted the International Creativity Conference in South Africa. Hundreds of people from all walks of life have benefited from his expertise and that of others with an eye toward spreading the benefits of deliberate creativity methods more broadly across the country. There are two parts to this annual event, one focused more on corporate enterprises and one focusing on teachers (Neethling & Neethling, 2003). Teachers from all over South Africa come to this conference. In order to reduce barriers and make the program accessible for the teachers that want to attend, the conference organizes sponsorships for registration fees, lodging, meals, and transportation to and from the conference (Team Coaching Zone, 2015). This has been enthusiastically welcomed by South Africa's teachers, and there are waiting lists of several years of those who wish to attend.

I (Tara Coste) began attending the annual conferences in South Africa five years after they started. At each event, I was transported to a world of wonder and robust intellectual stimulation. In the early years, I was astounded that people who had been quite recently engaged in mortal combat were working side by side to create a new and inclusive democracy for their country. The people of South Africa were hungry for the knowledge being provided and to do so in such a vibrant setting was a true gift to us all. Kobus built a magical world in which expert and novice alike explored and were changed by stretching the boundaries of imagination to achieve new heights of potential.

In addition to the education the conferences provide, there have been a number of institutions of higher education that have incorporated creativity into their curricula and have been licensed by Neethling's foundation to teach its programs (Neethling & Neethling, 2003). Yet another method of enabling Neethling's programs to reach a broader audience and make a bigger impact

within South Africa, this effort introduces students to a world of creative thinking they might not otherwise been a part of.

Another sector that has largely benefitted from Neethling's expertise has been sport. He teaches creativity training to both the coaches and teams of South Africa. He has developed a training program specifically for sportsmen and women, and his foundation is particularly involved in coaching rugby and cricket teams (Neethling & Neethling, 2003). Neethling's son describes one of these efforts here:

My school years, which ran throughout the nineties, were often highlighted by having sports teams in our house, specifically the provincial rugby team from the Western Cape, or Western Province (WP for short). My father got involved in many different sports, from cricket to soccer, and authored various books on the topic. He also developed instruments for specific sports, but my fondest sports memory came in 2011 when we started to work with Coach Paul True and the South African sevens (rugby) team. Paul True embraced my father's teachings and often based his team selection on where players were on the line, as well as using keywords to create a new language on the field that opposition teams could make no sense of. The highlight of this work came near the end of 2011 when South Africa faced Australia in the competition final in Edinburg. With only three minutes left in the match, the game seemed over, but South Africa staged an incredible comeback, scoring multiple tries and winning the match with no time left on the clock. (personal communication with Heinz Neethling, June 13, 2021)

In a country with a strong affinity for its sports teams, this was quite a victory. Overall (to date), Neethling has written 9 TV series and more than 90 books, including some that became international bestsellers (Agrella, 2020). He has received numerous awards and recognitions over the course of his career and is considered one of the top speakers in the world on the topics of creativity and innovation. Notably, he was a recipient of the prestigious Paul Harris Fellowship Award and was the first recipient of the Paul Torrance Lifetime Creativity Award (Venter, 2020).

Legacy

Neethling believes that success is the ability to challenge outdated beliefs and then put something more meaningful in their place, that the vision you have will become a reality with hard work and dedication (Hesketh, 2016). This belief has played out throughout his education and his career. He has spent his life being dedicated to his vision and sharing this vision with others, in South Africa and around the world.

The work that Neethling did to bring gifted education to South Africa has continued to benefit the kids in South Africa and will continue to do so, providing a lasting impact on the future of the country. His research showed the importance of teachers being trained to allow them to recognize and teach gifted children (Neethling, 1984). Not only did he put a spotlight on gifted education and what needed to be done decades ago, but with the incorpora-

tion of his methods and recommendations, the impact of his work continues to grow each year. And now that the school systems are better able to accommodate all levels of students, they are incorporating creative thinking into the classrooms. Neethling's work has brought techniques to enhance creative thinking into early education classrooms, reaching children during the most critical time, when they are at their most creative. This not only benefits the students in the school setting but society as a whole. People who might have lived in abject poverty are now better prepared to find different ways to make money, such as becoming an independent vendor and selling their own African crafts and toys (Neethling & Schoonwinkel, 2003).

As the President of the South African Creativity Foundation, Neethling was able to develop an organization that specializes in the identification and development of creativity of all people in many different areas of endeavor (Hebert et al., 2002). With the addition of the creativity conferences, he draws creative thinkers from all over the world to share their knowledge with the people of his country. This serves as an important platform for exploring innovative and radical creativity and how such work can powerfully affect the future (Ridge, 2017).

Neethling worked with Mandela to not only change South Africa but show the world an unconventional way of solving a country's pain and how to move toward healing. With the television show, *Creating a Miracle*, Neethling highlighted the critical factors that led to this unique societal innovation, a rare integration of spiritual, creative, and pragmatic leadership (Neethling, 2009a). Mandela went into his leadership position wanting to reconcile and create one South Africa, a South Africa that everyone could be proud of. He was able to do this by bringing together opposing visions into a shared vision. Neethling was an important part of the effort to create new symbols, values, attitudes, principles, customs, and practices. With Mandela's extraordinary insight into the essence of the innovation that was required, respect and inclusion of ideas was given to every group that was impacted by the innovation (Neethling, 2009a).

Neethling argues that "Innovation of the mind without innovation of the heart is no innovation at all" (Team Coaching Zone, 2015). He sees every person as a bridge, expanding the parents before him and the children that come after him (Badalament, 2017). His father was quite unorthodox, creating in Neethling the desire to think out of the box and seek a life of creativity and innovation. Neethling himself has passed this desire on to his sons, creating an intersection of his professional and personal lives. He taught his sons the concept of whole brain thinking when they were very young and to respect the differences in how people use their brains differently (Venter, 2020). They now carry on his vision, using their talents in multiple creative pursuits and enabling others in their country to optimize their own creative potential.

Neethling once said that he wanted his legacy to be one where people remembered him as someone who had an enlightened mind, who was never ordinary, who cared about people and believed that the best was yet to come (Hesketh, 2016). He argues that the future of innovation depends on a clarity of understanding about the why, what, how, and who of substance and intent (Neethling, 2009a). Neethling has clearly lived his life in the way that he

wants to be remembered. One thing is certain; he is no ordinary man and has had an extraordinary impact on the world around him. A reflection on the life work of Kobus Neethling exhibits a tremendous passion for bettering the lives of his fellow human beings, and it is indeed a life successfully lived.

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CHAPTER TWENTY ONE

ALEX F. OSBORN: APPLIED CREATIVITY PIONEER

GERARD J. PUCCIO & MOLLY HOLINGER

ABSTRACT: While pioneering scholars, such as Donald MacKinnon, J. P. Guilford, and E. Paul Torrance, served as the phalanx for creativity research, Alex F. Osborn was instrumental in advancing an equally important front in the field of creativity: applied creative thinking and creative problem solving. In the early to mid-20th century, Osborn, perhaps more than any other individual, took the lead on developing serious thinking about how creative thinking could be deliberately facilitated and developed. Fundamentally creativity is an applied act. We know someone has been creative when we witness the behavior and outcomes associated with the creative act. Osborn's quest was to challenge the widely held view that creativity was a special talent for which some individuals were blessed with more of this rare ability than others. Through the development and application of the Creative Problem-Solving process and methodologies, such as Brainstorming, Osborn demonstrated through decades of use within his well-regarded advertising agency, that creative thinking could be successfully applied on demand. And in his best-selling book, *Applied Imagination*, Osborn introduced his cutting-edge creativity practices and procedures to the world. Today Brainstorming has become part of our everyday language and creative ability is widely recognized as a must have 21st century skill. Moreover, it is now widely accepted, and research has demonstrated, that creative-thinking abilities are trainable. Much of our current day success can be traced back to the work of Alex F. Osborn.

Introduction

In the third decade of the 21st century, we can say with confidence that creativity as a construct and ability has achieved a level of acceptance and desirability heretofore never seen before. Today such lofty, and well regarded, entities as the World Economic Forum tout creativity, and creativity-related abilities, as some of the most crucial success skills for the 21st century. To be sure, creativity is on the rise, whereas many longtime staples of our industrial educational system, such as reading, writing, and math, among other skills, are on the decline (Leopold, Ratchena & Zahidi, 2018). In a single generation, the meaning of the word creativity has blossomed from narrow conceptions and misguided views to a more robust,

wholesome, and grounded understanding. From an association that was most often ascribed to the arts, to an expanded awareness that creativity is truly interdisciplinary. There has been a demonstrable evolution from an elitist paradigm, in which a rare few were worshiped for their mythical creative prowess, to a more democratized outlook in which creativity can be appreciated along a range of human endeavors, from everyday acts of imagination to the exceptional. To be sure, there has never been a better time to promote the virtues and value of creativity. While creativity has always been a fundamental and enduring driving force to the human experience (Puccio, 2017), only since the onset of the 21st century has Creativity emerged from the shadows of ignorance and mystery to a commonplace object of desire among educational, business, and governmental leaders around the globe. It is no exaggeration to say that in the third decade of the 21st century, there is a clarion call for higher levels of human creativity.

The transformation of the concept of creativity in short order was not pure happenstance. The level of importance accorded to creativity by so many of today's global leaders did not emerge exclusively from their own assessment. Rather, the phrase often invoked to explain scientific progress, "*Standing on the shoulders of giants,*" aptly captures how the multitude of contemporary creativity scholars and practitioners are the beneficiaries of those pioneers who served as the phalanx for the field of creativity in the mid-1950s. Their shoulders, broadened and strengthened as a result of the unique burden born by these agents for change, provided a firm footing for those of us who currently work as creativity professionals. And, to be sure, if it were not for their early efforts to promote creativity as a subject worthy of study and a human ability worthy of development, today's leaders would not be so quick to claim the centrality of creativity for a prosperous society. As creative change leaders these pioneers were not always well received. In response to their unique and unwavering support for the often-overlooked human quality, they were habitually met with derision. As Bea Parnes, wife of the late Sidney Parnes (see chapter in this volume), once explained, creativity in the early days of the field was a *dirty* word. While much remains to be done, both with respect to our understanding of the nature of creativity and our ability to more effectively promote creativity across all educational levels, today's creativity scholars and practitioners enjoy broader acceptance than ever before.

This volume celebrates the forerunners who helped to shift creativity from a *dirty* word to a virtuous and highly sought-after human ability. The purpose of the present chapter is to recognize and celebrate an individual who must be given due credit for advancing the cause for creative education. While some early creativity scholars and university professors focused their efforts on understanding the nature of creativity, Alex F. Osborn worked for decades to prove that creativity was not a fixed trait, but that this enduring human ability was trainable. Osborn tilted with one of most entrenched creativity misconceptions, the belief that creative ability is a gift bestowed upon a fortunate few. Osborn was the chief catalyzing force to today's creativity education and training programs. He believed that creativity could be directed, coaxed, facilitated, and deliberately devel-

oped; that one did not need to leave creativity to chance or fate. Through this chapter, our aim is to shine a spotlight on Alex F. Osborn and the foundation he specifically established for those whose work is dedicated to the development of creative ability through training and educational programs.

The Life of Alex Osborn

How did Alex Osborn, a “Who’s Who” of the advertising world, become a driving force behind the creative education movement? An examination of his life provides a clear answer. Osborn viewed life with a sharp sense of possibility and vigorously applied his creative imagination. He followed a guiding principle that “all of us are endowed with a divine spark, and that that spark is our creative imagination. By implementing it with will-power we can acquire a habit of creative effort. And to my mind, creative effort is the key to a good life” (Osborn, 1953, p. 1). This section describes Osborn’s journey from a young man fired from his first writing job to a leader in advertising to a giant in the field of creative education.

Alex Osborn was born on May 24, 1888 in the Bronx, New York (Alex F. Osborn, 1966) to Kate Osborn and John Osborn, an accountant. Osborn’s recollection of his upbringing was one of modesty with a slight sense of financial insecurity present in the background. According to Osborn, his father, “made ends meet but could build no nest egg” (Parente & Osborn, 1994, p. 237). Alex attended Hamilton College and, by his own report, came out of college with a psychology degree but “knowing practically nothing about creative imagination” (Osborn, 1953, p. 1). Soon thereafter, however, he experienced his “first awakening” to the power of imagination when, having been fired from his very first job at the *Buffalo Times* after only three months, he went to the city editor of the *Buffalo Express* – Steve Evans – and asked for a job. Looking over the writing samples Osborn provided, Evans remarked, “They are pretty amateurish, but our police reporter is sick and I will take a chance on you for a couple of weeks. It’s a big gamble, and I am taking it only because each of these articles of yours, there seems to be an idea” (Osborn, 1953, pp. 2-3). From that point forward, Osborn aimed to come up with at least one good idea each day.

Osborn eventually lost his job at the *Buffalo Express* and moved on to work for the Buffalo Chamber of Commerce (Alex F. Osborn, 1966). At age 23, he found himself at a “crossroads” in which he faced two substantially different career paths. The first was a position of Sales and Advertising Manager for The Hard Manufacturing Company, a bedding manufacturing company, the second, a career in advertising at the Matthews-Northrup Company. With the former, Osborn was likely to receive interest in the business and eventually become an “officer of the company”; the latter offered less financial incentive. He explored the two offers with his father: “It is a choice between a possible national advertising career on the one hand and a probable lucrative, yet safe, fair-sized manufacturing business on the other. I feel that the advertising career would develop me as the quieter course would not. At the same time, I feel that I will have a considerably longer life if I decide to accept the Hard Bed Co. proposition than if I attempt the six cylinder 60 H.P. job that the Matthews-Northrup Company offers” (Osborn, 1911, p. 2). Os-

born chose the sales job at the Hard Manufacturing Company, but after three years his infatuation with ideas eventually won out. He quit the day that his supervisor told him, “You will have to let up a bit. Do you realize that if your sales keep up like this, we will have to enlarge our factory?” (Parente & Osborn, 1994, p. 238)

Osborn finally joined E.P. Remington Agency and truly began to come into his own, acquiring a new nickname, “Alex On The Job” and a new fiancée, Hellen Coatsworth. Around this time he was summoned by the Buffalo National Guard and he responded without hesitation, “I’m with you,” but before departing for the Mexican front he and Helen managed an impromptu wedding (Osborn, 1916). Osborn was one of 17,000 members of the New York National Guard who went to the Mexico-Texas border to prevent incursions during World War I (Durr, 2016).



Figure 1: Osborn at age 29 (1917)

Also during the war, Osborn volunteered for the United War Work campaign through which he met Bruce Barton, a young writer (Alex F. Osborn, 1966). The story goes that over lunch at the Oyster Bar in Grand Central Station, Barton brought up the uncertainty he felt about his career. Osborn replied, “Go into the advertising business – you’re a natural for it” (Alex F. Osborn, 1966, para. 15). Barton hesitated to take on the role of hiring and firing employees, and yet again Osborn had an answer: hire Roy Durstine, who was another volunteer, as business manager. In 1919, Barton & Durstine was born, and shortly after Osborn came onboard with the caveat that he be allowed to remain in his beloved home in Buffalo. Born in New York, Osborn had moved to Buffalo with the intention of staying only for long enough

to get his footing in reporting; however, “Buffalo won... [his] heart, and... [he] soon decided to make this... [his] home for good” (Osborn, n.d., para. 1). Thus, they arranged that BD&O would have two offices, one in New York and one in Buffalo. If pressing matters arose in New York, Osborn would commute.

In these formative years, Osborn made many influential decisions which would shape the future of BBDO. The company took on clients such as Condé Nast Publications, McGraw-Hill, *Scribner’s* magazine, and the Wildroot Company (Parente & Osborn, 1994). A precursor to his later writing career, he published the book *Short Course in Advertising* (Osborn, 1921) which focused on the advertising business and gave no hint of topics related to creativity that would come later. In 1928, the company merged with the George Batten firm, to form BBDO, a name that would become iconic in the advertising industry. Over the years, Osborn served in a number of roles, including general manager, chairman, and vice chairman (Alex F. Osborn, 1966). The company expanded to five branches by the mid-1930s, with an ever-growing client list.



Figure 2: Osborn’s wife, Helen, and four of five children.

Osborn’s life was full: he had a rich family life; he was giving back to his beloved Buffalo community through civic engagement and to his country by working with President Herbert Hoover on a plan to steady inflation following the 1929 stock market crash; and he had a thriving business (Parente & Osborn, 1994). However, in 1939, BBDO’s profits plummeted and problems arose that culminated in Durstine’s exit from the company to

start his own agency. Osborn was summoned from Buffalo to New York. Taking stock of the situation, he concluded that the problems stemmed from a lack of deliberate creative effort. He began to use the agency as a testing ground to teach people how to be more creative and this became his secret weapon for success. The company held group meetings to think up ideas in which they were instructed to suspend criticism. These sessions became known as “Brainstorming.”

The public had foredrawn that BBDO would not survive the downturn and Durstine’s departure and was shocked when 1940 turned out to be the most successful year in BBDO’s history since 1929. Nevertheless, Osborn’s former lifestyle would not return for some time; though he was not aware at the time, his initial trip to New York, when crisis struck, marked the start of a ten-year era of weekly commutes.

Somehow, between the commutes, his ad work, his family, and other pursuits, Osborn, almost maniacally devoted himself to writing. Osborn may never have taken on a writing career had he not encountered an impolite taxi driver, an experience that prompted him to write an article on what he saw as a “growing trend among Americans to misuse their freedom and mistreat each other” (Froehlich, 1952, para. 18). He sent the article to a magazine, and shortly thereafter found himself at lunch with the editor who asked Osborn what hobbies he had. Osborn replied, “Imagination.” According to the editor, several publishers were seeking a book on imagination, and he pushed Osborn to write one.

After this meeting in 1938, Osborn spent ten long years conducting interviews, researching and collecting notes, and writing before publishing *Your Creative Power* (Zavitz, n.d.; Osborn, 1948). His patience and thoughtfulness paid off: one review described the book as a “brain duster” (Froehlich, 1952, para. 4); Charles Scribner’s Sons made six printings in the first year. It was in this book that Osborn first introduced the greater public to Brainstorming, or “using the brain to storm a creative problem—and doing so in commando fashion, with each stormer attacking the same objective” (Osborn, 1948, p. 288).

Following *Your Creative Power*, Osborn completed his next book, *Wake Up Your Mind* (Osborn, 1952) quickly by comparison (a mere four years), though the writing became no easier. Osborn rose, “almost every morning long before dawn... [shutting] himself in an attic room with at least three doors between himself and the rest of the family and with strict orders not to be disturbed unless the house...[was] on fire” (Froehlich, 1952, para. 13). He lost over twenty pounds while writing the manuscript for *Wake Up Your Mind*. As the case with many writers, willpower fueled Osborn’s writing, “When you read my books, the words seem to have come easy. But I know different. They came very hard. I’ve got to push and poke myself or I would never get anything on paper. Those two or three hours take a lot out of me each morning. The day’s work in the office is a cinch in comparison” (Froehlich, 1952, para. 15).

Despite the agony of writing, Osborn published yet another book, *Applied Imagination*, in 1953, which would become his most influential, to serve as a textbook even though it does not read like one. Indeed, the Air Force bought 30,000 copies that were distributed to 300 campuses in re-

response to “a growing demand for courses on how to think creatively” (Osborn’s *Revolutionary Ideas on Education Prove Success*, 1954, para. 7). Fifty thousand reserve officers went through the training (Advertising Hall of Fame, n.d.). The book spread from academia to industry, including General Motors, IBM, and U.S. Steel. General Electric began using *Applied Imagination* in their creative engineering course and found that, “After graduation, the men who have attended the course continue to develop new processes and patentable ideas at an average rate almost three times that of nongraduates” (Osborn’s *Revolutionary Ideas on Education Prove Success*, 1954, para. 15).



Figure 3: *Osborn at the Seminar for the Armed Forces in 1961.*

At 60, Osborn felt that “he was trying ever before to be more creative, and in more different ways. In strenuously keeping at this,” expressed Osborn, “I expect to be happier than I otherwise would be. Because nothing could give me more satisfaction than to teach people how to make use of their most priceless possession – their creative imagination” (Osborn, 1953, p. 3). Indeed, Osborn continued to write on the topic of creative imagination, but also recognized a need to expand further to truly have an impact, leading to the birth of the Creative Education Foundation in 1954 (described in more detail later in this chapter). Osborn used the Foundation to spread knowledge of creativity and establish the first-ever conference devoted solely to creativity, The Creative Problem Solving Institute (CPSI) which brought visionaries in the field together.

One of these visionaries was Dr. Sidney Parnes who, after meeting Osborn at the inaugural CPSI in 1955, would become his closest collaborator and confidant. Parnes' important role is discussed later in this chapter, but suffice it to say that without Parnes, Osborn's dream of beginning university courses and degree programs in creativity would likely not have been possible.

The seed Osborn planted grew; the University of Buffalo and other institutions started offering creativity courses in areas ranging from fiction writing to police training. Osborn resigned from BBDO's board of directors after 40 years and dedicated the last decade of his life to the Creative Education Foundation, funding the organization in part with the royalties from his own books (*Advertising Hall of Fame*, n.d.).

To say that Osborn took an active approach to life would be an understatement. One article described Osborn's "acquaintance with men in all walks of life. Philosophers, cartoonists, sports writers, motion picture stars..." (Zavitz, n.d., para. 17). Jean Rindlaub, one of the earliest women advertising executives, wrote to Osborn in 1954, "I sat next to Raul Flieschmann at a New Yorker luncheon and he sends you his warm regards. He also told me to tell you he has never forgotten it was Alex Osborn who launched *The New Yorker*. If it hadn't been for the great job you did personally on making money on Bond Bread – money he was able to pour into *The New Yorker*" (Rindlaub, 1954).

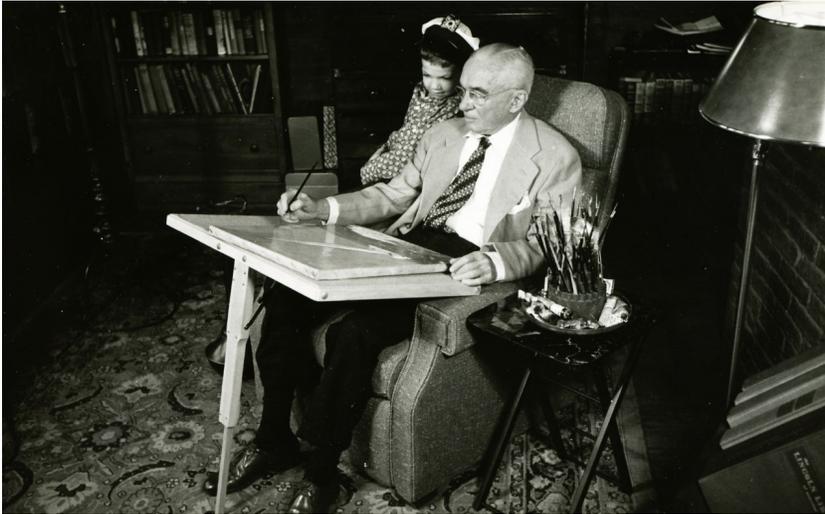


Figure 4: *Osborn oil painting with grandson at his one-legged writing desk.*

He extended his own creative imagination to all aspects of his life, including sending out playful Christmas cards each year, such as a license plate, and a set of "rose-colored glasses." He oil-painted, golfed, and held a Christian faith that he worked to "intensify through creative effort" (Osborn, 1953, p. 2). A pillar of the creative mindset, he had a drive for exploration, discovery, and invention. He was "one of the few non-scientists

ever to be appointed to the (National Inventors' Council, a branch of the Department of Commerce at the time of his election)...which (was) composed of 20 outstanding scientists, industrialists, and inventors whose backgrounds and experience have qualified them to serve the Government as an advisory body on matters relating to the stimulation of civilian invention, particularly as it applies to military and defense needs" (Alex F. Osborn Appointed to the National Inventors' Council, n.d.). He also held many patents for advertising displays and invented a one-legged desk which he had constructed for his own personal use. Osborn's diverse accomplishments and service did not go unrecognized: he was awarded an honorary doctorate from Hamilton College and a Chancellor's Medal from the University of New York at Buffalo in 1960 for helping countless men and women lead more fulfilling lives.

Alex Osborn defined the life of the creative spirit. Starting within the boundaries of advertising, he invented formal creative thinking strategies and tools, and then brought these tools to everyone. He died of cancer in Roswell Memorial Institute on May 5, 1966, at the age of 77 (Alex F. Osborn, 1966). In the sections that follow, we turn from Osborn's life and business career to his work in the field of creativity.

Unfounded Criticisms of Brainstorming: How Its Demise has been Greatly Exaggerated

An unfortunate consequence for many creative change leaders, especially those who serve as leaders to social movements, is that the public often reduces their work down to superficial sound bites and bullet points. Sadly, this would seem to be the case for what could be argued as the most widely disseminated concept from Osborn's work in the area of applied creativity – Brainstorming. Chiefly due to the popularity of Osborn's (1963) book *Applied Imagination*, Brainstorming has found its way into dictionaries and pop-culture. While there is much to celebrate about the broad adoption of the term Brainstorming in our modern culture, which bears witness to a growing interest in creativity, the unfortunate reality is that everyday reference to Brainstorming among laypeople generally demonstrates a lack of awareness of its formal meaning. To be fair, this is not unusual. Like the old game of telephone, in which the meaning of an original message is lost as it is quietly passed from one person to the next through whispers, concepts naturally lose their precision as they move from their formal descriptions in original source documents to wide acceptance and use in the general public.

While we celebrate the broad adoption of the term Brainstorming in society at large, and accept the concomitant reduction in accuracy in terminology, we do feel a sense of chagrin when creativity professionals target their critiques of Osborn's Brainstorming tool based on their own misunderstanding and misrepresentation of his work. There are at least three main criticisms of Brainstorming, which we argue are misguided: 1) individuals working alone outperform Brainstorming groups; 2) the deferral of judgment principle does not work, instead conflict is better in Brainstorming groups; and 3) Brainstorming is not the panacea to organizational innovation. These three main criticisms are perhaps best represented in Lehrer's (2012) *New York-*

er piece entitled *GroupThink: The Brainstorming Myth*. We would contend that those who point to such shortcomings, do so either as a result of a misunderstanding of Osborn's original conception of Brainstorming or through a lack of awareness of the full body of Brainstorming research, or both. We briefly examine each of these criticisms in turn.

Individuals Working Alone Outperform Brainstorming Groups

This criticism holds that when individuals work alone, and then pool their ideas, they outperform groups using Brainstorming both in terms of fluency and originality of ideas. This critique is wholly unwarranted as it attacks a claim about Brainstorming that was never made by Osborn. To the contrary, in *Applied Imagination* Osborn (1963) clearly stated that, "The fact is group brainstorming is recommended solely as a *supplement* to individual ideation" (p. 142). Later to reinforce this point, Osborn (1963) indicated "Despite the many virtues of group brainstorming, individual ideation is usually more usable and can be just as productive" (p. 191). Osborn was unequivocal in noting that Brainstorming was not to replace individual ideation and specifically argued that group Brainstorming should be used "not as a substitute—but as a supplement" (p. 191). Here he recounted three specific ways in which Brainstorming was meant to be applied: 1) as a supplement to individual ideation; 2) as a supplement to conventional conferences; and 3) as a supplement to creative training. While it is true, and not surprising, that a group of individuals who adhere to the Brainstorming guidelines while working independently will outperform those engaged in group Brainstorming (Paulus & Brown, 2003), it is a criticism that should not be laid at the feet of Osborn.

When comparing the idea production of Brainstorming groups to individuals working alone, especially when following the Brainstorming guidelines, the research has consistently shown that individuals working independently outperforms groups (Girotra, Terwiesch & Ulrich, 2010; Paulus, Dzindolet, Poletes, & Camacho, 1993; Rietzschel, Nijstad & Stroebe, 2006). However, idea production is not the only outcome of Brainstorming groups, we would argue that other important outcomes should be considered. Osborn (1963), for example, highlighted a few positive byproducts of Brainstorming sessions, which included: improved morale; personal development; and improved understanding and respect for others. Perhaps one of the most robust and rigorous studies into the many benefits of Brainstorming was conducted by Sutton and Hargadon (1996). Unlike many Brainstorming studies that have looked at artificially created groups, such as those comprised of undergraduate students, these researchers conducted a year-long ethnographic research study of Brainstorming groups working within an organizational context, specifically, in the well-known design firm IDEO. This real-life application of Brainstorming within an organizational context allowed these researchers to track and validate the many positive consequences of Brainstorming sessions. These benefits included: enhanced organizational wisdom; acquisition of skill variety across designers; improved relationships with clients; and promoted a broader working climate within which members were more likely to exchange ideas and information. In summary, Brainstorming was never intended to replace individual ideation, it was intended to

replace dysfunctional discussions designed to produce original ideas to challenging situations. With respect to nominal group methods, individuals working alone and then pooling their ideas, has been demonstrated to produce a larger quantity of ideas compared to the same number of people working in a Brainstorming session. However, as identified by such researchers as Sutton and Hargadon, the regular use of Brainstorming does facilitate a range of individual and organizational outcomes that have their own value beyond idea production.

Deferral of Judgment Principle does not Work, Conflict is Better for Brainstorming

The Deferral of Judgment principle is sometimes referred to as the key principle to Brainstorming. This principle suggests that individuals withhold judgment, temporarily, while engaged in divergent thinking. Osborn (1963) underscored the fundamental nature of this principle when he stated, “No conference can be called a brainstorming session unless the deferral-of-judgment principle is strictly followed” (p. 152). Through their partnership, Parnes was able to empirically test some of Osborn’s fundamental precepts and given the centrality of the deferral-of-judgment principle this was one of the first creativity techniques to be subjected to psychological research. Meadow, Parnes and Reese (1959) compared Brainstorming groups to non-Brainstorming groups on quality of solutions. In the case of the former, students received instructions that emphasized the deferral-of-judgment principle, while the latter received instructions that reinforced judgment by focusing on the quality of the solutions. Results showed that the groups following the Brainstorming principle of deferral-of-judgment produced significantly more good ideas. In another study of the deferral-of-judgment principle, Parnes and Meadow (1959) examined the impact of this principle on students working alone. In one condition students were instructed to follow the Brainstorming instructions while another set of students were instructed to “List all of the *good* ideas you can think up. Your score will be the total number of good ideas.” (p. 173). As with group work, the analysis of individual results showed that those who were instructed to evaluate their ideas, non-deferral-of-judgment instruction, generated significantly fewer high-quality ideas when compared to those who followed the Brainstorming rules.

Recent research has re-examined and challenged the veracity of the deferral-of-judgment principle by arguing that debate and simultaneous evaluation is beneficial to ideation in groups. Unfortunately, this research has led to a general discussion that has dismissed the importance of the deferral-of-judgment principle and propagated a contrarian view in which concurrent criticism is deemed to lead to more effective ideation in groups. We emphasize that this is an *unfortunate* critique of Brainstorming as seemingly the main study upon which this argument is built is methodologically flawed (Nemeth, Personnaz, Personnaz, & Goncalo; 2004). Lehrer (2012) is perhaps one of the most ardent proponents of the benefits of criticism and conflict to group ideation. As Lehrer argued in his popular press piece:

Nemeth’s studies suggest that the ineffectiveness of brainstorming stems from the very thing that Osborn

thought was most important. As Nemeth puts it, “While the instruction ‘Do not criticize’ is often cited as the important instruction in brainstorming, this appears to be a counterproductive strategy. Our findings show that debate and criticism do not inhibit ideas but, rather, stimulate them relative to every other condition.” (p. 24)

This quote highlights the main study upon which this argument is founded, i.e., Nemeth, Personnaz, Personnaz, and Goncalo (2004). The basis for Lehrer’s contention is undermined by two features of the Nemeth et al. study. First, statistical analysis of the three conditions in the Nemeth et al. study (minimal instructions, Brainstorming instructions, and debate instructions) showed no statistically significant difference among groups (see Table 1 for mean scores for the average number of ideas generated for these three conditions, note that there was only a difference of 4 ideas between groups following the Brainstorming and Brainstorming with Criticism instructions, this was not statistically different). Second, and perhaps most crucially, the Brainstorming instructions provided in the Nemeth et al. study violated true Brainstorming conditions as these groups, in fact all groups, were provided the following guideline “Come up with as many good solutions as you can to the problem” (p. 369). The instruction to generate *good* ideas runs contrary to the deferral-of-judgment principle. And as noted previously, according to the inventor of Brainstorming, no meeting can be called a Brainstorming session if the deferral-of-judgment principle is not strictly invoked. Telling students to follow the Brainstorming rules and, at the same time, informing them that they should generate *good* ideas, clearly undermines the deferral-of-judgment principle. Moreover, Parnes and Meadow (1959), as described earlier, have empirically demonstrated how the suggestion to generate *good* ideas serves to suppress ideation.

Table 1: *Two Studies of Brainstorming in Groups: Contrasting Puccio & Nemeth.*

Study	Instructions	Fluency	
		<i>M</i>	<i>SD</i>
Puccio et al.	Baseline (No process)	22.00	15.13
	B/S traditional	45.36	22.29
	B/S w/criticism	35.73	28.68
	No instructions	38.27	15.80
	Total	40.25	22.56
Nemeth et al.	Minimal Instructions	18.8	
	B/S Instructions	20.0	
	Debate Instructions	24.0	

Notes: B/S traditional = Brainstorming traditional; B/S w/criticism = Brainstorming with criticism. *SD* for Nemeth et al. study not provided.

Our own research work calls into question the criticism that Brainstorming works better when ideation is accompanied by concurrent evaluation and conflict (Puccio, Burnett, Acar, Yudess, Holinger & Cabra, 2020). In our study of more than 100 groups working on a real problem, we mirrored a few key aspects of the Nemeth et al. study. We used the same time period of 20-minutes for ideation and the same instructional conditions. However, groups were not told to generate *good* ideas. The three instructional conditions were: standard Brainstorming instructions as per Osborn and best practice; Brainstorming instructions with simultaneous criticism; and no instructions on how to engage in ideation. In addition to testing these three ideation conditions, we also tested the impact of levels of training on idea generation, solution quality, and leadership effectiveness. Table 1 shows the results only for groups in our study without previous training, similar to the Nemeth et al. study and other investigations into Brainstorming which generally do not provide rigorous training in preparation to their idea generation. While the study yielded many insightful results, we will limit our comments only to those findings that relate to the argument that simultaneous criticism improves Brainstorming sessions. First, our study found that groups that received traditional Brainstorming instructions generated on average 10 more ideas than groups instructed to criticize while Brainstorming. Second, while groups in our study were given the same time period for idea generation as those groups in the Nemeth et al. study (i.e., 20 minutes), our groups, under all three instructional conditions, generated roughly twice the number ideas as compared to those groups in the Nemeth et al. study. What might account for this dramatic difference? Recall Nemeth et al. asked all groups to generate *good* ideas which would seem to reinforce the fact that this additional request apparently suppressed participants' ideation. Also, groups in our study were provided with a creative process, as outlined by Osborn, to follow. That is, they were led through a process that clearly separated idea generation (20 minutes) from idea evaluation (30 minutes). This separation of divergent and convergent thinking is a cornerstone to the Creative Problem-Solving process originally created by Osborn and serves to further reinforce the deliberate separation of imagination and evaluation. The findings would seem to refute the claim that criticism is good for Brainstorming, reinforcing Osborn's original position that deferral-of-judgment is foundational to effective ideation.

Brainstorming is not the Panacea to Organizational Innovation

There are those who have complained that Brainstorming does not fulfill its lofty intention of serving as a major force for organizational innovation. We would counter this criticism by noting that Osborn never intended Brainstorming to represent the full creative process, nor positioned Brainstorming as the panacea for organizational innovation. To be sure, while Osborn trumpeted the power of Brainstorming, which he supported by citing numerous case examples of the positive outcomes of Brainstorming sessions, he was quick to point out that Brainstorming was only one idea generation tool and that ideation was only one aspect of the creative process. In his magnum opus, *Applied Imagination*, Osborn goes to great lengths to describe the pro-

cess framework within which Brainstorming is situated. As Osborn (1963) observed, “Too many have erroneously regarded group brainstorming as a complete problem-solving process, whereas it is only one of several phases of idea-finding; and idea-finding is only one of the several phases of creative problem-solving” (p. 152).

Osborn was adamant, Brainstorming was not intended to represent the full creative process and therefore was never designed to be the only tool in one’s innovation toolbox. Indeed, in *Applied Imagination* Osborn described numerous other strategies, tactics, and behaviors that he believed were necessary to sustain individual, group, and organizational creativity. And with respect to organizational creativity, which is foundational to organizational innovation (Puccio & Cabra, 2010), Osborn argued that perhaps more importantly than Brainstorming sessions themselves, organizations should look to adopt the principles of Brainstorming. In support of this point, Osborn (1963) quoted Stanford University Professor John Arnold who stated:

There is no reason why a modified form of these rules can’t be applied to a whole research section or even to a whole company. If all members of an organization were encouraged to think as daringly as possible, without fear of immediate evaluation or possible ridicule, and without fear of making a mistake, I can’t see but how the company would benefit. The ideas suggested would eventually be individually evaluated, the wholly ‘crack-pot’ schemes would be eliminated before damage was done, but the resultant activity would be much more daring and imaginative than what which occurs in many organizations today. (p. 143)

While a strong advocate for the use of deliberate creativity methods, such as Brainstorming which he reported his own firm conducting more than 1,000 Brainstorming sessions, Osborn’s beliefs about what was necessary to stoke organizational creativity was much broader. As alluded to in the quote from Professor Arnold, Osborn recognized the impact of organizational environment on employee creativity. As Osborn (1963) noted, “A combination of a creative climate and the constant use of creative procedures can do much to help a business grow” (p. 54). We believe that while an enthusiast for Brainstorming, Osborn never had the illusion that Brainstorming was solely sufficient for organizational innovation efforts.

How to Properly Brainstorm: The Truth about Group Brainstorming

Thus far our discussion of Brainstorming has explored common, and we argue unfounded, criticisms of this creativity tool. We hope that our point-by-point refutation has demonstrated the extent to which such critiques are seriously flawed. These misguided criticisms provide some insight into the various ways in which Brainstorming is misunderstood and misapplied. To be sure, Brainstorming is not a perfect tool, nor was it intended to be an all-

purpose creativity methodology. However, the widespread misapplication of Brainstorming has created an illusion in the general population as to what Brainstorming entails, often viewed as simply a free-for-all conversation, while the inaccurate use of this methodology among researchers has fostered a false narrative regarding the shortcomings of Brainstorming. Osborn's great contribution to the field of creativity has been the formalization of creativity processes and methods that are teachable and trainable. For such methods to work, they should be employed as originally conceived and in keeping with refinements attained through best practices. It is our contention that the contemporary understanding and use of Brainstorming has departed in a significant way from Osborn's conception of this tool. Therefore, we wish to reset the frame for what is considered true and proper Brainstorming.

Brainstorming, as originally conceived and applied by Osborn, was a group ideation tool that follows an explicit structure and series of steps. Several days before the Brainstorming session, all participants are to receive a briefing document. This document describes the purpose of the meeting, the structure of the meeting, and an overview of the topic to be addressed. This document fulfills two important aspects of the creative process. First, it represents the results of efforts to clarify and define the problem to be attacked. Osborn, as do numerous other creativity experts, extolled the contribution problem clarification makes to the creative process. Simply put, no ideation tool works well on a poorly framed problem, as the old saying goes "garbage in, garbage out." One of the common errors in using Brainstorming, is the application of this tool to an ill-defined, nebulous, and broadly conceived statement of the problem. When the problem is overly vague, the resultant ideas are abstract, global, and scattershot. In discussing subjects that are appropriate for Brainstorming, Osborn (1963) offered the following recommendation, "The first rule is that the problem should be *specific* rather than *general*—it should be narrowed down so that the panel members can shoot their ideas at a single target" (p. 158). With respect to the nature of problems that are appropriate for Brainstorming, Osborn was exceptionally clear. Brainstorming is not used for problems that have limited options nor for problems that primarily require the problem solver to engage in judgment and analysis. Brainstorming is designed for open-ended problems that which the solution must be imagined, invented, or discovered. The second important aspect of the creative process the pre-Brainstorming document promotes is incubation. During this phase of the creative process our minds have the opportunity to work unconsciously on a problem. Therefore, in between the time Brainstorming participants review the document and the time the session is held; their minds can incubate on the subject to be addressed. During this time, it is natural for individuals to search their memories and to make new associations that facilitate the production of tentative ideas. In summary, the pre-Brainstorming document is crucial in assisting participants prepare themselves for the ideation session.

When it comes time for the session itself, all Brainstorming meetings should be managed by a trained leader. Today these individuals are referred to as facilitators. As with any process, project management, strategic planning, focus group work, etc., the facilitator must have competence and

experience to lead such sessions. Without a trained facilitator who takes full responsibility for the process, it is too easy for group members and the meeting to stray from the structure of the methodology. This is a common mistake in meetings. When no one in the meeting is there to take responsibility for managing the process, groups are likely to fall into an inefficient, meandering, and frustrating process. To assist in guiding the process, Osborn also recommended an associate leader or, in more current vernacular, a co-facilitator who can support the lead facilitator. The panel of Brainstormers should consist of about 10 members. Osborn proposed that at least five members have experience and training in Brainstorming. He referred to these individuals as pacesetters. The remaining members should be chosen based on their familiarity with the topic under consideration.

Using best practices in contemporary Creative Problem-Solving sessions, it is also recommended to have the problem owner in the Brainstorming session. The problem owner has several important responsibilities. First, he or she can provide clarification on the topic. Second, during the session the problem owner reinforces a spirit of ideation by serving as a role-model for divergent thinking. And, finally, the problem owner, when necessary, can be used to provide feedback to help the Brainstormers focus their ideational efforts. It is not uncommon for problem owners, part way through the Brainstorming session, to realize that they are working on the wrong problem. Dissatisfaction with the ideas being generated assists problem owners to recognize that their initial view of the problem may not have been quite right. When this happens, problem owners are encouraged to modify the statement of the problem and then to reengage in Brainstorming or to delve into the problem clarification stage of the creative process, returning to the ideation step when a new understanding of the problem is achieved.

The Brainstorming session begins with an introduction to the topic. If the problem owner is participating in the session, the Brainstormers are permitted to ask questions to clarify their understanding of the problem under consideration. However, such a dialog must be carefully facilitated so that the Brainstormers do not immerse themselves too deeply into the subject thereby running the risk of losing their objectivity.

Once the problem is sufficiently understood, the facilitator reviews the guidelines for Brainstorming. In Osborn's original language these four rules were: criticism is ruled out; freewheeling is welcomed; quantity is wanted; and combination and improvement is sought. In today's parlance the four guidelines are stated in various ways, for instance, Puccio, Mance, and Murdock (2011) offered the following four principles for divergent thinking: defer judgment, strive for quantity, seek novelty, and make associations.

After the guidelines are reviewed, the facilitator then leads a warm-up activity. Generally, this is a brief activity designed to help participants get comfortable with ideation and the rules to Brainstorming. If panelists are not familiar with Brainstorming, Osborn strongly counseled that they receive a minimum of 30-minutes of training. Empirical support for the value of training can be seen in Puccio and his colleagues' (2020) investigation into small group problem solving meetings (described earlier in this chapter). As shown in Table 2, Puccio et al. found that those groups with some prior creativity training doubled the output of those groups made up of members who had

no formal creativity training. In support of Osborn’s insistence that brainstormers receive training, Puccio et al. (2020) found that training was shown to be much more important than the chosen creativity tool. In other words, training trumps tool selection. As with tools use in general, whether they be carpentry or computer technology, the utility of a tool is generally limited to the training the user has received.

Table 2: *Descriptive Values for Creativity Outputs by Training and Instructional Groups*

Training	Instructions	Fluency	
		<i>M</i>	<i>SD</i>
None	Baseline (No process)	22.00	15.13
	B/S traditional	45.36	22.29
	B/S w/criticism	35.73	28.68
	No instructions	38.27	15.80
	Total	40.25	22.56
Some	B/S traditional	107.25	50.16
	B/S w/criticism	87.18	47.87
	No instructions	100.80	43.26
	Total	98.61	46.71

As for the optimal length of the active Brainstorming component of the meeting, Osborn recommended a range of between 30 and 45 minutes. The facilitator closes the meeting by suggesting that participants allow their minds to continue to work over the problem and informs them to keep track of any new ideas that occur to them. Generally, some opportunity is then provided several days after the Brainstorming session to collect any post-session ideas. Of course, as the hallmark of Creative Problem Solving is the balance of divergent and convergent thinking (Puccio & Cabra, 2010), plans must be put in place to apply convergent thinking by reviewing and evaluating the ideas generated through the Brainstorming session to isolate those ideas with the greatest potential for resolving the targeted problem. Additionally, Osborn recommended that subsequent Brainstorming sessions, if necessary, be conducted to address any subproblems associated with the original problem.

We hope this description of Brainstorming has helped some readers to gain a deeper understanding of this popular creativity method. When applied properly, Brainstorming has proven to be an extremely useful ideational tool (Puccio et al., 2020). That said, no single tool is perfect, nor can a single tool serve as a substitute for the full creative process. For a good review of the Brainstorming research, and steps that can be taken to address some of the limitations found with Brainstorming, see Paulus and Brown (2003).

Beyond Brainstorming: Osborn's Many Contributions to the Field of Creativity

Among the pioneers in the field of creativity, Osborn was perhaps the first, and unquestionably most vocal, proponent for the trainability of creativity. While Osborn may be most well-known for Brainstorming, his broader mission was to launch a movement that would embrace more creative approaches to education. His goal was to challenge the widely held belief that creativity was a special gift, possessed by the rare few, and to replace this fundamental misconception with an understanding that creative-thinking abilities could be developed within all people. Indeed, Osborn's early efforts serve as the foundation to what has become a global creative education movement. Here we would argue that three specific products of Osborn's imagination served to catalyze, and sustain, successful efforts to teach and train creativity. These are: the development of a full creative process model called Creative Problem Solving; the establishment of the Creative Education and its annual Creative Problem Solving Institute; and the establishment of creativity courses within higher education.

Creative Problem Solving

In our discussion of Brainstorming earlier, we indicated that Osborn never intended Brainstorming to represent the full creative process. Indeed, we know this to be true as Osborn had devised a creative process model called Creative Problem Solving (CPS). Unlike Brainstorming, which is a tool used to operationalize a single aspect of the creative process, CPS is a multi-stage model designed to guide users from the initial recognition of a creative challenge through to an action plan intended to resolve this problem. Since its introduction CPS has gone on to become one of the most popular creative-process models; CPS has been adopted in training programs and school curricula around the world. And not only is CPS widely used, but it also works! To be sure, a comprehensive examination of more than 70 creativity training programs concluded that CPS was among the most effective process models (Scott, Leritz & Mumford, 2004). When adopted into creativity training programs, CPS was shown to significantly enhance divergent thinking, creative performance, problem solving, and creative attitudes. In fact, with its focus on cognitive strategies, the authors of this study highlighted CPS as an exemplar model for the purposes of training individuals to be more effective creative thinkers. As these authors concluded:

Some support for these conclusions may be found in the more successful of the creativity training programs currently available. For example, the Purdue Creative Training program (e.g., Feldhusen, Treffinger, & Bahlke, 1970) explicitly describes creative thinking principles and then provides illustrations of their application in a "real-world" context. Along similar lines, the Creative Problem-Solving program (e.g., Parnes & Noller, 1972; Treffinger, 1995) begins by describing the key cognitive processes underlying creative thought. (p. 383)

In popular culture, creative process is often held to be synonymous with ideation. And while Osborn purported the virtues of Brainstorming as an ideational tool, he was consistent in suggesting that the full creative process could not be limited solely to idea production. Table 3 presents Osborn's original conception of CPS and revisions he made to this creative process model in his own work and in collaboration with Sidney Parnes. The process models depicted in the first three columns illustrate Osborn's view that an applied creative process model must involve at least three fundamental areas of work: problem preparation and identification; idea generation and evaluation; and solution development and adoption. The impact of Osborn's thinking can be seen across the decades, as a number of contemporary process models build directly from Osborn's original framework. While these variations to Osborn's work have used emerging insights to expand and update CPS, several Osborn's core beliefs can still be found in these contemporary creative process models. In particular, an ongoing hallmark of the CPS process, from its origins through to current versions, is the balance between divergent and convergent thinking in each stage of the process. Each stage of the CPS process begins with divergent thinking, the generation of alternatives without restrictions or judgment, followed by a convergent phase, at which time problem solvers use critical thinking to select, evaluate, and develop the options deemed most useful in that particular step of the process. The deliberate separation of divergent and convergent activity ensures productive and focused thinking occurs in each step of the process. Osborn's contention was that to maximize effective thinking, the mind should dedicate itself to one main thinking function at a time. Like driving a car, as Osborn likened these thinking functions to two main pedals in a car, we rarely use the accelerator and the brake at the same time. When you wish to draw on the full horsepower of your mental faculties, the problem solver should engage in accelerated thinking during which time numerous options are considered (i.e., divergent thinking). And when the problem solver wants to stop at the desired destinations within the creative process, that is choices have been reviewed and decisions reached, he or she engages in evaluative thinking by employing the judicial mind (i.e., convergent thinking).

This balance between divergent and convergent thinking is a chief characteristic of CPS and is distinctive to all CPS frameworks that have evolved from Osborn's original model. As already cited, the Puccio et al. (2020) study generated results that underscored the value in separating divergent from convergent thinking. This research team found that even without prior creativity training, groups asked to follow a process in which the divergent (20-minute period) and convergent phases (30-minute period) were separated in time produced twice as many ideas as groups that were given no process framework to follow (see Table 2). What makes these results even more impressive is the fact that the groups without training and without this simple process framework had the full time period, 50 minutes, to explore ideas. It would seem that the stop-and-start thinking that is all too often found in group work, that is divergent thinking comingled with convergent thinking, suppressed ideation. Moreover, as is often the case in collaborative problem-solving efforts, this muddled process resulted in a less enjoyable experience for the participants.

Table 3: Creative Problem-Solving Models: Osborn’s Original Model and Subsequent Updates

Osborn (1953) <i>Applied Imagination</i>	Osborn (1963) <i>Applied Imagination 2nd edition</i>	Parnes (1967) <i>Creative Behavior Workbook</i>	Basadur (1994) <i>Simplex®: A to Flight Creativity</i>	Vehar, Firestien, & Miller (1997) <i>Creativity Unbound</i>	Isaksen, Dorval & Treffinger (2000) <i>Creative Approaches to Problem Solving</i>	Puccio, Murdock, & Mance (2011)
The Original Model	CPS Stream-Lined	Osborn-Parnes	Simplex®	Plain Language	CPS Version 6	Thinking Skills Model
					Planning your approach: Appraising Tasks, Designing Process Stages	Assessing the Situation
Orientation			Problem Finding: Problem-Finding	Explore the Challenge: Identify the Goal Wish, Challenge	Understanding the Challenge: Constructing Opportunities	Clarifying: Exploring the Vision
Preparation	Fact-Finding (Problem Definition, Data gathering & analyzing)	Fact-Finding	Problem Finding: Fact-Finding	Explore the Challenge: Gather Data	Understanding the Challenge: Exploring Data	(In Assessing the Situation)
Analysis		Problem-Finding	Problem Finding: Problem-Definition	Explore the Challenge: Clarify the Problem	Understanding the Challenge: Framing Problems	Clarifying: Formulating Challenges
Hypothesis	Idea-Finding (Idea production & Idea development)	Idea-Finding	Problem Solving: Idea-Finding	Generate Ideas: Generate Ideas	Generating Ideas: Generating Ideas	Transforming: Exploring Ideas
Incubation						
Synthesis						
Verification	Solution-Finding (Evaluation & Adoption)	Solution-Finding	Problem Solving: Evaluate & Select	Prepare for Action: Select & Strengthen Solutions	Preparing for Action: Developing Solutions	Transforming: Formulating Solutions
			Solution Implementation: Plan			
		Acceptance-Finding	Solution Implementation: Acceptance "Sell" Idea	Prepare for Action: Plan for Action	Preparing for Action: Building Acceptance	Implementing: Exploring Acceptance
			Solution Implementation: Action			Implementing: Formulating a Plan

CPS is a powerful plank in Alex Osborn's legacy. CPS is one of the most effective training models proven to enhance creative abilities among individuals and teams. Osborn's original work has stood the test of time by serving as a model for contemporary versions of CPS. Key aspects of CPS have been adopted into other popular creative methodologies, most notably Design Thinking, which we discuss later in this chapter.

Creative Education Foundation & the Creative Problem-Solving Institute

In a 1953 Alex Osborn appeared on Edward R. Murrow's radio essay program *This I Believe*. This national radio program featured a diverse spectrum of "thoughtful men and women" who shared their personal philosophies. Famous individuals, such as Pearl Buck, Helen Keller, and Eleanor Roosevelt, as well as teachers, students, and social workers, shared their deeply held beliefs, the rules that guided their lives, and their values. In his four-minute monologue, Osborn never mentions his success as a businessman, nor his work to support the war effort in the 1940s, nor his many pastimes and hobbies. Instead, with a national audience seeking words that would provide insight into the complexities of life, Osborn completely dedicated his airtime to extoling the virtues of creativity. This opportunity to speak to a national audience underscored Osborn's sincere belief and dedication to advancing creativity as a subject worthy of serious consideration. One year later Osborn established the Creative Education Foundation (CEF). The CEF, which still operates today, provided a formal vehicle through which Osborn could disseminate knowledge and material regarding applied creativity so that others might use these methods in their own lives.

One of the most successful activities undertaken by the CEF was the creation of an annual conference called the Creative Problem-Solving Institute (CPSI). With the first annual CPSI delivered in 1955, the CEF has continuously hosted this international conference ever since. Notably, Dr. Sidney Parnes, whom Osborn later referred to as his "right arm", attended the first CPSI and in short order became one of Osborn's closest and most trusted colleagues (see chapter on Sidney Parnes in this collection).

CPSI not only provided Osborn the opportunity to test, to teach, and to disseminate his thinking, but it also became a forum through which other creativity thought leaders could gather to share and exchange their latest ideas. Indeed, using hindsight we can clearly see that in the 1950, 1960s and into the 1970s, CPSI attracted some of the foremost pioneers in the field of creativity studies. Such luminaries as Paul Torrance, J.P. Guilford, Donald MacKinnon, Morris Stein, and George Prince, to name but a few, all attended and spoke at CPSI. For those interested in hearing some of the voices of these early pioneers, the CEF recorded 200 some speeches from these early days of CPSI. These recordings are now archived at Buffalo State and are slowly being converted to digital format. To listen to the recordings that are now accessible go to Creative Studies Founders Collection (<https://digitalcommons.buffalostate.edu/cs-founders/>).

Buffalo State: Establishing the World's First-Degree Program in Creativity

Alex Osborn was a visionary. A man driven to make the world a better place by uplifting humanity's creative power. As such, Osborn recognized the transformative, or in some cases destructive, influence of education, particularly as applied to individuals' innate imagination. Thus, Osborn set about to impact education in such a way as to develop instructional material, lessons, and curricula that would liberate, rather than imprison, imagination. The pinnacle of Osborn's success was the development of the first-ever degree program in creativity at Buffalo State (i.e., Master of Science in Creative Studies; see creativity.buffalostate.edu). As with many significant creative accomplishments, this was not a solo journey. Indeed, the pathway to a degree program in creativity unfolded in a circuitous manner and over several decades.

The eventual establishment of the undergraduate and graduate programs in creativity at Buffalo State began with Osborn's influence at the University of Buffalo, as a council member in the 1950s, and his collaboration with Sidney Parnes. The University at Buffalo provided the learning laboratory through which Osborn's ideas could be applied and tested in an academic environment, and Dr. Sidney Parnes, as an academic, provided the necessary expertise to translate Osborn's thinking into the collegiate classroom. Recall Osborn met Parnes at the first CPSI in 1955. As the legend goes, Osborn immediately recognized the need to collaborate with an academic thus extending an invitation to Parnes to leave the University of Pittsburgh and to work at the CEF in Buffalo, New York. From the latter part of the 1950s, and for about a decade, Parnes designed and delivered creativity courses at the University of Buffalo. Simultaneously publishing the results of the impact of these courses on the undergraduate students who participated in them (Parnes & Noller, 1972). In the late 1960s, with the promise of a more fertile environment, Parnes was invited to Buffalo State. There, he and his colleague Ruth Noller, originally a mathematics professor at the University of Buffalo who became a close collaborator and co-developer of creativity material (Noller, Parnes & Biondi, 1976), conducted a landmark study into the teachability of creativity called the Creative Studies Project (Parnes & Noller, 1972). Based on the dramatic and positive outcomes of this study, the creativity program became a permanent academic unit at Buffalo State. The undergraduate minor program was launched in 1974 and the Master of Science degree was approved in 1975.

Since the start of these programs, hundreds of students from a wide range of majors have completed the undergraduate minor. And, more than 700 students have graduated with a Master of Science degree. In 2017 this department, renamed the Department for Creativity and Change Leadership, celebrated its 50th anniversary at Buffalo State. Over the years the Creativity and Change Leadership Department has expanded its educational programs to include an undergraduate minor in Leadership, two micro-credentials (a 6-credit hour micro-credential in Applied Creative Thinking and Problem Solving and a 12-credit micro-credential in Creative Education: Innovative Learning, Thinking and Problem Solving), an Advanced Graduate Certificate in Creativity and Change Leadership (18-credit hours at the graduate level), and is in the process of designing a Ph.D. in Creativity and Change Leadership

(creativity.buffalostate.edu). For a description of the Department's graduate curriculum, and examples of its impact on students, see Puccio, Keller-Mathers, Acar, and Acar Cayirdag, (2016).

Conclusion: How Osborn Set the Foundation for Applied Creativity

To leave a legacy is a worthy life accomplishment, to leave at least two distinct legacies is a sign of a truly remarkable life. Alex Osborn was such a person. Osborn's business legacy lives on through the advertising agency BBDO; while his educational legacy lives on through the broad adoption of his landmark ideas regarding ways to deliberately enhance creative thinking. In this chapter we set out to discuss both Osborn's personal life and his many contributions to the field of creativity. In this chapter we noted how Osborn formed the Creative Education Foundation, developed a creative process methodology called Creative Problem Solving, and invented what is likely the most well disseminated applied creativity tool in the world – Brainstorming. To be sure, this is a rich creativity legacy, but more than these specific products that were directly fashioned by Osborn's own hands and imagination, many of Osborn's mid-20th century insights served to inform, or anticipated, some of the more vibrant contemporary creativity work. Most notably, some of the more recent insights the cognitive sciences and neuroscience have produced in terms of creative thinking and, on the applied side of creativity, the popular Design Thinking movement.

With respect to recent ways in which cognitive science has illuminated key aspects of creativity, several of Osborn's fundamental insights in his book *Applied Imagination* have now been confirmed through current research. For instance, cognitive psychology has shown us how mood facilitates or undermines creative thinking. Optimism opens our brains up to more connections, while fear limits our thinking (Icekson, Roskes & Moran, 2014). More than 50 years ago, Osborn's practical experiences with the creative process led him to similar conclusions. As Osborn (1963) noted, "Our creative thinking calls for a positive attitude. We have to be hopeful. We need enthusiasm" (p. 40). Expanding on this idea, Osborn (1963) offered:

Judgment and imagination can help each other if kept apart when they should be kept apart...from time to time, we must turn off our judicial mind and light up our creative mind. And we must wait long enough before turning up our judicial light again. Otherwise, premature judgment may douse our creative flames, and even wash away ideas already generated. (p. 41)

Researchers have explored this relationship more deeply and found that positive moods that are *activating* promote creativity more so than positive moods that are *deactivating*. For example, being enthusiastic will likely have a positive effect whereas being relaxed will likely have no impact (Baas, De Dreu, & Nijstad, 2008).

Similarly, in neuroscience, much has been written recently about mind wandering (Corballis & Vimont, 2014; Goldberg, 2018). While mind wandering is a fundamental human experience, not until recently have we been able to physiologically examine this naturally occurring human experience. Mind wandering relates to our brain's default processing system which allows our attention to disengage from the immediate external environment thus promoting internal thoughts that can lead to new associations. Here again, as exemplified through the following quotes, we see the synergy between Osborn's (1963) practical experience and contemporary creativity research:

The high spots linger long in our memories and strengthen our power of association—so much so, that years later, we may give birth to an idea that would not have come to us had we not gone somewhere and seen something. (p. 70).

Association works harder for those whose imaginative urge is more intense and whose minds are better stocked. The more vivid the memory, the more it lends itself to the associative process. (p. 112)

Production of ideas depends upon the contents of your mind and how you 'mix' those ingredients. Association of ideas serves as a catalyst in this process. (p. 113).

Design Thinking has likely the most popular applied creative process model in use today (Brown, 2009). It is easy to see how Osborn's principles for divergent thinking, as applied to Brainstorming, have been adopted into the visualization phase of Design Thinking. Indeed, such principles as deferral of judgment and free associations have been directly adopted into the ideational thinking required in effective Design Thinking. While perhaps not a direct antecedent to current Design Thinking processes, Osborn did anticipate two cardinal concepts in today's Design Thinking work – empathy and prototyping. With respect to the former Osborn (1953, Imagination can Improve Personal Relations section, para. 6) encouraged his readers to do the following:

By constantly trying to change shoes we can grow creatively; but for a more active exercise—instead of passively applying the Golden Rule—we might make ourselves 'go over to the other side,' by implementing the Golden Rule. Then we practice what psychology calls empathy—the imaginative projection of one's own consciousness into another being.'

And with respect to prototyping, Osborn (1963) was a strong advocate for quickly testing ideas so that they might be revised and modified into stronger, better, versions. In fact, he applied the same principle of going for quantity of ideas to how one should approach prototyping. Although Osborn referred to this practice as continuous experimentation. As Osborn (1963) offered, "Proverbially, nearly every history-making triumph of creative scientists is credited to a single inspiration; whereas, in truth, that 'inspiration'

usually came from trying this and that—by building up a huge pile of hypotheses” (p. 134).

We offer these observations not to suggest that Osborn created Design Thinking, but to merely demonstrate two points. First, that Osborn’s principles helped to inform current Design Thinking work. Second, to highlight the universality of fundamental creative process concepts across creative methodologies and practices. To be sure, Osborn’s pioneering work in creative education live on both explicitly and implicitly in today’s creativity field.

As we noted at the beginning of our conclusion, Osborn has left at least two living legacies. What might account for such a successful life? Perhaps Osborn’s remarkable achievements might be attributed to the fact that he not only promoted creativity, but he lived a creative life.

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CHAPTER TWENTY TWO

THE CREATIVITY OF JONATHAN PLUCKER

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ABSTRACT: Jonathan Plucker is an educational psychologist whose research spans creativity, education policy, and talent development. Although often seemingly disparate domains, all his work aligns to reorient thinking about how best to define, measure, and promote success in children and adults. In this chapter, a team of his colleagues, collaborators, and former students (some of us are all three) provide an overview of Jonathan's work and its origins: 1. Defining creativity (and how researchers can push its boundaries); 2. Assessment and psychometrics of creativity; 3. Assessing the evidence of creativity; 4. Creativity across the globe; 5. Creativity in the classroom; and 6. Talent development through reducing excellence gaps across students from different demographic backgrounds, and gifted education. Through his work on each of these topics, Jonathan has helped advance the field's understanding and perspective while keeping any eye on the practical application and relevance of research. In this chapter, we overview his relevant contributions, introduce the cultural context in which his contributions came about, and some of the impact his work has had in the field and beyond.

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Jonathan A. Plucker, PhD is an educational psychologist known for his work in creativity, intelligence, talent development, education policy, and research methods. In this chapter, a team of his colleagues, collaborators, and former students (some of us are all three) provide an overview of Jonathan's work and the stories behind his work. Rather than write from a distant third person perspective, we chose to write from our individual and collective first person lived experiences collaborating with Jonathan. This perspective aligns closer with an oral history narrative. It may be atypical, but we hope that it better contextualizes Jonathan's creative contributions and his creative process. We want to highlight both his work as well as the process and intent behind his work. Plus, as illustrated below, we believe that one of his chief contributions has been the effect he has had on his students, colleagues, and collaborators.

Jonathan's origin story for being professionally interested in creativity began when he was in a master's program at the University of Connecticut in the 1990s. He was taking courses with many doctoral students that were about creativity, but the framing of creativity often felt like game playing (e.g., uses of a balloon) to him. This didn't fit his worldview of what innovation was. Jonathan hated creativity through that lens and felt something was missing. At the same time, Jonathan was taking science education courses where he saw creativity being discussed in a more focused and grounded manner. One day, while walking by a pond on the UConn campus, an idea popped in his head. He realized that we downplay the social aspect of creativity in education. In education, we did not talk about communication, persuasion, group idea generation, or other social components of creativity. This inspired him to read what had been done from this perspective (not a lot at the time). This connection inspired much of his subsequent work and thinking. He was hooked. The rest of this chapter tells the tale of his years and work that followed that walk around a pond.

We organize the chapter as follows: First, we explore how Jonathan worked to explore and define the term creativity, as well as how he worked to push the boundaries of the term both in research and in the field of creativity. Second, we review Jonathan's work on creative assessment and psychometrics work. The third section discusses Jonathan's work on assessing the evidence on creativity and making it accessible to broader audiences. The fourth section provides an overview of Jonathan's international work related to creativity. The fifth section recounts Jonathan's influence on creativity in the classroom. The final three sections discuss Jonathan's relevant work in the adjacent fields of excellence gaps, gifted education, and his role at the National Association for Gifted Children.

Defining Creativity

As of this writing, Jonathan's most highly cited work is a journal article asking why creativity is not more important to educational psychology and also provides a definition of creativity for the field (Plucker et al., 2004). In this

section, his co-authors on that paper, Dow and Beghetto review that piece as well as how Jonathan has influenced their careers. Next, Makel discusses how their work together on replication in the social sciences applies to creativity and how it pushes the boundaries of what is considered a creative research contribution. Finally, Long reviews her work with Jonathan that assessed creativity research journals and how their publications have changed over time.

[Authored by Ronald A. Beghetto, PhD, Professor, Arizona State University] Although creativity scholars are very familiar with Jonathan Plucker's creative contributions to the field, they may be less aware of the creative contributions he has made as a mentor. In my case, I'm deeply grateful to Jonathan for the creative and supportive mentoring he provided for me in the early stages of my scholarly development.

In the late 1990's, a time when creativity was essentially a non-topic in educational psychology, I was searching for a PhD advisor who could support my interests in creativity. To say that my pursuit was starting to resemble a Sisyphean exercise would be an understatement. I tried my luck at gathering what information I could about faculty in colleges of education. I used a combination of hardcopy directories of doctoral programs I found in the library and rudimentary internet searches. I discovered a few promising leads in gifted education, but my interests were focused on creative teaching and learning in general education settings.

I nearly abandoned my search after I had reached a faculty member (at an institution I will not name), who thought I was making a prank call! That person's response to my inquiry went something like, "Okay, right. You're a graduate student at the University of Wyoming who wants to come here to learn about creativity in education. Ha! Who is this, really!?!?"

In retrospect, this was not too surprising. This would not be the last time I would encounter incredulous responses from educational researchers about the nature and role of creativity in teaching and learning. Little did I know that Jonathan was having a similar experience and that such experiences would become a driving force in our early work together.

Connecting with Jonathan was therefore a critically important and serendipitous event in my scholarly journey. After becoming somewhat discouraged about the responses I received in searching for an advisor, a friend (who grew up in Indiana) encouraged me to take a look at Indiana University (IU). IU's school of education had a strong reputation and I thought perhaps someone there might be able to point me in the right direction.

As luck would have it, Jonathan had just recently joined the faculty in the Educational Psychology program at IU and I was quickly put in touch with him. It was immediately clear that Jonathan was someone who shared my enthusiasm for the concept of creativity and its potential importance as a topic of inquiry in education.

Based on our unique and shared interests and experiences with creativity in education, we started to formally pursue the question of: Why doesn't creativity seem to matter in educational theory and research?

This is a question that Jonathan and I frequently discussed over numerous occasions during our early work together. In the heyday of constructivist perspectives on education, we found it vexing and quite ironic that edu-

cational researchers were placing so much emphasis and effort on educational change and constructivist perspectives; yet the concept of creativity was all but absent from these efforts.

We therefore endeavored to map out the most active researchers in creativity studies, identify creativity texts that were being used in educational programs, co-teach a college level creativity course, and ultimately get a better grasp on the nature of the construct of creativity itself. We had a hunch, based on an interaction Jonathan had with one of his senior colleagues (Dr. Myrtle Scott), that perhaps part of the undervaluing of creativity in education came from a murky understanding of what creativity actually means. In other words, perhaps at the root of the problem was a definitional issue.

We thereby started our theoretical and empirical exploration of the definitional issues surrounding creativity. Together with Gayle Dow, we were successful in publishing the 2004 *Educational Psychologist* (Plucker et al., 2004) paper that reflected our efforts in this regard.

The publication of the 2004 *Educational Psychologist* paper was an important landmark for us as it signified that the field was regaining interest in the concept of creativity and the subsequent popularity of the paper further signified that a broader shift in education and psychology was underway. A shift that would increasingly view creative phenomena as an important area of study.

Although creative contributions in the form of published works, presentations, and applied work are clearly important, I would offer that equally important creative work occurs in the everyday mentoring of creative aspirations. Jonathan walked the creative talk in this regard. Rather than attempt to restrict or overly narrow my focus, he encouraged and supported my broader interests in the nature of creativity, including my remotely associated interests in teaching, learning, and instructional change. In fact, my dissertation didn't even focus explicitly on creativity (but rather instructional change in the context of schoolwide reform efforts).

As I have come to realize, one of the clearest ways creativity manifests is through everyday action. Jonathan's creative actions as an advisor and contributor to the field thereby serves as an example of the definition our team derived (Plucker et al., 2004): "the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context" (p. 90).

[Authored by Gayle T. Dow, PhD, Associate Professor, Christopher Newport University] How do you define creativity? That was the initial question. "We, as a field, need an agreed upon definition. There really isn't one." Jonathan shook his head solemnly in our first research meeting at Indiana University in the summer of 2002. I was two years into my PhD program on the west coast when I visited Bloomington, IN to work with Jonathan over the summer. Creativity researchers were a rare find and I eagerly looked forward to our collaboration, however brief it may be. I vividly remember sitting in his corner office those first few days chatting about creativity research. This conversation not only led to our first publication together, which was to develop an explicit definition of creativity, but began our 20 year research collaboration together. It was this summer project that resulted

in me transferring to Indiana University to finish my PhD under his mentorship.

This initial project addressed four main stereotypes that have plagued the empirical research into creativity and clouded its definition. The stereotypes include the misguided belief that creativity is innate and you are either born with it or without. In truth, we know from much research that creativity can be increased with training (see Dow & Mayer, 2004 for example). It also addressed the myth that creativity is restricted to the dark side of criminality, drug use, and mental illnesses. Although malevolent creativity is a recent and worthwhile topic of investigation, drug use and mental illness typically impede the creative process and prevent the final, necessary stage of evaluation to yield a worthwhile product. Similarly inaccurate is the third myth that creativity is limited to eccentric people who live on the fringes of society. Although socially withdrawn, creative geniuses do peak our curiosity, they are far from typical examples of those who are creative and instead we find that consistent hard work is more likely to produce creative achievements. Lastly, the fourth myth that teamwork fosters creativity should instead be balanced with the understanding that brainstorming yields higher fluency when it is a solo endeavor and other biases, such as groupthink, which can actually be detrimental to creativity.

In an attempt to put an end to these myths, and identify commonalities that tap into the latent construct of creativity, we reviewed nearly 100 research articles with the word creativity in their titles. Less than half of these publications provided an empirical definition of creativity, but by reviewing these and extracting implicit definitions from others, we concluded that creativity had three main consistent attributes: novelty, usefulness, and environmental influence. Thus, to answer our original question, we defined creativity as articulated in the previous section.

With the collaboration of Ron Beghetto, we published this call to action: “Why Isn’t Creativity More Important to Educational Psychologists? Potentials, Pitfalls, and Future Directions in Creativity Research” which requested, as a field, we use an explicit, consistent, definition of creativity to aid in clearer communication and foster creativity across multiple disciplines. As of April 2021, this paper has been cited over 1,600 times since its publication, including by the recent 2020 paper entitled “Defining Creativity: How Far Have We Come Since Plucker, Beghetto, and Dow?” Using a similar technique, Puryear and Lamb (2020) reported that more researchers are now using explicit definitions primarily involving the same three attributes of novelty, usefulness, and environment. The field of creativity research has grown and expanded extensively since my days at Indiana University and while we still have much research to explore, I believe this seminal work with Jonathan and Ron was one such catalyst that has propelled the field forward to where we are today.

Pushing Creative Boundaries

[Authored by Matthew Makel, PhD, Associate Research Scientist, Johns Hopkins University] As shared in the previous section, Jonathan’s work to

articulate a definition of creativity that is widely accepted helps assure that different people are speaking the same language. In a related stream of research, Jonathan and I have written a great deal about the importance of replication in research (Makel & Plucker, 2014a, 2014b; Plucker & Makel, 2021).

The seed of this research started when Jonathan handed me a brief magazine clipping about how marketing research was rarely replicated. He said something along the lines of, “let’s think about this.” This brief interaction and suggestion to connect and apply findings from one domain to another is a great example of Jonathan’s own creative problem finding, but also led to a book (Makel & Plucker, 2017) and more than a dozen papers on replication and its importance in research in creativity (Makel & Plucker, 2014a), psychology (Makel et al., 2012), education (Makel & Plucker, 2014b), gifted education (Makel & Plucker, 2015), special education (Makel et al., 2016), educational psychology (Plucker & Makel, 2021), and even criminology (Pridemore et al., 2018). This work highlights the prevalence (or lack thereof) of replication research, what it would (and would not) contribute, as well as suggestions for how to foster greater support for replication research.

Replication, or the intentional duplication of previous work to assess either veracity or generalizability, may superficially appear to be the opposite of creative. How could something that is an intentional duplicate meet the novelty criterion? In a response commentary in a special issue in *Psychology of Aesthetics, Creativity, and the Arts*, Jonathan and I (2014) approached the issue from a different angle: If a concept cannot be replicated, how could it meet the usefulness criterion of creativity? From this perspective, we argued that for a scientific finding to be creative, it must be replicable. Otherwise it is not particularly useful. One team finding cold fusion one time is not as useful as independent teams being able to replicate the effect.

In our work, we made the analogy to replications serving as scientific kidneys, helping filter out waste products (findings that cannot be repeated independently or in specific contexts of interest; Makel & Plucker, 2014b). Such filtering is part of any creative process when shifting from idea generation to winnowing routes to pursue for action. The landscape for ideas must be reduced from the population of all ideas generated to those that best meet the novelty and usefulness criteria. We believed that an important facet of the usefulness criteria in scientific research is that it can be replicated (preferably independently). It can serve as a dialysis differentiating creative contributions that are unique and replicable from contributions that only meet the novelty criterion.

We were not the first to consider replication as part of the creative process. Sternberg (1999), in his Propulsion Model, notes that replication is one of nine types of creative contribution. This framing of creativity needing replication pushes the boundary of the creative process beyond the narrow hegemony of novelty. Although not as well accepted as his definition of creativity, his work on the importance of replication is also growing in acceptance, with the Institute of Education Sciences in the U.S. now funding a specific call for proposals for systematic replications.

[Authored by Haiying Long, PhD, Associate Professor, University of Kansas] Although Jonathan's work with Beghetto, Dow, and Makel leads to discussion about the definition of creativity and replication in creativ-

ity research, that does not overshadow his work on understanding creativity research as a field. Our paper on research productivity and performance of journals in *creativity sciences* is such an example.

The idea of this paper started with Jonathan's vision of treating creativity as a scientific field, or "creativity sciences." This aimed to serve two purposes: one was to officially establish creativity as a field that can be distinguished from other fields in psychology; the other was to study the field as a whole from a more scientific way. This vision was as important as the definition of creativity for the development of the field of creativity because it had rarely been discussed, and studying a field from a scientific way was still a novel idea for many other fields in social sciences. This vision was also built from Jonathan's long-time engagement in creativity research as a leading researcher and his commitment to moving the field forward.

We began this work by searching journal articles on creativity in popular psychological and educational databases, such as PsycINFO and Web of Science, dating back to the first article published in the 1800s. We then included theses and dissertations on creativity collected in the database, ProQuest, and compared all the creativity publications with those published at the same period on other comparable topics in psychology, such as IQ, personality, and insight. We found many interesting patterns of creativity studies from this work, which were presented at an APA annual conference. Later, we focused on publications between 1965 and 2012 in four main creativity research journals, *Journal of Creative Behavior*, *Creativity Research Journal*, *Gifted Child Quarterly*, and *Psychology of Aesthetics, Creativity, and the Arts*. With the collaboration of colleagues in library science at Indiana University, we applied a bibliometrics approach that is popularly used in library science to examine research performance of *creativity sciences* through the analyses of publications and citations of the articles published in these journals and the impact factors of these journals. In our results, we presented the development trend of the research productivity and the impact of creativity sciences and provided creativity researchers with the first analysis of how the field looks at the macro level (Long et al., 2011).

Creativity Assessment and Psychometrics

Once creativity is defined, operationalizations and assessments can be created. Jonathan has also contributed substantial work to the assessment and psychometric evaluation of creativity. Jonathan's work in this area began when one of his early mentors, Joe Renzulli, was asked to write a creative assessment chapter for a handbook being edited by Robert Sternberg. Jonathan spent months reading and preparing it (Plucker & Renzulli, 1999) to make a good impression. This project not only gave him a foundational knowledge of creative assessment and psychometrics, but led to several future empirical and review papers. In this section, Qian recounts some of Jonathan's research on divergent thinking tests and scoring, domain expertise, and other psychometric work with creativity assessment. Long continues with relevant work on the Consensual Assessment Technique.

[Authored by Meihua Qian, PhD, Associate Professor, Clemson University] The year 2006 was one of the happiest times of my life because I

was admitted into the Educational Psychology PhD program at Indiana University in Bloomington and I could start working with Dr. Jonathan Plucker, one of the leading figures in the field of creativity. In the past 12 years, I have co-published eight articles and four book chapters with Jonathan, and we examined various theoretical and technical issues related to creativity assessment, which are described in detail in the sections below.

Divergent Thinking Tests and Scoring Techniques

Although there are multiple ways to measure creativity, divergent thinking (DT) tests remain one of the most popular approaches to assessing creativity (Plucker & Makel, 2010; Plucker et al., 2019), and participants' responses can be scored in terms of fluency (the total number of responses), flexibility (number of distinct categories of responses) and originality (uniqueness of responses). However, validity evidence associated with DT assessments is often mixed (e.g., Qian & Plucker, 2018), which is further complicated by a known contamination problem in DT tests (i.e., high correlations between fluency and originality scores). Hence, Jonathan and I identified and compared several methods for scoring originality. Our results showed that the percentage scoring method may be optimal for originality scoring for abstract and decontextualized DT tasks (Plucker et al., 2011) while a combination of objective and subjective scoring methods may be the most appropriate scoring strategy for real-world DT tasks (Plucker et al., 2014).

Domain Expertise and Creativity Assessment

The Consensual Assessment Technique (CAT; Amabile, 1982, 1996) is viewed as the "gold standard" of creativity assessment (Carson, 2006); this involves having a group of experts judge the creativity of creative products (Qian & Plucker, 2017). However, no consensus has been reached regarding the amount of domain expertise that is required to best judge creativity. To provide more rigorous evidence to help address this issue, Jonathan, other collaborators (James Kaufman and Jason Temple), and I analyzed college student (novice) ratings and critic ratings on movies released from 2001-2005 and compared them to those of self-identified critics on major movie rating websites. We found a moderate association between student ratings and critic ratings ($r = .43$) and a strong positive correlation between self-described novice rating and critic ratings ($r = .72$) (Plucker et al., 2009).

Creativity Assessment and IRT Framework

Many widely used creativity measures such as the Creative Personality Scale (CPS; Gough, 1979) were developed based on the classical test theory (CTT) framework. Due to the sample-dependent nature of CTT-based models, reliability and validity evidence associated with these measures often varies across studies. Therefore, the psychometric properties of the CPS were reexamined using the item response theory (IRT) framework. Results suggest that the CPS is multidimensional and associated with convincing evidence of criterion-related validity, although some items have low discrimination indices (Qian et al., 2019).

The Argument of Domain Generality vs. Domain Specificity and IRT Framework

Although creativity has been well studied in the past several decades, the question of whether creativity is domain specific or domain general still remains one of the major unresolved issues in the field of creativity. Given previous studies are associated with either conceptual or methodological issues, Jonathan, another collaborator (Xiangdong Yang), and I reexamined the domain generality-specificity argument from a new perspective using descriptive and multilevel explanatory IRT models. Essentially evidence supports domain generality (Qian & Plucker, 2018), but the significant domain effect of music suggested that it may be harder to be creative in music than in other domains (Qian et al., 2019).

[Authored by Haiying Long, PhD, Associate Professor, University of Kansas] Jonathan has written several articles or chapters on creativity measurement. I was fortunate to work on one chapter with him on assessing creative thinking in *The Routledge International Handbook of Research on Teaching Thinking* (Long & Plucker, 2015). This chapter focused on reviewing different approaches of assessing creative thinking under the school context and provides researchers, teachers, and practitioners with recommendations for how to integrate creativity assessment into teaching and classroom assessment.

My doctoral dissertation examining validity of the Consensual Assessment Technique (CAT) also benefited from Jonathan's insights on creativity measurement. When writing about creativity measurement, Jonathan often mentions that the CAT has usually been considered as one of the best approaches to measuring creativity, mainly because it eschews the criterion issue by using a panel of experts as judges. As described above, it also brings about a few other questions, such as, who can be the judges? What level of expertise is required of judges for rating products in a domain? Can the CAT be used in other tasks, such as those in divergent thinking tests? Based on the results of his work, Jonathan proposed to understand judges' expertise from a continuum perspective. He also compared different approaches of scoring real-world divergent thinking tasks, including the use of the CAT, and examined the reliability and validity of these approaches. My dissertation could be viewed as an extension of all the frontier work that Jonathan had done prior.

Assessing the Evidence and Making it Accessible

As demonstrated throughout this chapter, Jonathan is a keen researcher. He has an eye for identifying gaps in the literature and ways to remedy those gaps, but he also has a distinct ability to make research accessible and useful to all audiences. In this section, Callahan, Jonathan's long-time collaborator and doctoral advisor, reviews his application of research evidence in non-research contexts; specifically, its translation to non-research audiences.

[Authored by Carolyn Callahan, PhD, Commonwealth Professor of Education, University of Virginia] The contributions that a scholar makes to the literature in any field can range from the theoretical to the practical. Other portions of this chapter offer strong arguments for Jonathan's contributions to the theoretical and research literature in specific domains of education and psychology such as creativity and excellence gaps; however,

some of Jonathan's most exceptional talents lie in the realm of real-world of application. These include his ability to identify and act on the need to carefully evaluate the evidence available on a vast array of assertions made in education, his expertise in synthesizing and fairly evaluating the evidence surrounding those assertions, and most importantly, his extraordinary capacity to translate those evaluations into terms that practitioners, and particularly policy makers, can understand and accept.

My first exposure to Jonathan's ability to identify assertions about practice that should be scrutinized and domains of knowledge that need careful review was when he approached me about co-editing the first edition of *Critical Issues and Practices in Gifted Education* (Plucker & Callahan, 2008). As we began to discuss the range of topics to include in the first edition, his insights into the important issues to be scrutinized were reflective of his ability first to glean both the "time honored" and obvious targets that were often talked about by policy makers as if there was clear direction for practice (e.g., grouping), but were as likely to reflect belief systems as to reflect research-based practice. But then he also was cognizant of the practices and/or fads that were emerging in the field and should be carefully weighed by experts. The process of identifying those experts to review the literature also reflected the value he placed on ensuring that each issue would be considered with an eye that was not biased in favor of one point of view over another. This drive for equitable consideration of the literature carried over into his role of editor of the individual chapters as he raised critical questions of the evidence supporting assertions made by the chapter authors. In the subsequent editions (Plucker & Callahan, 2014; 2020) of the book he never lowered standards --demanding the same level of integrity in the evaluation of evidence in all the chapters he co-authored or edited.

Not only does Jonathan set high expectations of others as an editor, his own work reflects an steadfast commitment to examination of evidence across the many practices in our field. When we were first approached to develop a review on the status of research and practice for a special issue of *Exceptional Children* (Plucker & Callahan, 2014) and when we were asked to expand on that publication for a chapter in the *Handbook of Special Education* (Plucker & Callahan, 2017), he insisted on taking a stand on all of the issues in a way that reflected applying strict criteria for evidence supporting or refuting assertions and practices in gifted education --even those that are commonly accepted as truths and/or are "sacred cows" of leaders in the field. I recall conversations around the general statement "He/she isn't going to like us writing this" without flinching or backing off on our argument. Further, Jonathan's contributions always reflected examination of original research and sources rather than relying on secondary interpretations or syntheses of the work. And Jonathan also insisted on considering the literature outside of gifted education which had implications for any of the topics we were considering. For example, the *Top 20 Principles From Psychology for PreK-12 Creative, Talented, and Gifted Students' Teaching and Learning* (which he edited with Makel, Olszewski-Kubilius, and Subotnik; American Psychological Association, 2017) is a model of the use evidence-based practice from the domains of psychology as a basis for guiding instruction for gifted students. Jonathan's commitment to reviewing and carefully evaluating evidence has

prevailed in any writing or discussion I have had with Jonathan up to and including our recent article in the *Kappan* (Plucker & Callahan, 2020). Even when the editor suggested “softening” language he was steadfast that the meaning or conclusion not be altered by revisions to language. While some may quarrel with his (or our) evaluations of the evidence, one could never quarrel that Jonathan made the judgement based on his careful consideration of that evidence.

Although the publications mentioned above reflect Jonathan’s commitment to evidence-based practice, publication alone does not guarantee that policy makers and practitioners will hear the messages we try to convey. To that end, Jonathan has courted the attention of policy makers from small to large school –administrators as well as school board members and leaders at the level of state policy decision making by situating the circumstances and good practice for gifted learners in the context of good learning environments and practices of all students. In a presentation I did with Jonathan at the conference of the National School Boards Association each and every message was carefully crafted to communicate best practice in education with language that related to the decisions they routinely made for their school districts and with language that engaged them to think without dredging up potentially existing biases and prejudices about gifted students and associated beliefs about privilege. I can still clearly see the faces of students when Jonathan presented in my seminar and explained how powerful the argument for gifted education becomes when one simply situates the plight of gifted students in the overall argument of the achievement gap and loss of talent within the documented excellence gap. He went on to note that by pointing to the poor performance of “our highest achievers” or “those with the highest level of academic performance” rather than to the “gifted” he was able to redirect policymakers’ thinking from long-time rejection of that construct of giftedness to concern for *all* learners *including the gifted* using sound research evidence.

International Work

Jonathan’s extensive international collaborations (e.g., in China, The Netherlands, United Kingdom, South Korea, and Hungary) are often inspired by his desire to say yes when given an opportunity to collaborate. These collaborations connect him to networks of scholars, further opportunity, and great joy. In this section, Long and Qian discuss some of Jonathan’s international work in the field of creativity. Long discusses Jonathan’s involvement in research in China and Qian discusses Jonathan’s contribution to the literature using Chinese samples.

[Authored by Haiying Long, PhD, Associate Professor, University of Kansas] Jonathan is probably one of the first few American creativity researchers to work with creativity researchers in other countries. When I met him for the first time in 2007 in China, he had already worked with creativity researchers in China for a few years. Later, he expanded his collaboration with other Chinese creativity researchers, especially those at Beijing Normal University, East China Normal University, Shaanxi Normal University, and Capital Normal University. He was well respected in the community of crea-

tivity researchers in China and was invited to deliver keynote speeches for China's National Creativity Research Conference, the only conference on creativity research in China, for a few years in a row. I met him in Shanghai in 2007 at the conference sponsored by East China Normal University. He introduced the most updated development of creativity research around the world in his keynote speech, which was received well by the audience.

From his years of collaborating with Chinese creativity researchers, he has developed many publications with them (e.g., Chen et al., 2016; Wang et al., 2018; Yi et al., 2013), including examining Chinese adolescents' creativity development, factors affecting scientific creativity with colleagues in Shaanxi Normal University, examining Chinese migrant children's divergent thinking abilities with colleagues in Capital Normal University, and discussing the effect of policies in China on promoting creativity and with colleagues in East China Normal University.

Migration and Creativity

[Authored by Meihua Qian, PhD, Associate Professor, Clemson University] Many researchers have examined the impact of culture on creativity in terms of implicit and explicit conceptions of creativity, creative processes, creative performance, and culturally relevant creativity assessment (e.g., Ng, 2003; Leung et al., 2008; Qian et al., 2010; Shao et al., 2019; Tan et al., 2019). Some studies have also shown that within different cultures, experiences can enhance creativity and urban children often outperform rural children on creative tasks (e.g., Liu & Shi, 2004; Shi et al., 2012). However, little is known regarding how migration from rural to urban areas within a county might influence students' creativity development. In China, millions of people including their children migrate from rural areas to cities each year because there are plenty of job opportunities in big cities (Shi et al., 2012). To investigate the relationship between children's migration from rural to urban areas and their creative thinking ability, a study involving 909 fifth and sixth grade Chinese students who were either migrant children, rural children, or urban children was conducted. They were asked to complete a DT test, and we found that migrant children outperformed rural children on DT tasks, but still scored significantly lower than urban children on the DT test. Also, short-term (less than 3 years) migrant children scored significantly lower on the DT test than midterm (4-7 years) and long-term (≥ 8 years) migrant children. But no significant differences were observed between the DT scores of midterm and long-term migrant children (Shi et al., 2012).

The Chinese Adolescents' Creative Personality Inventory (CACPI)

Creative personality has been extensively studied since the 1950s, and numerous studies have been conducted with respect to creative personality characteristics, the construct of creative personality, and the relationship between creative personality and creative achievements (Qian et al., 2010). However, little is understood regarding Chinese adolescents' creative personality. To provide culturally relevant creative personality assessment, the Chinese Adolescents' Creative Personality Inventory (CACPI) was developed and tested. A total of 1,300 Chinese adolescents completed the instrument, and the results suggest that adolescents' creative personality consists of three dimen-

sions—Internal, External and Self factors, with the Internal factor including self-confidence, norm-doubt, internal motivation, and persistence, the External factor consisting of curiosity, risk-taking, openness and independence, and the Self factor pertaining to self-acceptance (Qian et al., 2010).

Creativity in the Classroom

One of Jonathan’s favorite things to do in the classroom is teach about creativity. He takes a specific, deliberate approach to get each student to question their beliefs and stereotypes about creativity. This sometimes leads to some grumpy, confused students along the way. He thoroughly enjoys seeing them transition—some like flipping a switch, others more gradually—and seeing their worldview change. These changes are among the reasons Jonathan views creativity in the classroom as so important. It’s an opportunity to help students discover their personal creativity.

[Authored by Amber Esping, PhD, Associate Professor, Texas Christian University] Twenty-odd years ago when I first learned of Jonathan Plucker, I was a first-generation college student with a clarinet performance degree and a naïve enthusiasm for human intelligence and creativity. When I first reached out to him, he put me in touch with one of his recent Indiana University PhD graduates, Ron Beghetto, so that I could ask questions and get honest feedback about what it was like to work under his mentorship. Beghetto told me then exactly what he reaffirmed earlier in this chapter. Now I, too, am deeply grateful for Jonathan’s creative and generous mentoring early in my career. He always made his advisees feel like a priority, and only after I graduated and took my first tenure-track position did I fully realize what a gift this was. Despite Jonathan’s impressive publication record and frenetic travel schedule I somehow had no idea how busy professors are. Moreover, he was genuinely open to hearing his advisee’s ideas. When, about half-way through my program I abruptly changed directions and pitched a new and nontraditional dissertation topic that diverged from his own work, he didn’t flinch. He seemed genuinely excited and actively sought support for me from other scholars who did work in this new area. Jonathan’s open-mindedness and championing of his students’ ideas speaks to the way in which he manifests through his pedagogy the definition of creativity that he, Beghetto, and Gayle Dow proposed in their much-referenced 2004 article. Or, to echo Beghetto’s point earlier in this chapter: “One of the clearest ways creativity manifests is through everyday action.” Jonathan is a fully engaged teacher-scholar who puts into practice the dispositions he advocates in his creativity publications.

Over the last 20 years, Jonathan and I have published three articles, seven book chapters, and one book together. One of the most meaningful collaborations for me personally has been our ongoing work on Jonathan’s *Human Intelligence: Historical Influences, Current Controversies, Teaching Resources* Website (<http://www.intelltheory.com/>). In 1998 Jonathan began developing this resource as a flexible “living text” for courses covering human intelligence. However, many of the scholars featured on the site have also published on creativity (e.g., Joseph Renzulli, Robert Sternberg). The site can be very useful for disentangling constructs of intelligence from crea-

tivity, as Jonathan's careful attention to definitional issues can be seen in the personal definitions of intelligence provided by many of the featured scholars. The structure of the site itself is supported by learning and cognitive science research about how viewers interact with online content. The resources available include an interactive map demonstrating the chains of influence among theorists and researchers, biographical profiles of prominent individuals who have contributed to the development of intelligence theory and testing, in-depth articles exploring important controversies related to intelligence, and sample course syllabi that can be adapted for use by other faculty. It is further enhanced by videotaped interviews of prominent scholars discussing their work (Plucker & Esping, 2014a).

When possible, we conducted these interviews at conferences, but often Jonathan sent me to the scholar's homes. One particularly colorful anecdote is this one, related in Plucker & Esping (2014b):

We were very fortunate to connect with John Horn near the end of his life. His interview, conducted in his home office in California (which he lovingly referred to as "The Institute") can be found here. The interview posted on the site is actually a second attempt. The first attempt one year earlier failed because one of the present authors (A. Esping) and Dr. Horn collectively could not figure out how to turn on the video camera during the first visit. In an email exchange afterwards, Dr. Horn attributed this to Amber's deficit in a specific ability. (p. 173)

In John Horn's defense, he was quite elderly at the time of the interview and was unfamiliar with the kind of camera I brought with me. When I returned to Indiana University after the first attempt at the interview I was utterly mortified to have failed so magnificently. Jonathan received my apologies with his usual humor and grace.

Creative Articulation

[Authored by Stuart Omdal, PhD, Professor Emeritus, University of Northern Colorado] When I was a doctoral student at the University of Connecticut in the early 1990s, Jonathan Plucker was an undergraduate senior in the secondary professional teacher education program and a work-study student in the Gifted, Talented, and Creative Education program. He had been in a gifted education program during his elementary and secondary years and as a result was interested in topics addressed in the courses. He started to take graduate courses in the master's program (*this was before he finished his bachelors- in fact he was awarded his master's degree the day before his bachelor's degree!*) and was particularly interested in the course on creativity, an interest that he and I shared.

I recall one day he came into the office and told me that when he was walking down the long hill from the remote parking lot this morning he had a flash of insight regarding creativity while he was thinking about his great grandfather. His great grandfather had invented a rear back-up light system for cars, but did not successfully market it. Jonathan said that he realized that what was missing was the element of "articulation."

Fast-forward to 2017: Chapter 11 in *Creativity and innovation: Theory, research, and practice* is entitled “Creative Articulation” by Jonathan Plucker. In this chapter he establishes the importance of purposefully conveying one’s creativity/creative productions to audiences in different social contexts. These concepts are put to use in business and marketing and carry implications for students as well. When an upper elementary, middle, or high school student is involved with a self-chosen individual investigation, project-based learning product, or capstone/senior project, a topic of intense interest is often selected. Many times this interest is chosen because the student recognizes a “real world” problem and sees the need for a change in policy, procedure, ordinance, or law. This may be at a school district, local, or larger-scale level. To affect this change, students need more than earnest passion. They need to learn how to communicate effectively to those who are the decision-makers: the gatekeepers. They can be taught how to understand their audience, refine their message, set the mood, discern when the “time is right”, and locate advocates and organizations who share their concern. Learning about and experiencing these aspects of “articulation” equips students for subsequent involvement when they see something in society that needs changing or in the promotion of other creative endeavors with which they are involved. Creative articulation à la Jonathan Plucker can help enable the student to move from wanting change to occur to making change occur.

Attitudes Regarding Creativity

Jonathan’s work on the impact of an individual’s attitude toward creativity has implications for teachers interested in enhancing the creative behaviors of students in the classroom. Reporting the results of a study with college students in an article co-authored with Dow in 2017 (Plucker & Dow, 2017) they describe this important role of attitude in the development of creative behaviors. The role of prior experiences outside of the classroom and teaching/learning experiences in the classroom contribute to the formation of an individual’s attitudes regarding creativity throughout one’s schooling and beyond.

How can teachers help foster positive attitudes regarding creativity in the classroom? Plucker and Dow offer a “New Model for Creativity Enhancement”,

(Plucker & Dow, 2017) The first component is a deliberate focus on attitude change. They report that attitudes regarding creativity are influenced by past experiences and experiences in the classroom. This is applicable to children and adults. If a child is raised in an environment that encourages creative expression then their attitude towards creativity likely is positive. If a student in a professional teacher education program experiences creative teaching strategies from professors, they will be more likely to feel comfortable and confident integrating appropriately modified teaching strategies in their K-12 classrooms.

The second component of the model for creativity enhancement is to help students identify their strengths and understand the need to respect individual differences in abilities, interests and preferences. An approach suggest-

ed in the framework is to look at the areas of cognitive, political, social, environmental, and emotional strengths and preferences. The third component deals with balancing the emphasis on external and personal factors when cultivating creativity. This component is often important when a problem arises and individuals focus on the limitations imposed by the environment (school, work, culture) rather than creatively employing their personal strengths and preferences to find possible solutions.

Jonathan's work on the importance of addressing the issues regarding an individual's attitude toward creativity impacts the potential role of the teacher in fostering positive attitudes. Providing instruction that includes elements of experiential learning, active hands-on learning, and problem solving activities in an environment that is safe for taking risks fosters positive attitudes toward creativity that likely may have a life-long impact on the individual.

Excellence Gaps

In addition to his work in creativity, Jonathan has published widely on students whose learning needs may not be met in the regular classroom. As mentioned above, such students are often called gifted. But Jonathan has found that using other descriptors may be more effective when talking to policy-makers. Perhaps Jonathan's biggest such reframing is his introduction of the term excellence gaps (unequal advanced performance) and his reports on their magnitude and sustained permanence in the United States. Jonathan feels it is an ethical duty to help a lot of kids and make sure they receive equitable opportunities to develop and learn. His work on Excellence Gaps highlights how far society has to go to fulfill this ethical duty.

[Authored by Steven Fredericks, Ed.D., Visiting Professor, Johns Hopkins University and Scott J. Peters, PhD, Professor, University of Wisconsin-Whitewater] Jonathan and I (Steve) were introduced to each other by the Dean of the Indiana University School of Education in 2009. The Dean thought there might be some mutual interest in each other's work as Jonathan was the Director of the Center for Evaluation and Education Policy at IU and I was leading the largest provider of after school programs in New York City. He wore a bowtie. I was from the Bronx. What a match. That was a day that led to more than a decade's worth of shared professional pursuits, but even more importantly, to the development of a friendship that has only grown stronger as the years passed. When he started sending me his quintessentially unique postcards I knew that we had matured into BFF.

In 2010, Jonathan released his *Mind the (Other) Gap* report, along with colleagues Nathan Burroughs and Ruiting Song, outlining the state of unequal rates of advanced achievement. When I (Scott) first read this report, I thought it would be a game-changer in the areas of equity and gifted education. Gifted education has always struggled to gain traction among policy makers and school administrators, in large part because of serious inequities among the populations often served. Finally, in *Mind the (Other) Gap*, someone was talking about the equity side of advanced learning – that if you don't have advanced services in schools, disparities will only grow as privileged families will always have access to resources, while less-privileged families

need to rely on the public sector. This 2010 report was only the beginning. Clearly this idea of “excellence gaps” was powerful to educators, funders, and policy makers alike.

In 2013 came the second excellence gap report entitled *Talent on the Sidelines* (Plucker et al.) – emphasizing that America’s approach to talent development was resulting in one team getting all of the attention while the other remained on the sidelines. Not only did this report document how excellence gaps had been growing since the mid-1990s across racial and income groups, but that America was also far behind its peer competitors internationally: more than 30% of South Korean fourth-graders scored advanced on the 2011 TIMSS compared to less than 15% in the United States. Again, both of these reports highlighted the importance of access and opportunity. The advanced-achievement rates for students eligible for subsidized meals in the U.S. were 1.8% in grade four math in 2011 compared to 11.4% for their more-privileged peers. This gap has exploded since 1996. People within the gifted education community had long argued that gifted students need support – that they will not make it on their own. But the two excellence gap reports made it clear that some kids will achieve at advanced levels without investment in public education infrastructure to do so. But this status quo only exacerbates long-standing inequities.

Not long after the 2013 report, I (Scott) received one of the life-changing offers of my career – to write a book with Jonathan on excellence gaps. It was humbling then and remains so now. An underappreciated part of writing a book is how much you get to learn while doing it. Sure, you might know a lot about a topic going in, but getting to devote a lot of time and energy to thinking about one topic can never leave you the same. In this book Jonathan and I explored many aspects of excellence gaps: how excellence is measured, how we might better find students who have the potential for excellence, and what kinds of services actually foster advanced achievement.

In 2016, I (Steve) was asked to review the book, *Excellence Gaps in Education*, which Jonathan and Scott Peters had just published. For me, it was a game changer that influenced my work profoundly. As I wrote at that time,

Excellence Gaps in Education needs to be read by all who understand that American exceptionalism is not to be taken for granted and is certainly not a given. Our educational system faces two critical challenges: ensuring that all segments of our student population, K-12, attain basic levels of competency and achievement, and secondly, that those students from all segments of our student population who are, and should be, identified as talented and gifted are given the opportunity to thrive. When these two challenges are met, the excellence gaps which are ‘differences between subgroups of students performing at the highest levels of achievement,’ will be closed. Plucker and Peters have produced what is, perhaps, one of the most important books on the American educational system of the 21st century. (2016)

We were all struggling with the never-ending issue of why urban (and rural) education was not equitably serving the needs of K-12 students in the most under-resourced schools in communities of poverty. And more specifically, those subsets of students who were capable of advanced learning, were not identified and, therefore, not afforded any opportunity to excel. Too often access to the kinds of opportunities that foster talent and develop advanced abilities are not equally available to all students. In too many places, the needle was just not moving. Jonathan knew the issues well and was crisscrossing the country trying to make a difference. He not only had to fend off the stereotypes of gifted and talented programs as only serving an elite population but was also searching for a pedagogical solution that would cut through the accepted practices of the day. This was the major challenge for closing excellence gaps. And then we (Jonathan and Steve) brainstormed. Jonathan recounted how gifted and talented programs were one of the first programs eliminated from the school day when budgets needed to be reduced. I responded that it was often the same for sports and arts and that's why we were providing those activities in the after school environment. Then the eureka moment happened. Why not provide programs for students capable of advanced learning in the after school settings (they were certainly funded) of these under-resourced schools?

I asked Jonathan if it had ever been tried and he said he was not aware of any serious undertaking throughout the United States. And that's when the idea for a new model to close excellence gaps was born. After working for about 18 months on the concept and the model, we implemented the project in a distressed school in the Bronx, and were convinced that we had the potential to change the face of urban and rural education throughout the United States. Jonathan's ideas, which were articulated in the aforementioned book, were put to the test. The project employed universal screening and local norms including all of the following identification criteria: teacher, principal and after school staff evaluations, standardized test score results (only available for the 4th graders) and interestingly enough, self-identification. In all cases, the parent/caretaker was required to agree to the child's participation and agree to communicate with the staff when needed. The initial cohorts were 3rd and 4th graders, all of whom were subsequently found to come from families at, or below, the poverty line. Each year we would add a new 3rd grade. Each cohort of 20 children was led by a teacher with advanced training in STEM as well as a counselor/mentor who served as the Social and Emotional Learning instructor and liaison to the school day staff and the parental community. The project was totally integrated into the regular after school program. While other students might be studying dance or participating in fine arts classes, these students might be working on coding for robots.

Just prior to the pandemic, we began to evaluate the results of the project which had been running for two years. The findings were encouraging. The only way to evaluate success so far had been to compare the results on standardized math and English language arts with their counterparts. In all cases, the students participating in the project greatly exceeded the scores of all their peers in the school, the school district, and the city. As a point of reference, this school scored well below its counterparts in its district and the

city. We knew we were on to something. Jonathan began to speak with educators throughout the country about this new model and the reception has been overwhelmingly positive. This all coincided with Jonathan being elected President of the National Association for Gifted Children and the heightened sensitivity surrounding equity and diversity. Jonathan's influence, ideas, and pioneering work will no doubt lead to the closing of excellence gaps which has, for too long, eluded our best efforts.

It's been ten years since the publication of the first report on excellence gaps. The concept and the goal (increasing the advanced-achievement rate for students from traditionally disadvantaged groups) has now become a major part of the culture of gifted education. Additional articles have been written on the international context of excellence gaps (Jacobs & Wolbers, 2018; Rutkowski et al., 2012), professional associations such as the Jack Kent Cooke Foundation and the Fordham Foundation have taken notice, and a range of researchers have studied interventions aimed at mitigating excellence gaps (e.g., Robinson et al., 2018). Perhaps one of the greatest contributions of excellence gaps as a concept is that they changed the culture within the field of gifted education. No longer is it sufficient to provide services for those students who, often because of privilege, are already high achieving. Instead, a true embrace of equity means to provide opportunities for all students to develop advanced potential. Regardless of background, humans develop their abilities because of the deliberate and purposeful provision of learning opportunities. Some children are lucky enough to have parents who can afford to provide those services starting at an early age. Others either require schools to provide such services, or they go without, creating what Jonathan and colleagues referred to as a permanent talent underclass.

Gifted Education

As Omdal mentioned earlier in this chapter, Jonathan had been in a gifted education program during his elementary and secondary years, which contributed to his interest in the field of gifted education as an undergraduate. During his time at the University of Connecticut, he met Sally Reis and Joe Renzulli. Their big picture thinking was an early inspiration. Their work also served as a natural entry point into gifted education, a field with deep connections to creativity. In this section, some of Jonathan's relevant work in gifted education is shared by Steven Fredericks and Julia Link Roberts.

[Authored by Steven Fredericks, Ed.D., Visiting Professor, Johns Hopkins University] In August 2019, the New York City Mayor's task force on School Diversity had just issued their recommendations and I was texting Jonathan Plucker. As the President of the National Association for Gifted Children, he would be at the center of a storm. The commission had recommended that for schools to achieve desegregation and diversity, gifted and talented programs should be shut down. The ill-thought out idea was that all children would benefit by being exposed to each other and that the classroom teacher would be able to differentiate and teach all of the children who, if truth be told, might be ranging across at least 5 grade levels in a class of 25.

Having worked with Jonathan for many years, I knew that this was not the outcome he would have voted for if he had been consulted. Education policy was not a subject he shied away from having been the Director of the Center for Evaluation and Education Policy at IU before being named an endowed professor at the University of Connecticut and then, again, at Johns Hopkins University. He responded to the text by calling me and we had an extended discussion which went well into the night. We had been working together on a project to close excellence gaps but were always thinking about the broader area of gifted and talented education, in general. Having an outsider's perspective, since I came to this field of inquiry called gifted and talented education very late in my professional career, it appeared that there were a number of barriers to overcome if there was to be widespread adoption of these types of programs. First and foremost, it needed to overcome its wide-spread reputation as being elitist and serving only those middle and upper class families who could afford to prepare, and then send their kids to advanced learning programs. The problem was that the reputation was accurate, with the startling exception of the Asian-American community of New York City. And that's where Jonathan Plucker has led the way in trying to overcome that reality by pointing out the underlying factors that result in the lack of diversity and equity in gifted and talented education.

Jonathan's voice is unique in that he has established trusted relationships with local, state and national leaders. He has actively contributed to journalists writing about this topic and has taken active stands on education policy decisions at the three levels of government. Jonathan recognized early on that if he only talked to the converted, the pie would not get bigger. In other words, he needed to proselytize. Jonathan has argued in the editorial pages of the leading newspapers and on the variety of social media outlets that gifted and talented education needs to be expanded, not dissolved. Why, he argues, would we not want to afford advanced educational opportunities to all of those children capable of advanced thinking? We, as a society, have no issue with providing those students displaying a talent in fine art to provide them with the instruction and tools to advance their talent. We, as a society, have no issue with distinguishing those students with exceptional athletic talent to be given the opportunity to pursue those talents with coaches who will hone those skills. We only seem to have a problem when we differentiate according to intellectual talents. Clearly, not everyone will be capable of becoming a brain surgeon, a rocket scientist, or an accomplished writer. But Jonathan asks, What if all of our children who displayed those gifts and talents could be nourished as well?

Returning to the issue that the New York City task force raised in 2019, Jonathan was sought out after the public was informed of its recommendations. He did not back down. He was clear-eyed that they came to a poor conclusion and he followed that up with OpEd articles on the editorial pages of the local papers. This is how you influence education policy. You take a stand. You argue with facts and have research to support your views. You do it every day. Jonathan is the exemplar from whom we can all take our cues. Our education system has not been serving all of our children all of the time. Jonathan is leading the way to change that system.

[Authored by Julia Link Roberts, EdD, Mahurin Professor of Gifted Education and Executive Director of The Center for Gifted Studies and the Carol Martin Gatton Academy of Mathematics and Science in Kentucky, Western Kentucky University] Working with Jonathan on a variety of projects has been part of my professional life for about 15 years. The partnership began with a special issue for the *Kappan* (Roberts, 2008). Since then, we have enjoyed thinking together about several initiatives in gifted education and talent development.

Western Kentucky University has worked with a group of Kentucky superintendents for the past eight years. Jonathan has collaborated with each cohort of the Victoria Fellows, Kentucky superintendents. Jonathan has shared information about the Excellence Gap and urged them to gather data on students in schools in their districts and then make plans to address discrepancies they find.

Jonathan was interviewed for a video series on the Excellence Gap for a Javits grant in which The Center for Gifted Studies partnered with the Jefferson County Public Schools, the Kentucky Department of Education, and the University of Louisville. For the video series, Jonathan discussed the challenges presented by such gaps and described strategies to reduce gaps and support students achieving at advanced levels.

A project that developed out of questions raised at the Victoria Fellows (the cohort of superintendents) was with Dr. Houston Barber, superintendent of the Frankfort Independent Schools. This project led to the development of a Talent Development Plan. This plan looks across the school experiences at opportunities that allow a smooth transition of services throughout the school experience. They published a description of the Talent Development Plan (Plucker & Barber, 2021).

Jonathan's interest in policy matches a keen interest of mine. We have looked at policies that facilitate talent development and others that create barriers. We are preparing for a special issue of *Gifted Child Today* on policy. In *Mind the (Other) Gap* (2010), Jonathan and his colleagues posed two questions for decision-makers to ask prior to making a decision or putting a policy in place, "How will this [decision or policy] affect our brightest students? How will this [decision or policy] help other students begin to achieve at high levels?" (p. 30).

One of the very nice aspects of working with Jonathan is that he has a wide range of interests in gifted education. His interest is deep as well as wide, so he is willing to dig into a topic. Then, Jonathan is eager to share information in order to help parents and educators as well as decision-makers understand the needs of children with gifts and talents, needs that are often created by their strengths.

National Association for Gifted Children

In addition to his impact on research in the fields of creativity, intelligence, and gifted education, and his impact on policy in the field of gifted education, Jonathan is also known for his service to the field of gifted education. Most notably, he was the President of the National Association for Gifted Children from 2019-2021.

[Authored by Sally Krisel, Past President of the National Association for Gifted Children Board of Directors] Jonathan Plucker is well known for his own work in the field of creativity, including publications on sociocultural perspectives, assessment, curriculum, the role of technology in innovation, and how schools might include emphasis on creativity in accountability systems. However, when I think about Jonathan's service to the National Association for Gifted Children (NAGC), it is E. Paul Torrance's "survival definition" of creativity that comes to mind.

In the early 1950's, Torrance studied pilots in the U.S. Air Force Survival Training Program. He found that the most successful pilots were able to use creativity to overcome the extreme, constantly changing conditions they encountered there. Torrance explained the definition of creativity that emerged from his research with "ace" pilots this way: "Whenever one is faced with a problem for which he has no practiced or learned solution, some degree of creativity is required" (Millar, 1995, p. 39).

During much of Jonathan's tenure on the NAGC Board of Directors, the association was in survival mode. During his term as President-Elect and President (2017-2021), Jonathan led the association through three serious tests that required all of his creative problem-solving ability. Faced with one serious challenge after another, NAGC, the country's premier education association for gifted students, could easily have joined the long list of non-profit organizations that did not survive the economic crisis of 2020.

First came staff transitions. Always difficult in small organizations, staff changes can elicit strong emotional reactions from the remaining staff and from stakeholders with varied background knowledge and loyalties. During this time, Jonathan exhibited the courage to make hard decisions and the insight needed to heal rifts within the association. While maintaining the highest degree of integrity related to personnel decisions, Jonathan spoke honestly and compassionately with our remaining staff and with NAGC members, building confidence in the future of the organization.

Like many small education associations, NAGC had faced financial challenges for years. But NAGC leaders were feeling optimistic as Jonathan began his term as President in September 2019, just two weeks after a new Executive Director came on board, and both leaders began to share ideas for promising initiatives.

Six months later Jonathan faced another problem for which there was "no practiced or learned solution" – a global pandemic! Less than a week before our scheduled Leadership and Advocacy Conference in March 2020, Jonathan called the Board together to make a difficult decision. We would have to cancel the conference and do our best to get out of the many contracts associated with it. Even more distressing was what the coronavirus pandemic meant for our annual convention scheduled later that year. The NAGC Board of Directors was counting on the 2020 convention in Orlando to be a budget saver, but when it became clear that we would not be able to hold an in-person convention safely, Jonathan was again required to demonstrate the characteristics of Torrance's jet aces when they faced emergencies. It took courage, commitment, and immense creativity to pivot on short notice to re-

envision and plan a virtual convention when there was no flight manual on which to rely.

These accomplishments under extreme conditions were enough to earn Jonathan Plucker the admiration of all who worked with him on the NAGC Board. But in my mind, there is another example of survival creativity that will be remembered as a turning point in the field of gifted education. In the early summer of 2020, NAGC, like the rest of the nation, was rocked by the murders of George Floyd, Breonna Taylor, Ahmaud Arbery, and far too many other Black citizens. The spasm of racial reckoning that followed required all of us to face the deep-seated racism that still exists in all areas of American life, including gifted education. Jonathan represented NAGC in long, difficult conversations with groups of all sizes in which he acknowledged that the field of gifted education has at times contributed to the problem of systemic racism. When an eminent scholar like Jonathan Plucker, who has devoted so much of his career to equity work, could humbly describe his personal struggle to move beyond the natural inclination to respond to criticism of the field and the association defensively to reach a place where he could acknowledge that the progress we have made is inadequate, it gave others courage to engage in similar soul searching and rededication to equity and social justice in gifted education. Jonathan faced extreme conditions as an NAGC officer, multiple challenges for which there were no algorithmic solutions. With each test, he exhibited Torrance's survival creativity characteristics. But he did much more than help to ensure NAGC's survival during these crises. I believe his leadership during the time NAGC published a bold anti-racism statement and, most importantly, developed plans to act on that statement, will mark the beginning of a new era of success for the field of gifted education.

Conclusion

[Authored by Matthew C. Makel, PhD, Associate Research Scientist, Johns Hopkins University and Anne N. Rinn, PhD, Professor, University of North Texas] Jonathan's work has broad scope and impact. Indeed, his many contributions across time indicate multiple trajectories that continue to develop. These trajectories include conceptual definitions, psychometrics, meta-science, international and cross-cultural work, policy, and working with schools to change practice. Moreover, as we hope this chapter demonstrates, Jonathan's most lasting legacy may be his direct and indirect influence on his many students and collaborators, as well as his direct and indirect influence across several fields of study, including creativity and gifted education. Be they researchers, policy-makers, administrators, practitioners, or those working in industry, Jonathan's interactions, aptitudes, and process have helped foster an environment by which individuals and groups produce perceptible products that are both novel and useful within their social context. Through this lens, Jonathan not only studies creativity, but personifies creativity.

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CHAPTER TWENTY THREE

STEVEN PRITZKER: CREATIVITY IN PRACTICE

Theron E. Fairchild

This chapter discusses the career of Steven Pritzker. Although many creators tend to stay within their respective domains throughout their careers, and scholars tend to be grounded in academics, Pritzker started in the arts and later recreated himself as an applied scholar of creativity. He began his career as a comedy writer in network television, working his way from Executive Story Editor of the Emmy winning *Room 222* and the *Mary Tyler Moore Show* to eventually becoming Executive Producer on subsequent sitcoms. In the 1990s, Pritzker left television to pursue a doctorate in educational psychology. With backgrounds in business and counseling, Pritzker engaged topics ranging from organizational culture and expressive arts to substance abuse and humanistic therapies. He applied his expertise to writing, teaching, and life coaching, before founding the Master and Doctoral Specializations in creativity studies at Saybrook University. Pritzker conceived and became Co-Editor-in-Chief of the *Encyclopedia of Creativity*, a comprehensive work currently in its third edition, which provides a wealth of information on creativity research. Pritzker is a Fellow and served as President of the American Psychological Association's Division 10, Psychology of Creativity, Aesthetics, and the Arts.

Introduction

Steven Pritzker's story appears in this volume because of his role in advancing the field of creativity studies. However, he first became an award-winning comedy writer and producer. The result is someone who experienced both ends of the creativity spectrum, as a practitioner of creativity on the one hand and as an examiner of creativity on the other. These two complimentary aspects—of success in two related but separate career domains—set Pritzker in a unique position from which to engage with the creativity field. Pritzker spent 30 years as an academic studying creativity, but his life before that provides the stuff of research in the domain of creative writing. The episodes that he wrote for the award-winning *Room 222* and *Mary Tyler Moore Show* reveal a writer in tune with the comedy of his generation and the issues of his era (see IMDb, 2021, for a list of Pritzker's television credits).

His writing career also points to aspects of creative context. From Amabile's (1996) social psychological approach to Glăveanu's (2012) argument on the influences of cultural environments, the creativity literature draws important attention to context when trying to understand the creative pursuits and successes of the individual creator. To appreciate Pritzker's career in the

entertainment industry, some understanding of the history of American television is necessary. To appreciate his role as teacher and academic in the study of creativity, some understanding of where the field was when he started and how it has changed is necessary.

Creativity for Production

I was in Muncie, Indiana until I was 11. I never thought I would have the experiences I've had.

—Pritzker (2021a, interview)

Born in Chicago, Illinois, Steven R. Pritzker moved to Indiana with his family when he was a toddler. Their home had no television, and there were few extracurricular activities for children growing up in a small town. Left to his own devices, the young Pritzker often found himself at the local movie theater, where he fell in love with cinema. Little did he know, that love affair would take him to the West Coast one day, where he would work as a comedy writer and producer in the television industry for two decades. Pritzker would eventually parlay that experience into three decades of trying to make sense of creativity through academic study and teaching.

First Job in Creativity

At age 11, the Pritzker family moved back to Chicago, where Steven completed his middle school and secondary educations. He was accepted to Northwestern University, choosing business administration as his major with a focus on marketing. Pritzker (2021a) said of this time, in the early 1960s, “I wanted to be a Mad Man. ... Growing up in a house with money difficulties, I thought people who had money were going to be okay.”

Pritzker's reference was to the contemporary television series *Mad Men* (2007-2015), set in the early 1960s, about a competitive Madison (Mad) Avenue advertising agency. Print advertising was already well established in the American consumer economy, particularly after the expansion of the publishing industries early in the 20th Century (Leach, 1994). By the 1950s, television had also become central to the lives of many. In the year 1950, less than 20% of American households had a television set. By 1960, the figure was around 90%, or roughly 52 million television sets in total (Jordan, 1996). This dramatic expansion of public media was driven largely by advertising revenues. Similar to how the Internet would eventually take hold of the future, television in the 1950s and 1960s offered a mass-cultural means by which to influence consumers and generate wealth (Spring, 2011). The result was not only a dramatic expansion in the number of advertising agencies in major urban centers like New York, but also the expansion of advertising budgets and staff at individual companies across the U.S.

Pritzker graduated from Northwestern and into this consumer media environment of the early 1960s. Whether for print media or television, the marketing industry was firmly dependent on writing, specifically the writing of advertising copy. Pritzker held to his aspiration of becoming an advertising executive one day. He landed a job with The Kitchens of Sara Lee, a native Illinois company known later as the Sara Lee Corporation. As part of an on-

going campaign to manage product image, the company attempted to control potential negative images related to weight gain by directing newspapers to avoid running any stories about obesity near Sara Lee's advertisements. Pritzker recognized an ethical problem with such a policy and wondered how a tobacco account would be handled. His enchantment with advertising quickly dissipated.

When Writing Changed

In 1960, the Columbia Broadcasting System (CBS) aired its first season of *The Andy Griffith Show* (1960-1968), followed one year later by *The Dick Van Dyke Show* (1961-1966). During the Golden Age of Television, in the 1950s, the American situation comedy (sitcom) had already taken hold with shows like *Father Knows Best* (1954-1960) and *Ozzie and Harriet* (1952-1966). However, many of those shows were built from the format of the 1940s radio play and were written around the values of a largely Caucasian, conservative idealism of the period. The core of each sitcom focused on a homogenized family consisting of two parents and two to four children, all of whom spoke in an affected suburban English. In this family unit, the father earned a wholesome living while the mother took care of the home and maintained her beauty for her husband. Conspicuously missing was any mention of intellectual or social concerns (Coontz, 1992).

A notable change occurred with Andy Taylor, the main character of *The Andy Griffith Show*, a rural-wise sheriff in the American South who spoke in actor Andy Griffith's native North Carolina accent. Southern audiences owned many television sets by 1960, and thus the television industry recognized an important growing demographic. Unlike other programs that made comedy out of parodying the stereotypes of Southern Caucasians, Andy was portrayed as a nurturing single father raising an only child (played by Ron Howard), a process aided by Andy's aunt. When Andy went on the occasional date (he was a widower), rather than seeking his next wife, he preferred the friendship of educated and independent women. In his professional life, rather than playing the stern lawman with a gun, he preferred to help people see the error of their ways and thus reduce the need for punishment (see Stevens, 2012, for a critical review of the show).

While *Andy Griffith* was bringing a certain humanistic pragmatism to television, *The Dick Van Dyke Show*, which Berman (2019) described as "TV's first sophisticated comedy," appealed to a growing crowd that was mostly urban, upwardly mobile, and interested in social issues. Although the show worked from the successful template of the 1950s family sitcom, the show's writing borrowed heavily from the real-world, less-than-wholesome experiences of its cast and particularly from its creator, the eminent comedy writer-producer and native New Yorker, Carl Reiner. Set in suburban New York, *Dick Van Dyke* told the story of comedy writer Rob Petrie (Van Dyke) and his wife Laura (Mary Tyler Moore). Unlike the idealized wives of 1950s television, Moore's character had worked as an entertainment professional herself, who elected to stay home to raise her only child in an environment enriched by a family of intelligent and professional friends. So controversial was the "feminist leaning" of Moore's character at the time, including her

occasional wearing of pants rather than a skirt, and her open questioning of her husband, that CBS planned to cancel the show after its first season. The decision was thwarted when the Proctor & Gamble Company threatened to pull its advertising from CBS's other productions if it canceled *Dick Van Dyke*.

I Haven't a Clue

Being a writer carries with it a long anecdotal tradition on the experience of becoming a writer. In the study of creativity, the experience of being a writer falls under the particular domain of creative writing. Within the literature (Gardner, 1993; Simonton, 1994), the most successful individuals in the arts and sciences tend to be the ones who are the most industrious and persistent. From historical studies, Simonton (1999) showed that successful artists, including creative writers, might spend a decade or more developing their crafts before arriving at any sort of critical or commercial success. As Richards (2007) suggested, the creative individual will also develop a creative identity grounded in beliefs about creativity itself. Specifically, Waitman and Plucker (2009) argued that as creative writers develop, so do their psychologies of a creative identity. In *The Art of Fiction*, one of the most read guides on becoming a writer, Gardner (1984) discussed how such a creative writer identity is grounded in the beliefs and myths around writers and writing itself. Going a step deeper, beyond the fundamental act of writing, Hogan (2003) demonstrated that human storytelling is an ancient and universal quest behavior. As the composer of such storytelling, a writer's quest behavior often manifests from a purely emotional desire.

Andy Griffith and especially *Dick Van Dyke* were catalysts for Pritzker (2021a) and whatever fledgling writer identity or quest behavior was brewing within him. What had seemed like the stale formulas and oppressive cultural standards of early television were being replaced by higher risk-to-reward writing that connected contemporary thought with contemporary real life. Like the love he had developed for cinema as a boy, Pritzker found himself intrigued by the potential of television.

Bored with his job at Sara Lee and willing to take a risk, Pritzker packed his bags and left Chicago for the new television capital of Los Angeles. He was 24 years old. He had written only one act of a speculative (spec) TV script in his life. Pritzker (2021a) recalled himself at the time when realizing, "I haven't a clue how to do this." In need of training, after a year of staring at a blank page on his typewriter, he enrolled in writing classes at UCLA, where he wrote his first script.

At age 27, after two and a half years in L.A., Pritzker caught a break. He was working a day job at the time, in market research, when he found an entertainment agent who liked a spec script he wrote for the TV comedy *Get Smart* (1965-1970). Film and television writers need agents to get them jobs. This agent introduced Pritzker to Paul Rapp, the Assistant Director for the prolific independent filmmaker Roger Corman. Rapp and Pritzker received \$1,000 to write a screenplay for a counterculture-era psychedelic film about LSD. For research and to get into the spirit of writing a counterculture story, Pritzker decided to try LSD for himself. Corman later admitted that he had

encouraged this behavior among people working on the film (Stapleton, 2011). Pritzker (2021a) recalled sitting in a park in Burbank, watching a leaf do “amazing things.” He said, “It was life changing,” and he started interpreting his writing and prospects differently.

For the final shooting script of the film, Corman went with an alternative submission, by someone who had a track record with LSD, the relatively unknown writer and little-known actor at the time, Jack Nicholson (Stapleton, 2011). Corman released his film as *The Trip* (1967), starring Peter Fonda and Dennis Hopper. Nicholson would join Fonda and Hopper as an actor when the three teamed up two years later for the making of the American cult classic, *Easy Rider* (1969).

Risks and Believers

Feeling that he lacked enough life experience to be a successful writer, Pritzker (2021a) decided, “I needed stuff to write about, and I hadn’t been anywhere.” With the money he had made from *The Trip* and from another film script he completed with Rapp, Pritzker took an extended trip to South America. In Argentina, he met a woman who he later invited to the United States. When he returned to the United States himself, out of money and with no job in sight, he went back to Chicago to possibly open a family business. When his family lacked the capital investment, he decided to return to California.

Back in Los Angeles, recently married, and in need of income, Pritzker (2021a) landed a job as a communications director for a hardware manufacturer. The position was not ideal, but the company’s marketing director was extremely generous. Just a few weeks later, Pritzker’s entertainment agent sent some of Pritzker’s jokes and sketch material to Digby Wolfe. The British-born actor had worked his way up to successful comedy writer and producer. Later in life he would also teach screenwriting in the prestigious Master of Professional Writing program at the University of Southern California. Wolfe had just won his 1968 Emmy for his writing on the highly successful NBC sketch comedy *Rowen and Martin’s Laugh-In* (1968-1973). Wolfe took an interest in Pritzker’s writing and offered him work on TV specials. Almost overnight, Pritzker had to decide whether to leave his new job with the hardware factory. He felt guilty, but the company president was supportive and told Pritzker that he should pursue his creative writing ambitions. Pritzker went directly from writing copy which praised kitchen cabinet hardware to writing material on a *Tennessee Ernie Ford* special for legendary comedians like Lucille Ball, Jack Benny, and Andy Griffith. He also worked on a pilot for a show starring comedian Flip Wilson.

Wolfe was assembling a writing staff for a spinoff of *Laugh-In* called *Turn On* (1969). The program would air on competitor ABC and was coproduced by the *Laugh-In* television producer and director George Schlatter. One of the other writers on the team—on one of his own first writing jobs—was the young Albert Brooks. Pritzker recalled how *Turn On* had an incredible cast of hungry new writers, a situation that benefitted everyone. Unfortunately, the final scripting decisions were left to someone besides these talented writers, and the show was canceled as a flop after just one episode. Pritzker found himself out of work and nearly penniless, having sent most of

his earnings from his recent work home to Chicago to cover a family emergency.

Fortunately, Pritzker received a call from his agent regarding the TV sitcom *That Girl* (1966-1971). The show was looking to hire someone to write a script for minimum wage under a special Writers Guild of America deal. During the initial meeting, the producer Bill Persky, a former *Dick Van Dyke* writer and producer, assured Pritzker that he would get the job. The script was rejected, but it impressed the *That Girl* producers, who sent a copy over to Gene Reynolds. Reynolds was a successful film and television actor of the 1930s through 1950s, and by the 1960s he had transitioned to successful producer and director. He would eventually go on to win six Primetime Emmy Awards and two Directors Guild Awards.

Room 222: Social Issues on Network Television

Reynolds had just become Executive Producer on a new comedy-drama to appear on ABC, called *Room 222* (1969-1974). Unlike the typical comedy shows just for laughs, this series featured an African American teacher in a racially diverse high school in Los Angeles. The show dealt with subjects such as women's rights, anti-gay harassment, and the war in Vietnam. Pritzker got a meeting with Reynolds and the creator of the show James L. Brooks. They liked Pritzker's script about a young student teacher, played by Karen Valentine, struggling to learn how to take charge of a classroom. After a sudden change in production staffing, Pritzker's first script aired with his credit as the show's Executive Story Editor. *Room 222* won a Primetime Emmy Award for Outstanding New Series and ended up being a ratings success. Pritzker was personally awarded an Emmy Citation. He also received a Writers Guild of America nomination for best comedy show, and Karen Valentine won an Emmy based on an episode that Pritzker wrote. Despite the success, Pritzker disliked the pressure of rewriting other writer's scripts under deadline. The work was closer to that of a producer. When Reynolds thought Pritzker was not yet ready to become a producer, Pritzker left the show.

Mary Tyler Moore

One thing I'm proud of is *The Mary Tyler Moore Show*—to be part of that, one of the top-ten shows ever written on television.

—Pritzker (2021a, interview)

While working on *Room 222*, James Brooks and producer Allan Burns were developing a new sitcom around a character named Mary Richards, to be played by actress Mary Tyler Moore of the *The Dick Van Dyke Show*. Leaning on that show's success, the new series was called *The Mary Tyler Moore Show (MTM)* (1970-1977). The producers asked Pritzker to contribute, and he ended up writing eight episodes during the show's first three years. The show was nominated for 24 Emmys, winning 10.

As an academic subject, creativity might sometimes seem dry and removed. The *MTM* experience is a reminder that creativity has real-world applications that can make important contributions. In voting by its members,

the Writer's Guild of America (2021) currently ranks *The Mary Tyler Moore Show* as the sixth best-written show in American television history. Obituaries on Moore (Carlson, 2017; Wiseman, 2017) reminded readers of *MTM*'s importance in rethinking gender in American society and subverting sexism. Influential women in the United States, including Oprah Winfrey, credited the show with changing the perspectives of young women and the culture at large, as *MTM* was one of the first TV shows to feature a single working woman as the lead character. Michelle Obama (Bradley, 2017) spoke of Moore as an inspiration to younger generations of women, who could see that getting an education and having a career was a viable option.

Painful Limitations

Unlike the cable and Internet delivery systems of today, television in the 1970s was centered around three companies: ABC, CBS, and NBC. Pritzker (2021a) commented on the benefits:

Despite the difficulties, you [the writer] had a huge audience in those days: just three networks. [Nearly] everybody in the country saw *The Mary Tyler Moore Show*. Even if you had an unpopular TV show, you still had millions of people watching it.

Although Pritzker achieved critical success with *MTM* and was offered the job of Executive Story Editor, he wanted to get more experience by working with different producers on other sitcoms. He wrote scripts for the initial successful seasons of *The Partridge Family* (1970-1974) and *The New Dick Van Dyke Show* (1971-1974). Pritzker made his first foray into producing with a new sitcom called *Here We Go Again* (1973), created by Robert Kaufman (of *The Bob Newhart Show*) and starring Larry Hagman (of *I Dream of Jeannie*). *TV Guide* (1973) ranked the show last out of 75 shows that year, and it was canceled after just 13 episodes. Yet the job helped Pritzker develop his production skills and gain some recognition. He landed a second producing job, with his mentors James Brooks and Allan Burns. Their new sitcom, despite receiving positive reviews, lasted just one season.

Pritzker became temporarily disillusioned again with television. Exploring another career risk, he packed up and left the U.S. once more. This time the destination was Europe, where he tried his hand at motion picture writing for a year. Pritzker (2021a) said of the experience:

I gave it a real shot. But I'm not a great movie writer. To get to that [realization] took me about six or seven spec scripts over the span of my career, to finally say, I can't master this, I don't have it. And if I keep doing it, I'm just making myself miserable, because I'm filling up paper and taking six months to a year to write something nobody is going to shoot.

While in Europe, Pritzker was hired to write a script he pitched for a TV movie, an idea inspired by the law in the 1970s that allowed people to commit family members to mental institutions without judicial review. The script was never shot, but in the process of writing it, Pritzker began thinking about the field of psychology and what it would be like to work within it.

Conversion in Progress

Back from Europe, Pritzker returned to Los Angeles and quickly landed a TV producing job. The show was a new sitcom for ABC called *Fish* (1977-1978), a spinoff of the successful *Barney Miller* (1975-1982). *Fish* had some success, but the production suffered from the internal conflicts and egos common in entertainment industry projects. Pritzker (2021a) quickly lost patience and left the show after only a few episodes. Approaching 40 years of age now, he asked himself, “Do I really belong in this business? I’m not happy. It’s not really what I thought it would be.”

Capitalizing on his newfound interest in psychology, Pritzker enrolled in a master’s program in psychology at the University of Southern California, where he was first exposed to the humanistic tradition—a point he would return to later. In those days, before the nationwide tuition inflation of the 1980s, the prestigious and private USC was still affordable for many students. By comparison, a \$20,000 college education in 1980 would cost \$227,000 by 2020. Still in the early 1980s, Pritzker was able to explore his intellectual and subsequent creative options. His idea was to study counseling with the purpose of eventually working with Hollywood writers: “I was going to transition and work with writers because I know what it’s like, I know their misery.” He also knew their joy and the power of working creatively.

Being a writer and being in that writers’ room, it felt like home to me. I felt like I was with people like me, whose most important thing in life is to laugh sometimes, who see things from a different angle. ... Writing really saved my life.

An Unexpected Run

Pritzker (2021a) completed a Masters in Educational Counseling from USC in two years: “The reason I loved psychology so much, when I took my Masters, was that there was common sense stuff that I really hadn’t learned.”

By the early 1980s, the golden age of 1970s film and the entertainment industry on whole were transitioning into a new era of cable television and pay channels like HBO. Pritzker was still planning his personal transition out of the business. In the meantime, he received a call to work on a new sitcom. The show was *Silver Spoons* (1982-1987).

“If I’d had more money, I would’ve passed,” Pritzker (2021a) said of the job. However, by this point in his life he had a daughter, whom he wanted to keep in a good home and a good school. Pritzker accepted the position of Executive Story Editor on *Silver Spoons*, expecting the show to last maybe 13 weeks, the standard run for a new sitcom. If successful, the job might go on for a year. The potential monetary reward was worth the investment of time and energy. He could wait a little longer and then make his intended shift into full-time counseling.

Silver Spoons was picked up by NBC and remained on air for five seasons. It was an unexpected run, one that attracted the talents of Academy Award winning British actor John Houseman for a number of episodes playing a character that Pritzker created. Pritzker got along well with most of his fellow writers and producers on the show. He worked his way up to Supervis-

ing Producer and eventually Executive Producer during the show's fourth season (1985-1986). In many ways, the project represented what a fledgling writer coming to Los Angeles dreamed of achieving one day. In reality, the job was tedious, the hours long, and the content lacked the substance of productions like *Room 222* or *The Mary Tyler Moore Show*.

According to Pritzker (2021a), there was also the dilemma of, "You age out." Ageism remains a problem in American media and show business today (for an overview of public discussions, see Berk, 2020; for a U.S. Senate report, see Special Committee on Aging, 2002). As an executive producer at nearly 50 years of age, Pritzker (2021a) had little space left for creative advancement. "I'm doing this for freedom," he told himself one night, on the drive home from a strenuous day on set. "I sold my soul to the Devil, but at least I got paid."

With the added pressures of personal and family difficulties also taking precedence, Pritzker (2021a) realized, "At that point, I knew I had to get out. ... I had to start again and figure out what I wanted to do with my life."

In Retrospect

"I'm glad I went through it," Pritzker (2021a) commented on his two decades in television. "How many people move to L.A. to be writers? How many people actually ever get a credit?"

Pritzker (2021a) felt fortunate for the number of people who helped and mentored him along his journey in television, particularly Wolfe, Persky, J. Brooks, and Burns. He met and worked with many talented people, including Carl Reiner on *The New Dick Van Dyke Show*. "He was a hero of mine, who I watched in *Show of Shows* with Sid Caesar when I was 11 years old." Pritzker (2012) eventually interviewed Reiner for a paper that he presented at the American Psychological Association.

Psychology and his eventual focus on creativity would serve as platforms from which Pritzker finally made the transition into academics and teaching, where his career experiences served as a humanistic, life-lived understanding of creativity topics. As with other individuals with histories in the entertainment industries, there was invariably a less-than-romantic reality that accompanies those experiences. "The ultimate thing is that you forget it's just a job: it's just the way you earn your living," Pritzker (2021a) said, adding:

I was pretty relieved to be out of it. You go through a lot of personal damage. There's a lot of abuse. The business and the culture in L.A. fostered a way of [all-or-nothing] thinking. You're either a success or a failure, you're a hit or a miss.

The risk taking was also scary. In retrospect, Pritzker (2021a) commented:

You get perspective. What you're going through at any one moment, it's very hard to keep perspective; you'll have it later. ... I didn't start thinking about my risk taking until recently. ... Some of them

were not good moves. I wouldn't recommend to people a life like I've lived. It could've been terrible.

At the same time, a life without the risk taking might have produced unsatisfying results. Pritzker (2021a) remarked on a conversation he had with himself over the years:

There are so many ways life can go, if you just open up to the possibilities and try them. And if they don't work out, then go to the next possibility. ... You're going to feel like more of a person if you go for it, and a lot of people never go for it. They live these kinds of lives that they're not satisfied with, and they don't know why.

Since resigning from entertainment, Pritzker (2021a) said, "The last 30 years have been much better." Yet those years have come with a redemption story regarding his two decades in show business, a story still in progress:

I feel I became someone I wasn't. I've taken more than full responsibility for [my trespasses]. I feel like I've redeemed myself, but it took a long, long time. There's so much to separate: what part you were, what people say about you, and what things were done. Would I do it all over again? Certainly not. ... On the other hand, you can't change the past. And I've been very lucky. A lot of [success] is luck. [When you're younger], you think it's all you because you're so wonderful. But there are a lot of people you have to meet to even have a chance, a lot of people who see something in you.

To Creativity Studies

During his graduate program at USC, Pritzker (2020a) wrote his master's thesis on late-age career change. Now in the early 1990s, after more than five years of putting his own career change on hold, he returned to an uncertainty about what to do next in life. He knew for certain that he wanted to combine what he had experienced as a writer with what he had thus far learned about psychology. He needed to experiment with how to put those two pursuits together. One avenue, between the years 1990 and 1993, was teaching a writing class through the extension program at UCLA. As partial compensation, the university allowed its instructors to take classes themselves for free. Pritzker signed up a for a business course in which the term *creativity* was discussed.

Pritzker did some independent digging and discovered an assortment of individual researchers working on various creativity topics, but the field itself seemed cyclical and lacking a focal point. On a quest now, he ventured back across town to USC, which was home to Dennis Hocevar, an expert in educational psychology, statistics, and research methodology (USC Rossier, 2021). Hocevar (1981) had published several articles on measurement by the late 1980s, including a review article on the measurement of creativity. USC had also been the teaching and research home of J. P. Guilford. As with creative artists from many domains, Pritzker (2021a) saw a positive risk-to-reward opportunity in the making:

My interest was really piqued. It seemed like an engaging field and good for me. And I could bring to it the experience of having been a practitioner. ... I saw from the beginning that I was different, [that I could] bring something different to the field in terms of having a considerable on-the-ground [creative] career.

Pritzker entered the doctoral program at USC in educational psychology. Due to the dramatic tuition hikes of the 1980s, USC had become much more expensive to attend than just a few years earlier. With real-world experience in his repertoire, and some experience at UCLA as a teacher, Pritzker landed a teaching assistantship at USC. The job covered his tuition and paid a small salary. UCLA had started him down a path of teaching, but now he realized how much he truly enjoyed the practice. “And as a bonus, I got to rub the top of the statue of J. P. Guilford’s head in the library for good luck” (Pritzker, personal correspondence, June 1, 2021).

Access to Creativity

By the second half of the 1990s, creativity witnessed an expansion in the number of researchers making important contributions to the field. Pritzker (2021b) commented overall about his transition into this new career domain:

For the most part, I’ve been impressed with the people that I’ve met who are academics. And it’s a place you don’t have to apologize for reading books. You’re allowed to be a nerd, expected to be a nerd. ... The comedy [career] was all about trying to be cool. Even if the show you were working on wasn’t cool, you were considered cool. [Academics] was the other side of me. The one side of me was my comedy rebellion side. This was the part of me that enjoyed reading and trying to get to the bottom of things.

Pritzker’s (1998) doctoral dissertation would focus on creative collaboration in the context of writing the situation comedy. Until then, as a Ph.D. student coming to the game from an outside profession, he felt he needed to catch up by reading anything he could get his hands on about creativity. Albert Rothenberg (1990) had published a body of research titled *Creativity and Madness*, an influential book that upended several common stereotypes about mental illness and substance abuse in the creative professions. Howard Gardner (1993) next published *Creating Minds*, a book about creative eminence, and had produced other works on creativity and education. Then Dean Simonton (1994, 1997, 1999), in three books, published a collection of research on creativity and genius. Pritzker was intrigued by the efforts of such scholars because he had worked in a creative industry and witnessed first-hand some of what they were addressing.

Then came Mihaly Csikszentmihalyi’s work on *flow*. The Systems Model of Creativity dates back to the 1960s and 1970s, but four of Csikszentmihalyi’s (1990, 1994, 1996, 1998) books from the 1990s made creative insight and creativity in general accessible to a wider audience. A flow state is characterized by a fully immersed involvement that leads to an intrinsically rewarding experience. Combined with the creative behaviors of preparation,

incubation, and evaluation, the successful creative professional often works in some type of flow state. As a writer, Pritzker (2016) instinctively recognized these processes at work throughout his and other writers' creative writing careers:

When you're working, when you're really cooking, really operating at maximum level, you have access to information that isn't necessarily conscious. ... To engage in this material, to engage in this process, really requires you to be present. You can't fake it. If you're faking it, nothing happens. It's very much a personal participation when you're doing this. And that raises the level of your game. When you're really there, really thinking about things and participating and engaged, you're not worried about all the things that keep you up at night, or all the beating up of yourself, or all the difficulties that we all face in life.

Comprehensive works like those of Rothenberg, Simonton, and especially Csikszentmihalyi suggested to Pritzker the need to make creativity scholarship available to a broader audience. Csikszentmihalyi in particular had published with mainstream presses in New York. Creativity as a topic was invariably important, but its application to the real world and to the lives of individuals is what made it valuable.

From the outset of his doctoral program, Pritzker began writing about creativity and attending conferences. eFor Around 1995, while working on a project, he met Mark Runco, who at that time was a professor of psychology at Cal State Fullerton, in the Los Angeles area. Runco had started the peer-reviewed *Creativity Research Journal*, in 1988, and had already published one of his most important books, *Divergent Thinking*, in 1991. He had also edited some scholarly works before editing the *Creativity Research Handbook*, in 1997, followed by *Eminent Creativity*, *Everyday Creativity*, and *Health*, in 1998, with Ruth Richards.

While still working on his Ph.D., Pritzker discussed with Runco the idea of putting together something about creativity for the public. Pritzker believed a popular publisher might want a general book on creativity. Yet these presses took no interest. Runco suggested that they turn the project into an academic encyclopedia. Academic Press responded almost immediately, giving Pritzker and Runco a free hand to develop the format of the project and providing them with a dedicated publishing assistant named Nikki Levy. As an experienced writer, editor, and producer of creative content for an audience, Pritzker still fancied the idea of doing something unconventional. The plan was to invite everyone who published academically, to contribute an article on some aspect of creativity research rather than a generic encyclopedic entry. The response was an array of topics from a miniature who's-who list of distinguished creativity researchers.

Pritzker completed his course commitments at USC by 1997 and, in 1998, completed his dissertation on creative collaboration in comedy writing, which was nominated for outstanding dissertation of the year. The rest of the time he and Runco spent editing hundreds of contributions into what would be published, in the summer of 1999, as the 1,600-page first edition of the

Encyclopedia of Creativity. Pritzker (1999) contributed three articles himself, including the entry *Writing and Creativity*.

Back to Work

With a Ph.D. under his belt and the *Encyclopedia* soon to be published, Pritzker again needed to ask himself about what to do for a living. Approaching 60 years of age, he fell outside the typical window of being hired for an academic professorship. A few jobs popped up around the country teaching media-related studies, including an interview for a school in Chicago. Yet Pritzker decided that he wanted to focus more on psychology and remain on the West Coast.

His daughter was living in San Francisco at the time and invited him for a visit. The national APA Convention was in town that year, and Pritzker decided to attend. What started as a trip for a few days turned into a few months and eventually a permanent relocation to the Bay Area. Almost immediately, he got a meeting with the faculty at Foothill College, in Los Altos. They asked him to teach some courses on creativity through the school's extension program in neighboring Palo Alto, near Stanford University. The success of those classes led the college to open an invitation-only writer's workshop that attracted a largely well-educated group of mature and senior students. Pritzker (2021b) would teach that workshop once a week for the next 10 years: "I learned so much about aging and life from those people."

He also began offering therapeutic writing sessions through a variety of mental health programs, in which he employed his training in counseling psychology. One program was at a local VA hospital with individuals managing PTSD. Of these experiences, Pritzker (2021b) recalled:

I didn't make a lot of money, but I was feeling very good about myself. It was much different than writing [professionally]. It wasn't: Am I going to be canceled? Where is my next job? It was work where you woke up and you felt the difference. You went there and you knew, this is good work.

Saybrook University

In the late 1990s, when Pritzker first arrived in the Bay Area and started working in Palo Alto, he also had coffee with Ruth Richards of Saybrook University. Pritzker knew Richards through her publications (e.g., Runco & Richards, 1997), including her four articles for the *Encyclopedia of Creativity* (e.g., Richards, 1999). She had also served on EOC's Executive Advisory Board. Richards (2021) received her M.D. in psychiatry from Harvard Medical School, but before that she earned a Ph.D. from Berkeley in educational psychology. By the time Pritzker approached her, she had already completed two decades of work in a psychiatric hospital environment. Now, she was in humanistic psychology and an active voice in the study of creativity. At Saybrook University, a graduate-only school in psychology that specialized in the humanistic and existential traditions, she was the resident creativity expert. She put Pritzker in touch with the university president at that time, the distinguished Rogerian psychotherapist and eventual APA Division 32 Presi-

dent, Maureen O'Hara. The *Encyclopedia* had just reached the market and O'Hara was impressed. There was no full-time situation for a creativity instructor, but a half-time coordinator who worked with Richards was moving on to another university. Pritzker was offered the role.

Development

Pritzker was already a fan of the humanistic tradition, which was instrumental in his desire to work at Saybrook. When he arrived, in 1999, the school offered some creativity-related topics but no organized program. He and Richards immediately saw the potential in building one. Richards (2007) was working toward a research specialty of everyday (little-c) creativity and mental health, and she had many ideas about a potential focus. Another distinguished faculty member, Stanley Krippner (1990), had an extensive background in altered states of consciousness and dreaming, and he contributed ideas for a creativity curriculum. Yet Richards and Krippner were also committed to other programs and doctoral candidates.

Recently equipped with a wealth of knowledge from editing the *Encyclopedia*, coupled with an extensive background in production, Pritzker (2021b) stepped up with content, organization, and most of the administrative development for a budding program. He was most impressed with Rollo May's (1975) book, *The Courage to Create*. May was a founding member of Saybrook and remains one of the most distinguished humanistic psychologists in history. From Pritzker's (2016) experiences, in a professional creative industry followed by an education in psychology, he recognized that a crossover existed between the two endeavors. "Real artists are giving you a part of themselves," he said. "They're trusting you with that. They want to tell you something. They want to say something. They want to understand it themselves." Such giving and trusting required courage. Creativity fueled courage. Courage fueled creativity.

Pritzker and Richards led the charge at Saybrook building courses on various aspects of creativity. In 2002, they offered a graduate certificate in creativity studies, and Pritzker was appointed program director. They needed another five years to put together a Creativity Studies Specialization, which was available to all masters and doctoral students as well as a stand-alone certification. When the university suggested that they construct a full degree in creativity exclusively, Pritzker surprisingly rejected the idea in favor of retaining the graduate framework in psychology with a specialization. Pritzker (2021b) believed that students would lose an advantage in the job market with a creativity studies-only graduate degree:

I wanted people to have the flexibility of having a psychology degree and not a degree that [employers] couldn't figure out. The world wasn't ready for it. I'm still not sure [if it is], but I sense the time is right.

As a humanistic school, Saybrook was dedicated to the person-centered approach, whether in its core discipline of clinical psychology or in its specialized programs like leadership and management or transformative social change. The person-centered approach is a balanced approach, and

Pritzker (2016) stressed that a creativity studies specialization needed to follow suit: creativity as both a body of knowledge and as a way of practice: “It’s a matter of personal growth as well as professional growth.”

The success of the Creativity Specialization required that Pritzker join the Saybrook faculty full time. Although the decision meant he needed to give up teaching his much-loved writing workshop at Foothill College (1998-2008), Pritzker was excited to have a full-time position at a school like Saybrook. The faculty during most of Pritzker’s time were well-published and well-respected, with names like Richards, Krippner, Tom Greening, Jeanie Achterberg, Dennis Jaffe, Arnie Collen, and Eugene Taylor. Pritzker (2021b) said:

I’d look around and go, what am I doing here? I’m the only one who’s not a lifetime academic. I was very happy to be there. They liked my background. They always treated me great. I felt grateful I was in a place I wanted to be, [in a place] that wanted me.

As with professional writing, becoming a full-time professor had its own learning curve. In Richards and Krippner, Pritzker (2021b) stated, “I had world-class mentors.” He recalled something he learned during his years in the entertainment industry. “If you meet somebody who’s fantastic at what they do, latch on. Take that opportunity to learn from them.” Pritzker had to master a new set of skills, including how to chair dissertations. Richards and Krippner always provided answers and support.

Creativity and Well-Being

Since its inception in the 1960s, Saybrook University maintained its core in the humanistic tradition. Central to that tradition was the person-centered approach, which entailed personal well-being. As the director of the Creativity Studies Specialization, Pritzker (2016, 2021b) said that he applied that same mission to creativity. In the traditional 4Ps framework of creativity studies, production is a valuable way of framing art for its extrinsic role in culture and commerce. Yet art carries with it an intrinsic act that is sometimes valuable only to the artist or the artist’s immediate audience. This is what makes it art and not science, what makes it simultaneously impermanent and eternal. This is what also makes it central to a more complete and existential comprehension of creativity as both an end product and as a process.

In humanistic psychotherapy, the intrinsic act is an act of therapy. In art therapy, producing something creatively is the intrinsic act and thus the therapeutic act. Relating the lessons of his television career, Pritzker (2016) said, “When I wanted to become a writer, I didn’t realize I had things I really wanted to get out and say.” On training students in applying creativity and arts to therapy, he explained:

There’s no one size fits all in humanistic psychology. Each person in each case is different. It’s very important not to force someone into doing something, or try to make them feel that if they don’t do something then they’re failing in some way. But to get them to open up, even a little bit at a time, is a tremendous gift. In order to do this, you need interpersonal skills. You need to understand what you’re

doing and how you're doing it. When you give people the opportunity to be heard, when you interact with them and you're listening, it's a form of therapy. That's why it's called art therapy. It's a way of getting people to open up, to express themselves, to trust someone else, to trust themselves.

While expressive arts on their own were important and served the Saybrook mission, Pritzker (2016) realized that working with expressive arts combined with a depth of knowledge in the creativity literature was the most effective route in applying creativity to areas such as education and health: "The more that students understand and can personally experience [creativity], the more able they are to use it."

An Unsung Mission

Pritzker was proud of leading the development of the Creativity Studies Specialization at Saybrook and became the chair of an increasing number of dissertations. The tradeoff was that a heavy workload in teaching and administration restricted his time for pursuing original research. As a veteran writer and editor, he focused instead on producing articles and book chapters that reviewed the existing creativity literature (e.g., Pritzker, 2007; Pritzker & McGarva, 2009). In the conventional wisdom of accelerating a career through academia, his strategy could have been interpreted negatively. The prescribed path for a budding scholar is typically to requisition research funding and output original findings. Yet as Steckler and McLeroy (2008) argued in the context of public health, blind adherence to such a path often results in research that lacks external validity. Coming to the game as an experienced producer and as a successful editor of the *Encyclopedia*, Pritzker refused to waste his energies on projects that failed at external validity.

"Real-world impact," Pritzker (2021b) said of his choice of paths. "That was my mission, clear from day one." Recognizing one's talents and skill set—one's viable domains and the ability to frame problems intelligently and pragmatically in those domains—is a major component of professional and creative success (see Reiter-Palmon & Murugavel, 2020, on problem finding; see Rasmussen & Glăveanu, 2020, on pragmatism). Pritzker realized that he was suited to the unsung role of interpreting and disseminating a broad array of information to audiences both academic and public. Creativity was an important tool, and he wanted others to make better use of that tool. Getting people engaged in the topic was critical in that objective, not only in the creative arts but also in education, business, and health.

The result was 38 conference panels, presentations, or papers during his career, 21 of those at APA conventions (Pritzker, 2020a). Pritzker began presenting at conferences from his last year of doctoral education at USC. The topics dealt almost exclusively with creativity or creative writing. He made his first APA presentation at the 1997 convention, in his hometown of Chicago, where he chaired a Division 10 panel titled *Social Psychology and Creative Collaboration* and presented on aspects of his dissertation research.

After arriving at Saybrook, Pritzker next began accompanying Krippner to conferences around the world. As the Alan Watts Professor of

Psychology at Saybrook until his retirement, Krippner was an international figure in humanistic psychology as well as in phenomenological and alternative psychologies such as shamanism. Pritzker (2015) contributed a chapter titled *Travels with Stanley*, about his experiences with Krippner at all manner of conferences, from the normal to the paranormal. The journeys were unforgettable for Pritzker. Unlike being chained to a production schedule at a Hollywood studio, he was able to visit new places and appreciate the local hospitality, from South Korea and India to Spain and Cuba.

One of Pritzker's more memorable experiences occurred when he was invited to present in Sochi, Russia, the eventual site of the 2014 Winter Olympics. It was a preliminary conference in connection with the event. Pritzker's grandmother was from Russia, and he had always wanted to visit. He started the journey of getting to Sochi on his own. After a broken boat, a missed flight, an adventurous and unintended stopover to see the Kremlin, several taxi rides, and a night of sleeping at an airport, Pritzker secured the final leg of his trip and arrived at his final destination a day later than scheduled. Despite his inability to contact his hosts during the calamity, they were waiting dutifully at the airport in Sochi as if nothing had happened and proved incredibly gracious. In keeping with the topic of the conference, Pritzker (2008) delivered a presentation titled *Flow in Sports*. He had already presented on flow several times and had recently published a book chapter (Pritzker, 2007) on audience flow: defined as the experience of being on the receiving end of an artistic or creative act. No one at the Sochi conference had heard of flow or the name Csikszentmihalyi (1990). Pritzker (2021b) made the local news broadcast as if he had just delivered news of a breakthrough discovery.

Division 10

Pritzker (2020a) chaired a Division 10 panel or otherwise presented at every APA Convention between the years 1997 and 2015. Over that same period, he took part in publishing 12 peer-reviewed articles or book chapters. The publications included his chapter on eminent screenwriters (Pritzker & McGarva, 2009), along with serving as Guest Editor and contributing a chapter to a special edition focused on movie marketing in the journal *Psychology and Marketing* (Pritzker, 2009). He also completed a collaborative piece with Richards on creativity in the evolution of humanistic psychology (Hoffman, Richards, & Pritzker, 2013). His biggest job came when he teamed up again with Runco, to edit the second edition of the *Encyclopedia of Creativity (EOC2)* (Runco & Pritzker, 2011). *EOC2* was named an Outstanding Academic Title by the American Library Association's Choice publication.

With the successful publication of *EOC2* and his name becoming more recognized among creativity scholars, Pritzker ran for president of APA Division 10 but lost. Encouraged by his chances and supporters, he ran a second time and was elected Division President for 2014–2016. An individual can do only so much in just a couple of years in such a role, but Pritzker (2021b) felt proud of his contributions to education. At the time, APA was hosting cross-divisional meetings in Washington D.C., for what would be called the Coalition for Psychology in Schools and Education (APA, 2015). Most of the

meetings were conducted by scholars or deans of schools working in the field of education, and they were building a top 20 list of fundamental principles in effective teaching. Creativity was missing from that list.

Although creativity in education (e.g., Beghetto & Kaufman, 2010) was becoming a hot topic among academics already familiar with it, Pritzker (2021b) realized that many in mainstream education lacked the knowledge and confidence to apply creativity to both policy and classroom teaching. Having unintentionally fulfilled his earlier ambition of becoming a kind of Mad Man—in producing TV shows and building a creativity specialization rather than pushing products from Madison Avenue—Pritzker continued selling his points about creativity in education during his tenure as Division 10 President.

“I think the third time [at the meetings in Washington], I said I’m doing my James Stewart pitch now,” Pritzker (2021b) recalled. It was a reference to the 1939 Oscar-winning film, *Mr. Smith Goes to Washington*, a comedy-drama about a naive freshman senator who collides with the bastions of political corruption. The persistence paid off. Pritzker helped construct the wording for Principle 8 on the APA (2015) Coalition’s top 20 list, which read:

Student creativity can be fostered. ... Contrary to the conventional wisdom that creativity is a stable trait (you either have it or you don’t), creative thinking can be developed and nurtured in students, making it an important outcome of the learning process for students and educators.

Building from those efforts in Washington, Pritzker used his career experience to serve as Executive Producer of a 47-minute APA (2016) sponsored video titled *Creativity in the Classroom*. The content came from the existing creativity literature on education, particularly from the edited book on the subject by Beghetto and Kaufman (2010) and included interviews with teachers and students at schools in the Bay Area. The video was posted on the APA site, where it became a continuing education module.

Encyclopedia of Creativity

The *Encyclopedia* is thing I’m the proudest of.”

—Pritzker (2021b, interview)

In interviewing Pritzker for this book chapter on people who have influenced the study of creativity, the chapter’s author mentioned Colin Martindale. Martindale’s (1990) *The Clockwork Muse* had influenced the direction of the author’s dissertation research (Fairchild, 2019), a dissertation that Pritzker chaired. Martindale (1999) had also contributed three articles to the first edition of the *Encyclopedia of Creativity*, one of which, *History and Creativity*, was pertinent to the author’s own research interests and the writing of biography.

“He was so quirky, so of course I loved it,” Pritzker (2021b) recalled of a Martindale guest lecture in Los Angeles during the 1990s. “That was the

fun part of [my job], the different characters.” Working as Editor on all editions of *EOC* and making frequent appearances at APA conventions, Pritzker (2021b) had correspondences and sometimes face-to-face contact with numerous researchers of creativity: “I met a lot of interesting people who are real experts in what they do. ... Creativity is a fascinating topic because it’s really challenging. And it’s in its infancy.”

Reflecting on the lasting importance of his two professional careers, Pritzker (2021a) recalled: “They had a question twice on *Jeopardy* about *The Mary Tyler Moore Show*. Nobody knew the answer. ... Obviously, a lot of people don’t even know [the show anymore].” Though he will always be proud of *MTM* and his role in its success, Pritzker realized that in the end it was just a TV program that people would eventually forget. Much of his writing on other sitcoms was already long forgotten, some of it a waste of creative energy in the first place. “But the *Encyclopedia of Creativity* is going to be around for a hundred years,” Pritzker (2021a) said. “So, what’s the bigger contribution? What am I prouder of?”

Second and Third Editions

A decade into the success of *EOCI* (Runco & Pritzker, 1999), Academic Press asked Runco and Pritzker to put together a second edition (Runco & Pritzker, 2011). The field had changed somewhat, with unfortunate losses of people such as Martindale and with other scholars retiring. However, the breadth of overall knowledge and the depth of particular domains had evolved. Being able to show those changes in a single source such as *EOC* not only brought focus to the field and but also served the field’s legitimacy. Real research evolves. Tracking that evolution helps document a research history and indicates where new research might be headed.

Field expansion and dissemination were paramount in Pritzker’s original mission. Expansion and dissemination meant marketing, and the publishing structure of *EOC* served both the public and academic markets (Pritzker, personal correspondence, August, 2019). Due to the expense of purchasing a complete copy of *EOC*, most users preferred downloading individual articles, which are stand-alone documents with self-contained references. The model created a win-win situation. Paying users only needed to purchase what they wanted, and the publisher collected considerable revenue through creating a wider and more-accessible market. The accessibility propagated creativity further, by drawing in students and outside researchers who would have otherwise had limited access to the field.

Runco and Pritzker completed the Third Edition of *EOC*, in 2020. Many familiar names, including Krippner and Richards, were still contributing articles on their topics of expertise. There were also many new names, including Pritzker’s former student Terri Goslin-Jones (2020), an expert on expressive arts who succeeded Pritzker as Creativity Studies coordinator at Saybrook. Pritzker (2020b) contributed his familiar article on writers.

What Retirement?

At the time of interviewing for this chapter, Pritzker (2021a) was working on various writing projects. Following the old adage, life is too short, he claimed

he had no interest in slowing down. “I’ve started the third act. Let’s see what I can do when I reach my 90s.” Like one of his early missions, he is working on a book aimed at bringing broader knowledge of creativity to the general public, and he still believes in a good sense of humor.

Whatever I’ve done, I’ve still got to wake up every day. I’m still worried about, what am I going to do with this [project]? Who am I to think I can capture something [interesting to write about]? I think that’s good, though. Because what else would you do? Wake up and say, well, I don’t have to do anything today. Congratulations!?

Summary, not Conclusion

Steven Pritzker appeared in this volume because of his influence on the study of creativity. He began his career on the ground, as a creative writer and producer, before transitioning into a scholar of creativity as an academic subject. The path from practitioner to academic remains rare in a field such as psychology, made more unusual because Pritzker experienced comparatively equal amounts of success in these two related but separate career domains. In the larger spectrum of the arts and sciences, the reverse path, from academics to art—of using in-depth knowledge to generate something like creative writing—is the more common path. For instance, Arthur C. Clarke (1977) is credited for his pioneering work on satellite technology and for writing prolifically on space and ocean exploration, but he received a Knighthood and is most remembered for his successful science fiction stories. Conversely, Mark Twain was already an eminent writer of fiction when he became a close friend of Nikola Tesla and patented several of his own inventions (Eschner, 2017).

Pritzker’s trajectory perhaps more closely matches that of his former colleague Digby Wolfe, who retired from television production to teach screenwriting for the final years of his career. However, Wolfe was still working within his domain, having made a move in position only, from working writer to writing teacher. Pritzker’s transition was more dramatic. Although he taught creative writing in workshops, his dive into creativity as a field was a reinvention of himself. As with every domain, there were new protocols, new patterns, and new problems to be solved. After his success in television, he could have retired and lived out a comfortable life. He chose the harder route. Like many of the creative individuals studied by creativity researchers, dating back to at least the Csikszentmihalyi and Getzels (1971/2014) research on the discovery-oriented behavior and problem orientation of artists, Pritzker preferred the quest, the challenge, and the intrinsic satisfaction of achieving something beyond comfortable boundaries.

Pritzker won writing awards for his work on *Room 222* and *The Mary Tyler Moore Show*, the latter a particularly important part of history that will always make him proud. The experience of being that writer, despite its difficulties, was rewarding and character defining. In his work in the study of creativity, however, Pritzker (2021a) recognized his future and legacy. As an educator, he led the way in constructing an attainable program in creativity studies up through the doctoral level. As an editor of the *Encyclopedia of*

Creativity, he helped collate decades of research into a single source that will make creativity accessible to individual readers for years to come.

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CHAPTER TWENTY FOUR

DR. GERARD J. PUCCIO, CREATIVITY SCHOLAR

JON MICHAEL FOX

ABSTRACT: Dr. Gerard J. Puccio is the Director of the Center for Applied Imagination and the Department Chair for the Department of Creativity and Change Leadership at SUNY Buffalo State. This chapter highlights Gerard Puccio's academic career, examples of his leadership and his scholarly contributions to the field of applied creativity.

Keywords: creativity training, creative problem solving, change leadership

Introduction

Dr. Gerard J. Puccio is the Director of the Center for Applied Imagination and the Department Chair for the Department of Creativity and Change Leadership at SUNY Buffalo State. Dr. Puccio has written more than 50 articles, chapters and books. He holds a Ph.D. in organizational psychology from the University of Manchester, England. He is a thought leader on the relationship between creativity and leadership.

In 2011 he and his colleagues published the second edition of their book *Creative Leadership: Skills that Drive Change* (Puccio, Mance & Murdock, 2011). In recognition of his outstanding work as a scholar, Dr. Puccio received the State University of New York Chancellor's Recognition Award for Research Excellence, as well as the President's Medal for Scholarship and Creativity.

Dr. Puccio received the State University of New York Chancellor's Recognition Award to Exemplary Contributions in Research and Scholarship in 2005.

In 2012 Dr. Puccio was selected by the Teaching Company as one of America's Great Lecturers and as such was invited to design and deliver a course comprised of twenty-four 30-minute video sessions. This "Great Course," titled *The Creative Thinker's Tool Box*, was released nationally and internationally in January 2014 (Puccio, 2014). Dr. Puccio was also a featured speaker at a TEDx event held in New York City in December of 2012. His speech, *Creativity as a Life Skill*, has been viewed more than 100,000 times.

He achieved the rank of Full Professor in 2002. In 2021 Dr. Puccio was promoted to the rank of Distinguished Professor in April 2021.

The Back Story

I have known Gerard Puccio since 1986. He has been my friend and colleague for over 25 years. We were graduate students at SUNY Buffalo State studying creativity. There were four of us pursuing the MS degree and we lived in the same house. It was clear to all of us that Gerard was going to be a thought leader. His drive, curiosity, clear focus and academic background were positive markers that Gerard was going to be a scholar and leader in creativity.

Often one person in the house would make a dinner that was large enough for us to have meals for a few days. One Saturday night Gerard made a huge dish of lasagna. We began to talk about why we came to Buffalo to study creativity. Years later Gerard wrote an article *Why Study Creativity* (Puccio, 1995). As I read the article I thought, "Echoes of Lasagna night!"

One day at the "graduate house" we thought we would have a little fun with Gerard. We all knew the "rules" of treating ideas affirmatively – here is the story. Gerard announced that he had just created a space in the attic for his free weights. We immediately said, "It's hot up there." "If you drop the weights it will generate dust in the kitchen." And on and on we went. With each idea killer Gerard took a step backward. Finally, as he backed up against the refrigerator, he asked, "But what do you like about the idea?!" I'm glad for his sense of humor.

On a serious note, a few years later we were talking in the office hallway when Gerard commented, "With every idea a person comes attached." That has stayed with me for over 25 years – a simple example of Gerard's life philosophy.

A Short History of the Center

The Creativity and Change Leadership Department and the Center for Applied Imagination have been in existence for over 50 years. It started with Alex Osborn. Alex Osborn is often cited as a pioneer teacher of creativity. Osborn, known as the "father of brainstorming" developed the Creative Education Foundation in the 1950s and 60s, with Dr. Sidney Parnes. Teaching creative problem solving, or CPS, their model followed four basic steps: clarify, ideate, develop, and implement. Osborn and Parnes had two assumptions: everyone is creative in some way and creative skills can be learned and enhanced.

Our name has changed several times over the years to reflect our core mission of igniting creativity around the world. The department itself is the oldest academic program in the world offering an undergraduate minor degree in creativity and a Master of Science degree in creativity. For decades our focus has been the creative problem solving process: how do you solve problems that require a novel and useful outcome?

Most commonly known as the International Center for Studies in Creativity, under Gerard's leadership, we changed our name in the fall of 2020 to the Center for Applied Imagination. Along with that, the Creative Studies Department changed its name to the Creativity and Change Leadership Department. These name changes are consistent with the nature of our program.

The Center has a strong, life-long connection of applied creativity building on Alex Osborn's seminal book *Applied Imagination* (1953).

Our new name, the Center for Applied Imagination, honors both Alex Osborn and our core mission. Additionally, the department saw a need to be more precise about the connection between creativity and leadership, hence the new name: the Department of Creativity and Change Leadership.

Leadership

Dr. Gerard Puccio has been the department Chair since 1997. He took over during a time of crisis. It was not an easy time. The department and the institution were in considerable flux. He grew full-time faculty in department from two positions to six. He also grew the graduate program from a little more than 20 majors in 1997 to an annual average of approximately 75 majors (highest number achieved was over 90 majors). He expanded graduate program to recruit and serve distance learners, and today, after navigating the pandemic, our graduate program is available 100% online via synchronous courses. Since the inception of our distance program nearly 20 years ago, over 200 distance students from more than 20 different countries and numerous states across the US have completed the MS degree in creativity and the SUNY Certificate in Creativity and Change Leadership. Under Gerard's leadership, we are currently developing a doctoral program in Creativity and Change Leadership to be offered at Buffalo State. The courses and letter of intent are under development.

Through his visionary leadership, he grew the graduate program, including the graduate distance program, which has been going on 20 years now. The Center developed the Creativity Experts Exchange, an annual conference designed to build a sense of community.

Butler Library on the Buffalo State campus houses the largest collection of creativity materials in the world. In addition to the Creative Studies Collection, the Center and Buffalo State are developing the Innovation Suite as part of the Creative Studies Collection. This will be a place where our graduate students will have a living laboratory to practice their facilitation skills with real clients. Gerard has lead the way in securing donations in excess of 2.5 million dollars in charitable donations, planned giving and scholarships – some of which is earmarked for the Innovation Suite.

In summation, throughout his many years in a leadership role, Gerard has endeavored to practice the principles he has taught as a scholar in creativity and change leadership. He has continuously challenged himself and the Center to grow, and has nurtured a vibrant creativity community.

Scholarship and Research

While holding a leadership role for nearly 25 years, Dr. Puccio has been committed to his ongoing scholarship. Since starting his career at Buffalo State in 1990, Dr. Puccio has authored eight books, 19 chapters in edited books, 24-refereed journal publications, 24 keynote speeches, and 85 conference presentations.

Naturally his books reflect Dr. Puccio's areas of interest and expertise. For instance, in *Creative Leadership: Skills that Drive Change*, Dr. Puccio and his colleagues eloquently argued for the intersection of creativity and leadership. Here, their fundamental position was that leadership effectiveness is driven by the ability to be a successful creative problem solver. In *Organizational Creativity: A Practical Guide for Innovators and Entrepreneurs* Dr. Puccio and his co-authors make the case that creativity is necessary to fuel innovation within an organization and serves as a catalyst to successful entrepreneurial ventures. With Chris Grivas as the first author, Dr. Puccio explored the benefits of one of his major contributions to the field of creativity, his *FourSight* theory (elaborated below), as a tool and methodology useful in facilitating greater levels of innovation within team contexts. Their book, *The Innovative Team*, is written as a fable in which a team that was able to apply proven creative-thinking tools to turn around a dysfunctional and unproductive situation (Grivas & Puccio, 2012).

Foursight

Gerard Puccio developed the Buffalo Creative Process Inventory (BCPI) in the 1990s over a period of a decade. Now known as the *FourSight* instrument and theory, this self-report assessment tool identifies an individual's preferred style of engaging problem solving: Clarifier, Ideator, Developer, and Implementer – four style preferences giving insight into oneself. This psychological self-report measure of creative thinking preferences has been translated into seven languages. And has been used by more than 120,000 people worldwide and adopted into such organizations as the Center for Creative Leadership, Disney, UPS, NASA, IBM, Amazon, Nike, Fiat, USBank, and the Joint Special Operations University.

With respect to the theory, while *FourSight* was originally developed to focus on creative problem-solving preferences the theory, through research, has demonstrated broad applicability. For instance, several studies have shown how the *FourSight* preferences correlated with dimensions of well-being (Puccio, Szalay, Acar & Boyer, 2019; White & Shah, 2011). A recent large-scale study, that is a sample of over 20,000 participants, has provided clear evidence for the intersection between vocational psychology and creative-process preferences. Here, Puccio, Miller and Acar (2018) found that *FourSight* preferences varied significantly, and predictably, when examined through more than a dozen different occupations. For instance, those who work in Finance showed a significant tendency towards the Clarifying preference within the creative process, while Advertising showed a preference for Ideating, Engineering for Developing, and Purchasing for Implementing. Yet another example of the breadth of the *FourSight* theory was a study conducted by Gurzk-Ozdemir, Acar, Puccio and Wright (2019) in which it was found that teachers have a tendency to show a bias towards students that is influenced by their own *FourSight* preferences.

For other published studies into the *FourSight* theory and measure, see Puccio (1999), Puccio and Grivas (2009), and Puccio, Wheeler, and Cas-sandro (2004). A number of doctoral dissertations have also examined the *FourSight* theory and measure.

The Bus Study

Of particular note is the so-called Bus Study. It was about 2014 when an article or two came out in the well-regarded popular press claiming brainstorming doesn't work. An example of one of these articles was *Brainstorming doesn't work – do this instead* in Forbes Magazine (Balis, 2014).

Over the years there have been other articles deriding the value of the tool. For years – decades in fact – we have had robust data on the efficacy of brainstorming as a divergent creativity tool. Gerard, as well as the rest of the faculty at the Center for Applied Imagination, decided it was time to set the record straight. We found a client with a real-life problem. The Niagara Frontier Transportation Authority (NFTA) wanted to increase the ridership in the Buffalo metropolitan area suburbs. In addition to air transportation and rail service, the NFTA is charged with bus service for a multi-county area. For a convenient label we called our experiment the Bus Study. The article itself can be found in *The Journal of Creative Behavior* (Puccio et al, 2018).

In essence the study showed that, with training, brainstorming is a useful divergent tool. As with any tool training and experience are essential. The real question is not “does brainstorming work” but rather an understanding of how brainstorming is part of a creative problem solving process. A tool is just a tool. Context matters. Again, training and experience are essential, and this study, using more than 100 small teams, clearly demonstrated that idea generation, solution quality, and leadership effectiveness are dramatically improved through increasing levels of creativity training.

This is not the only study through which Dr. Puccio has explored and assessed the impact and value of creativity training. For a review of the impact of creativity training in general, and CPS training specifically, see Puccio, Firestien, Coyle and Masucci (2006) and Puccio, Murdock, and Mance (2005).

The Thinking Skills Model

In the 1980s CPS was considered a rational, cognitive and semantic model. Gerard felt that the model should better, and more precisely, articulate the cognitive skills involved in effective creative problem solving, as well as include the affective (emotional) skills that facilitate effective creative thinking. Gerard and his colleagues, Mary Murdock and Marie Mance, developed a new variation on the traditional CPS model to include these skills. This model is known as the Thinking Skills Model or TSM. They took a deeper level by examining how individuals personally thought, or processed information, at each step of the process. They researched, identified and defined the specific cognitive and affective skills needed at each step (Puccio, Murdock & Mance, 2007). The Thinking Skills Model has three major stages and seven steps within the stages. It is a descriptive model, not a linear one. The user can enter the stage or step that best suits the situation, base on the executive step at the center of the model: Assessing the Situation. Figure 1 below illustrates the stages and steps of the model.

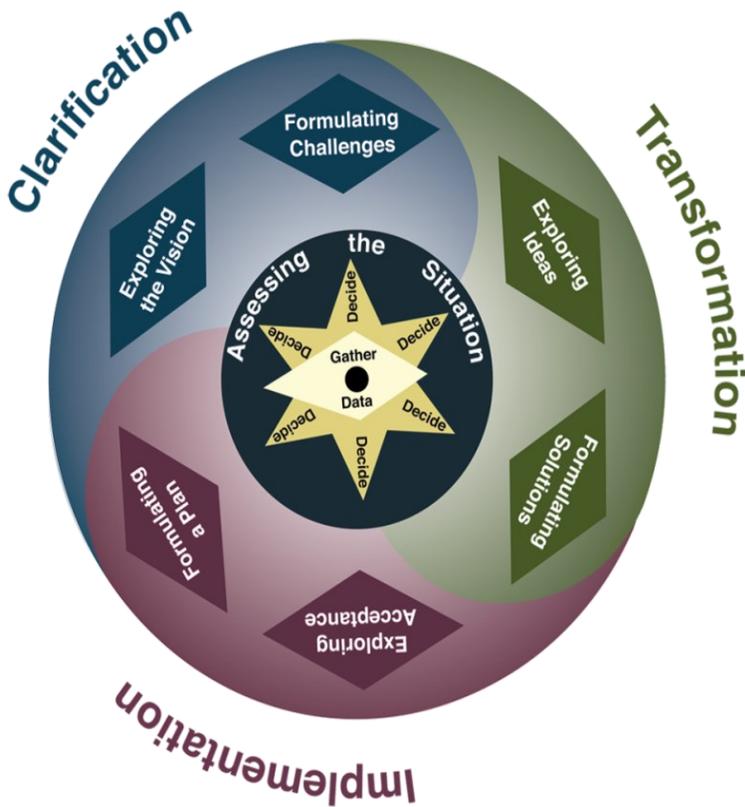


Figure 1: Creative Problem Solving: The Thinking Skills Model (Puccio, Murdock & Mance, 2007, Used with Permission)

The cognitive skills are well known. Below are the key affective skills identified for successful creative problem solving.

- Openness to Novelty – the ability to entertain ideas that at first seem outlandish and risky.
- Tolerance for Ambiguity – the ability to deal with uncertainty and to avoid leaping to conclusions.
- Tolerance for Complexity – the ability to stay open and persevere without being overwhelmed by large amounts of information, interrelated and complex issues and competing perspectives.

Figure 2 below shows the various steps of the Thinking Skills Model and the unique skills associated with each step.

CPS-TSM Step	Purpose	Cognitive Skill	Affective Skill
Assessing the Situation	To describe and identify relevant data and to determine next process step	Diagnostic Thinking	Curiosity
Exploring the Vision	To develop a vision of a desired outcome	Visionary Thinking	Dreaming
Formulating the Challenges	To identify the gaps that must be closed to achieve the desired outcome	Strategic Thinking	Sensing gaps
Exploring Ideas	To generate novel ideas that address significant gaps/ challenges	Ideational Thinking	Playfulness
Formulating Challenges	To move from ideas to solutions	Evaluative Thinking	Avoiding Premature Closure
Exploring Acceptance	To increase the likelihood of success by testing solutions	Contextual Thinking	Sensitivity to Environment
Formulating a Plan	To develop an implementation plan	Tactical Thinking	Tolerance for risks

Figure 2: Cognitive and Affective Thinking Skills for CPS: TSM (Puccio, Murdock & Mance, 2007, Used with permission)

Service

Dr. Puccio has a long list of service activities. Below are several that I find particularly interesting.

He served as the Associate Dean for the School of the Professions at SUNY Buffalo State where he led strategic planning process focused on two strategic goals: 1) the creation of Master Educator Program; and 2) the development of 21st century learning goals for all School of the Profession’s departments.

Gerard designed, developed and was the administrative coordinator of the Master Educator Program for the School of the Professions. The Master Educator program offers faculty training with the goal of providing every School of the Professions major with a transformative educational experience that inculcates and inoculates them with 21st century skills through ensuring that every student engages in high-impact practices – in short, “future-proof” every student.

Through Gerard’s efforts, Sheridan College (Toronto Metropolitan area) adopted creativity courses as required courses for all students. Sheridan College understands the value of creative thinking and creative problem solv-

ing as essential life skill. There have been more than 10 other colleges and universities in the USA and abroad that have benefitted from Gerard's training efforts. For a description of this creative campus initiative, and impact research conducted in conjunction with this work, see Preece, Katz, Richards, Puccio and Acar (2017).

Under Gerard's leadership the Center for Applied Imagination formed a cooperative relationship with the University of the Virgin Islands to offer the SUNY Certificate in Creativity and Change Leadership as one of the three areas of concentration as they developed their PhD in Creative Leadership for Innovation and Change. He has also worked with Beijing Normal University, China, Sichuan University, China and the National Chung Hsing University in Taiwan.

His service includes: serving on the advisory board for the Academy for Creative Leadership, Amsterdam, in the Netherlands; the editorial board for the Creativity & Innovation Management Journal; and on the editorial board, Journal of Creative Behavior. Among many other responsibilities, Dr. Puccio also serves on the selecting committee for the Toy Hall of Fame at the National Museum of Play in Rochester, New York.

Consulting

Dr. Puccio is an accomplished speaker and consultant; he has worked with major corporations, universities, and numerous school districts. Some of his recent clients include the BBC, Fisher-Price Brands, Blue Cross and Blue Shield, Kraft Foods, Rich Products, BNP Paribas, Rubbermaid, Coca-Cola, and the Fashion Institute of Technology. He has delivered creativity workshops and presentations across the United States and in more than 20 different countries around the world.

Dr. Puccio's Personal Mission

The following text is amalgamation of personal conversations with Gerard Puccio over the years we have worked together. These are his thoughts:

My personal mission is to democratize creativity by helping individuals connect to their own innate creativity (Puccio, 2017). I want my work to transform others through words and ideas, both written and spoken, so they can create and disseminate without my presence. I live what I teach.

In terms of the department, I continue to build a sense of community where creativity lives, breaths, and has a strong purpose through teaching to develop future creative leaders.

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CHAPTER TWENTY FIVE

DR. FREDRICKA “FREDDIE” REISMAN- PERSONAL HISTORY WITH DR. REISMAN

JEFF WESTPHAL

In the early 90's, a colleague of David Tanner's at Dupont, Jim Patton, introduced me to the concepts of active listening (learning) expressed in Stephen Covey's "The 7 Habits of Highly Effective People"(1985), to collaboration in Jon Katzenberg and Doug Smith's (2015) "Wisdom of Teams" and to the transformational power of vision and systems thinking in MIT professor Peter Senge's (2006) "Fifth Discipline, the Art and Practice of Learning Organizations". With Jim's consulting help and guided by these works, I initiated a cultural transformation around shared vision, peer learning and collaboration at my company, Vertex Inc., then located in Berwyn Pa.

With Jim's help, my early experience of 'seeking to understand before being understood' led to major breakthroughs for myself personally and for our company and its leadership team. When I was serendipitously introduced to the notion of "unschooling" or the more common "self directed education" (SDE), I recognized the synergies between what I was experiencing at work through collaboration and what the leading authors in the field of SDE were espousing in their books.

It was 1994 and our oldest of three children was about to enter school when these dots connected, leading me to become deeply immersed in the work of John Holt (1995), ("How Children Fail, John Taylor Gatto (1992), "Dumbing Us Down", David Guterson (1992), "Family Matters," and Susan Shilcock and Peter Bergson (1980), "Open Connections: The Other Basics". What I saw in these writings by educator philosophers appeared completely aligned with what business writers were expressing about vision, intentionality, motivation, teamwork and organizational culture.

In 1996, after two years of 'unschooling' our own children and four years after initiating the cultural transformation toward collaboration at my company, I had already seen and directly experienced enough paradigm shifting epiphanies to have become convinced that the institutions of education and business were premised on the wrong fundamental belief about how people learn.

Contrary to the beliefs implicit throughout my own upbringing and education, I realized that people don't learn best that which they are forced or coerced to learn. They learn best that which they are intrinsically motivated to learn. And, intrinsic motivation will lead people to learn more of value, retain that learning, and apply it more effectively than any compulsory experience could ever hope to deliver.

Experience, as it turned out, actually is the greatest teacher.

So, when Barbara Spiro, then Vice President for Development at Drexel University, suggested that I share my early experiences of SDE with the Founder of Drexel's School of Education, Dr. Freddie Reisman, I shuddered. My initial reaction went something like this: "Oh yea, this will be just peachy. The entire edifice of institutional education is completely founded in the idea that teacher knows best, and that quantitative measurement of memorized content or skills are the best way to support the realization of full human potential. This person is going to think I am crazy, and this will be a complete waste of time".

Imagine my shock when I met Dr. Fredricka Reisman, she of the list of credentials longer than my arm, already with over 40 years' experience at every level of education, only to find her nodding along supportively and actually amplifying my newly found perspectives, rather than dismissing my hard earned insights as the ravings of some under-educated and even more uncouth, business entrepreneur. Freddie not only "got it" but she raised my own understanding of the theory base and value of this emergent paradigm, one that she had discovered through her own work with "slow learners" many decades before.

Our partnership to bring transformation to education began on that day, 25 years ago and it has never been as strong as it is today. During those 25 years, in addition to her work at Drexel and her leadership within the American Creativity Association (ACA) and myriad other accomplishments, she also found time to support our efforts to build the fledging SDE learning community, Open Connections, into one of the world's leading communities of self-directed learners.

Freddie helped guide a first of its kind study of collegiate experience among young adults who were raised in the SDE tradition, and she provided constant guidance and support as the founders of Open Connections sought to bring SDE to an intentionally diverse community in Germantown, a village within the City of Philadelphia. And now, she is also providing advisory support toward the formation of Mosaic, a new platform to support any learner or community seeking independence from pre-determined compulsory curriculum, whether in a school setting or by forming new SDE communities.

Freddie's tireless devotion to the potential of all people to learn, grow and manifest their creative potential, led her to enter into a series of in-depth conversations with me via zoom in the fall of 2020, as the Pandemic kept us apart for the first time in a quarter of a century. The outgrowth of our most recent collaboration is the newly formed "Drexel University Freddie Reisman Center for Translational Research in Creativity and Motivation," and Freddie has agreed to serve as the Center's first Executive Director.

Our vision for the Center is that it will contribute significantly to the positive evolution of education from a compulsory focus on content to a focus on supporting the intrinsic desire to learn, grow and create born into every person by translating leading academic research in the "lab" to best practice for educators in their service to the "learner".

Reflecting back on the entire journey that has been our partnership, I am struck with the awareness that Freddie hasn't only been a partner in building the future of education, but she has also been a mentor and guide to me

personally. She's walked her talk in the way that she's embraced my own learning journey, as a parent in SDE, as Chairman for 17 years of Open Connections, as Founding benefactor of Natural Creativity in Germantown and in successive roles within my company, from Director of Marketing, the role I occupied when we met, to EVP, President, CEO, and Chairperson. And even now, her support is invaluable as I am co-creating Meaningsphere, a platform to help any person to create deeper meaning in their careers.

Through it all, Freddie has been there, encouraging, supporting and gently challenging and mentoring me on my journey into adulthood and now, with luck, maturity. Her passion for the possibility of education is inspiring and she's plied her craft with all of us around her, not just her students. Her contributions are without parallel and her vision is born of her direct experience of what all people really need most, love. She has shared her love of learning and of the possibility of creativity in every person with the world through her work, now manifest in the new Freddie Reisman Center for Translational Research in Creativity and Motivation at Drexel University.

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CHAPTER TWENTY SIX

SOARING FROM THE SHOULDERS OF GIANTS: CONVERSATIONS WITH AND ON TWO CREATIVITY TRAILBLAZERS: FREDRICKA REISMAN AND KIRSTEN BETTS

CHRISTINE GALIB

ABSTRACT: What can the next generation of scholars, practitioners, and leaders learn from creativity giants and trailblazers, as we lead into the future by integrating creativity in our research, practice, and organizations? As two women pioneers in the field, Dr. Fredricka Reisman and Dr. Kristen Betts have paved the way for others to start their journeys as creative, innovative, and technology-minded leaders. Significantly contributing to the neuroscience of creativity and individual awareness of creative strengths, Dr. Reisman has applied creativity to learning in educational and corporate settings and developed the Reisman Diagnostic Creativity Assessment (RDCA). Significantly contributing to mind, brain, and education science, Dr. Betts has advanced the literature on instructional design and online neuro-pedagogy, student engagement, retention, and completion. These topics are foundational to how leaders, curricula developers, and policy makers design, implement, and evaluate learning experiences – especially ones that develop individuals’ creative strengths – and to how students learn from these opportunities. Through interviewing Drs. Reisman and Betts and students or colleagues in their sphere of influence, this chapter takes a cross-generational and cross-peer approach to discussing Drs. Reisman and Betts’ contributions and their significance. This chapter empowers women not just to stand on the shoulders of giants, but, more importantly, to soar from them into the future.

Keywords: creativity, technology, mentorship, Reisman Diagnostic Creativity Assessment, neuro-pedagogy, mind-brain education

Soaring from the Shoulders of Giants: Conversations with and on Two Creativity Trailblazers

I will never forget the first time I emailed Dr. Fredricka Reisman. I had submitted my application to Drexel University’s EdD in Educational Leadership and Management and had reached out to Dr. Reisman to learn more about the Creativity and Innovation Concentration. Fewer than 15 minutes later, Dr. Reisman replied. Over the next week, we found some time to chat. From our very first call, I could tell not only that Drexel was a very special place, but

also that its professors were incredible people—dedicated not just to their own research, but also to their students and their students’ successes. Later in my EdD program, I was fortunate to also take a class with Dr. Kristen Betts. Like Dr. Reisman, Dr. Betts—a scholar, practitioner, visionary, giant, and trailblazer in the field of creativity and innovation—left a lasting impression on me. The intentional and multimodal ways in which Dr. Betts connected with and offered feedback to her students, helping us develop our skills and confidence, made each student feel valued and included. As two women pioneers, Dr. Reisman and Dr. Betts have paved the way for others—women scholars, practitioners, and leaders in particular—to start their journeys as creative, innovative, and technology-minded leaders.

What can the next generation of scholars, practitioners, and leaders learn from these creativity giants and trailblazers, as we lead into the future by integrating creativity in our research, practice, and organizations? To answer this question, I sought to explore Dr. Reisman’s and Dr. Betts’ contributions to the field, as well as interview their students, colleagues, or collaborators. I asked Drs. Reisman and Betts to recommend individuals who might be interested in contributing and followed up with these individuals to obtain permission to participate. Eight individuals were interviewed. I asked participants questions relating to their understanding of creativity, its importance to innovation, technology, learning, and education, as well as thoughts on how participants perceived Drs. Reisman and Betts’ influence on them. Presenting participants’ responses enabled me to take a cross-generational, cross-peer, and conversational approach to insights that might otherwise have not had an opportunity to emerge.

These insights are presented in an informal and accessible way and illuminate Dr. Reisman’s and Dr. Betts’ significance and contributions to the field. These insights also show participants’ definitions of creativity; the role of technology in learning, creativity, and innovation; and the importance of mentorship and having a connected network. These insights are relevant to a wide audience: from students and lifelong learners of all ages, to professors, practitioners, and policy makers. These insights challenge all individuals, no matter what titles we have or roles in which we serve, to uncover new ways of thinking. These new ways of thinking better promote creativity for individuals and for the systems and scaffolds that build the environment—whether in the classroom or corporation—in which creativity not only occurs, but also flourishes. By sharing these insights, this chapter empowers readers not just to stand on the shoulders of giants, but, more importantly, to soar from them into the future.

Significance and Contributions to the Field

It is impossible to capture the extent to which Dr. Reisman and Dr. Betts have advanced the field: they “have made enormous and positive contributions” (Participant EDG). Both trailblazers are brilliant and impressive visionaries, who view creativity as “a road to freedom” (Participant Reisman, 2021) and “something we all possess...an inner superpower, the key [to which] is curiosity/discovery, a mindset to question assumptions, and to “take” bold, smart risks – in essence, learning to develop and harness creativity over a

lifetime” (Participant Betts, 2021). Drs. Reisman and Betts’ views of creativity have shaped scholarly advancements and research and influence the perceptions and practice of countless students, colleagues, and collaborators. Drawing from Drs. Reisman and Betts’, as well as interviewees’, responses, this section showcases these two creativity giants’ significance and contributions to the field.

Significantly contributing to the neuroscience of creativity and individual awareness of creative strengths, Dr. Fredricka Reisman is the founder of Drexel University’s School of Education and has applied creativity to learning in educational and corporate settings. She holds a PhD in Mathematics Education from Syracuse University and has a background in mathematics education at the elementary, middle school, and university level. The recipient of numerous awards and recognitions, Dr. Reisman has also been awarded over \$14.8 million in grants and is an author, contributor, and editor of countless chapters and books on mathematics learning and teaching and creativity applications (KIE Communities of Practice, 2020).

She has developed the seminal Reisman Diagnostic Creativity Assessment (RDCA). The RDCA is a free, online self-reported creativity assessment that enables individuals to gain awareness of their creative strengths and weaknesses (Reisman, Keiser, and Otti, 2016). These strengths are: originality, fluency, flexibility, elaboration, tolerance of ambiguity/comfort with the unknown, resistance to premature closure/open-mind, risk taking, intrinsic motivation, extrinsic motivation, convergent thinking, and divergent thinking.

The RDCA is built on the Torrance Test and Guilford’s model and is more accessible, easier to administer, and free. The RDCA is “brilliant because unlike some of the other [creativity assessments, the RDCA is] easiest to use, understand, apply, and explain to other people—which is important” (Participant EDG, 2021). This ease demystifies creativity, making it “as a topic and as an application accessible” (Participant NT, 2021). For this reason, the RDCA is beneficial for corporations and educational institutions seeking to teach and promote creativity.

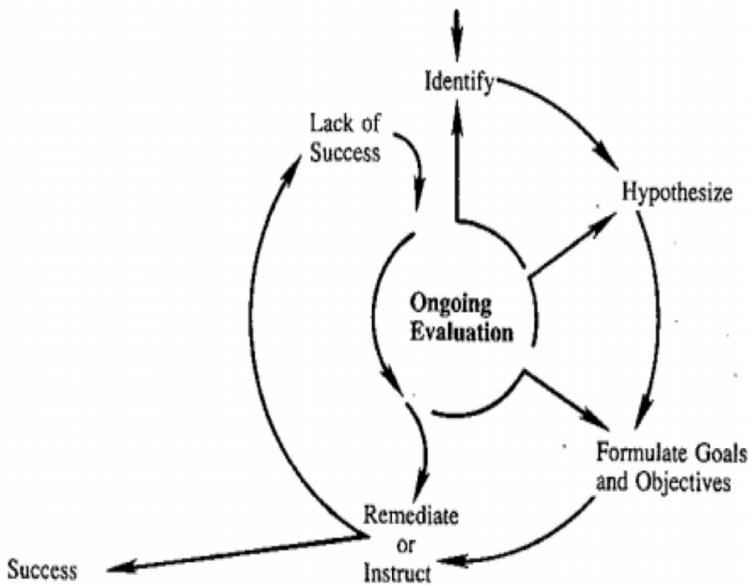
More so than make creativity accessible through the RDCA, Dr. Reisman helps her students tackle misconceptions about creativity. In tackling these misconceptions, her students discover everyone has creativity—and the challenge is tapping into everyone’s creative potential:

Before I met her, I thought like most people did, that creativity was this rarefied thing. If the muse looked down on you and smiled, and you had a brilliant idea, it was rooted in some talent. But Dr. Reisman swept aside misconceptions like these. Everyone has creativity. . . .Now, it doesn’t mean that you and I will come to the same answer, but everybody has the capacity to create actionable ideas. The conundrum is how to tap into creativity. . . .Dr. Reisman talked about how around the age of seven, there was a drop in creativity and measured by the Torrance Tests of Creative Thinking. She felt very strongly this was driven by instruction and [children’s] experiences in school, and that these needed to be restructured so students were not just allowed but required to apply their creativity [to help them] thrive...From Dr. Reisman, I learned that people have tacit creativity, and the challenge is how do you let that out? How do you

tap into that? If we accept the concept of a creativity drop at age seven and maybe 30 years in a job where creativity was not valued or was squashed, it does become harder to tap into it. But everybody retains that ability. I try to cultivate that in the leaders we train. We try to get them to bring their creativity to the table and to tap into the creativity of their staff. (Participant NT, 2021)

The challenges of tapping into creativity and enabling it to flourish apply not only to classroom settings, but also to corporate settings. Dr. Reisman's diagnostic teaching cycle, seen below in Figure 1, enables both students and employees to access and tap into their creativity—with ongoing evaluation at the center of this process.

Figure 1: Reisman Diagnostic Teaching Cycle, Source: Participant Reisman, 2021



One of the most significant aspects of Dr. Reisman's contributions is that her research shows how to promote creativity in education and industry (Reisman & Maliko-Abraham, 2017). Her unique ability to demonstrate the application of creativity across multiple domains is a testament to and stems from her "enormous depth of experience" (Participant EDG, 2021). This depth of experience, which is uncommon, spans multiple applications such as "testing, creativity, testing and scholarship, and sort of creating think tanks and conferences (Participant EDG, 2021), is rooted in Dr. Reisman's own personal and professional journey, and positions her as a pioneer in the field (Participant IT, 2021). Dr. Reisman's interests led her to explore the topic of creative problem solving:

My college interest in medicine led to my first book entitled *Diagnostic Teaching of Arithmetic* based upon my synthesis of a medical and a learning model that became popularized as creative problem solving. I was blessed with two mentors: i. collectively my family and ii. Dr. E. Paul Torrance. Opportunities and challenges involved creating the Teacher Certification programs that went through several iterations from a Program to a broader Division to a School within the College of Arts and Sciences to the current free-standing School of Education (SoE), all within an engineering context that did not envision a SoE within its midst. (Participant Reisman, 2021)

Dr. Reisman has channeled her depth of experience into “[starting] the creativity major [and is] the foundation and tree from which its branches have grown” (Participant IT, 2021). As this foundation, Dr. Reisman has influenced exponential growth and advancement in the field of creativity, applying her knowledge to enable learners to flourish:

[Dr. Reisman] is the base from which this program springs...She’s sort of the godmother, if you will, the matriarchal figure and when you take classes with her, you’re talking to someone who has decades and decades of experience. And it’s sort of a quiet storm. She’s very quiet, easygoing, and soft spoken, but once you get in deeper and you get to know her, you realize there’s a wealth of experience and knowledge there, which essentially takes a lifetime to acquire. (Participant EDG, 2021)

If you want to consider a tree, the branches, and the sharing...there’s so many more people who have degrees in creativity and knowledge and research topics because of Dr. Reisman. That is such a huge contribution, and programs have been started because of Dr. Reisman. (Participant IT, 2021)

[Dr. Reisman] has a background in working with kids who are gifted. If you don’t want to lose [children who are gifted] and you want to make sure they stay in education, and don’t get bored and walk away, then you need to enhance [their education experience]. That’s really where Freddie shines. I don’t know that she would say that was the basis of her cause...but I would say that certainly enhanced her ability to have a forum in which to use her creativity, to foster her creativity, and to flourish. She certainly has continued that today and she’s dragged a lot of us along with her! (Participant T, 2021)

Dr. Reisman has created programs and opportunities that enable individuals to study and apply creativity in multiple settings. One such setting is advancing mathematics pedagogical practices that promote learners’ creativity by permitting learners to make mistakes, as an experience related to discovery or creative strengths:

Dr. Reisman has even written math books, [on] teaching mathematics creatively [and fostering creativity]. We’ve used them with teachers in professional developments. [Dr. Reisman] was a teacher

at one point...so the heart is always in that education. . . . Some of [teaching] is about identifying the creativity in children and allowing children to be creative, make mistakes. It's a big thing I talked to the teachers about too. My understanding from Dr. Reisman, is "yes, you must make mistakes." There are schools now that I love that are encouraging: "You didn't make enough mistakes. You got to go back and make a few more." [These] preschools are encouraging *process over product*...it's good we're starting to get some of that. I have learned that all from Dr. Reisman. (Participant IT, 2021).

What drives these pursuits and what has propelled Dr. Reisman to tackle the challenges of promoting creativity in education and industry? Dr. Reisman attributes these pursuits to her desire to "[keep] up with learning and identify cutting edge problems" (Participant Reisman, 2021) and describes herself as "Iron Magnolia as they would call [her] in Georgia—caring but tough when warranted" whose greatest personal success "as a single mother, has been the privilege of bringing up a creative, smart, and caring daughter and her two sons." Dr. Reisman's toughness and "gentle persistence" are characteristics Participant IT describes. Participant IT sees this toughness, coupled with Dr. Reisman's ability to resist premature closure—and inspire others to do the same—as beneficial:

[This gentle persistence] must have served her well in her life and her career. It certainly served me well as a student, because as a businessperson, I often want to get to the bottom line, cut to the chase, and take action. She challenges me, positively, not to do that. I think that's so wise, and that's so helpful for creativity. (Participant IT, 2021)

Perhaps most significantly, and spoken as an authentic lifelong educator, mentor, and champion of an individual's ability to discover and apply their creative strengths, Dr. Reisman sees her work as "[providing] structures upon which others may build, thus advancing [her] ideas, glean[ing] new ideas from [her] work, and opening new frontiers using [her] work as a foundation" (Participant Reisman, 2021). Teachers, learners, and corporate trainers can benefit from Dr. Reisman's research, by finding content and pedagogical support for how creativity is found in and applies to numerous and diverse settings. In this way, Dr. Reisman's research bubbles over from the classroom to the corporation, inspiring learners to transfer their knowledge from textbook to whatever trade they pursue.

Another trailblazer with a remarkable depth of experience and expertise in, and passion for, researching creativity and its numerous cross-sector applications, is Dr. Kristen Betts. Dr. Betts is a "giant in neuro-pedagogy, pivotal pedagogy, in the learning sciences and how those connect to mind, brain, and education sciences...a pioneer in explaining what happens in the brain when we teach...[and] a phenomenal scholar, on mind-brain and learning" (Participant U, 2021). Dr. Betts describes herself as "inspired by new possibilities, connections, and the brain, [thriving] on the opportunity to collaborate with others to see problems through multiple lenses and make new connections to find dynamic solutions" (Participant Betts, 2021). These

attributes have propelled Dr. Betts from the beginning of her career. Dr. Betts recounted how her early career experiences shaped her interests:

When I was working with Forbes Education in 2013, we had the opportunity to develop new innovative curricula from the ground up. I was asked to prepare for a Board meeting what I believed the Forbes Advantage was for our online programming. I provided a presentation that shared how all our curricula, instructional design, and faculty development built upon the human learning process, Universal Design for Learning, Culturally Responsive Teaching, Creativity, Learning Sciences, and Mind, Brain, and Education (MBE) Science. I was able to share how our interactive lectures, discussion boards, group activities, and assessments supported learning and neuroplasticity through metacognition, retrieval, spaced practice, interleaving, elaboration, and multi-modality feedback. Forbes Education provided me with the unique opportunity to better understand my own functional fixedness when it came to course, curriculum, and program design by challenging me to explore new ways to approach teaching and learning online through a transdisciplinary lens and emerging research. While at Forbes Education, I attended workshops, conferences, and lectures by researchers who were transforming teaching and learning. This ignited in me an incredible passion for integrating the Learning Sciences and particularly MBE Science into all my work in online learning. I enrolled in the Mind, Brain & Teaching graduate program at Johns Hopkins University which is led by Dr. Mariale Hardiman. It was transformational. I have spent the past eight years expanding my work and research through engaging in workshops, courses, and lectures led by incredible researchers and thought leaders from around the world such as Barbara Oakley, Paul Kirschner, Judy Willis, Richard Mayer, Tracey Tokuhama-Espinosa, Kenneth Wesson, Glenn Whitman, Carol Ann Tomlinson, Allison Posey, Mary Helen Immordino-Yang, Tom Tobin, and Michelle Miller. I have also had the honor and privilege to work closely with, co-publish, and co-present with Dr. Freddie Reisman and Dr. Larry Keiser at Drexel University who are renowned for their work in creativity. They have both had a profound impact on my work and research as it relates to creativity, instructional design, online neuro-pedagogy, student engagement, retention, and completion. (Participant Betts, 2021)

This confluence of academic and professional experiences, especially learning from and working with global thought leaders, has deeply impacted Dr. Betts' approach to her own work:

What stands out most about the thought leaders, who have made such an impact on my life, was their ability to identify solutions to emerging needs or problems before they became visible to others. Through being actively engaged in work that they were passionate about, immersed in historic/current/emerging research, and being reflective, they led transformational change in institutions, corporations, and communities. What stands out as well was their ability to

strategically engage others in the transformational change – it was about finding a long-term sustainable solution that would continue to evolve as factors shifted. For them, nothing was ever static. They were able to see connections and make connections that were not as visible to others but through their work became clear and part of the solution and path forward. (Participant Betts, 2021)

Dr. Betts has advanced the literature on instructional design and online neuro-pedagogy, student engagement, retention, and completion by seeing connections herself that were not visible to others—and by devoting her career to helping others see and apply these connections, too. From her dissertation—the surveys of which have been used in studies with over 100 higher education institutions worldwide and highlighted the importance of providing faculty support for engagement in online education—to serving as Forbes Education’s Chief Academic Officer on the development of the Forbes School of Business, Dr. Betts’ research and accomplishments span a wide range of topics, including:

- a) developing innovative programming and conceptual frameworks related to student engagement, faculty development, and online learning, e.g. Online Human Touch for students and faculty, a Quinary Career Development Model, and an Integrative Transfer of Learning Model;
- b) serving as the founding director of a national award-winning online master’s degree program in the School of Education at Drexel University that was launched in 2005, working with Drexel University’s Steinbright Career Development Center, as well as the first blended EdD program in Pennsylvania in 2009, which earned the Carnegie Project on the Education Doctorate (CPED) 2019 Program of the Year Award (Drexel SoE, 2021), as well as the Office of Online & Blended Learning at Armstrong State University, which also received awards;
- c) developing and launching three educational programs with the Online Learning Consortium (OLC) in collaboration with Dr. Michelle Miller on the Neuro, Cognitive, and Learning Sciences; and
- d) working with a research team from higher education institutions worldwide and OLC on an international study to examine awareness of neuromyths, general information about the brain, and evidence-based practices within higher education related to online, blended, and face-to-face formats (Betts et al., 2019), as well as a post-pandemic study to be release in 2021.

These programs, which focus on teaching, instructional design, and leading in online and hybrid environments, have been thriving in the pandemic-influenced move to online education. They have also attracted hundreds of educators from around the world, preparing them for instructional design and online education beyond the pandemic. Dr. Betts’ research has focused on bringing the higher education experience and curricula to students beyond a physical location and positioned learners to acquire the knowledge and skills

to excel in the online environment. This focus has been invaluable to assist in planning not just during the global disruption of the pandemic, but beyond. As Dr. Betts explained, her research has always focused on transcending boundaries through innovative offerings that drive transfer of knowledge:

Student success involves active learning and the ability to transfer learning across real-world contexts. It is critical that educators and students understand the human learning process and connection between teaching and learning with neuroplasticity and growth mindset. It is especially important that educators understand the effects of cognitive load and stress on academic performance and the brain. (Participant Betts, 2021)

To further educators' understanding of the human learning process, Dr. Betts designed INTERACT123 (INTERACT123, 2021). This application is a Student Interaction and Workload Calculator, backed by a breadth of research. This calculator enables course creators and instructors to optimally design and redesign courses that engage students in Instructor-Student, Student-Student, and Student-Content interaction. INTERACT123 provides educators with a dynamic dashboard and analytics to align courses with credit hours or continuing education units and to manage cognitive load. INTERACT123 helps educators develop the optimal balance of content and interaction. Too little content, and educators risk disengagement and loss of learners' attention. Too much content can result in cognitive overload—which affects retention and academic performance. The ability to balance content and interaction (instructor-student, student-student, student-content) is key to learning and student success.

Another critical component of student success is the ability for educators to design and redesign courses that support stated outcomes and integrate Universal Design for Learning (UDL) principles—a topic in which Dr. Betts has vast experience and expertise. UDL principles create a framework for effective course design. Effective course design is crucial for learning, because it scaffolds knowledge from propositional knowledge to epistemic knowledge, from foundational competence to a reflective competence, and from a cognitive stance to an epistemic cognitive stance (Participant U, 2021). Participant U also explained the link between effective course design and student retention:

[Dr. Betts] has done seminal work looking at course design where there are high student attrition rates, especially for postgraduate students. [She has looked] at how the brain processes information and how does cognitive overload work in terms of what [teachers] present and how we present it? Are we teaching too much? Are we keeping students busy with busy work? [The] course design must align with how insights in the mind, brain, and learning sciences advance our knowledge of how students learn. In many instances, we don't account for the credit hour and don't account for accreditation, resulting in content overload. Many times, when students drop out, it's not because the student doesn't have the ability to pass. It's because our design principles, our pedagogical approaches, are not actually in-line with the accreditation hours, or how many hours

students must spend to successfully complete the course...The work [Dr. Betts has done has shown] with evidence-based practices that ineffective course design and ineffective pedagogical approaches are actually the main contributing factors to students' successes or [failures]. (Participant U, 2021)

Understanding how we learn, and applying that knowledge to course design and accessibility, has unlimited applications beyond education. Dr. Betts' research on this topic positions her as an innovator and provides a method for reshaping society and culture:

She is an expert and an innovator in the field because of her ability to apply and weave together so many different theories and relate them to the brain, to the field of teaching us how to critically examine programs, how to develop tools to evaluate programs and doing this in a way that really sticks, that really goes into long-term memory. This is huge because this is how we will be able to shape the future of education. . . . The biggest contributions that I feel Dr. Betts continues to make [relate to the] reformation of higher education academicians, which influences the collegiate climate for all students, including multicultural ones, through the applicability of best practices in neuroscience to pedagogy(neuro-education). This has personally impacted my career path and is influencing higher education retention. Her application of neuroscience also has huge positive implications for transforming social discourse on "-isms," including race, [and de-escalation of cognitive biases, e.g. in the police force]. (Participant D, 2021)

In terms of [Dr. Betts'] work with neuroscience: that's a field that's burgeoning and has lots of possibilities and potential. It's one of those things I think you need a spokesperson or perhaps a town crier to say it over and over and over again: "You can rewire your brain. The brain is not fixed. You can continually grow and learn new things on a neuroscience level." And that opens up all new kinds of possibilities. (Participant EDG, 2021)

Dr. Reisman and Dr. Betts are giants in the field of creativity—because their breadth and depth of unique experiences enables them to have and accomplish a vision for how creativity can be applied in numerous settings. Their research integrates perspectives across multiple domains, demystifies creativity, and enables individuals to access it. Their advancements to the field lead to new possibilities for applying creativity to education. Their research better positions educational leaders, curricula developers, policy makers, and decision makers to design learning environments in which creativity is not just discovered, but can flourish.

Conversations on Two Creativity Trailblazers

Dr. Reisman and Dr. Betts have not only significantly advanced the field of creativity, but also significantly influenced their students, colleagues, and collaborators. This section discusses several emergent themes from inter-

views with Dr. Reisman's and Dr. Betts' students, colleagues, and collaborators. Interviews were analyzed through generating qualitative codes and member checks. These themes relate to a) participants' understanding of creativity; b) its importance to innovation, technology, learning, and education; and c) thoughts on how Dr. Reisman's and Dr. Betts's mentorship, passion, and courage have influenced participants' own pursuit and modeling of creativity.

On Creativity

Dr. Reisman and Dr. Betts have devoted their lives to understanding creativity and empowering others with the tools to identify, develop, apply, and showcase their own creative strengths. Participants' definitions of creativity not only illuminate how they perceive creativity, but also are testaments to how learning from and collaborating with Dr. Reisman or Dr. Betts has influenced these perceptions—and better enabled to participants to apply creativity in their own work. Participants' definitions illuminate creativity as an essential personal or internal characteristic that everyone has, which is linked to realization of potential, as well as novel and useful solutions, in interpersonal or external environments:

work that is original, effective, and compelling...it has to move you...work that is creative aspires to go beyond just being original and effective. There's something about it that sort of sticks in the mind and you think about it and reflect [on it] and it sort of builds...there's something else to it that as a sort of *je nais sais quoi* so you can't define it, it's a feeling, it's one of those things that you sense it, you know it when you see it and when you hear it and you taste it...Creativity in my case would be life. It is essential to life. (Participant EDG, 2021)

Creativity means sort of a personal expression into how you see the world and how you want to contribute yourself to it...When I think about creativity and innovation, I think of helping people realize their greatest potential and what they can contribute to the world. (Participant E, 2021)

[We] find creativity across all fields...in places where we don't like to call it creativity. Computer programming is creativity and scientific exploration involves creativity as well...We put creative in the category of artists who paint and sculpt, and that's a very narrow way to think of creativity...we all have some measure of it, but we don't always recognize that in ourselves or in our students or in each other. (Participant D, 2021)

Everyone is creative. It's interesting to see how people recognize creativity in different people...I think the technology has allowed people who are creative, other kinds of people who are creative, who may not have been able to get their creativity out there, it's just giving them another vehicle to get their information out, to share with other people, to collaborate. I'm also all about collaboration and I

think that brainstorming and collaboration are really key. I think *we really have to sell the idea that everyone is creative*. (Participant T, 2021, emphasis original)

Creativity is generating solutions to problems that are both novel and useful. Just doing something funky and out there is maybe not even the best example of creativity, but if it solves a problem in a very targeted way, in a way that other people haven't thought of before [that is creativity...Creativity often] involves realizing when constraints aren't constraints...[for example] the people who came up with the creative solutions [for assessments], were those who [examined the assumed constraints and asked], well, Why do you have that final exam in the first place? What is it supposed to accomplish? Why are time limits important? Why is a written product important? And how can those key aspects be replicated? So that's the constraint that isn't a constraint piece...So that's where creativity can come in. (Participant L, 2021)

Creativity is found everywhere and in everything we do...applied creativity to me means that in every field and every situation there's problems to be solved, it can be a little thing, it can be maybe finding a better route to take to work, or it could be a workplace setting, maybe making something more efficient, it could be inventing something, in every field, it could be designing a poster to advertise (Participant IT, 2021)

Creativity is an opportunity to take a deep breath, step back, spend some time, which we, which we have very little of right now. But actually forcing ourselves to step back, take some time and allow our own mind to work and reflect and problem solve and come up with solutions and ideas. I would say for me to, to help other people, particularly people with disabilities. (Participant T, 2021)

Creativity is the bridge to innovation. Creativity carries you from the present state to some meaningful change, some meaningful enhancement, a meaningful improvement for the future. All creativity is valuable. But I think the most valuable, at least in organizational life, is creativity that has some positive impact, some positive result, some useful innovation for the members of an organization or their clientele. Creativity carries you to innovation and ultimately to impact. (Participant NT, 2021)

Creativity involves out-of-the-box thinking and is "the ability to innovate, to solve problems in a way that is outside of the box, to think in a way that is divergent...this ability can apply to anyone" (Participant D, 2021). In academic spaces, creativity relates to the production of knowledge and acquiring new information: "creativity means creating and producing knowledge" (Participant U, 2021). Through promoting exploration of thought

via divergent thinking, creativity expands the realm of possible solutions. In this way, creativity is like technology: both expand the realm of possibility by enabling the individual to actualize or accomplish an idea or initiative that they previously could not actualize or accomplish. Both creativity and technology require operating through functional fixedness and “[letting] go of the ways that we learned in order to utilize technology in a way that pulls us forward” (Participant D, 2021).

To operate through functional fixedness—a cognitive bias that limits individuals to take only a traditional approach—individuals “have to be able to reflect and create space for sharing reflections and to unlearn things in order to move forward in [their] learning” (Participant D, 2021). Divergent and convergent thinking, at appropriate times in the learning process, are essential to individuals’ forward progression in their learning process. Additionally, the comfort and fluency with which an individual leverages and integrates divergent thinking influences how an individual operates through functional fixedness. The ability to toggle between divergent and convergent thinking positions individuals to see different perspectives.

Seeing different perspectives enables individuals to disrupt their own thinking patterns and operate through functional fixedness, adopting more open-minded approaches. Taking more open-minded approaches and shaking loose of old patterns is difficult (Participant D, 2021)—and it is essential to creativity. It is also one of Dr. Betts’ skills:

Dr. Betts is an artist, because she is willing to stand back and look at something and also come up close on it and then readjust her lens and then adjust herself to add different brushstrokes as needed for each and every student, every student...[One’s academic training] doesn’t make you a person like Dr. Betts...She encouraged me to be open-minded [and] to revisit [previously held beliefs] and not maybe to be so dogmatic about some of the things, and to see some continuity too. (Participant D, 2021)

One potential way both Dr. Betts and Dr. Reisman have developed fluency in disrupting old patterns is through actively engaging others in a deep, rich, and collaborative brainstorming process and resisting premature closure:

Dr. Betts was a guest speaker [in our class]. She showed us some instructional videos and information she was pushing out to her college classes via her mobile phone. On top of that, she had at least 10 ideas for more things she could do. One of the things I appreciate about her is that she’s always engaged, the wheels are always turning. She’s always trying to generate new ideas, a new alternative, a new way, a new process to help people learn. And I think that is an expression of creativity. Whereas I, amateur that I am with creativity, might tend to converge on an idea and try to move with it too quickly, she’s able to come up with a wide variety of ideas and more and more, and then from among them choose the ones that can be applied to the job she has at hand or the topic at hand, and maybe stash those other ideas to use later. I have admired this about her and I wish I could model this more. I also hope some of it would just rub

off on me and it's just not the case. I think maybe she must practice it more than I do. (Participant NT, 2021)

She does everything in a collaborative fashion...Any time I have an idea, I would bounce that off Kristen. And she bounces ideas off me, and I'm not the only one, but as soon as I say, I'm thinking about this, she, she goes into a mode and I may or may not pull every single one of those threads, but it really helps in the "brainstorming sessions," but it, you know, Hey, I got another brainstorm. Okay, let's talk. For example, I saw an article in the school in the newsletter and I said, Kristen was this guy and brain science stuff over in nursing or somewhere, next thing I know we dragged him in and he was in the brain lab with us. (Participant T, 2021)

[Dr. Reisman] reminded me of the convergence-divergence model because I tend to want to converge too quickly. She's very good, as a colleague, as a collaborator, as a processor, of finding ways to facilitate this without saying, "Wait, wait, not so quick," but finding ways to get to divergence again. It's a well-posed question. It's an added thought. It gets you to turn your thinking a little bit and to say, "Okay, maybe there are more ways of doing this, not just one way to solve a problem...I have that persistence to know that, "Hey, if it's not going to work like this, I'll try it like that." That has been huge and I think I can pass that along to others as well. And I have, so, and I have watched Dr. Reisman do that too. (Participant IT, 2021)

Engaging in a deep, rich, and collaborative brainstorming process and resisting premature closure enable individuals to generate new perspectives through divergent thinking—and generate a collaborative and therefore exponentially multiplied creativity. Divergent thinking is essential to creativity, and can lead to the uncovering of unconscious, cognitive biases. One example of applying how uncovering unconscious bias relates to the way in which we learn is tackling the neuromyths that are prevalent in education: "Dr. Betts is incredibly interested in finding truth in how we learn and really dismantling the myths that came about in previous research by partnering with multiple fields of study to understand the cross-sectional view of our world" (Participant E, 2021). Another example relates to applying creative thinking to diversity, accountability, and equity, which has the potential to reshape not only industry and innovation, but also society and culture:

[Diversity] is also ideas. Creativity is very important to this outlet of diversity [diversity as more than ethnicity or gender orientation] because it teaches us how to be diverse, to be open to new ideas [and] different ways of expressing ourselves, new ways of looking and talking about things. I think that is very, very important. So, I see creativity is integral to the movement that is happening certainly in America, but I suspect in other parts of the world now, too, with increasing accountability, equity, intersectionality diversity issues of fairness dissemination of information. (Participant EDG, 2021)

It's design thinking, you can do a little of that with design thinking, and we're still always trying to toy around with how to get people to realize that the way that they think is really like these cognitive biases, and that's why we have racism. So, what [Dr. Betts] can do has huge implications, the positivity that comes out of it, and the good that goes into the world because of that is immeasurable. (Participant D, 2021)

In these ways, Dr. Reisman and Dr. Betts have influenced not only the field, but also how their students, colleagues, and collaborators to discover and apply creativity to their own fields. Both Dr. Reisman and Dr. Betts have modeled how creativity is an important part of the “drive for results” process, emphasizing that creativity and creative strengths should be cultivated an integral, permitted part of this process:

They have shown me a way that I didn't know existed before. I'm a very results-oriented person. I like to deliver. It makes me happy to finish things, to build things and finish things, and what they showed me was an agreeable way, a productive way, and a beneficial way to incorporate creativity into my drive for results. Before I met them, I would see creativity as maybe preventing me from finishing my project or finishing my task. Through my work with them, I realized that creativity adds to results. It only helps, it only makes me better, and it makes the results better. That's a gift. I've been very fortunate to have had a lot of good professors, teachers, and mentors. But learning about creativity and understanding that it was not something other, not something outside of my work, but something that needed to be part of my work and therefore should not only be allowed but be cultivated. That's a big, a-ha, a transformational piece of learning for which I'll be grateful to them forever. (Participant NT, 2021)

As this theme has shown, creativity profoundly influences not only individuals' thought, enabling them to think in divergent and different ways that challenge or overturn conventional thinking, but also individuals' action, empowering them to generate a wider range of options that ultimately lead to better results. The next section explores participants' thoughts on creativity, technology, learning, and education.

Creativity and its Importance to Technology, Learning, and Education

“We all learn differently and at different times” (Participant E, 2021). Consequently, creativity is fundamentally important to understanding how students learn and how to design meaningful educational experiences from this understanding. Dr. Reisman and Dr. Betts have been trailblazers in shaping how participants see creativity and technology intertwining to construct student-centered learning experiences that meet individuals' needs and empower them to develop their skills.

According to Dr. Reisman (2021), “Technology is the road upon which creativity (generating unique and novel ideas) that trigger innovation (the implementation of creative ideas) travels. In this way, technology provides a mechanism that takes creativity from ideas—present in the individual’s internal world to implementation—actualizing those ideas in external environments. Dr. Betts (2021) amplifies Dr. Reisman’s analogy, extending her analogy to enhancing and transforming learning experiences:

Technology can enrich creativity through increased access to information, diverse perspectives, and exposure to new concepts or paradigms. Technology can also be a catalyst for innovation providing opportunities to communicate more readily with more people by allowing for increased chance of diverse ideas and within a more immediate time frame to bring together novel ideas to mix, remix, test, and refine them into evolving models, processes, and products. Together, creativity, innovation, and technology can enhance and transform learning experiences by bringing curriculum to life through igniting curiosity to find new solutions beyond physical boundaries and supporting success through risk-taking, failing forward, reflection, and refinement.

Creatively leveraging technology is not only useful in transforming learning and igniting curiosity, but also in reaching learners exactly where they are. In this way, technology enables deeper, more personalized, and targeted instruction of new content or skills to the learner’s exact needs. This personalized approach to learning helps identify where students struggle and, with this information, positions instructors to rethink how they present material and approach the learning process:

Dr. Betts has influenced me to really find where students struggle during their learning. Given the advancements in technology, I need to pay close attention to the “how” and “why” students move forward and succeed or fall behind, especially when more research has been conducted within the last five years. It gives me a chance to rethink the way I present and teach new material. Conversations with Dr. Betts have me looking at other ways technology and tools can enhance my online instruction using students’ interest and creative talents. (Participant E, 2021)

Technology plays a key role in enhancing instruction. Technology and education are not two completely different things: technology is “not something to be afraid of and it shouldn’t be an additional add on. It’s part of the way education is now” (Participant EDG, 2021). For Participant EDG, technology is a “progressive attitude to history into society, meaning that we continually get better and better and better” and creativity, innovation, and technology as inherently related:

We’re constantly innovating. We’re creating new things. We always want to improve... we’re not continually making the same thing, but we’re making things which are better. We’re making things that can do new things. You have to be creative to do that because you’re creating things that have not existed, right? So that in and of itself

brings in the idea of creativity and innovation is when you take those creative ideas or the prototypes, and you apply them in the real world, how do we get from the napkin sketch to 330 million homes in America, that's the innovation piece. And you need, both if you are going to be successful in technology and business as an inventor because the ideas have to leave your desk and get out into the world. (Participant EDG, 20201)

This spirit of innovation—the drive to create improvements based on observed problems—is integral to how instructors and students engage in the learning process. Delivery of information by the instructor is not the same as assimilation of knowledge or acquisition of skills by the learner. Technology, especially advancements in understanding neuro-pedagogy and learning science, narrow the gap between how and at what pace the instructor delivers knowledge and how the learner acquires, applies, and masters this knowledge:

Creativity, innovation, and technology can support real learning and get learners to a place that just listening to a trainer deliver concepts, isn't going to get them. Good, intentionally applied technology opens the door to pacing learners, students and adults, more effectively so they learn more, retain more, and apply their learning to [taking action to] some useful end. Technology helps with qualities such as consistency in delivery and learning results [and] can help scaffold learning for individual learners in ways that a sole instructor may not be able to provide for a group. This provides more consistent learning results across all learners. Technology allows us to be thorough and consistent with the knowledge we deliver and the learning that occurs. The third thing is productivity, and that's really getting people to the point of understanding, competency, and application sooner. The [fourth] thing is timeliness...It's my goal always to reach people at their desk in their moment of need [so that they can] learn what they need at the moment they recognize the need. That's a pretty lofty goal, but that is only made possible with technology. Technology especially gives us a way to reach audiences, to reach individuals who we might not otherwise be able to get to. (Participant NT, 2021)

Technology also enhances education by promoting better individual outcomes and advancements in creativity and innovation:

More technology and self-paced/guided instruction need to be happening both in face-to-face and remote learning settings. A good attempt at including technology to accomplish these goals is through flipped classroom and blended learning. Traditional education often does not allow or promote play, testing out new information, or applying outside of the classroom. There are a lot of great things happening in education, but I think incorporating more technology and personal selection plays a key factor in better outcomes and advancements in creativity and innovation. (Participant E, 2021)

Promoting play is one avenue for creativity to enter an educational setting. Instructors can leverage technology, such as Padlet or other software by which learners can engage and interact in new ways, as a way of de-risking—promoting safe exploration of—creativity. These tools enable learners to interact in ways they might not interacted in face-to-face settings, for fear of risk or embarrassment:

I had a student that worked at a company and they had an online [suggestion box] and the best idea got [a gift card]. That was a safe way because you don't always get heard. That's the same in education. When you have course questions and a discussion board, that's a way where you can ask your questions or submit your ideas. So, I know that with some of the course designs, you have a lot of avenues [including smart devices] to input questions [and create] engagement. (Participant IT, 2021)

As this theme has shown, creativity is profoundly important to technology, learning, and education—as the foundation for understanding how students learn and how to design meaningful educational experiences from this understanding. The next section explores participants' thoughts on how Dr. Reisman's and Dr. Betts' mentorship, passion, and courage have influenced participants' own pursuit and modeling of creativity.

Mentorship, Passion, and Courage

Perhaps one of the biggest ways Dr. Reisman and Dr. Betts have influenced their students, colleagues, and collaborators is through mentorship. In these mentor-mentee relationships, Dr. Reisman and Dr. Betts exude passion and courage that inspire all who cross their paths to pursue and actualize their highest creative potential. It might not come as a surprise, given the enormously deep and profound impact that both Dr. Reisman and Dr. Betts have had on their students, that both consider their greatest success to be their students.

According to Dr. Reisman, her greatest career success is “mentoring [her] students, who have emulated [her] approach to opening doors for others” (Participant Reisman, 2021). This approach has led to “exponential growth in the field because of her huge contribution” (Participant IT). For Dr. Betts, her “greatest successes are [her] students and greatest passion is student success” (Participant Betts, 2021). Both have worked tirelessly to “take students to conferences” (Participant IT, 2021)—thereby expanding students' networks—and “find ways to engage students in educational opportunities across all boundaries” (Participant Betts, 2021).

Participant IT (2021) described how Dr. Reisman's mentorship has influenced her own ability to mentor students as a professor:

[Dr. Reisman has influenced me], well, [in] pretty much everything. I am a professor now [and] what I take really seriously is that mentoring piece, I've even done research papers on mentoring...So I have the students, the teachers in the schools, mentoring our students and then I do that myself. You can see how much value I've found that in my life. I was totally transformed as a person by Dr. Reisman

mentoring me. That is valuable for people. [A mentor] is one of the most valuable things you can find, academically, personally. So that's huge.

Participant IT (2021) also described how Dr. Reisman's mentorship style results in helping students develop their network and focus on the "scholarship" of creativity and not just the application of it:

I've never seen anyone take so much time. I would call her, besides my parents, the third influential person in my life. She took time in terms of my professional and academic life, she made sure [I] learned what there was to learn. She introduced me to E. Paul Torrance, [and to] other people at the conferences...I watched her write grants [and articles]. I was around for all those facets of the scholarly work. So, it wasn't really just about "this is what creativity is," but "this is how to be a scholar." She was interested in sharing all those facets of developing the student to be ready for the next part. [Mentors] take the time to make sure the knowledge is transferred. I think that's the nugget: to make sure you [transfer knowledge to] next generation.

Dr. Betts' teaching style lends itself to a strong teacher-learner relationship. Through providing non-graded, personalized feedback, Dr. Betts pushes students towards excellence, helps her students reflect on and change their own pedagogical practices, and focus on the learning process:

She offers a tremendous amount of [feedback], so her feedback is critique. It is the highest level of critique, but before she engages in that, she will affirm you. She won't shame you while she is critiquing you, but she establishes a rapport and a relationship with her students. That is key to being able to not only stomach the feedback, but I see where we, as her students also begin to feed on it. We thrive on it. Then there's page-by-page feedback. I don't know how she does that for all her students, but that's the type of multiple points of contact [with the learner that] are also highly personalized. The personalization of her teaching and her reflecting as an educator on her own practices and willingness to change things based on the feedback of her students, that also gives us the freedom and permission to reflect and change our own practices as students and as educators in the field ourselves. The ungraded opportunities to learn really help us not focus on the grade and focus on the process of improving ourselves. It frees the mind. It decreases the amount of stress and just frees our mind to focus on, on the process and the content and absorbing it, relating to it, and making it stick and being able to retrieve it. (Participant D, 2021)

Dr. Betts' passion for her work is one of the first things her colleagues notice about her. This passion exudes from Dr. Betts and fuels her courage to keep taking action-oriented approaches. This passion is contagious and motivates others to contribute to the field:

She certainly encouraged me to take a more action-oriented [approach] and to be a little bit more courageous and getting out there and not always waiting or worrying [about whether someone says no]. She's just really, really, really courageous. It's encouraged me. (Participant L, 2021)

I have been working with Dr. Betts over the last one and a half years. I still remember our very first meeting via Zoom. Immediately, it was evident she is very passionate about how we learn best, keeping current in the field through research, and applying what we are learning in our own careers. She even has a way of presenting and discussing topics that spark an interest and give us more direction in our own careers and work. It is easy to see how she wants others to find deeper meaning by connecting and collaborating with others. (Participant E, 2021)

I have adopted Dr. Betts as my professional and academic role model. Why do I say that? Not only is she a highly intelligent scholar and researcher being innovative and creative, but she's also always so positive and motivated and her passion supersedes everything. It's beautiful when passion and career come together. The merging of those is evident [in her]. It's such a pleasure and a motivational drive just to be in her presence. I have invited her to virtually present to some of our faculty on universal design for learning. They were so inspired by her workshop that they couldn't wait to get back in the classrooms to teach. So that's amazing. For me, the very same thing applies. I can't wait to get to my research and apply what I have learnt from her expertise. (Participant U, 2021)

Beyond mentorship, Dr. Reisman's and Dr. Betts' ability to build relationships with each student and connect their students across their own networks has created exponentially linked, global cultures of creativity. For Participant D, Dr. Betts is the "academic Hitch," having a matchmaking skill that is rare in academia. Dr. Reisman and Dr. Betts are magnets for making introductions and encouraging students to get involved in areas outside of their comfort zones:

When you take Freddie and Kristen, they flourish when they're bringing other people along. They are magnets and they want to be magnets. They have very inclusive

personalities. They get reinforcement from the success of everyone and, they grow through that. It's like food for them. They feed on other people's energy and activity. They will go in and grab [creativity] out of people and pull on it, even when [people themselves] aren't even aware they can be innovative and creative. (Participant T, 2021)

Dr. Betts stands at the intersection of brain-targeted teaching and mind-brain science education [and] multicultural education. She has been able to make [multicultural education and a brain-targeted ap-

proach to teaching and learning] cross. That just blows the roof off any hindrance you thought you had. It just lifts all those ceilings. I don't really know how to convey this to you. To me, that is such a huge contribution to education. I mean, she does not look like me, but I feel when I look at Dr. Betts, that when I see her teaching, when she interacts with me, I feel as though I can see myself in her. As a Brown girl, I can't tell you how much that really means to me to have somebody present information to me or a video that sometimes [has a] Brown person in it. She invites panelists to speak to students to her class and the panel is multicultural. She pulls students forward, who would be left behind, not for lack of intelligence, but because people could not connect to them. She's teaching her peers how to do that, how to cross wide chasms, in a way they can receive it and are eager to change and transform their pedagogy. (Participant D, 2021)

Dr. Betts' has a willingness and persistence to just email people, if not totally out of the blue to email them with a pitch and say, "Hey, do you want to be part of this?"... We came from very different perspectives and [we] weren't always speaking each other's language. We got people from philosophy, we got people from education, and you know, when you, when you loop in people who are working to make their own contributions, there are areas where we have very defined professional stances and we have very good reasons for them and we are wedded to them we're not giving them up, and that's not a bad thing, that's a good thing, but that does mean that it is not as simple as getting some folks in a room and having a chit-chat. (Participant L, 2021)

Conclusion

This chapter has explored some of the exponential ways in which Dr. Reisman and Dr. Betts have advanced the field of creativity. "Dr. Reisman is obviously a giant in terms of creativity. Definitely, definitely we're standing on her shoulders, that's a hundred percent true" (Participant IT, 2021). As a "volcano of tremendous energy" (Participant L, 2021), Dr. Betts is constantly exploring one new idea after another (Participant T, 2021) and as a woman, helps pull other women forward by encouraging them and helping them focus on their skill sets (Participant D, 2021).

As students, colleagues, and collaborators of Dr. Reisman and Dr. Betts, we undoubtedly are standing on the shoulders of giants. As we understand what this phenomenal position means for how we discover and apply our own creative talents, we also learn how to empower others in our spheres to do the same. So, influenced by trailblazers such as Dr. Reisman and Dr. Betts, we progress. We develop the confidence to forge our own, unique journeys as we soar into the unknown, wide-open sky.

What advice do these trailblazers have for us as we soar? "Persevere—it works" (Participant Reisman, 2021). "Learn about the brain and neuroplasticity! Understanding the human learning process coupled with

cognition, metacognition, creative cognition, and epistemic cognition is transformational to our own learning and how we approach all we do in life” (Participant Betts, 2021). Dr. Betts also advises us to learn to love networking:

Networking is one of the greatest resources, assets, and professional tools for expanding your vision, potential, and opportunities that you may not even see at this time. The Colon-Ramos Lab at Yale University shares on its website, “The human brain consists of 100 billion neurons and over 100 trillion synaptic connections. There are more neurons in a single human brain than stars in the Milky Way!” Networking is much like the brain in that the connections we make over a lifetime are infinite. Much of my time is spent connecting students with researchers and faculty to expand their networks and new opportunities for learning, research, and their careers. I often ask my students and colleagues, *Who is in your “neural” network?* (Participant Betts, 2021).

As educational leaders, instructional designers, and course instructors—who are “not neuroscientists, but [are] one of the few professions that must make the brain change” (Participant U, 2021)—we face, and will face, pedagogical challenges as we soar. The decision and policy makers who integrate and amplify our work will also face these challenges. To tackle these challenges, we must see them as opportunities to persevere, collectively, collaboratively, and creatively, as we expand our networks and research by learning about the brain and neuroplasticity.

One opportunity facing education is “the effective teaching and learning of transferable skills, metacognitive skills, critical skills” (Participant U, 2021). Another opportunity is empowering individuals to discover, actualize, and amplify their own creative potential. As managers, teachers, professors, mentors, and businesspersons, we are tasked with injecting creativity directly into the workplace and helping individuals understand how they can apply creativity concepts to their everyday lives (Participant EDG, 2021). Another opportunity is measuring the impact of applied creativity in the classroom and corporation, to gain a deeper understanding of the types of environments that promote creativity and of how individuals actualize their highest creative potential.

These opportunities come with their own set of questions—questions that must be asked with passion, purpose, and courage—and questions lead us to creative solutions. Implementing these creative solutions make our world not just different, but better—and better for all. As we ask these questions, we have role models in Dr. Reisman and Dr. Betts. And with these role models, we, like they, will be unstoppable (Participant T, 2021).

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CHAPTER TWENTY SEVEN

JAMES MELVIN “MEL” RHODES: THE MAN BEHIND THE FOUR P'S OF CREATIVITY

JAMES OGUNLEYE & FREDRICKA REISMAN

James Melvin “Mel” Rhodes (June 14, 1916 – April 29, 1976) is purported to be the originator of the 4 Ps of creativity theory. However, it is pointed out that Ross Mooney, a professor of education at the Ohio State University, presented a concept of person, process, product and environment as a framework for understanding creativity to the Research Conference of Creative Scientific Talent held by the University of Utah in 1957 (see Notes 1 and 2 in references). Rhodes dissertation that included the 4 Ps was completed in 1956 and his earliest publication on the 4 Ps was 1961 in “An Analysis of Creativity”, The Phi Delta Kappan. So, here is a great example of creativity trailblazers simultaneously coming up with similar ideas.

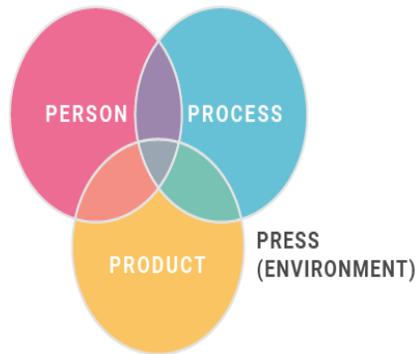
Biography

James Melvin Rhodes was born on 14 Jun 1916 to Waldo and Grace Davis Rhodes in Johnstown, Pennsylvania, as the second eldest of 7 brothers and sisters. He grew up in Cambria, Pennsylvania, where his father was a farmer. After graduating from high school he attended Juniata College in Huntingdon, Pennsylvania from 1934 to 1938 and earned a bachelors degree in 1938 with a major in sociology. He served in the army from 1941 to 1946 as a major in the China-Burma-India theater. Rhodes next worked as HR Director in the Johnstown tribune publishing company (1946-1947) and then became Dean and Director of admissions and placement at Juniata College (1947-1952). In 1948, he married Rhoda Catherine Metz, whom he met at Juniata College. He earned a masters degree in educational psychology at Pennsylvania State University in 1950, and subsequently received his Ph.D. in Philosophy (minor in Educational Psychology) in 1957 from Arizona State University (ASU) in Tempe (AZ). After completing his doctorate, he was appointed Assistant Professor in the College of Education at the University of Arizona in Tucson, Arizona in 1957. He was on the faculty of the Department of Education from 1957 to 1971.

4 Ps of Creativity

Rhodes created the 4 Ps (person, process, product and environment) of creativity and their application to creativity that supplied a classification system in lieu of a definition.

The “Four P’s” of Creativity:



Source: <https://rogerfirestien.com/4ps-of-creativity/>

Rhodes wrote in 1961:

About five years ago I decided to find the definition of the word creativity. I was interested in the imagination, originality and ingenuity. At the time I had collected forty definitions of creativity and sixteen of imagination. But as I inspected my collection, I noticed that the definitions are not mutually exclusive. They intersect and intertwine. When analyzed, as through a prism, the content of the definitions form four strands. Each bag has a unique ID in school, but only in the unity of the four strands operate functionally. (Rhodes, 1961).

Following is Rhodes explanation of the 4Ps (Rhodes, 1961):

The term *product* refers to thoughts that were shared with others in the form of words, paint, clay, metal, stone, fabric or other materials. When the idea is embodied in material form is called the product.

The term *process* applies to motivation, perception, learning, thinking and communication.

The term *person*, as used here, covers information about personality, intellect, temperament, physique, traits,

habits, attitudes, self-concept, value systems, defense mechanisms, and behavior

The term *press* refers to the relationship between people and their environment". This concept and the word "press" is quite common in the field of education.

Conceptualization of Creativity Using 4Ps

Studies on creativity have organized around, or classified under the largely overlapping themes of product, process, personality and the environment (*press*). The following paragraphs highlight a few examples of authors/work that may have been influenced by Rhodes' framework:

Creativity as a product. Pfeiffer (1989) defines creativity within the context of creative products, explaining that a person can be creative if s/he has the ability to realize creative products - usually the result or outcome of a creative act (originality). To be original is to be novel, with fresh and unusual ideas. Also to produce originality often means to be self-sufficient, indefatigable, and non-conforming in carrying out daily routine; and to be original is to be able to think a task or problem through to stimulate creative ideas (Jones, 1972). More so, to be original, a person must produce or create something new or think up creative ideas. Nilsson (1978) posited that such ideas do not have to be original to show evidence of creativeness. Originality can be enhanced through idea formulation and adaptation (McMullan, 1977). Idea formulation, McMullan explained, can be engendered through brainstorming, checklists, metaphorical thinking and morphology, while adaptation can be generated through attribute listing and analysis of existing solutions. The evidence of originality lies in a creative work which, as Pfeiffer (1989) argued, must be significantly new, unique and original, and 'fit' the intended purpose.

Creativity as process. Powell (1972) sees creativity as a cognitive process – how an individual uses and handles knowledge (Gregory, 1987) – which combines flexibility, originality and sensitivity to produce ideas that ultimately give satisfaction to that individual. The production of such ideas, however, need not follow the 'usual sequence of thought' of the individual nor should the process of creativity hinge solely on the discovery of a new 'product'. However, a rediscovery of an existing product might be seen as a sufficient evidence of creativity (Deroche, 1968). Forman & McKinney (1978), define creativity as the ability to deal with information in a manner that is productive and innovative. Cognitive processes such as idea finding, idea-recognition and the application of knowledge were found to be ingredients of process creativity (Reese et al, 1976). Also looking at creativity as a process is Mayer (1989), who defines creativity as the ability to solve problems that an individual might not have previously learned to solve. Mayer apparently sees no connection between a person's (prior) knowledge and his or her ability to apply the knowledge to solve a new problem, but his contention that process creativity is intertwined with a problem-solving ability accords significantly

with Morita (1992) who locates his conception on process and product creativity in the context of industry. He defined creativity as the ability to 'approach the unknown knowledge – to make a breakthrough' (p.13). Presenting the UK first Innovation Lecture in 1992, Morita lamented a certain lack of creativity in the college curriculum. Citing his company's (Sony Corporation of Japan) experience, he regretted that students' knowledge, in many cases, becomes stale and 'old fashioned' (outdated) by the time they leave colleges for work and that the curriculum has not adequately equipped college graduates to 'apply, analyse, study and approach the unknown' (p.13).

Creativity as a personality. Creativity has also been defined as an aesthetic cognitive and emotional operation which seeks to find solutions to a problem (Wason, 1968). Even though (this line) of definition of creativity embraces both cognitive and aesthetic activities, creative output will be shaped by the person's cognitive skills and their emotional experience. Fisher (1990) relates creativity to human attitudes and abilities which, together, 'lead a person to produce creative thought, ideas or images.' The emphasis in Fisher's submission is on intuition, something that a person has to use to make connections in a fruitful and productive way. In her study of creativity in Irish children, Lynch (1970) characterized creative children as ones who produced more ideas, more original responses; ones who set themselves high standards; ones who had a wider vocabulary, and ones who displayed superiority in capacity evaluation. Additionally, highly creative children were said to be open to suggestion, because they are suggestible by nature (McHenry and Shouksmith, 1970). A person's creativity is shaped by three main parameters, according to Davis (1989). They are attitudes (a reception to innovative ideas); abilities (of fluency, flexibility, and originality), and creative thinking techniques (which may include attribute listing).

Creativity as a condition of environment. Creativity, according to Rhodes (1961), is multi-faced and multi-dimensional, but does not exist in isolation. Creativity is a condition of the environment in which people live and operate: the environment nurtures, enriches, and sensorily stimulates human creativity (Cheyette, 1977; Taylor, 1971). A creative environment within the context of education can be defined as one which affords opportunities for learners to develop their creative potential; or one which enables a learner to establish creative interactions with the (college) body polity (Russel, 1971). The role of the environment in creativity can be one of a facilitator. The environment will facilitate creativity by providing students with adequate resources and other educational experiences to stimulate imagination; and by providing study experience which is motivating, challenging, and yet stimulating (Heck, 1978). Such an environment can be brought into being through 'sensory' stimulation, as well as through interaction between the organism and the environment (Taylor, 1971; Chambers, 1973). Later studies have also supported this assertion. Life & Wild's (1981) investigation of the development of creative engineers suggested that the creativity of engineers is affected to some extent by the environment (institutional variables) in which they work; and it is affected even more by the constituents (intra-team interactions) of the environment. Other features of creativity in the educational environment include

the existing knowledge of the students, their creative profile, and the structure of the curriculum, which might help to shape or nurture their personality (Ogilvie, 1973). The thrust of Ogilvie's argument is that a properly structured college environment – which sets out the ideology, the organizational structure, and the instructional practices (Brookover, 1982) – can be used to harness students' creative behaviour. The classroom learning environment can also impact on creative culture. In a study of the relationship between classroom learning environment variables and creative performance of students in three Caribbean countries Richardson (1988), found variables such as satisfaction and competition are not only desirable for creative output, but they can also nurture the development of students' creative potential.

Significant Contribution to Creativity Research

Rhodes contribution to creativity research is significant. Today more than 600,000 entries for the keyword “4 Ps of creativity” listed on Google and countless citations in the literature display tellingly the enduring importance of this concept to the field of creativity. Further testimonials are major international conferences and research projects which have been organized around the 4 P model. (source: <https://en.Wikipedia.org/wiki/>).

For the KIE Conference, the choice of Rhodes' 4Ps framework – Creativity: Process, Product, Personality, Environment & Technology – as the title for the 2013 creativity volume was our own contribution to cementing Rhodes' legacy.

Summary

Rhodes gave us a viable way to look at creativity. Because creativity is *transdisciplinary*, spanning across all disciplines, a systems approach is useful in understanding the nature of creativity from both research and application points of view. Rhodes and his 4Ps has refocused us from a hodge-podge of creativity definitions to a clearer understanding of creativity – and how to apply it.

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Notes

1: The Mooney reference is from an unidentified respondent in a blog written by the faculty at the International Center for Studies in Creativity. To learn more go to: www.buffalostate.edu/creativity

2: Thursday, March 15, 2012. Mel Rhodes: The Man Behind the Four P's of Creativity Written by Jon Michael Fox. source/<http://facultyicsc.blogspot.com/2012/03/mel-rhodes-man-behind-four-ps-of.html>

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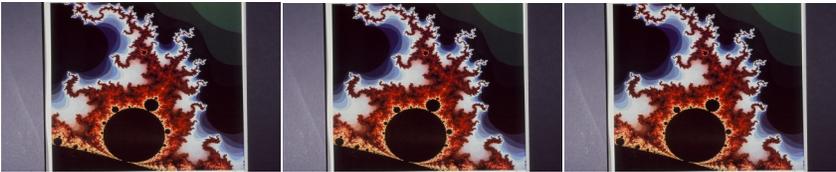
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CHAPTER TWENTY EIGHT

EVERYDAY CREATIVITY IS ABOUT YOU— RUTH RICHARDS AND EVERYDAY CREATIVITY

GAYLE BYOCK
WITH CONTRIBUTIONS BY RUTH RICHARDS



DYNAMIC BEINGS IN A NONLINEAR COSMOS (ACTUALLY PART
OF THE MANDELBROT SET)

I—Introduction

Overview

This and more has been said about Ruth Richards or her writings. Four examples:

...hopeful about the human condition with creativity at the heart of it...interweaves a broad spectrum of viewpoints, theories, philosophies, literature, research, and personal life experiences into a grand synthesis...

—*Sandra Russ, Distinguished University Professor,
Case Western*

Rather than viewing creativity as something you do...a key part of creativity is about who you are....refreshing take on creativity and its linkages to well-being and a life well lived.

—*Scott Barry Kaufman, Columbia Univ., and Beautiful
Mind Podcast*

Here is a unique and dynamic process look that can change how we see our lives.

—*James C. Kaufman, Neag School of Education,
University of Connecticut*

Our health and well-being depend on the kind of innovative thinking found in abundance in this book.

—Judith V. Jordan, Director, Jean Baker Miller Institute, Wellesley

I wrote once that if the moniker “Mother of Invention” had not been taken, it would refer to Ruth Richards. Trailblazing is exactly what Ruth Richards has done, starting with her education in physics and math (the only woman in her Stanford class to graduate in physics—and with Distinction, the top GRE math score and NSF Fellowship. She engaged other areas including arts, education, medicine, psychology, psychiatry, and more, and in the name of *creativity*, mainly at the University of California (U.C.) Berkeley and Harvard. She talks about many accidental encounters along the way, as important, and for all of us as well—sometimes including the sudden *bifurcations* of life. How could we know? These included suddenly meeting a Guilford divergent production test (science of creativity?—it changed her career plans), openings to study creativity and mental health/illness, chaos and complexity theory (going back to one key Aha!), relational cultural theory (RCT) and depths of empathy—this and more, as educator, psychiatrist, theorist, researcher, and writer, revealing many facets and huge potential of *everyday creativity*.

Ruth Richards, who has become a giant in the field of creativity, saw early that what she and colleagues at Harvard Medical School, including Dennis Kinney, called *everyday creativity* (the “originality of everyday life”) was not only foundational to what we all do, but implies a different way of life, and a healthy one. She and colleagues didn’t think this was new, but went back at least to Dewey, and to evolutionary biologist Dobzhansky and our “phenotypic plasticity” (1962; see Richards, et al., 1988a,b; 2018) among others. Included are major role models in J.P. Guilford, E.P. Torrance, and J. David Miller, Frank Barron and Ravenna Helson at U.C. Berkeley, with others later on. Happily even more colleagues, researchers, teachers, clinicians and creativity scholars today are showing an interest in the everyday (Villanova & Pina E Cunha, 2020). There is more to the story, which continues, but let’s stop with what Sawyer (2018) recently identified as one of “three historical shifts in creativity research,” for the 50th anniversary of the *J. of Creative Behavior* (in Sternberg & Kaufman, 2018) :

“...a shift from the study of world-famous scientists and artists...to the study of the creative abilities that are possessed by everyone, and used every day” (p. 288).

Cultural Myths. Cultural myths of what society defines as *normal* are often the cause of a block some individuals never overcome. For example:

- **Those poor creatives.** They use addictions to drugs and drink and kill themselves. They walk to the edge of the cliff... They depend on others to support them... They are missing out on life.
- **Those poor people who do not nurture their creativity.** They don’t want to walk to the edge and look over the cliff to see the vast-

ness of life and nature. They live in fear of being different... They are missing out on life.

- **“I’m not creative.** I can’t draw (or paint, or write, or sculpt) or invent or discover. Creatives produce something beautiful or useful that lands in a museum or on the moon or as a unique device, such as a computer....a special kind of thinking. I don’t have it.” I am missing out on life.

This chapter will challenge these and other stereotypes (e.g., you have creativity or you don’t) and false dichotomies about creative products and lives that still limit so many today.

The chapter author: Gayle Byock. Here is a little about me as author (and poet). The following accompanied one of my poems: “Gayle Byock was a university administrator at U.C.L.A. with positions such as Assistant Vice Chancellor of Research, and Assistant Dean of the School of Public Policy. At age 70, she returned to earn her Ph.D. in Humanistic Psychology and Creative Studies. She is developing a project using poetry to promote self-acceptance and self-empathy for women her age and older.” (*Note:* Early on, Gayle worked with the renowned poet Elizabeth Bishop at Harvard University.)

I got to know Ruth Richards (whom I will, with her permission, call Ruth) some time ago, read various writings and books, and even wrote for the *Creativity Research Journal* a review of her 2018 *Everyday Creativity and the Healthy Mind: Dynamic New Paths for Self and Society* (Palgrave Macmillan, 2018; winner of a Silver Nautilus Award, “Better Books for a Better World”). I believed in the good this approach could do (see Byock, 2019). When Ruth asked me about doing this chapter, I said *yes*, because I knew the process would also give me more insight into myself and others. I continue to establish “Circle” groups of women whose process creates “moment poetry” (fast and deep), with empathy, connection, self-compassion, mutual caring, and poetic expression of sometimes forgotten emotions.

This chapter. The project with Ruth evolved. In part to clarify chronology, we decided that she would add personal notes. For me to write about Ruth I also needed to hear her voice in a way different from what I knew. Ruth also said this helped her think about the issues differently. The process became fluid. Ruth also contributed to my portion where her expertise was needed. Ruth also wanted to include mentors and students. She shared an invited mentoring article (Richards, et al., 2011) where ten students/alumni had taken something internal to them and made it into much more. More recent mentees are named later, and will be in a future piece, one of whom, with disadvantaged kids, has used the Torrance Tests (1966) to give them new hope in life. Hence mentoring, as well as collaborating, theorizing, editing and integrating (Ruth has edited or coedited three books) have a part in “trailblazing.” Her students have continued to teach, research, and publish with her continued mentoring.

This chapter has three general areas after Part I, Introduction, while also ascending to a larger vision and a proposed *paradigm shift*.

I—Introduction

II—Health, Healing, and Education—The earlier years, and issues of creativity assessment, creativity and mental health, and what one can research with the right measures. A bicoastal journey includes clinical work with Relational Cultural Theory.

III—Everyday Creativity Means Paradigm Shift—This is not just about creative *product*, but *person and process*, and *press* of the environment, Rhodes’s (1961) Four Ps of Creativity. When we “turn the camera around” we find creating can change us too. We look at ethics, beauty, interconnection through NDS (nonlinear dynamical systems) and Who We Are.

IV—Our Reframed Futures—One moves into a full Kuhnian (1962) paradigm shift, at a cultural level, related to NDS, and for creativity too, while highlighting the new (Schuldberg, Richards, & Guisinger, 2021) coedited book, *Chaos and Nonlinear Psychology: Keys to Creativity in Mind and Life*, for Oxford. Then celebration of mentors and mentees, a summary, and a poetic surprise.

Here is the first personal note by Ruth, on Origins:



RR #1—Origins

Trailblazing? Seriously? Our “trails” develop strangely at times, with chance elements too. Happily more young girls today tread hillsides only boys once climbed. This helps us all realize our creative potential. Evidence supports (see Barron, 1969; Dacey & Lennon, 1998; Helson, 1999; Richards, 2007b) “androgyny” as typical in creativity, embracing all human qualities, and not gender stereotypic features or false dichotomies. We can have it all: intuitive and logical, subjective and objective, gentle and fierce, arts and sciences, whatever we want. Men lose out too, as in “big boys don’t cry,” or beliefs that feelings are weakness. Happily, creativity studies span all I’ve done: physics, arts, education, psychology, psychiatry—from working with equations to helping people.

My family included two younger—and also broadly inclined—brothers, a mom who did investing, loved numbers and charting, and intuitively knew what fractals were, and a surgeon dad who read Feynman’s famous physics “red books” for “fun.” He also did photography. My dad admired his own Aunt Flo, a maiden aunt who ran a farm despite getting (rare for a woman!) an M.A. in math from U.C. Berkeley. She died before I could meet her, yet became a shining myth. When I got the highest possible score on a math admission test for gradu-

ate school, it was not surprising—though we’d sure like to reeducate people who think only men can do this. My “B.S. in physics with distinction” from Stanford was a cause for celebration, though some peers found it “weird.” One classmate even said, “girls go to college to get an ‘MRS,’ not a B.S.”

Yet without maternal Grandma Helen, this piece would never have been written. She started me as young preteen doing visual art and contemplating “creativity” (then most often linked with the arts). She and Grandpa Fred were also shining archetypes for love and caring, involvement, empathy and psychological mindedness. My draw to the clinical, to empathy and mutuality, and to seeing a tie in “creative” interactions, in some sense started right there. Nor do young kids need to “silo” different fields of study and choose only one. They are curious about the whole world. Is “specializing” an amputation? I was lucky to have options. What has been your own personal road to creativity?

II—Education, Health and Healing

Section II addresses creativity assessment, creativity and mental health, and promise with new measures and research designs. It addresses benefits of creativity in education while shedding new light on seeming paradoxical links between everyday creativity and mental illness—more often about health. Relational Cultural Theory shows its creative power clinically in Boston, with an influence on theory and practice, back in California.

Creative Potential Found (in Science Education)

One cannot study creativity without defining it, and also grounding it in valid assessments. J.P. Guilford (1950), in operationalizing creativity assessment with his “divergent production” tests, started an exponential rise in creativity research. Ruth learned of this for the first time in a science methods class at the University of California, Graduate School of Education. She and others took a “divergent production” test. She didn’t even know “creative thinking abilities” were being proposed or studied across fields. This brought a moment of insight, and ended up changing her whole career path. Ruth did get credentialed to teach secondary education (physics, math, art—and curiously “anything to adults”), as planned, but ended up going on for a Ph.D. doing a dissertation in creativity assessment. Meanwhile, she used that credential to teach “Refresher English” to adults at the Oakland Army Base. While other things changed with luck, and opportunity, creativity studies was the career constant over decades. We turn to her note #2.

RR #2—Creative Potential Found! (in Science Education)

I can’t recall if Dennis Kinney—later collaborator—and I coined the term Everyday Creativity (“the originality

of everyday life”). But it started for me in 1969 in a science education methods class, at U.C. Berkeley. I remained a techie science type, who also did art, and wanted to (a) share science while (b) working with people. Meanwhile I wondered—in the post-Sputnik age of science teaching to “catch up with the Russians,” why kids were asked to get 100% on someone else’s test. Why not create questions of one’s own? Remember, this was also a time of great social unrest.

Sometimes a single event can make our lives take a 90-degree turn in a whole new direction. My thanks to our science methods teacher—and the incomparable J.P. Guilford (1975) who helped creativity studies take off like one of those NASA rockets. We tried a Guilford Divergent Production test. “Think of as many uses as possible for a ‘tin can’.” (It could also have been a Torrance creativity test.) But try it—keep going. Have fun.

For me, there was an Aha!—“Creativity” in a science class. It wasn’t just for the arts, nor eminent people. Might measures (e.g., fluency, flexibility, originality) predict for real-life creativity? You’d be surprised—even 50 years later (Runco, 2010). I did a dissertation on creativity assessment—and I wasn’t even planning a Ph.D. I was also inspired by my Dissertation Chair, the late John David Miller, Ph.D., an exceptional teacher and assisted him with a summer program for middle school teachers. How lucky we can be.

Are kids learning to generate ideas? Kaufman, Plucker, and Baer (2008, in Richards, 2018, p. 129) said of such assessments, “...there is a legitimate case to be made that divergent thinking is a key component of creativity and, more specifically, creative problem-solving.” Ruth practiced “discovery science” teaching which she reflected on years later (Richards, 2010b), offering her list of seven guidelines along with other wisdom for creative teaching. Her goal was to ensure that kids have freedom to explore and believe in their own curiosity. Recall too, Torrance and Myers (1971, p. 34) on “What made the difference” for kids in schools, and as we see later, common factors include “a responsive environment... a sensitive and alert kind of guidance... responding to children as they are or might become... rather than (how)... told that they are...”

In Boston, Ruth studied a model two-year college (Richards & Casey, 1979) and wrote on topics including educational measurement (Richards, 1981) and again, creativity assessment based on her dissertation plus further analysis (Richards, 1976). Not one to shirk from challenging accepted theories, she had asked (using multivariate analyses) how Guilford could have 120 abilities in his SI model, quite a few of them for divergent production, yet two other researchers, Wallach and Kogan only two. In fact, some answers are method-dependent.

However she became more interested, then and later, with a finding both she and Guilford (Guilford, first of all) found and reported. Guilford even responded to her article. Yet she believes no one else ever followed up on it. This pursuit still seems worthwhile. The issue involved “heteroscedastic” (here, rather triangular looking) scatterplots of variable pairs, such as a verbal intelligence measure plotted with a creativity (divergent production) measure, or a creativity pair involving fluency and originality measures. This might involve vocabulary or something else. Meanwhile *fluency* showed that “necessary-but-not-sufficient” relationship to *originality*. Scaling and a curvilinear component didn’t account for the effect.

Ruth had some undergraduate expertise with differential equations, calculus and more. She had been amazed how simple linear models in psychology often became a primary way of looking at data. What happened to other approaches? She commends J.P. Guilford today for using methods beyond the obvious.

Let us bring this back again to creative teaching. Prioritizing *fluency* allows kids to try many ideas, hopefully without fear of failure. Some ideas will end up paying off (heteroscedastic result). Young people who think only some—those famous people and never them—can be creative may never try. Some will tragically lose confidence in themselves and their abilities. Teachers alone cannot address this loss; parents and community are necessary partners (e.g., Doron, 2017). Teachers with their own creative processes and products are more apt to encourage their students (Reisman, 2017; Richards, 2018), a lesson for teacher training. This is a broader systems problem, and a major one. Finding one’s everyday creativity can change lives!

Assessment—What Is This Creativity Anyway?

Creative potential is essential for health and growth (Barron, 1969; Richards, 2010a). Yet how might this manifest in real life activity? Down the road, Ruth and colleagues, especially associate Dennis Kinney, Ph.D., were able to go further than others. Torrance (1972) for one had made a start, looking at manifestations across work and leisure. Frank Barron (1969) opened doors with *everyday creativity-friendly* criteria, and by engaging mental health issues. For Ruth, mental health questions deepened which teaching at Boston University, and also in co-leading a parent-adolescent group in her neighborhood. She developed an evening creativity class, with many teachers, while puzzling with them over definitions of creativity and effects on health. Why concern with creativity and illness? These teachers felt creativity benefitted their students.

Later, the creativity research Ruth started during medical school addressed just this. As part of it, the chance for instrument development and extensive validation came up.

RR #3—What Is This Creativity?

Teaching educational psych at Boston University School of Education, including a creativity class, we had spirit-

ed discussions about creativity and mental health, drawing from one required book by Frank Barron (1969). Wait—doesn't creativity help us? Arts therapies, creative coping, and all that? Why creativity and mental illness? We'd say, it's a balance—inspiration with adaptive functions to use it. Or per Barron: "the 'divine madness' that the Greeks considered 'a gift of the gods'...was not...something subtracted from normality (but)...something added" (p.73)

Dr. Barron had only two criteria for creative product: (1) originality, and (2) meaningfulness, useful anywhere: gardening, teaching, counseling a friend, gourmet cooking. It is new, and not random or idiosyncratic. It doesn't matter if people like it, or think it is useful. Creative process can join product too, as in one auto repair person; It's "less what they do than how they do it."

How do we assess this? The "we" eventually included Dr. Dennis Kinney, me and others, including staff and volunteers, at McLean Hospital and Harvard Medical School. We developed and validated (over years! with many meetings, discussions, and a party or two) some rigorous interview-based scales, for everyday creativity, The Lifetime Creativity Scales. I had started doing research at McLean during medical school and continued afterward. Remember, for everyday creativity you need to learn to spot it, however it emerges. It could even be drug dealing! Interesting elaborations included Kaufman and Beghetto's (2009) developmental Four C's (Mini-c is of special value in the schools, and Pro-C on the road to eminence). Silvia et al. (2014) developed an "experience sampling" approach. Runco (2018) worked with personal and authentic creativity.

The Lifetime Creativity Scales (LCS) (Richards, Kinney, Benet, Merzel, 1988; Kinney, Richards, Southam, 2012, including LCS; Shansis, et al., 2003, for Brazilian use after translation and back-translation) assess both Peak Creativity (highest in a major enterprise) and Extent of Creativity, in both vocational and avocational activities over the adult lifetime. The LCS could thus discount for bad luck or bad years if peak performance occurred significantly over other times. There are also three summary scales. Ratings are made on six-point scales from No Significant Creativity to Exceptional. Examples grounded each rating level. Raters were well trained, which is time-consuming, but with good to excellent inter-rater reliability. Validation participants (N = 541) included "control" participants from two studies, and another clinical subsample. They had been thoroughly interviewed on life activities as part of an extensive set of Danish adoption studies (e.g., Kety et al., 1978). With one subgroup these researchers were able to insert additional

questions, for even richer data. The work was funded by the Spencer Foundation. The kindness of Dr. Kety et al. made the work possible to begin with.

Activities ranged over unusual territory from unique homemaker activities, to creating a special chair for a disabled son, to amateur archaeology, to World War II resistance fighting. Of huge importance, validation results were clear and positive, across groups, including evidence of construct validity, discriminant validity from intelligence, SES, and education (It was *not* IQ making the difference), and convergent validity with moderate links to creativity predictors (the LCS was relevant to other creativity scales). There was clear separation of vocational from avocational creativity. Peak and Extent tended to correlate (not unlike fluency and originality).

High quality assessment was essential, to give a solid foundation to later findings in a whole new and highly controversial arena. Everyday creativity was explored in relation to personal/family history of major psychiatric disorders, for a bipolar and a schizophrenic spectrum. There seemed to be some connection. But what was it? Lacking such a general measure this creativity-psychopathology work in the general population had never been fully tested. Results could bring new hope (at best) to literally millions of everyday people at risk.

Compensatory Advantage

Creativity is often mistakenly (and dangerously) lined with mental illness as if “the sicker the better.” Here is a *linear* model at its worst. Is it the “more opiate the better”? We had known more about eminent than everyday people (e.g., Goodwin & Jamison, 2007; Kaufman, 2014); Jamison, 1993, 2017; Richards, 1981; Runco & Richards, 1997), or about linked traits measured in more general populations (e.g., Schulberg, 1990). We do indeed see the beginnings of nonlinear models of *balance* between factors of inspiration and flexible controls to adapt this to reality (e.g., Carson, 2014; Kaufman, 2014; Richards, 2018; Schulberg et al., 2021)

A genetic example of compensatory advantage is sickle cell anemia. The person with the full syndrome can have painful crises and an early death, a dreadful situation. However the carrier, with one allele, may have only a mild anemia. Meanwhile the advantage is very positive, *resistance to malaria*. The psychiatric disorders studied have some genetic contribution, although less than sickle cell, and the genetics are likely more complex. Still what if there is an evolutionary advantage linked to *everyday creativity*? Particularly in the “better functioning”?

Several groups were studied, looking at creativity for people with personal and/or familial risk of bipolar disorder, and in other studies for schizophrenia spectrum and depression. Here the bipolar results will be given in detail, since the unique exacting method is what makes the results believable and important. But first another personal note.



RR #4—Compensatory Advantage (It's About Health)

I found even more good fortune as fledgling medical student at Harvard. I heard a talk by “psychobiologist” Steven Matthyse, Ph.D. from McLean Hospital and Harvard Medical School, on genetics of psychiatric illness. Wow! Brilliant guy. Another polymath, too, combining math, psychology, neurology, physics, evolutionary biology, and more (yes even arts). Of course I start thinking “creativity.” Long story short, I started assisting Steve on his work (e.g., Matthyse et al., 1978; Morton et al., 1979), later getting an Asst. Attending Psychologist appointment (while still a med student!).

Meanwhile I had met Dr. Dennis Kinney, as well as Dr. Seymour Kety, Director of the McLean Labs for Psychiatric Research. Steve and Dennis were looking for a possible compensatory advantage, within schizophrenic “high density” families, using a “sickle cell anemia” analogy. I quickly wondered about creativity. We ended up—through the good graces of Dr. Kety, and a monograph I’d written (Richards, 1981), working with data from his Danish Adoption Studies of major psychiatric disorders—adding everyday creativity to the mix. This was also the stimulus for developing and validating our Lifetime Creativity Scales. Marvelous that the greatest benefits were in “better functioning” people at risk. Results apply widely to millions of diverse people in everyday life. I stayed on as clinician and researcher at McLean Hospital into 1993.

These were *not* adoption studies but Ruth and her group did benefit from that well ascertained and large population. Identification of relatives, including psychiatrically “normal relatives,” was high. Diagnoses were carefully done by a Danish psychiatrist, as was in depth interviewing. Everyday creativity ratings were performed “blind” by raters in the USA where all other data was masked out from the extensive interview transcripts, except what was used for the ratings. Thus no Danish clinician knew anything at all about the creativity work and no creativity researcher had any idea if a participant was even from a control or index group. If the latter, raters had no idea about any psychiatric diagnosis, among other things. Remember this was the first everyday creativity study to select participants by diagnosis. Important! Everyday creativity was the *dependent variable*—however it might emerge.

Using DSM-III there were 17 people diagnosed manic-depressive, 16 cyclothymes, 11 normal first-degree relatives, and 33 controls, 15 “normal” and 18 with another diagnosis, for 77 participants, total. Control variables were sex, education, age, and intelligence. Orthogonal contrasts showed: (a) index subjects were higher than controls ($p < 05$), (b) no significant difference between normal and ill *controls*; (c) suggestively higher creativity among “normal relatives” than manic-depressives ($p < 10$). The high

scoring cyclothymes fell close to normal relatives. *Most surprising beyond the “better functioning” of high creatives is the high creativity for “normal relatives.” It needn’t be about illness at all! See the diagrams, next two pages.*

Other studies were done with similar care (Kinney, Richards, et al., 2000-2001; Richards, Kinney, et al., 1992). The first was covered in the New York Times (Goleman, 1988) and also by a *Science* reporter, leading to a response (Kinney & Richards, 1986). Schizophrenia results led to a special issue of *The Creativity Research Journal* (guest edited by L. Sass & D. Schuldberg) including the key paper (Kinney et al., 2000-2001) and Concluding Commentary by Ruth. Former First Lady Rosalynn Carter, invited Ruth in 2004 to take part in a “Conversations” evening, to combat “stigma,” where she spoke on Arts and Self-Expression in *Mental Health*, with events by remarkable artists, writers, drummers, also broadcast on Georgia Public Radio.

**BAR GRAPH SHOWING
NONLINEAR “INVERTED-U” RELATIONSHIP
FOR CLINICAL GROUPS WITH EVERYDAY CREATIVITY**

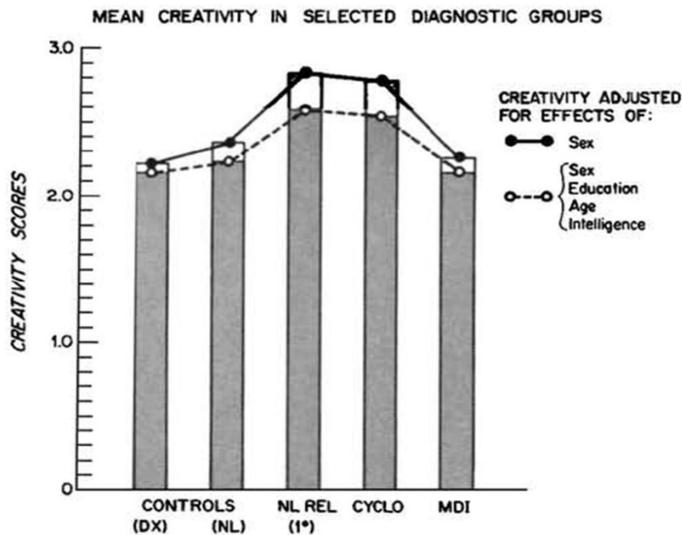


Figure 1. Mean Overall Peak Creativity scores for (a) controls with a diagnosis (DX), normal controls (NL), (c) normal first-degree biological relatives of cyclothymes and manic-depressives (NL REL), (d) cyclothymes (CYCLO), and (e) manic-depressives (MDI).

Here is our creative “compensatory advantage” as a function of **personal** or **family** clinical history, by group. The “**better functioning groups**” shows the creative advantage. Family history is important for “normal” relatives. The “inverted-U” pattern, and its everyday creative high point, persist even when “control variables” (including education and “intelligence”) are consid-

ered. This is important not just for a handful of eminent (and probably high functioning) people in a homogeneous field such as literature or math; *it can potentially generalize to anyone. It can perhaps also bring hope to millions. What if creating could favor resilience and health? More longitudinal work is needed* (Kinney & Richards, 2014; Richards, 2010a). –RR

NONLINEAR BALANCING for CREATIVITY?

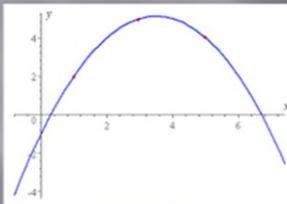
Our Personal “Inverted-U”

How do our “better functioning” people (or people during better functioning times) **use** their creative “compensatory advantage”? How do we? This is a different “inverted-U” and question. How to ascend to the creative top of the curve, balancing factors that can take us there? Can we move like an athlete “in the zone”? We may be balancing inspiration and the adaptive ability to use it well. It’s a DANCE. Let’s join the Cat in the Hat. We can all do this.

The Cat is on a ball. The Cat is delicately balanced, along more than one dimension—front, back, etc. In a simpler model—e.g., optimal tension for performance—two variables might suffice. Up means strong performance! Anxiety? “Low-medium” might be optimal. Too little and we sleep; too much, and there may be overwhelm. We seek that nonlinear sweet spot. The variables we balance can be multiple for creative lives. See Mike Arons (2007) and our life as a three-legged stool. Openness, enthusiasm, attention, whatever it is. We may be on the edge of tipping—a delicate balancing at a creative “Edge of Chaos”? We do the dance; we “go up” to create. We may know the feel for creativity but haven’t named it. Up we go! See your creative self on that BALL? We thank the Cat but do feel sorry for the fish. –RR

CREATIVE BALANCING ACTS

Delicate balances for maximum creativity...in a NONLINEAR WORLD.



- Anxiety and performance
- CS/UCS balance and useful insight, or
- “Regression in the service of the ego” or
- A little weird with loose adaptive controls, or
- Openness to experience (OE) with adaptation
- Low Latent Inhibition (LI) with adaptation
- (LOADED GUN BUT THE SAFETY IS ON?)...naaah not to pathologize. New normal!



Joys of Self-in-Relation

Ruth had the good fortune, back in 1982, to be assigned an exceptional clinical supervisor during her clinical training, Judith Jordan, Ph.D., one of the founders of what was then called “Self-in-Relation” Theory, or relational psychology, and later expanded to become Relational Cultural Theory (RCT). She also worked with the remarkable Irene Stiver and Jan Surrey. Some of Ruth’s formative experiences with her maternal grandparents resonated deeply. It became clear this was about the fresh spontaneous dance of creative relationship (i.e., original, meaningful). If we are really present for each other and changing in relation, we are surely being spontaneous, original, risk-taking, and innovative. Ruth kept in touch with Judy Jordan over the years and she wrote the Foreword to Ruth’s 2018 book. It is significant that she was one of five Harvard scholars who met with His Holiness the Dalai Lama (as she reports in the Foreword) as part of the longstanding Mind and Life dialogues. Some core concepts of RCT as theory and therapy (Jordan, 2010, 2018) include:

- Growth through and toward relationship
- Movement toward mutuality rather than separation. Mutual empathy and mutual empowerment are at the core of growth-fostering relationships.
- Authenticity is seen as a necessary quality for real engagement and growth.
- Growth for all parties occurs in growth-fostering relationships—not a one-way street. (Note: consider this in therapy!)
- Relational competence increases over the lifespan.

If these seem resonant with other movements such as humanistic psychology, Rogerian therapy, or Eastern philosophy, and perhaps also Buber’s *between space*, it is worth looking deeper (see Richards, 2018). In general, empathy, compassion, caring are key parts of these ways of knowing and growing. One also sees in RCT, and its further growth in diversity and inclusion an authenticity in speaking up and validating diverse others that helps in social justice situations, including imbalances in the status of women, honoring qualities (such as empathy—a human quality) which have not been adequately celebrated. A clinician friend of Ruth’s in California wrote about first learning of RCT in Boston:

I don’t know how I first heard about the Stone Center and Judith Jordan’s work...I’m guessing sometime in the ‘80s...I ordered some monographs from the Stone Center....The ideas and messages were so powerful. The work blew my mind. It informed my clinical practice. It informed my life view, of men and women, of myself as a woman. ...When you read something that’s so intuitively correct, that shows you yourself and your world in a way which enriches you and teaches you at the same time, it’s a very intense experience. (JRK, Personal communication, May 16, 2021)



RR #5—Joys of Self-in-Relation (& Work That Cares)

Wow! Dr. Judith Jordan, a key founder of Self-in-Relation theory, became my clinical supervisor at Boston's McLean Hospital/Harvard Medical School. (See her Foreword to my 2018 book). It was 1982. Cynthia Robb, Pulitzer Prize winning journalist, framed things well for the time: "Relational ideas and practices were effects of the global social movements for civil rights, against the war in Vietnam, and for women" (2007, p. xvi). Although men were also limited by Western culture, women were especially disempowered and devaluated including for strengths such as empathy. (Today, we know empathy is found across species, shown to manifest "mirror neurons," and plays an active role in early brain development.)

In 1975, that 3 powerful Boston groups were changing the dialogue. The first, the focus here, was: (1) Jean Baker Miller's Harvard Self-in-Relation group, originally established for women, later men, couples, kids, diverse ethnicities and cultures, renamed RCT, Relational Cultural Theory, and based at the Stone Center, Wellesley. There was also (2) Judith Herman's startling work on women's hidden histories of trauma and abuse; and 3) Carol Gilligan's research on women's vs. men's values. After residency, I stayed on at McLean Hospital, as researcher/clinician, working in part on an RCT inpatient unit (Richards, 2007b). Dr. Jordan today is Director of the Jean Baker Miller Training Institute, at the Stone Center, with a 2nd Edition APA book on RCT (2018). The series editor called RCT "one of the ten most important psychological theories today" (p. xviii).

Was RCT also creative? Absolutely. Returning to CA, I gave a summer workshop on RCT at U.C. Berkeley summer school, which remarkably led to an invite to teach in China for a year (year of U.N. 4th World Conference on Women in Beijing, but I'd started a private practice and couldn't leave). I chose instead teaching and the breadth of humanistic psychology, at Saybrook University. The 2007 Everyday Creativity book I edited had RCT-resonant issues, notably from Riane Eisler and David Loye. Things were changing.

A note on Buddhism, since it later became a primary influence for Ruth. (She considers herself Interfaith with a primary Buddhist practice.) Buddhism shares many aspects of empirical science (see Hasenkamp and White, 2017), *Monastery and the Microscope*, for a report on the twenty-sixth Mind-Life Institute Dialogue with HH Dalai Lama; see Richards, 2018). One

is asked to explore consciousness experientially. Buddhist philosophy has its own underlying resonance with the interconnected and evolving relational model for some RCT practitioners. This is not about a religious commitment, but a deepening of ways of knowing with wisdom and compassion for all beings. Ruth feels fortunate to have unintentionally encountered an extraordinary Zen Master teacher (and later a Rinpoche teacher too) later wrote about Eastern wisdom as resonant with events on an RCT inpatient unit (Richards, 2007d), and in general (Richards, 2018). She reports how, when she mentioned fractal phenomena (part of NDS) to the latter, a delightful presence, he laughed and said, “Of course!” What better validation, she says. Eastern views fit better with certain worldviews than mainstream reductionist Western models

Ruth relocated back to California in 1993, with work that came to include 25 years of salaried teaching at Saybrook University, where she also served as Faculty Co-Chair and in other administrative roles. Saybrook was the premier alternative school in Humanistic Psychology (at least if you asked the faculty and students). It had a major presence at APA, the American Psychological Association, in one year having four divisional presidents, and boasted internationally known and highly published faculty, out to change life and culture for the better.

Ruth’s edited book (2007), *Everyday creativity and new views of human nature: Psychological, social, and spiritual perspectives*, published by APA, presented chapters on both individual and social issues in creativity. The concluding and integrating chapter, by Ruth, included 12 integrating themes, developed through formal qualitative content analysis of the chapters, with extensive discussion of each. As an “APA bestseller,” the book sent the message of *everyday creativity* far and wide.

Chapter authors included David Loye (2007, 2021) on Darwin’s Lost Theory, itself paradigm shifting. Darwin—as unknown to many—was committed to empathy, which he called sympathy, along with love and collaboration. Neo-Darwinists in the vein of Herbert Spencer used “nature red in tooth and claw” and “survival of the fittest” in the service of ends including even pitting humans against each other. Primatologist Frans deWaal (2009) among others supported a kinder Darwin (see also Richards, 2007, 2018, 2021). It is distressing to witness history distorting a key figure, never mind erasing brilliant women and members of other groups.

Another author in this new book was Riane Eisler, who wrote *Chalice and the Blade*, and whose psychosocial work on “partnership” boldly redefines, equalizes, and integrates gender roles, and provides a road map to a healthier future. Both are also involved in chaos and complexity theory (Eisler, 2021). At last, some new awareness; views were changing.

Twelve Potential Benefits of Living More Creatively “When I’m Creative I Am...”

Characteristic	Selected Features
1) Dynamic	Process-oriented, seeing change, and knowing oneself as process and part of a larger evolving system.

- 2) Conscious** Aware of and attentive to present experience with attention to self...and environs... as per one's focus
- 3) Healthy** Following a lifestyle ...sound and sustainable physical and psychological functioning ...internal balance and harmony... active participation...coping with adversity.
- 4) Nondefensive** Alert to unconscious, conscious, and environmental forces that can restrict our inner awareness...working to limit these.
- 5) Open** Welcoming new experience without, and unconscious experience within: aware, intuitive, sensitive, bypassing preconceptions.
- 6) Integrating** Across...sensory modalities...states of consciousness... multi-perspectival enjoying complexity, integrating toward simplicity, aware of how much we miss in consensual reality.
- 7) Observing Actively** Whether physically passive or active, engaging in conscious, active mental participation as audience or observer, in dialogue with the observed, goal related at times, and open to the demands of the new.
- 8) Caring** Guided by values and concerns rooted in love, compassion, and greater realms of meaning; aware of... interconnection and unity
- 9) Collaborative** Working with others toward broader goals, resolving conflicts, honoring uniqueness as part of a larger picture we co-create.
- 10) Androgynous** Bridging false dichotomies (e.g., both sensitive and assertive, intuitive and logical, gentle and strong) open to as yet unknown...ties...beyond stereotypes.
- 11) Developing** Aware...personal development...species evolution (biological, psychological, cultural, biotechnological, spiritual) is ongoing... in part conscious ...together ... separately...a larger dynamic picture of change which can persist...
- 12) Brave** Accepting and even welcoming risks of exploring the unknown, ranging from sudden surprise to new and life-altering paradigms, with trust in the greater good, embracing the mystery.

- Richards, R. (2007b). In *Everyday Creativity and New Views of Human Nature* (p.290).

Part II—Everyday Creativity Means Paradigm Shift

We focus on all of Rhodes's (1961) Four Ps of Creativity, beyond creative product to look at person, process, and press of the environment; creating happens here too. Environment can have a complex relationship, at times perhaps even with epigenetic effects. These four sections are longstanding preoccupations for Ruth, getting fuller expression during teaching and mentoring in an interdisciplinary humanistic psychology setting. Ruth helped found specializations in Creativity Studies, and Consciousness, Spirituality, & Integrative Health.

Ethics of Creativity

“All else being equal, can creativity help us become better people?” This was a motivating question for Ruth in an APA presentation for a symposium organized by Seana Moran and then contributing to Moran, Cropley and Kaufman's coedited (2014) *Ethics of Creativity*. We need more books like this. What is our creativity *for*? We hope not just for new weapons systems.

Better people?—If one goes back to the 12 healthy integrating themes for everyday creativity (Richards, 2007) one sees how this might occur. What is the effect on a creator of living with greater curiosity, openness to experience, conscious awareness, lower defensiveness, higher bravery, and risk-taking? May it be researched carefully. For now it is a hopeful message.

RR #6—Ethics of Creativity

Proposal: All else being equal, creating can help us to become better people.

How could a person say creating improves us? with all the harm creators have done—through aversion (e.g., war, personal violence), greed, (e.g., a Ponzi scheme), or ignorance, (e.g., Manhattan Project scientist, Richard Feynman, on the atom bomb, later said we “just stopped thinking” (in Richards, 1993, p. 169)). Yet what if creating can change us, too, the creator, in positive ways. Here is where we can “turn the camera around” to look at ourselves. If we become more aware, open, nondefensive, and brave, isn't that a good start?

*Ethics of Creativity are a long-time concern, and I have explored the area theoretically (e.g., Richards, 1993; 1997, 2014, 2018, 2021), and by bringing together voices in edited books (e.g. Runco & Richards, 1997; Richards, 2007). These are new issues for some people. Yet we research personal and physical health. Why don't we also pursue cultural, social, and environmental health? I have cheered on colleagues' edited books, e.g., Moran, Cropley, and Kaufman's *Ethics of**

Creativity, or Cropley, Cropley, Kaufman, and Runco's Dark Side of Creativity. RCT clearly prioritizes caring and social justice across difference. In humanistic psychology Maslow's self-actualizing creativity honors many positive and creative qualities. Yet we also see remarkable claims such as "creative identity entitles dishonesty" (Vincent & Goncalo, 2014). Can we not put more energy into resolving such contradictions?

Ruth has also looked, more broadly, at creativity in evolution, even speculating on when in the almost 14 billion years our awareness may have come forward. She raises meta-awareness, such that we might consciously change our processing (see Richards, 2018). Ruth adds remarkable energetics—yes, energy!—for different stages of a long series of hypothetical emergencies (Goerner, 1995; Morowitz, 2002; Richards, 2021a) as life came into existence and developed and complexified. Ruth added creativity to the following table of energetics below! There are varied arguments for creativity's role in hominid survival and progress (e.g., Gabora & S.B. Kaufman, 2010; Richards, 2018). May there not be evolutionary implications in these energetics too; one suspects, some sort of overall benefit, or greater good, in such a pattern.

Accelerating Energy Flow

Structure	F (Ergs s ⁻¹ gm ⁻¹)
Milky Way	1
Sun	2
Earth's climate	80
Earth's biosphere (plants)	500
Human Body	17,000
Human Brain	150,000
One may add for this book a further breakdown of the human brain category:	
Less creative	(reader can make estimate)
More creative	(reader can make estimate)

Goerner, 1995, p. 12, **Table 1.1**; adapted from Chaisson, 1987, p. 554)

Going Higher: Beauty, Awe, Awareness, Spirituality



Ruth has published on beauty and awe since 1999, and has a major paper in the *Journal of Humanistic Psychology* from 2001, *A New Aesthetics for Environmental Awareness*. She challenged Kant, suggesting beauty (and awe) might have an agenda. She continues this work today (2018, 2021). Ruth (2001) found Eastern philosophy also could add to this view.



RR #7—Going Higher

Here are other long-term, issues for me, and maybe for you too. Beauty is one and especially the beauty of nature. It's not just a few of us who are drawn to it. Might we, across time and culture, be primed to respond? Might such experience (as we keep saying) change us? The return to California was significant too after an unexpected meeting and ongoing contact with an exceptional Zen Master. Again the unexpected can change our path. Soon, Eastern philosophy joined the creativity mix. A key paper for me was "A New Aesthetic for Environmental Awareness: Chaos Theory, the Beauty of Nature, and our Broader Humanistic Identity." (2001; see also Richards, 1999). I am still working with beauty, awe, and now environmental issues (see Richards, 2018, 2021), and was there ever a better time?

Immanuel Kant said beauty needed no reason. We simply get pleasure. Yet I proposed a reason anyway, at least for natural beauty, and a response we didn't necessarily ask for, while consistent with Eastern wisdom: awareness. Our environment calls to us. People seem to respond to natural beauty across cultures, and it plays a role as well in multiple wisdom traditions (Richards, 2018). Add to this, moments of awe, when phenomena surpass our capacity even to take them in, to begin to accommodate. Yet we look, we are drawn forward, we care. Psychologists keep

learning more about awe and natural beauty (e.g., Keltner & Wilson 1993; Loori, 2004; Margulis & Sagan, 1997; Prum, 2017; Shiota, Keltner, & Mossman, 2007; Williams, 2014; Zausner, 1999), including effects on self-concept, altruism, health, evolution, spirituality, and more. There is much we don't yet know.

Can nature's beauty enhance our conscious awareness, our mindful presence in a moment? (Richards, 1999, 2001, 2018, 2021). More than that, might it even be a way nature is calling to us, evoking attention, positive involvement, and growth—a hope to be explored.

Ruth's concern resonates with this author, in working with women to write "moment poetry"—capturing flashes of insight that can inform us about what's on our minds, but not obvious in conscious thoughts. May these emergent insights too speak new truth, and in beauty.

Further, there is *awe*, with its potential for overwhelm of our usual resources for comprehending, for accommodation. Yet we respond. Our sudden astonished reaction, bringing awe, wonder, and hopefully humility, also shows promise, e.g., for lessening concern with self and for boosting altruistic tendencies (Keltner, 2009; Shiota et al., 2007). Might this powerful engagement, asks Ruth (2021) draw us into greater connection with life and nature with a desire to help, born of a natural connection, and not fear or guilt. This seems a vital question today.

Here are ten key and supporting points from her 2001 paper that could help draw people in, out of wonder and caring, in this worrisome period called the Anthropocene (Kolbert, 2014) We humans have created so many of the problems and crises ourselves—including species loss, forced migrations, and natural disasters, even now not recognized by certain "climate deniers."

A New Aesthetic for Environmental Awareness: Ten Summary Points

1. **Beauty can change us** attract our attention, bring us into the moment, modify our minds and memories....be adaptive for individuals and for cultures.
2. **The fractal forms of nature hold particular aesthetic appeal** they can bring us in astonishment to view the fingerprints of chaos...bounded forms of infinity encoding the infinite life possibilities latent in the strange attractors of nature.
3. **These fractal forms can hold a curious familiarity** the clouds, the trees, the mountains ...could these somehow resonate with homologous structures in our own minds and bodies?
4. **These ... are not static indicators** rather, the dynamic and multiple forms of ongoing life processes through time and across space....

5. **We have chosen our own aesthetic moments** how significant that we have...across cultures...chosen...so many of the same fractal forms of nature.
6. **Some find in nature a reverence ...** they can lose themselves in... more expansive realms and the profound interbeing of all that exists.
7. **Yet we humans can also avoid and ignore areas of danger and conflict** when we feel helpless and ... even collude ... in turning away from global threats...
8. **Aesthetic appreciation can bring us new hope; it can entice and please us** while raising our awareness.... Out of this ... may be born both caring and responsibility.
9. **... data suggests a general human preference for fractal forms ... and a possible preference in creative persons for ... higher dimensionality** (NB: This merits further study because *creativity and aesthetic awareness ... can be enhanced in all of us.*)
10. **The future may hold a “nonlinear revolution” and an “evolving ecological vision”** that will help us appreciate our integral role ... and need to care for the health of this greater whole.

- Richards, 2001, *J. Humanistic Psychology*, pp. 89-90.

Change and Surprise: Nonlinear Dynamical Systems (NDS)

It is rewarding how many people now are wanting to learn about chaos and complexity. It is becoming part of the culture. There have been movies based on this, e.g. Jurassic Park. The fractal forms of nature, and formulae that generate fantastical and beautiful fractal structures, such as generated by the Mandelbrot Set, have found their way onto T-shirts, calendars, even COVID-19 pandemic face masks! Here is the relevant personal note:



RR #8—Change and Surprise

What is this “paradigm shift”? We speak here of “NDS,” nonlinear dynamical systems, chaos and complexity theory (see later for our new edited book for Oxford—where paradigm shift is predicted by multiple experts). Our creative lives are fine examples of NDS. Kuhn (1962) said history, politics, and more may affect timing of a shift but “the technical breakdown...remain(s) the core of the crisis” (p.69). The data is huge for NDS.

Ready for a new worldview? Among other things, I did a chapter for our 2021 co-edited Chaos and

Nonlinear Psychology book that unpacks aspects of creativity using NDS constructs. Example?—creative insight! One may note how our mental activity, and surely creativity, above many other phenomena, increases complexity, and moves energy. One of us humans is often creating this complexity! Is it our “evolutionary role”?

For me an NDS interest goes back to Dr. Steven Matthysse, at McLean Hospital and Harvard in the 1980s, who first showed me a “fractal” pattern looking just like a tree (nonlinear image with “self-similar” features, trunk to limbs to branches to branchlets to twigs and shoots, and theoretically onward to an infinity). Only it was not a tree. We intuitively know this pattern—our arteries and veins, the neurons processing this sentence, even the inorganic!—a river delta seen from outer space. I’ve published on NDS since 1996, even a 2000-2001 Creativity Research Journal lead theoretical piece linking features to Guilford’s SI model! Thanks to Mark Runco for early insight into the value of chaos and complexity, in psychology.

Also, fueled by fascination with Wallas’s (1926) “intimation,” by what Briggs and Peat (1989) called “nuance” in creative knowing, and linked to a potential fractal organization of mind (e.g., Marks-Tarlow et al., 2020), plus what you and I actually experience in creating, I started a still ongoing “Seeds of Creativity” qualitative interview study (Richards, 2015; Goslin-Jones & Richards, 2018). See 7 preliminary themes below (p. 86).

More will be said about NDS in Section 10, on the forthcoming Chaos and Nonlinear Psychology book. Ruth is one of three coeditors. Chief Editor, David Schuldberg not only is a longtime NDS scholar, writer and researcher but has been President of the Society for Chaos Theory in Psychology and the Life Sciences. Shan Guisinger is a talented expert, and she also has longstanding expertise in evolutionary biology.

Let us end this section with two museum experiences that highlighted Chaos and Complexity for a general public. The second is from Ruth, and the first is a life changing insight and *bifurcation* from the present author.

Gayle: I was in Paris in 2018, and attended an exhibit The Chaos Theory. I did not know what to expect. I thought I’d understood the phenomena intellectually, but I had not “felt” what it was. The artist Ludo combined technology and nature in strange ways: butterflies with technological roughness, perhaps from our own machine world, inside, and other examples of. Strange insides that we cannot see with the eye. A shift occurred for me, suddenly, as I walked through... It

jarred me and changed the way I look at nature... I began visualizing the aspects I cannot literally see. This seems a small occurrence, *but it changed completely my view of the world.*

Ruth: I was honored to be asked to contribute to an art show at the Oakland Museum of California, *What is Art For? William T. Wiley & Mary Hull Webster & 100 Artists* on “The Stage of Evolution,” 1999. This show enacted art as a voice of the community. I assembled a group of creative Saybrook students, alums, and colleagues (Richards, 2007a), for a multi-media evolving and audience involving chaos and complexity theory event. Included were artists, clinicians, OT and disabilities specialists. Amidst a talk with changing colorful fractal images, each had a short mini-talk or live demo with audience members. Meanwhile, three dancers (Dassie Hoffman, Ilene Serlin, and Margie Torres) *improvised throughout the whole event, reflecting what was happening, the recursive audience reactions and subsequent effects of those.* My then 9-year-old daughter and a friend were circulating wearing buttons which said **What is Art For? Ask me!** A chaos theory poem my daughter helped inspire and create for the show’s book is also directly below. At the end, attendees and audience did an undulating and joyous spiral dance circling the room. *At times we need to do it to know it.*

“We Are All Creative...”^a

WE ARE ALL CREATIVE
 and we are all artists whether we are viewing art or making it. We are open
 Systems
 EVOLVING AT THE EDGE OF CHAOS
 in resonance with each other
 IN OUR EVERYDAY LIVES.
 Our artists are our helpmates, bringing us images, metaphors, and
 meanings that speak to our depths,
 and call forth new visions.
 WE SEE WORLDS
 Unimagined
 AND HOPE
 at last for this one. We find understanding
 AND BEAUTY AND
 the bridging of conflict and distance which heralds
 OUR DEEPER SELF.
 We are transformed in turn and
 WE SPREAD THE VISION THROUGH OUR

own unique expressions be they in conversation or painting. Our museums serve as NERVE CENTERS humming with life and concentrating the streams OF THIS EVOLVING MIND while mixing in the bright new colors of the viewer, OF YOU.

^aPoem by Ruth Richards with original idea, inspiration, and additions by then 9-year-old daughter Lauren (Richard in D. Nissen (1999b).

Ruth has also, for some time, been doing a series of interviews, called the Seeds of Creativity Interviews (see Goslin-Jones & Richards, 2017). The underlying basis, presented at APA (Richards, 2015) with preliminary results, involved subtle phenomena of creative nuance and intimation. These might assume profound depth in an NDS context, with fractal mind (e.g., Briggs & Peat, 1989; Marks-Tarlow et al., 2020). Three questions were provided ahead of time, to evoke lived experiences of everyday creativity, which participants felt best exemplified their experience. These involved insight, ongoing creativity, and “knowing something is there” before one knows what it is (more common than one might think!)

Phase I of this study (Seeds I) with 8 people as per the footnote, produced the following 7 overall themes, true for most of the participants—with

Theme	Some features
1. Connecting with unconscious sources	e.g., “It usually comes just before sleep”
2. Setting up conditions and “letting things go”	<i>(for creative writer/historian)</i> “Absolutely natural...like being near a swimming pool...jump in... (more research helps)
3. Honoring “emergence”	Example #2; also, letting chance enter in a work of visual art
4. Using creative collaboration	Honoring a “synergy” in research or in music
5. Ways of staying with the flow	“Letting” new effects trigger further effects
6. Working with multiple states of consciousness	Example #1, plus modulation from open and receptive to more focused flow
7. Beauty, awareness, openness, joy	Aesthetic enjoyment and presence, and seen across diverse domains—as a creation develops

^a *Intentional sample for everyday creativity, ages 20s to 70s, median 60 yr., in health, psychology, arts, history*

the exception of collaboration, which was strongly present in a minority. The themes are included in questioning for Seeds II.

7 Major Themes from Seeds of Creativity Study One (Seeds I) N=8 Interviewees from USA and New Zealand^a

(Goslin-Jones, T., & Richards, R. (2018). Mysteries of creative process: In, *The Palgrave handbook of creativity at work* (pp. 71-106; see pp. 85-87 for the “Seeds I” themes).

Living a Paradigm Shift

We *are* living a paradigm shift right now. Our world is the same; we are the ones who are changing. The linear reductionist model is being questioned more and more. Still, what are things changing *to*, for us humans. Who are we, and what qualities enable us to dive cheerfully into a dynamical evolving world (now seeing it differently). Will human beings hopefully be more present, authentic, collaborative, holistically aware, and willing to look beyond self-interest to our interconnection, to do what’s creatively needed together as well as on our own.



RR #9—Living a Paradigm Shift?

Are we ready? A shift from one way of thinking to another? A change in our basic scientific concepts and practices? (Kuhn, 1962) This means what for us? Might we create with greater verve and vividness, if we see ourselves as processes-in-motion, and open systems, changing in many ways, in a world different than some imagined: dynamic, interconnected, holistic, recursive, with complex relationships, amongst embedded systems, often unpredictable, rife with sudden change and surprise?

Many voices are suggesting a Kuhnian paradigm shift is imminent (e.g., Guastello & Liebovitch, 2009). Can we also consider opening the creativity door to realms of wonder we may not yet understand, including what some might call spiritual, and others a further expanse of science into surprising new realms. As Stuart Kauffman (2016) puts it, “...reductive materialism stops cold at the magnificent, but beyond entailing law, evolution of the biosphere, the most complex system we know of in the universe. At stake is our very view of reality....Also at stake is our freedom...”(p.64). Our lives need no longer be viewed as so lock step or predictable! Can we honor a broader unknown? Why do renowned artists including poet Robert Burns (1790), write verse

such as the following. We may love it, but how do we understand it?

*The voice of nature loudly cries,
And many a message from the skies,
That something in us never dies.*

Returning to “Who we are”—and sorry, no definitive answers here. But it’s worth considering relevance to our lives of (1) open systems such as the Red Spot of Jupiter, e.g., as a symbol; (2) Evolutionary “emergences,” over the ages, where awareness, then meta-awareness, may have helped evoke our awakening as creative imaginative beings; and (3) more locally, with the hopeful emergence of “A New Normal” ways to live more openly and creatively, each in our unique way, honoring diversity in ways of being—and the standard deviation of healthy variability over a sole conformist mean.

Many issues include our identities—e.g., as open systems, as beings in evolution, and our ability to honor each other and our universal humanity as well as our higher potential in the context of a broader, more diverse and dynamically sparkling *new normal*. Here is support for this, drawing from varied scholarship and research sources.

Some Features of a “New Normal”

Unity—new integration and wellbeing within ourselves

Process and Connection—More comfortable sense of self-in-world, accepting those spontaneous Pop-Up Aha’s! Honoring dynamic process vs. fixed norms.

Change as ongoing, with resistance to persons defending a fixed *status quo*.

Memory—higher working memory, freed by deeper unconscious integration

Energy—freed energy, once used for inner barriers against the banished unknowable

Immunity—boost in T-cell function, a mind-body link of evolutionary import.

Presence—alive in the moment, sensing the future, mindful, direct, honest.

Intuition—Skilled in more direct knowing, as in Kahneman’s (2013) *System 1*.

Complex emotions—mastery of mixed affective states in play and creativity.

Truthfulness—Creator as “canary in a coal mine,” an early warning system; this isn’t everyone but is common.

Moral effects—in an open, aware, less defensive lifestyle, all else being equal

“Deficiency” to “Being” creativity—health, higher development and purpose.

Richards (2018), pp. 209-210. Points are elaborated. Further references supplied in Richards (2010, 2018) and elsewhere.

Part IV—Our Reframed Futures

This part goes further into potential paradigm shift, based on indicators related to Kuhn’s (1962) premise that it will finally happen when the data is overwhelming. We ask, then, what would a nonlinear dynamical paradigm shift mean for us individually and collectively, what may change for the better, and how are we mentoring and encouraging others to carry it forward?

“Look Again”—The “Intermezzo” Section of the New *Chaos and Nonlinear Psychology*

When Ruth was shopping this book, a well-known publisher told her “chaos theory is too *edgy*.” Fortunately, Oxford University Press saw it differently. The book is soon to come out. It has six integrating themes. At minimum, all a reader needs to know are those six “take home messages.” Plus it is pleasant reading. Ruth and her coeditors, wanted to bring this complex and dynamic modeling and interconnected recursive *worldview*—bathed in change and surprise—to a broader audience. No math needed. One can develop an intuitive or metaphorical understanding.

Ruth had just keynoted on everyday creativity at the Chaos Society International Meeting (Society for Chaos Theory in Psychology and the Life Sciences) in Portland, where the coeditors also were, and she had flown to APA. The first group, smaller, international, and fascinating, *got it*. The second group, the thousands of colleagues at APA, for the most part, didn’t know anything about it! (There are exceptions, e.g., organizations and creativity, or some environmental groups). Or if they knew, they thought they “couldn’t do it.” The three coeditors, David Schuldberg, Ruth Richards, and Shan Guisinger, wanted to change this radically.

The coeditors even did a well-attended symposium, at a later APA (2018), on this book, and one person said “it is the best event I’ve gone to.” Things appear to be changing. Ruth will keynote a creativity conference in Ashland in July where David and Shan will each present separately. David continues as adviser to the Chaos Society, after two stints as President. Plus, Ruth just got an invite to ZOOM to a conference in *Finland* to speak on, as they proposed it, “Creativity and Chaos.” The coedited book will be out any time now.



RR #10—“Look Again”—Did We See That Before?

***Can a change in perspective shift how we see self and world?
Can it affect how we live?***

*The most popular and downloaded chapter in my 2018 book, *Everyday Creativity and the Healthy Mind*, is Ch 2, “Missing Worlds.” An opening vignette has 199,540 views online, at www.awakin.org/?tid=778. The chapter begins with this vignette as my daughter, cousin and I are driving along a scenic Oregon road, troubled by problems with directions. Did we even see the landscape ahead, or was it all about past expectations and future fears? Suddenly for me it shifted!*

Do we realize how fleeting and conditioned one view can be? We have many TV channels to view, so to speak, also many shades of consciousness as William James (in Richards, 2018; Combs and Krippner, 2007) famously put it. Do we even suspect this? The world is out there, we think; isn’t it what we see? Or do we and the world “come up together,” a view consistent with Eastern philosophies, systems theory, RCT, modern physics, intersubjective biology, and more. We are not outside the frame, and our personal mythology, never mind our culture and worldview, help guide the experience. So little do we know.

All the more crucial if we have total buy-in to a worldview and dominant scientific paradigm (e.g., Krieger, 2020; Richards, 2021). Here we are—and I surely include myself here, and the educational systems I’ve helped to continue. Yet this has been too often via a linear model, where perhaps a few variables, $Y=aX+c$, can handle everything (Let Y be our greater life meaning.) This is simple, and reductionist (find the right fundamental particles and then we’ll know why Bob is troubled—really?).

Sometimes simple linear models work. But as we see today, in our diverse, shrinking, and troubled world, sometimes results can be catastrophic. This is why we coeditors have our new book for the general social scientist. In fact, we “are late”; Guastello and Liebovitch (2009, p.1) quoting Ian Stewart noted “physical sciences made the transition more than half a century ago.” Are psychology and the social sciences ready? (Finally we ask: Is this now the last word? Well, uh ...)

Six Themes. In brief the six themes of the new book are: (1) Seeing Nonlinearity; (2) Emergence; (3) Finding Patterns and Deeper Meanings; (4) Simple Models can Set You Free; (5) Nonlinear Intervention; and (6) Teaching a New Worldview: The Curvy Road Forward. These are integrating themes throughout the book. There is a focus on *process* in working (or intuiting) events in a nonlinear way.

In “Look Again,” which became the “Intermezzo” section, midway through the book, the focus changed from *process* (and the more technical) to *product*. Look again! Sometimes nonlinearity doesn’t make much difference. At other times it can make *all the difference*. The goal was to show how our old *frame*, or worldview, can distort our vision and understanding compared to a new NDS (nonlinear dynamical systems), or chaos and complexity, view. Not just any example, either, but five poignant, personal and social ones.

As prelude: an unusual excursion into mind shifts, with music of the pop group Procol Harum.

Procol Harum Song as Metaphor and Koan. In 1967 the pop group Procol Harum released the song “Whiter Shade of Pale.” The lyrics are memorable in part because they have a koan-like quality of forming a riddle of words from seemingly unrelated items: “we skipped the light fandango”; “the room was humming harder as the ceiling flew away”; and “her face at first just ghostly turned a whiter shade of pale.” The discontinuity of the song is memorable. What does a whiter shade of pale look like? Connections seem haphazard. Consider the name “Procol Harum,” the name of someone’s cat or some Latin phrase misspelled. The lyricist heard “a whiter shade of pale” as a random snippet of conversation at a party, not the result of philosophical reflection. The lyrics “the miller telling his tale,” “vestal virgins,” and “the light fandango” are referential only if you have knowledge of those contexts—and even then, may not be what the composer referenced.

What do these lyrics have to do with *Chaos and Nonlinear Psychology: Keys to Creativity and Life*, the title of Ruth and colleagues’ forthcoming book? The lyrics appear discordant because they don’t seem to make rational sense, yet our brain makes from them some sort of sense.

Our brains and our innate creativity can thrive on uncertainty and discontinuity. Chaos theory and nonlinearity propose that the universe has an order, but it is not by any means “orderly,” as we conventionally think of it; it is grounded in chaos but is not, so to speak, “chaotic” (the usage here meaning more random and disorganized.)

Order and chaos reflect an innate and foundational quality, if changing and impermanent in our manifest world, a quality of *being*. Here, *being* invokes "the nature or essence of a being," which certainly includes the reader. Meanwhile we might view the orderly and chaotic in terms of descriptions of how we go about *doing* and living. The difference between *being* and *doing* is the difference between the innate dynamics of the universe, which is profound and sometimes beyond our control, and, for instance, the disorderly ways we live. In truth, most of us are often out of touch with a deeper truth.

Many aspects of life are beyond our control but some are within our control—our closets, our bookshelves, and our email accounts—assuming we have these. Identifying what is a desirable order of things, including the phases of our lives, can very much be a function of the society we live in and the culture that defines us. In Western cultures, individuation early in life is considered psychologically healthy, while in many Eastern cultures this striving toward independent separateness is considered a misplaced use of our time on earth and not in concert with the cosmos. It is interconnectivity rather than a false separateness that one should seek. *Being* and *doing* in one case can be ideally the same, or similar, and in the other case they are quite separate. It all depends on how we view ourselves, whether within our limited culture or a vaster cosmos.

Procol Harum reminds us that there may be more than one way to contemplate things.

"Look Again" references one of Ruth's most unusual contributions to the forthcoming book, and a departure from its structure. Placed it at the midpoint, it has its own point—a call to awareness. Do we know what to expect with paradigm shift? (Some of us may already see it). Yet if we are sidelined with "expectation," as in Ruth's vignette in "Missing Worlds" (Richards, 2018) it can prevent our being in the present moment.

In the "Intermezzo"—a feature in its own way "light" and without technical overlay as some intermezzo's are—we explore how our perspective or overlay can shift what we see. This is not just in how we perceive our world, but also how we imagine ourselves conceptually in that world, e.g., perhaps feeling less interconnected with others than we really are.

When nonlinear dynamics is applied to group dynamics and organizational development, in certain contexts, it may illustrate that desired outcomes are less likely to materialize because individual brains are not acting together in a way that is socially useful. They are doing their own thing. However, in Scharmer's (2009) *Theory U* (see Richards, 2014, 2018), from MIT, we have an organizational model where participants learn together and honor an emerging future, most notably, at one point through group meditation, in a deep phase of the work (bottom of the "U"). Progress likely moves in the *being* direction. Its cues are from the emerging future and well beyond immediate ego interests. As Scharmer says, you cannot change a system unless you transform consciousness.

According to Ruth we have an opportunity to "reframe" ourselves and our experience in daily life as we accept the nonlinearity and complexity of our lives as the basis of a deep and beautiful order rather than anarchy or meaningless disorder. If such reframing sounds hard and anxiety-producing, perhaps that need not necessarily be so. Will we have more time to relax if we

accept things as they are? According to Ruth, we may relax and create more effectively within a universal order while accepting our own limits. At least we seek meaning within a larger manifest world, rather than holding on to something we have built as a façade to achieve limited goals or reduce our anxiety.

In the USA, we define one level of order by “chunking” the phases of our lives into birth, K-12 schooling, college, career, marriage, parenthood, retirement, and death. Then we can line them up. We may also separate the components of life into expectations of what is “normal” and to be expected in the sequence of life. Remember, if you can, the representations of solar system mechanics in science class, where the rotation of the earth and the earth’s moon were repetitive and unchanging. These are perfect orbits. That representation does not reflect what we now know about movement in the universe. When someone or something—including the cosmos—doesn’t follow an expected pattern, do we sometimes consider that a rejection of order rather than a new reality and a deeper order? (*Ordo ab Chaos*, gives us the latter in Latin.)

This earlier pattern is culture-bound not cosmos-bound. Sudden events such as wars or natural disasters, some think, “disrupt” patterns for entire generations. Then we strive to return to a predetermined “normal” pattern. In the *Intermezzo*, the frame of *Sudden*, helps us here. So does the wisdom of *Emergence*, popularly “the whole is greater than the sum of its parts.” There is hidden logic indeed when there are environmental dues to pay. Currently the “disruption” of climate change is an inkling of our inability to see the larger systems picture over time and space, and relate to the larger whole. Fear and anxiety can abound as we seek a “normal” that is no longer available, if it ever was, and was certainly not sustainable.

Sudden is another of the five nonlinear dynamical systems frames. It provides a further unavoidable example that has disrupted the expected pattern of the entire globe: the pandemic of COVID-19. Schooling was cancelled or significantly modified, libraries and museums closed, job sectors shut down, careers were halted, interconnectivity among people underwent drastic change, and people were geographically homebound. A great many became ill and died. The devastation now continues around the world in less privileged cultures only beginning to encounter vaccinations and other precautions. Is this a disruption of the “normal” or have we failed to live wisely in a world where this (and even a new pandemic) can happen?

Besides *Sudden*, the pandemic can be viewed in terms of the other four “frame elements” in the nonlinear system that Ruth mentions: *Dynamic*, *Balancing*, *Interdependent*, and *Emergent*. In the forthcoming book, Ruth provides potentially outdated and new and suggested examples for each of the five framing elements as per this table (next page):

Five Examples in Two Views

FRAME: How limiting a viewpoint?	Example	NEW FRAME
Fixed, separate self in control	We are <i>dynamic evolving beings</i>	Dynamic
Pathologizing difference or instability; creating too cautiously	Surfing life’s waves with <i>creative balance, boosting mental health</i>	Balancing
Keeping life steady and predictable	<i>Coping with COVID-19</i> while finding life is about change and surprise.	Sudden
Competitive, autonomous, “Survival of the fittest”	Seeking <i>Darwin’s lost theory</i>	Interdependent
Control & Certainty— “We can know all, fix anything”	With awe and humility, <i>easing environmental catastrophe</i>	Emergent

Richards, R., In *Chaos and nonlinear psychology* (Oxford).

One of the most critical roles for psychology is that of **balancing**, in balancing oneself internally, balancing within one’s culture, and accepting that others balance themselves in whatever ways they can. This example was used earlier with everyday creativity and mood disorders. How much instability is a good thing, and what complex of useful conditions may prevail. In fact, there is “normalcy” for all of us in having some unconscious (and less rational) access to our deeper reserves for creativity and in general. We dealt with the freedoms involved in awareness of our fuller dynamic presence and inner and outer awareness, in the earlier section on a New Normal (see Table).

We can resiliently and creatively make use of what we are given. Yet our many conditions can be different, sometimes unique. Each person’s story is their own. And our New Normal is a mix, a bouquet perhaps, of diverse, unique, and sparkling personages within our larger “family resemblance” as human beings and life forms on this earth. Just consider a granddaughter of a friend who was born paralyzed on her left side, so she learned to knit by using her knees and right arm. Incredible resilience, creativity, and self-empowerment.

The issues of empathy and as well as ethics, based in our fundamental connections and caring, are critical to the subject of creativity about which Ruth and others write (e.g., Bohart, 1997; Jordan, et al., 1991; Jordan, 2010; Moran, 2014; Richards, 2014), and evidenced in our human interdependency. Here is another frame, **Interdependent**, and one that is highlighted by David

Loye (2021) again writing on Darwin's Lost Theory, from a more NDS standpoint. Interestingly Darwin showed some initial understandings himself of complex systems. Beyond Darwin on empathy, we revisit Riane Eisler on the "psychosocial attractor" of "partnership" in an NDS context. The collection of 12 integrating themes from the 2007 edited APA book, or the life model provided by Relational Cultural Theory (Jordan, 2010, 2018) are resonant with the new paradigm.

Turning to ourselves, how do we live dynamically with all beings? At times, our collective caring can fail us when we concentrate on difference and abnormality, from a place of aversion, instead of embracing our common humanity, our profound interconnection, and shared needs. How to enter that space or frame, of the *Dynamic*, in the present moment, part of a larger whole while uniquely holding our own part, in a world of change. Let us avoid distortions by false dichotomies, stereotypes, and constructions that separate and divide us in unhealthy ways.

For many of us individually, a discipline, such as inserting a breathing space or *pause* before our fears and anxieties can dim a reactive response of self-protection, and can raise the calming music of awe and humility as we look to accept and maintain a new frame of *doing* that matches more directly our creative and profound *being*.

Procol Harum again provides a startle, a surprise, a word slightly altered from the expected, a paradox that asks us to pause and see if we are missing something (no doubt).

In other words, we are reminded to embrace the movement under our feet—the tree roots talking with and helping one another, appreciate the jerkiness or limpness of another's body as part of their wholeness, and live with the human power to pause the reptilian brain stem and replace fear with awe and wonder and respond through caring and creativity. It is a truism that nothing remains unchanged. Yet when we know it, our evolving cosmos can be wondrous.

Mentors, and Mentees, Amidst Our Creativity, Alive in the World

Creativity alive in the world. Overall, and in the briefest form, one can note several new, interdisciplinary advances, *trailblazing effects*, from work on everyday creativity. These manifest for individuals and cultures, and bridge outer and inner creative lives, Western and Eastern views, redefine normal and our broader human potential, while strongly supporting a Kuhnian (1962) paradigm shift for creativity studies, as well as for culture in general. One embraces NDS, nonlinear dynamical systems, and our profound interdependence and coevolution together. While we surely sparkle with individuality, even as do our fractals ("Fingerprints of Chaos" (Richards, 1999, 2001)), we are also indivisibly connected; we help co-create this world, together, so inspiring of wonder and awe, yet which we are only beginning to understand. Some advances from this *trailblazing* work:

- Brought everyday creativity into the mainstream, grounding it in assessment.
- Brought ethical, social, environmental issues and focus on groups to the fore, as well as focus on individuals

- Looked deep into inner as well as outer life (albeit inseparable) for creativity, and wisdom that resonates with relational-cultural theory, humanistic psychology, and more.
- Highlighted profound interdependence in the context of NDS, non-linear dynamical systems, consistent with relational psychology, Eastern philosophies, and systems theory.
- Bridged across false dichotomies, and stereotypes, for creativity, finding no need to choose between Arts vs. Other, while embracing diversity, multiple ways of knowing, and multidisciplinary.

For further information on Ruth's work, beyond this more limited review, and for a complete Curriculum Vitae, see her website at www.DrRuthRichards.com.

Students who further the progress. Saybrook students tend to be a unique breed, creative, unconventional, and with passion to do something useful in the world. The University was once called "The Harvard of Alternative Schools" according to one interviewee for a faculty position. The students and graduates surely carry on the dreams in their own ways. Of note too, are colleagues, role models and mentors, providing inspiration, support, and their own wisdom.



RR #11—Mentors, Mentees, Creativity Alive in the World

Talk about educating! How does one educate for doing something no one has even heard about before? Our students are pushing the boundaries of the known. We help our new researchers by insisting on care and rigor in their work. Yet what they actually study is really their own thing, their particular passion. In a forthcoming article, you'll find examples of impassioned persons offering new and exciting directions. Go Daniel Cape, Denita Benyshek, Marta Ockuly, Rachel Porias, Nancy Reid, Richard Talley, Suzanne Tuckey! We honor your trails and others that move off from ones we have—dare I say—blazed?

Everyday creativity is not to be minimized. Valuable in itself it is also likely (a) the source of new talent and (b) the ground for adoption of the new in our culture (Richards, 1997, 2018). It is also (c) source of health, wellbeing, engagement in life, and perhaps of dynamic forces in evolution itself (Richards, 2010a, 2018). It's not as if we are pretenders, poaching on territory saved for the eminent and famous. Let us go beyond these damaging limitations on creativity.

Nor is it only about the new generation either. Some earlier efforts are at last being honored more as “creative.” Thanks first to Dr. Torrance (1971) whose *Creative Learning and Teaching I* carried around years ago. Eyal Doron (2017) recently sent his inspired book on creative parenting. What about Sandra Russ’s (2014) important book, *Pretend Play in Childhood*, subtitled *Foundation of Adult Creativity*. Recall our talented educators including Beghetto & Kaufman (2017) and their contributors, including the editor of this book, Dr. Reisman. Recall our challenged and creative clients who are unfairly stigmatized, as in Kaufman’s (2014) *Creativity and mental illness*. Consider new interdisciplinary collections (Kaufman, Glaveanu, & Baer, 2017) that honor increasingly diverse forms of everyday creativity. Finally, the arts are there for all of us, not just the eminent. A creative clinician friend took her serious illness and wrote a *musical* about it (her first, with a collaborator), heartbreaking and hilarious, to help others understand the experience. The songs in *Infusion* are catchy too. For the Oakland Museum, show, earlier, my then 9-year-old daughter helped. We are never too young to create!

Keep in mind a further message of this author and chapter—namely the role, from our limited viewpoint, that chance plays. We can’t take all the credit for our paths or accomplishments. I do suggest though, that if a direction is strong within us, we may still find a way through some tumultuous waves. We can also decide what qualities we wish to manifest along the way. Suggestions might include mindful awareness, an excellent start. Or kindness, as per H. H. the Dalai Lama. Or perhaps features of creativity (person or process), e.g., openness, spontaneity, lowered defensiveness, courage, and humor? Finally, let us attend to press of the environment, for, as Pfaff (2015) suggests with altruism and epigenetics, we might set up suitable conditions to increase the odds for some positive qualities for us and our larger world.

I would like to end by thanking the talented Gayle Byock for writing on *Everyday Creativity*. She is doing wonders with women in her poetry “Circles,” even changing lives. She has her own response to “What qualities to manifest...”; thus, for you, her comments and poem, below.

Path of Reflection

Writing about Ruth Richards' path toward advancing and deepening the study of everyday creativity reminds me how important it is to hear the voice of a trailblazer herself. Her list of publications, her willingness to mentor and to present at conferences to spread the word, and her continued commitment to provide leadership at Saybrook, nationally, and internationally has set everyday creativity on a path, where it has become an essential component of any study of creativity. The November, 2020, article *Everyday creativity: A systematic literature review* in *Journal of Creative Behavior* attests to this role for everyday creativity. Ruth's personal journey from college student to student-of-the-world has been a nonlinear, magnanimous one that includes a basket of attributes that she has gathered along the way—e.g., openness, spontaneity, sharing courageously, and forward thinking. Her approach remains original, present and meaningful, in other words creative. Although small in stature, she has grown to be a giant in her field.

My tracing her path has resulted in new reflections about my own path, which has also been nonlinear like that of many people, certainly including women. Like Ruth's, each choice along the way involved curves and risk. Meeting life's surprises and changes with eagerness not fear (as we see in our world of NDS—nonlinear dynamical systems) seems the healthier option. I have determined that my own early practice of creative divergence, fortunately, was supported by professional colleagues and family, as were Ruth's.

My divergence is most evident when I write about certain moments on my path, especially in The Circle Project. This involves groups I lead with women of my "older" age. We share what has been hidden beneath behaviors required of older women as lifelong caregivers: openness, selfishness, risky choices, exposing one's fears and surprise insights long latent. Writing comes in the form of "moment poetry," done quickly, in the moment, as a means to awaken what has lain at the bottom of the subconscious well. The creativity of exploration can be a process of release that each of us deserves after a lifetime of responsibility. The self can often be aimed toward wholeness in these final years. As with Ruth, empathy, especially mutual empathy toward self and others, can be the key to the kingdom of acceptance.

Often insight comes through empathetic listening to someone else's story, and then expression, as it did in my graduate school days when I wrote a poem about an actual man I knew, a Chinese painter (Byock Johnson, 1976). The poem spoke of how the path of his father suddenly and involuntarily diverged from what he had come to know and its effect as well on the trajectory of his son's life in America. Tragically, cherry trees were bulldozed for vegetable gardens. The old world, apparently, couldn't live side by side in the new political environment.

This poem about the Chinese painter marked a shift in my path from concentration on the past to anticipation of future. Writing became a personal process rather than a published product. This shift is again evident in a more recent poem I wrote on releasing myself from regret.

Regrets and Choices

Regrets. I release them daily, imagining
 Their flight over lakes and oceans until the horizon
 Tucks them into the night or the deep, where they belong.
 If I am hospitable and fearful, they
 Snuggle into my soul and call it home.

They whisper in rhythm, “Remember when you wanted
 To do that but didn’t?” “When you didn’t aim
 High enough?” “When you didn’t slither close
 To the earth to hear roots pushing the dirt
 Inch by inch out of their way?” “Remember when
 You mindlessly picked flowers and let them die?”

My regrets once held my brain hostage,
 But I gave them the shove, “Move out” The present
 Arrived, listening for wonder, sniffing aromas,
 Pushing the *shoulds* and *could ofs* and *if onlys*
 Out from the warm nest of my brain. I tell
 Those pesky regrets, “Take to the air.”

I push out regrets, but fear homesteads the space.
 My mind cascades in circles, overwhelmed
 With A cacophony of lists and deadlines
 And calendared, overlapping events.
 My brain floods with anxiety, and
 I lose my foothold in the eddies.

When I make the choice for the present,
 Together, we calm my mind with sun and discovery.
 Birds carry off my regrets in their beaks
 And drop them somewhere between
 One ocean wave and the next. They sink
 To the dark and mingle on the ocean floor.

The present is my life choice, free from regret.
 And the *what ifs*, the *what will happen*
And when? And *when will ‘it’ happen—death?*
 I have no choice in death. And I don’t regret it.
 I can’t regret my choices, those are my moments.
 I can’t live without loss and death, so I engage them.

I promise myself loving kindness
 And listen to birds eating my seeds
 And watch the plants grow.

WITH THANKS TO THE READER

From your Authors



GAYLE BYOCK



RUTH RICHARDS

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CHAPTER TWENTY NINE

KEN ROBINSON, YOU WERE RIGHT, THE SCHOOL SYSTEM IS NOT PREPARING CHILDREN FOR THE FUTURE: LEARNINGS FROM SCHOOL AND JOB EXPERIENCES OF UNEMPLOYED YOUNG ADULTS ATTENDING RÉALISE TES RÊVES, A FRENCH REMOBILIZATION PROGRAM

MACARENA-PAZ CELUME

ABSTRACT: In 2006, Robinson declared that the school system alienated students and did not give place to creativity. According to him (Robinson, 2017), this is contradictory with the needs of contemporary organizations that look for creative thinkers. He insisted on the problem of the current design of the educational system (2008), sharing a view of it as one of a non-synchronized system, that was created for children from a different era. Moreover, he suggested that “many people are unaware of the variety of their talents” indicating that “many of our institutions (...) are failing the people they’re meant to serve and the energies of those who work in them.” (Robinson, n.d., p.1). In this line, this chapter proposes to discuss the impact of the school system in the later professional choices of underemployed adults, by presenting evidence of semi-directive interviews collected within the framework of a French national program of labor remobilization called Réalise tes Rêves, which provided participants the opportunity to develop their talents and creativity with the aim of finding a fulfilling insertion into the labor market.

Introduction

“The quality of education affects all of us: it is vital to our own fulfillment, to our children’s futures and to long-term global development. It stamps us with an impression of ourselves that is hard to remove” (Robinson, 2017, p. 7)

When talking about Ken Robinson, the first thing that comes to mind is the famous speech given at a TED Talk in February of 2006, entitled “Do schools kill creativity?” (Robinson, 2006). In this talk, Robinson declares that the

school system formats students and does not give place to competencies such as creativity, that are detrimental for the world's social and economic development. He insisted on the problem of the current design of the educational system (Robinson, 2008a), sharing a view of a non-synchronized system, that was created in another time, for other children from a different economic era, the industrial era. In other words, the current system is teaching knowledge and skills needed at the industrial revolution that does not correspond to the current labor market. Moreover, the current system does not prepare children for societal needs, leaving them with a lack of competencies to integrate efficiently the labor market.

Since 2008 the unemployment rate of young people is increasing at an accelerated rate (World Economic Forum, WEF, 2021). According to the INSEE (2017), unemployment reached 1.6 million people in France, with the youngest having multiplied by more than three their unemployment rate in 40 years. In addition, the World Bank's Global Risks report (McLennan et al., 2021) indicates that young people already makeup two-thirds of the world's poorest people and are entering an international labor market in the midst of a recession, where the health crisis has had a greater impact on them, all without the necessary skills to stand out and be able to adapt to today's challenges. The 2008–2009 Financial Crisis has shown the persistence of youth unemployment— young adults have continuously struggled to integrate into the system, and to align their skills with a grim job market (McLennan et al., 2021, p. 44). As Robinson (2008b) pointed out, schools are not educating children for the future, but for a society that already evolved. In other words, children are not being prepared for current societal changes, nor for the labor market, but for a society that happened ten years ago. According to the World Economic Forum (2020) the job market is requiring a higher set of skills compared to what was expected a decade ago.

Some of the emotional consequences of this crisis among youth has been expressed in means of anger, disappointment, and pessimism (Groundthuth, 2020) while other studies observe anxiety, lack of motivation, and a loss of self-confidence and hope, that concludes in a deteriorated mental health (McLennan et al.; 2021). In this line, the “murder” of creativity by the school system that was pointed out by Robinson (2006) goes even further. When killing creativity, school is also killing passion, motivation, self-confidence and other many traits that can have an impact on youth. It seems that the criticism of the author towards the educational system was a predictor of what is happening nowadays with young people in our current society.

The world's youth have faced exceptional pressures in the past decade and are particularly vulnerable to missing out the opportunities of the next (McLennan et al. 2021; p. 5). According to Robinson (n.d.), we are living in a revolutionary time where there is a strong need to change the perspective about ourselves, and a need to change the conceptions we have about organizations. He suggested that “many people are unaware of the variety of their talents and depth of their potential” indicating that “many of our institutions (...) are failing the people they're meant to serve and the energies of those who work in them.” (Robinson, n.d., p.1).

In this sense, there is a need to adapt the competencies for the current society, and to prepare students for the century we are currently living in. These

competencies, called 21-st century competencies, have been described as “influential in children and adolescents’ future educational, vocational, and interpersonal success” (Woods-Groves, 2015, p. 770). The Center for Curriculum Redesign proposed a four-dimensional education framework (Fadel et al., 2015) obtained through the analysis and synthesis of more than thirty educational frameworks. According to the OECD (Araniadou & Claro, 2009), societal and economic developments need that educational systems focus on the development of novel skills and competencies for youth, which will permit them to “benefit from the emerging new forms of socialization and to contribute actively to economic development under a system where the main asset is knowledge” (Ananiadou & Claro, 2009, p. 5).

Different governments seem to be aware of the massive unemployment among youth and the need to focus on competencies development. All around the globe, governments have been carrying on some strategies and initiatives in their countries, although not always reporting the clear impacts of those initiatives among their beneficiaries (Celume & Korda, n.d.; Mawn et al., 2017). In France, a massive national plan, focused on competencies development (Plan d’Investissement dans les Compétences, PIC) was launched in order to remobilize different publics towards employment thanks to the development of people’s competencies. In a recent call for projects from PIC, the program Réalise tes Rêves (RtR), in english: make your dreams come true, was awarded. This program aimed to develop competencies in youth and adults, and to remobilize them towards a professional project, aligned with their interests and adapted to the market needs. RtR focused on rebuilding self-confidence and finding a professional path aligned with themselves through the development of 21st century competencies such as collaboration, communication, and of course, creativity.

The following chapter will present the results of a series of interviews carried out with participants from the RtR program in France. These interviews asked them mostly about school and work events and experiences, and how they impacted their current life. The results will be presented from a quantitative and qualitative approach, discussing them by crossing Ken Robinson’s perspectives on the disconnection between the school system and the competencies that are needed for the 21-st century, trying to understand possible relations between what participants shared about their school experiences and the experiences they had later at work. It is important to note that the current chapter does not intend to propose a cause-consequence between the variables, nor a correlation, but to offer a reflection upon the experiences on school and job events shared by the participants of the RtR program and how these could be related, considering the perspectives of the work of Ken Robinson.

Method

Participants

Nineteen participants ($M = 31.61$, $SD = 2.45$) attending the RtR program participated in this study. Participants were volunteers that agreed to be interviewed and recorded for further analysis. They corresponded to the second cohort of participants that were recruited by the end of the first French con-

finement due to Covid-19 pandemic, from April to August of 2020. Target participants of the RtR program are principally youth between 18 and 25 years old (NEETs), but the program also welcomes unemployed adults (more than 25 y.o.) who are in a precarious situation or who are significantly distanced from employment (more than a year).

Instruments

Semi-structured interviews were used to collect data from participants. “*Semi-structured interviews are an effective method for data collection when the researcher wants: (1) to collect qualitative, open-ended data; (2) to explore participant thoughts, feelings and beliefs about a particular topic; and (3) to delve deeply into personal and sometimes sensitive issues*”. (DeJonckheere & Vaughn, 2019). Interviews were not long, and lasted between 10 to 17 minutes, depending on the ease of participants. It is important to note that participants were not always willing to talk during the interviews, so interviews lasted less than expected. Interviews were focused on three main points: Past educational and employment experiences; Emotionally negative or positive life events; And objectives for the short and the long term.

Procedure

Participants were recruited by different social associations in three cities of France: Lille, Paris and Marseille. An information notice, as well as free consent form were given to all participants which we asked for the participation in data collection for research through questionnaires, and the data collection through recorded interviews. From the first group recruited, we selected all interviews that lasted at least 10 minutes long. We conducted twenty welcome interviews that were carried out when participants entered the program, after the integration activities. The interviews were carried out by trained social professionals and uploaded to a secure database to be transcribed under a code, respecting the anonymity of participants.

Data Analysis

Interviews were analyzed by Tropes software (2008, version 8.5.0) through an inductive procedure to search for concepts and emotions related to their past school experiences. In this line, the topics “school” (école), “middle-school” (collège), and “highschool” (lycée) were searched. Topics like (scolarité) and (travail) were also added to the search. After selecting the paragraphs related to the searched topics, a collective thematic analysis (Braun & Clarke, 2006) was carried out through NVivo software (2021, version 1.4.1) to find out the main themes related to the topics. Topics were regrouped in three categories: 1) Educational experiences; with two sub-themes: Negative experiences and Positive experiences; And 2) Main job experiences.

Results

Results showed that within the category educational experiences, two types of emotional valence were found. The majority of the experiences were identified as 1) *Negative educational experiences*, with thirty-three references found, regrouped into six main themes; 2) *Positive educational experiences*

presented seven references, regrouped in two main themes. For Job experiences, twenty-seven references were identified and regrouped into five main themes. Table 1 below presents a comprehensive summary of the main findings.

Table 1: References, percentages and main themes per category.

Main category	Categories	References	%	Main themes
Educational Experiences	Negative experiences	33	82.5%	6
	Positive experiences	7	17.5%	2
Job experiences	Job experiences	27	100%	5

Negative educational experiences

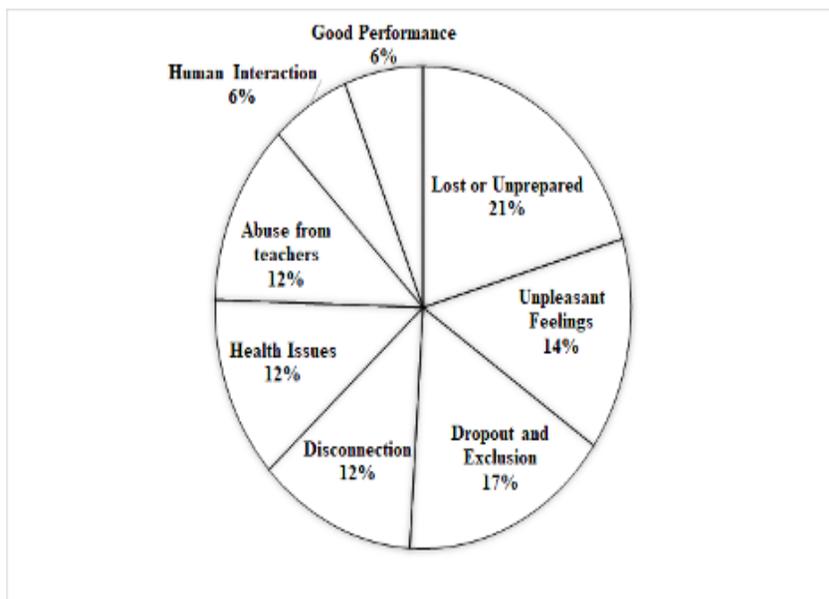
Within this category, we found six main themes: I) “Lost or unprepared”, that describes situations when participants felt or saw themselves incompetent or unqualified for a task; II) “Unpleasant feelings towards school”, which gathers the negative emotional links that participants expressed towards schooling; III) “Dropout and exclusion”, that describes when participants were excluded from school or starting dropout; IV) “Disconnection”, which explains when school was misaligned with the needs and interests of students; V) “Health issues”, that describes mental health impact of school on participants; and VI) “Abuse from teachers”, which gathers stories about participants remembering negative experiences related to teachers and their impact on their lives.

Positive educational experiences

Within this category, we found two main themes: VII) “Human interaction” and VIII) “School performance”. “Human interaction” describes the positive interactions with different actors from their educational environment. The two main positive interactions highlighted the relationships with friends and specifically with a drama teacher. “School performance” describes the positive grades and performance the participant experienced during their scolarization.

The figure below summarizes the themes recalled in the interviews. The titles within the cake represent the negative experiences, while the ones that are outside of the cake represent the positive experiences.

Figure 1: Themes related to educational experiences recalled in the interviews



Main job experiences

Within this category, five main themes were found. Explicit positive experiences were only referred three times, so the category was not divided by valence as did for educational experiences. In this line, a single 'job experiences' category gathers all five themes: A) "Seeking sense at work", that describes how job does not fulfill their lives, and thus participants express the need or desire to find a fulfilling job; B) "Mismatch of work-self", that describes the contradictions between personal needs and desires and the job experience; C) "Abuse at workplace", that describes abusive behaviors encountered in the workplace; D) "Positive work outcomes" that describes the few positive job references that were expressed by the participants; E) "Unemployment and health issues" that describes the connections between unemployment and medical conditions of the participants.

In order to observe the relationship between the categories, a contingency table was built (table 2) showing the job experiences that the participants expressed crossed by the school experiences they shared. The theme E (Unemployment and health issue) from the job experiences category was not found related to any of the school experiences discourses, thus it was removed from analyses.

Table 2: Participants’ school experiences crossed with their job experiences

	I	II	III	IV	V	VI	VII (+)	VIII (+)
A	2		3		1	1	1	1
B	1	1	1	1	1	1	1	
C	2	1	2	1	2	1	1	
D (+)			1	2	1	1		

Main results from table above (table 2) shows that the six participants who expressed a school experience of dropout and exclusion (III), at the same time expressed incidents in their job experience, mostly regarding abusive behavior at workplace (C) and seeking a job that makes sense to them. The same job experiences themes were found in five participants who experienced being lost or unprepared at school (I). None of the three participants who expressed positive human interaction at school (VII) expressed a positive later outcome at work.

Discussion

The job market is being reconstructed in several ways; the needs of the market do not correspond to the ones we were used to some decades ago, and this for several reasons. According to Robinson (2017) technological and societal changes within this century have a big impact on this transformation and is fundamental that the school system prepares children for it. He explained that “the quality of education affects all of us [as] it is vital to our own fulfillment, to our children’s futures and to long-term global development” (Robinson, 2017, p. 7). In this line, the long-term development of our world depends on the quality of learning we are giving to our children today. Organizations all around the globe need people who have competencies adjusted to the 21st-century needs, like adaptability, teamwork, communication and creativity, as every company is competing in a world where the capacity to innovate and adapt to change is a must have, a necessity (Robinson, 2017). Moreover, school needs to be aligned with the needs of the society we are living in, and thus adapted to the children's needs and interests, as they are becoming the adults who will fill in the needs of society in the upcoming years.

The objective of this chapter was to understand the school and job experiences of a group of participants who entered the RtR program, a French remobilization program, linking these findings with the work of Ken Robinson on school system and 21st-century competencies. The main aim was to focus on the relations between the school system and the possible impact that this might have on the professional choices or experiences of underemployed youth and adults. In summary, the majority of the participants had a negative experience or a mixed experience at school which is translated later into un-

pleasant or misaligned job outcomes. The only participant who expressed only positive experiences at school did not express any emotional link to his/her professional experience.

Main findings showed that most youth and adults who experienced dropout and exclusion from their schools, as well as the fact of being lost and unprepared, also experienced job abusive behavior from co-workers and managers, and expressed a need to find a job that makes sense to their lives. The latter is intrinsically related to the mismatch and misalignment they explain regarding their current job life or opportunities, transmitting a sensation that their current work life makes no sense for them anymore. One participant that was currently unemployed shared she left her work because it was not aligned with her. In this line she expressed: "it wasn't really a world that fit me. It was... I felt really disconnected and then I was in a quite low morale, it was not my world in fact". The disconnection or misalignment is explicit in her message, expressing how the fact of being misaligned had a negative emotional impact on her. It is important to note that this particular participant wanted to be an artist, but ended up working as a hairdresser which did not fulfill her, and later depressed her as she knew it wasn't her place, and she didn't fit. This no-belonging feeling/reality is also the case for many children already in school. Robinson (1998) declared that many artists "who are successful in the arts are the renegades of the education system. They didn't fit in at school; education didn't touch them; and they were only happy to get out of it... the very word 'education' gives them the jitters. It draws them back into a world that they were desperate to get out of" (1998, p. 57). In this line, results from interviews that show that most of participants shared negative experiences at school and that they were replicated into their job life, has, unfortunately, a lot of sense.

Regarding abuse at the workplace, some participants mentioned a non-value of their work, or a work environment where they could not perceive a support from. For instance, one of the participants recalled: "my work was not valued by my manager, or rather he took over my work. At the beginning, I was doing tasks and he was putting his stamp on it, etc. And that... that made me a little... It frustrated me a lot". In his message we can observe that there is abuse from his manager towards him and that this act generated frustration on him. Frustration was usually experienced by participants as the things didn't work out as expected, and because they felt powerless or not capable of changing their situation. In this line, a participant mentioned feeling trapped, unable to change his situation, being obliged to accept a job or abusive job situations in order to live, even if this brought him no joy at all. He continued explaining that: "I had no choice, I had to... you have to work, you don't work, you don't eat. So, you have to work, you work at everything and anything. It's rather an obligation than a pleasure". This obligation has a negative impact on motivation towards work as it "involves acting with a sense of pressure, a sense of having to engage in the actions" (Gagné & Deci, 2005, p. 334) which is the opposite of being motivated and enjoying the work life. In this line, when seeing work as an obligation, no positive emotions, no personal growth is possible.

Other abusive behaviors observed in the workplace were also linked to diminishing the self-beliefs of the participants. For instance, one partici-

pant remembered: “this person who was supposed to be my trainer... she said I would never make it, that I didn't have the makings of a leader (...) all she did was put me down and denigrate me”. This same sensation of not feeling supported by the environment, of being aggressed and questioned in one's own capabilities, goes back to their school life, where they also felt not supported by their environment. A participant explained: “They kept putting me down, telling me you're useless... coming from a teacher, it really hurts to hear that. It makes me nervous just talking about it (...) because it follows me today”. This kind of purpose often impacts youth self-beliefs (like self-efficacy or self-confidence), as they feel incapable or unready to evolve, to pass to the next step. In this line, a youth explained: “I didn't feel... I didn't feel like I was capable of getting into the working world.”. This sensation of feeling lost and unprepared can be nurtured by a loss or lack of self-confidence which at the same time would be nurtured by the sensation of feeling lost and unprepared, entering a vicious circle that may impact social integration and could prevent, in the future, a correct integration into the job-market, facing and accepting abusive behavior on the workplace in order to survive or because “you don't work, you don't eat”. Literature explains that “feeling emotionally supported is one of the most important characteristics of developmental contexts like schools for fostering adolescents' positive development” (Eccles & Roeser, 2009, p. 407). This emotional support increases their self-efficacy (Bandura, 1977, 2006) as they do not feel worried about failure (Boekaerts, 1993). Robinson (2013) explains (when commenting on the example of Arianne Huffington) that the biggest obstacles to success can be: doubting about one's own self-capacities (low self-efficacy), and the disapproval of other people. In the same line, if students do not feel supported by their school environment, this generates an insecure emotional basis, where the students feel unable to understand and do the tasks they are asked for, affecting their level of self-efficacy. Their personal judgement of their own capabilities towards achieving a task diminishes (Chase, 2001) and with this affecting their personal perceptions about themselves, negatively impacting their self-confidence.

As explained above, this takes part of a vicious circle, as people who do not feel confident enough will present a tendency to avoid engaging in goals because they believe they are incapable of achieving something (Sherman & Smith, 2002). In extreme cases, this lack of self-confidence can even lead them to accept abusive behaviors, as they believe they are worthless or do not believe in their own capabilities, thus feeling powerless to change the situation (Gómez, 2011; Wang et al., 2017). In this line, the fact of attacking self-efficacy and self-confidence at school, that was expressed by participants in terms of not feeling capable enough, could have crucial impacts on youth, as at the one hand, as literature shows, could prevent them of engaging into the job market as they fear failure, or at the other hand, as we observed in the interviews, being pushed to accept abusive work conditions being unable to face this mistreatment, as they present low self-beliefs.

Abusive behaviors at the workplace was also linked to another school experience, more related to the fact of being excluded from school or at risk of becoming dropout. Participants felt they did not belong to their school and for some of them, neither to their workplace. During the inter-

views, participants explained that the school environment did not correspond to them, saying that they even put themselves in unpleasant situations, just not to go to school. They insisted on the fact that they felt they did not belong, that school was difficult and that the environment was not pleasant. In this line, one of them added: “I didn't want to go to school, I was doing everything I could to make myself feel sick for not going”. In this line, Robinson (2008b) explained that the school system segregates students as schools still believe in an intelligence model divided in smart and non-smart people: “many brilliant people think they're not because they've been judged against this particular view of the mind” (p. 1). This model has strong impacts on youth, as they might not feel enough, they don't feel valued by their environment, by their peers, impacting their continuity in school. In this line, another participant completed: “I had a hard time keeping up with the classes. It was just the general atmosphere [that was complicated] (...) my classmates...”. These reflections on school experiences create restraining social self-beliefs (Gkika et al., 2018) regarding school environment, and more generally, regarding their ability to be integrated and to belong. These kinds of restraining beliefs might have an important impact on life, as the constructions around these beliefs limit their possibilities of growth (e.g. Heeren et al., 2020). This can be observed in later professional experiences of participants who replicate this situation of being excluded, of no belonging in their professional life. One of the participants who felt not integrated at school, later explained that the same situation occurred when finding her first job. She recalls: “my colleagues they..., I was not integrated in the team”. Robinson (2013) explained that everybody needs to belong, as “belonging to a tribe (...) helps people to be more themselves, guides them towards a greater awareness of personal identity.” (p. 35). In this line, these fears of not belonging might develop particular psycho-social disorders, as social anxiety where we find important influences on negative social or life experiences as well as relationships with peers, among others (Wong & Heeren, 2021; Wong & Rapee, 2016). Moreover, the self-determination theory (Deci & Ryan, 2008; Ryan & Deci, 2000) implies that for having effective social functioning and psychological health there are a group of psychological needs that must be satisfied, mostly in terms of autonomy, sense of competence and relationships. These kinds of beliefs about one's own competence or about social dissatisfaction could impact their future as it would perish their motivation towards finding a job because of the anxiety/fear of being rejected by co-workers or being unable to fit.

The second more mentioned issue regarding work experiences was that their current job life had no-sense, the fact of being misaligned, as they report a need to find a work that *finally* makes sense to them. The same participants who expressed this, also expressed being excluded from school because of a misalignment. In this line, one participant shared with us how he was excluded from school because it didn't correspond to his perspectives. He particularly said: “I was fired five times from different secondary schools in the area, I just did them all and I did them all. I was fired simply because I used to go against the flow every time”. In this sense, some participants felt the environment was not adapted to their values, and thus express a need to find a fulfilling aligned job that brings them joy. For example, a participant shared: “If I choose to work, it will be to do something that brings me, that

brings me well-being". While another, explaining more explicitly a seek for sense, explained that she needed to find out: "what will give meaning, what will continue to give meaning to my life". In this line, literature explains that the seek for meaning in life is related to intrinsic goals and aspirations, which include life objectives such as belonging or personal development. These aspirations have been widely associated with greater health and well-being (Deci & Ryan, 2008). In this line, the fact of feeling misaligned with their environment would prevent them from their personal development, prevent them to find their own interests and talents, and thus they express being in a seek for sense, which according to some authors (Seligman, 2011) is crucial in order to flourish and develop well-being. According to Robinson (2013) this misalignment starts in childhood, because it is at school where many students struggle to find their "element" (flourishing in Robinson terms) as they never discover what their true interests and talents are.

Interviews showed that this seek for sense was also related to feeling lost and unprepared during school life. In this line, this can be related to the fact that feeling unprepared negatively impacts self-efficacy, and thus motivation as "autonomy and competence are necessary conditions for the maintenance of intrinsic motivation" (Niemic & Ryan, 2009, p. 135). From another perspective, when young people show being lost or unprepared, they also present a lower capacity to self-orient (Hartung, 2013; Patillon et al., 2018). Self-orientation, not only concerns vocational maturity but also a capacity to mobilize psychosocial resources in order to face complex situations concerning the personal path (OECD, 2003 cited in Patillon et al. 2018). This lack of self-orientation, can in the long term, impact their job search competencies and their integration into the labor market.

In both examples we found the need to give sense to their environment so they can improve their self-beliefs, re-motivate themselves and get back on the track through finding who they are. This need to give sense to themselves, to flourish, can be done through the development of social and emotional competencies that are required for the 21st-century, to fulfill the needs of new economic and social models that differ from the ones we are used to, since the industrial revolution. In this sense it seems important to develop these competencies in order to bring them back the confidence they lost, to find a job that makes sense to them and is aligned with their values and motivations. And this is not only a matter of those who are special, is a matter of everybody who feels this misalignment between their own competencies and the work world. In this sense, Robinson (2017) shared that we are currently living in a fast-changing world with unknown challenges and issues that we will need to tackle as soon as possible, as for which our school system, nor the job market is prepared. He insisted on the need to teach 21st-century competencies, such as creativity, and before so, to truly understand what this means. Being creative, he states, is not a matter of some people, as creativity does not correspond, nor belong only to special people. In this sense, he advocates for a change of perspective regarding how companies and schools are perceiving these competencies (e.g. creativity). In the 21st-century, the competencies needed should be aligned to innovation, but the real innovation for the job market is to focus on the real challenge, that is to develop everybody's creative capacities, as they are innate for all human be-

ings. “A culture of innovation has to involve everybody, not just a select few” (Robinson, 2017, p. 3). This is the basis of motivation, develop the competencies that everybody already has in order to find out which can be the contributions each of us can make to the world, and find sense while doing it. This is also one of the signs of a healthy society, one who has individuals who can enjoy what they are doing, contributing to the society, “just for the sake of doing it” (Csikszentmihalyi, 1990; Seligman, 2011).

Limits. Even though this chapter found several relations upon the reflection of the misalignment of school and current society’s needs, it also presents limits that should be addressed in a next work. This chapter focused mostly on the categories that presented a higher frequency regarding the number of participants or references that were expressed. This means that other less frequent interactions between the categories could have been examined in order to find their particular qualities of interaction. Another limit of this chapter follows the relations encountered during the analyses. Relations among the themes are described based on the transcripts of participants and what they decided to share, but do not necessarily correspond to positive correlations between the school and job experiences. It is important to notice that the family factor, understood as issues within the family nucleus, is an important element that triggers (non)adaptive emotions and behaviors in youth (Hawkins et al., 1998). Nevertheless, few participants decided to share about their family (issues or support) when speaking about their academic or professional experiences. For instance, one participant said: “after my parents divorced and my father remarried it didn't work out well for me. So, I had to go back to live with my mother and my mother couldn't afford us. So, I did my studies by mail and I went to work with my mother”. This sharing shows us a powerful impact of family issues regarding educational dropout, and how this might have impacted her later professional life. This little sharing about family is probably due to the fact that these interviews were carried out at the beginning of the program, and thus there was not yet a trust link made with the participants. Out of the record conversations with participants during their participation in the program reveal that family issues are indeed the trigger of their lack of interest in school, their lack of motivation towards work, and their motivation to get out of the NEETs or unemployment status. Nevertheless, these conversations are not always part of official interviews and should be considered as a variable for future studies.

Perspectives. There is of course still a lot of work to be done, the governments should focus on the development of 21st century competencies, not only as a patch among the adult population, but as a preventive measure among children and youth that are still in the school system. For this, policy makers and educators need to be aligned and to promote the development of these competencies from a young start. It is important to understand that these competencies, particularly creativity, are not determined by the type of activity, and thus should be of principal interest for everybody who believes we need a more adapted intelligent society. Robinson (2017) insists on the fact that creativity is possible everywhere, without segregating activities, without advocating for arts, as for him if intelligence is engaged in an activity, then creativity is possible. In this line he also explains that “as long as the debate in education is seen simplistically as a contest between traditional and pro-

gressive methods, creativity or rigor, the fundamental objective of developing an education system for the 21st-century will be thwarted.” (Robinson, 2001, p. 45)

Several actors in the field of education are already creating innovative proposals that focus on these competencies in order to prepare youth for the current century. We have the initiatives of Collaborative for Academic, Social and Emotional Learning (CASEL), focused on promoting social and emotional learning in children, the group P21 focusing on the development of 21 century skills and competencies, the OECD that works for establishing “The Compass”, a unified framework for 2030 on social skills, or the Center for Curriculum Redesign (CCR) that worked gathering different frameworks in order to offer a comprehensive one to go towards a consensus in which competencies are needed for the 21st-century. These approaches have been applied in several organizations in order to develop these competencies through pedagogical tools, and they are being tested little by little in different educational organizations. Regarding the CCR framework, it has recently been adapted by Beyond Education organization, as a series of pedagogical programs that proposes the development of 21st century competencies for children and youth between 13 to 18 years old, in a fully online and collective environment tackling the issue of youth readiness for 21st century societal issues and job market.

Conclusion

Negative experiences at school are linked to several negative effects, such as the lack of both self-confidence and self-efficacy, as well as an increase of demotivation, which we saw can lead to unemployment. Focusing on the development of 21st century competencies, might help youth to gain self-confidence and to find a pathway of professional remobilization. Hopefully, the world mindset is changing and we expect that in a no too far away future, we can see the school system realigned with society’s needs, resuscitating the creativity that has been killed for so many years. Ken Robinson, you would be thrilled.

In memory of Sir Ken Robinson (1950 - 2020).

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CHAPTER THIRTY

MARK A. RUNCO: AN INTERNET-BASED ANALYSIS OF A CREATIVITY RESEARCH CONTRIBUTOR EXTRAORDINAIRE

LARRY KEISER

Weaving from Canada and the United States, through Europe, down to India and Singapore, through China, over to Japan, and a multitude of countries in between, Mark A. Runco, PhD, has worked with universities, colleagues, and organizations across the globe to expand the world's understanding and use of creativity for idea generation and divergent thinking. A prolific researcher, author and presenter, Dr. Runco has published and presented around the globe. You can find his continually updated vita (as of April 2021) at <https://www.markrunco.com> for the specifics and timeline of his fascinating journey following his passion.

I share upfront that I have purposely not talked to Mark about this chapter, and hope that he finds it to be more of an 'homage' rather than an 'inaccurate and vast misrepresentation' of his work. The chapter was gleaned from an array of websites including his own (previously shared) and my own use of his articles, chapters and books in my own teaching and research in the areas of creativity, innovation, and entrepreneurship. It is taken for granted that throughout his various university/college roles, that Mark has continually served as a classroom instructor in addition to all his other activities.

Currently, Mark serves as the Director of Creativity Research & Programming at Southern Oregon University (SOU). SOU is the home of the Creativity Conference at Southern Oregon University. At the time of this writing, a call for submissions is out for the 4th annual conference. I presented at the 2nd in 2019 and 3rd held virtually in 2021 due to the current pandemic (which also caused the 2020 conference to be postponed). Both events were extraordinary as evidenced by the combination of the keynote speakers and the quality of selected presenters and presentations coupled with the welcoming atmosphere, use of communication technology, and the overall care in attending to the conference details by the conference team. The conference is now one of the highlights of my academic year. I wonder too if the hospitality and generosity demonstrated during the conferences might be a residual from Mark's first academic professorship in Hawaii, a state renowned for such.

Mark's academic focus in college was psychology having earned his degrees (BA, MA, and PhD) from Claremont Men's College and Claremont Graduate School. His doctorate, earned in 1984, lead him to an assistant professorship in psychology at the University of Hawaii, Hilo, earning tenure

and promotion to associate professor in 1987. Although Mark's research publications began while he was a student in the area of autism, the articles he published in his professorships seemed to center on creativity and, more specifically, divergent thinking, e.g., "The effect of radio and television on children's creativity (Runco & Pezdek, 1984)" and "The Reliability and convergent validity of ideational flexibility as a function of academic achievement (Runco, 1985)," in *Perceptual and Motor Skills*, and "The reliability and validity of ideational originality in the divergent thinking of academically gifted and nongifted children (Runco & Albert, 1985)," in *Educational and Psychological Measurement*. By 1987, Mark's published articles were primarily centered on creativity and gifted children. The topics in the area of creativity were as varied as the journals in which they were published, e.g., "Interrater agreement on a socially valid measure of students' creativity (Runco, 1987)," in *Psychological Reports*, "The generality of creative performance in gifted and nongifted children (Runco, 1987)," in *Gifted Child Quarterly*, and "The psychometric properties of four systems for scoring divergent thinking tests (Runco, Okuda & Thurston, 1987)," in the *Journal of Psychoeducational Assessment*.

Concurrently, Mark appears to have successfully continued to develop the collaborative and networking skills that he gained as a graduate student, i.e., a Research Assistant on a MacArthur Foundation Grant on exceptional giftedness and Psychometric Consultant on a National Institute of Health grant on high altitude hypoxia and cognition. Mark continued similar activities while at the University of Hawaii, Hilo, i.e., Psychometric Consultant on a National Institute of Health Grant on Native Hawaiian Children as well as for the Hawaii County Department of Education committee on identifying gifted children. His work and reputation also resulted in being honored with the Creative Education Foundation Research Award (1988) and a Spencer Foundation Research Grant (1989).

It was apparently while transitioning positions from the University of Hawaii, Hilo, back to the U.S. mainland to work (Visiting Associate Professor, Pitzer College, Claremont, CA), that Mark founded the *Creativity Research Journal* serving as its Founding Editor (1988) and where he resigned his role as Chief Editor in 2020 and is now Emeritus Editor. Skipping ahead for a moment in Mark's timeline, he also founded two other journals in 2015, *Business Creativity and the Creativity Economy* and the *Journal of Genius and Eminence*. In addition to these journals, Mark has served on the Editorial Board of a number of other creativity focused journals throughout his career including: *Creativity and Innovation Management*; *Psychology of Aesthetics, Creativity, and the Arts*; *Creativity: Theories-Research-Applications*; *Journal of Creativity and Business Innovation*; *Frontiers in Educational Research*; *Kindai Management Review: Bulletin of the Institute of Creative Management and Innovation*; and the *Creativity & Human Development International eJournal*.

Moving back to the timeline of this chapter, in 1991, Mark joined the California State University, Fullerton (CSU-F), where he became a tenured professor and would he remain for 22 years (2008). Through his work there, Mark made contacts and collaborated across the U.S. and international-

ly. He served as a Visiting Scholar for the Cognitive Unit of University of Bergen (Norway) (1992), Chief Curator for the Milken foundation Creativity Museum (1994-95) and as an adjunct professor for the Norwegian School of Economics & Business Administration (2003-08).

Mark's professorship at CSU-F during the 1990s also allowed him to engage with colleagues and organizations from around the world serving, most of which he seems to remain active to this day, e.g., as a Consultant for the National Research Center on Gifted & Talented (since 1991) Advisory Board for the Centre for Child Development, Hong Kong Baptist College (since 1994), Adjunct Curator for the Museum of Creativity Project (in Santa Monica, CA, since 1995), and the Advisory Committee for the Gifted Education Program at Chinese University of Hong Kong and as External Examiner of the Psychology Department at the University of the West Indies – Barbados (both since 1996).

The 1990s was also a prolific time publishing-wise for Mark, who continually published more exclusively on aspects of creativity throughout the decade. The topics of his articles and chapters in books included, divergent thinking, self-actualization, economic theories related to creativity, problem finding and solving real-world problems, ideation, a psychoeconomic approach to creativity, creativity predictors, giftedness, health and clinical perspectives of creativity, developmental trends, group creativity, and much more. Mark published his books, "*Theories of Creativity (SAGE Focus Editions)*," in 1990 and "*Divergent Thinking*," in 1991, as well as edited, "*Problem Finding, Problem Solving, and Creativity*," in 1994 and "*The Creativity Research Handbook, Vol 1 (Perspectives on Creativity)*," in 1997. Capping off the decade, 1999 was an especially active year where Mark had 26 articles or chapters published including several chapters in the "*Encyclopedia of Creativity*" for which he also served as a co-editor. For specific details, again review Mark's vita on his website, <https://www.markrunco.com>.

The 1990s also was a time for Mark to be recognized for his ongoing achievements and contributions to creativity research. Samples include his receiving the Huges Aircraft Research Award (1990), the Early Scholar Award from the National Association of Gifted Children (1993), the Outstanding Service Award (1997) and Outstanding Scholarly and Creative Activity Award (1998) from the California State University, and Fellow (1995) and President (1997) statuses of the American Psychological Association (Division 10).

Mark's very active research and other scholarly activities and partnerships continued into the new millennium. From 2000 through 2009, Mark published an estimated average of 8 publications a year, as well as the first edition of his book, "*Creativity: Theories and themes: Research, development, and practice*," (2007), a book that is still referenced heavily in the foundations of creativity course at Drexel University, where I teach, albeit the 2nd edition (2014). [Thank you, too, to Mark, for the 3rd edition that hopefully will be available before Fall 2022!]

Adding to Mark's previous awards and honors, he was recognized with the Lifetime Achievement Award by the National Association for Gifted Children in 2000. He was also designated a Faculty Scholar by the College of Human Development, California State University.

Although Mark no doubt ‘presented’ often during the 1980s and 90s, Mark’s formal documentation of his more formal presentations on various aspects of creativity begins in 2000. He presented to an array of organizations over the next 10 years across the globe. Norway, Taiwan, Hawaii, California, Iowa, and Georgia to name but a few places. A particular presentation though stands out from March 2006. Specifically, Mark presented “Creative potential and divergent thinking,” at the University of Georgia’s (UGA) E. Paul Torrance Lecture Series. The presentation foreshadows Mark’s next transition that occurred two years later, 2008, when Mark transitioned from CSU-F to serve as the inaugural E. Paul Torrance Professor of Creative Studies and Gifted Education at UGA.

Mark’s role at UGA, in addition to his serving as the E. P. Torrance Professor of Creative Studies and Gifted Education, a post he held for six years (2014), was that of Executive Director of the Torrance Center for Creativity and Talent Development from 2008-2010. The Torrance Center is housed in the College of Education’s Department of Educational Psychology and Instructional Technology (Sartor, 2009). In 2015, Mark transitioned within the College of Education from the E. Paul Torrance Professor of Creativity Studies Director to a tenured Professorship in Educational Psychology.

Mark’s collaborations, research publications and presentations did not slow down during the 2010s. Mark published in the U.S. and internationally an estimated 14 to 15 articles and chapters on creativity a year from 2010-2019. In addition to divergent thinking, self-actualization, creativity testing, and previous themes of his previous research, “Innovation” seems to appear more frequently in his publication titles, e.g., “Abilities that contribute to creativity and innovation at work (Mumford, 2019),” “Further evidence that creativity and innovation are inhibited by conservative thinking: Analyses of the 2016 Presidential election (Runco, Acar & Cayirdag, 2017),” in *Creativity Research Journal*, and “Management for creativity and innovation, 2014)” in *Research: Journal of the International Foundation for Research and Analysis*. In addition, Mark contributes a book chapter on a topic that intrigues many creative researchers and students, “*The dark side of creativity: Potential better left unfulfilled* (Plucker, 2016)” which seems to follow up the book he co-edited, “*The dark side of creativity*, (Cromptley, Cromptley, Kaufman & Runco, 2010). The 2nd edition of his co-edited book, “*Encyclopedia of Creativity*,” also was published, as was the 3rd edition in 2019.

Uniquely, in 2010, Mark also published the Runco Creativity Assessment Battery (rCAB). The rCAB is a comprehensive battery for the measurement of creativity that covers the entire lifespan. It uses subtests for all age groups providing both individual measurements as well as assessments that parents, teachers, or supervisors can complete to provide triangulation and objectivity. (Creativity Testing Services, n.d.). Mark and his collaborators describe some components of the rCAB, i.e., the “Figural DT (Divergent Thinking),” “Titles,” “Realistic Presented Problems,” and “Realistic Problem Generation” tests providing helpful and detailed information in Runco’s article, “Which test of divergent thinking is best (Runco, Abdulla & Paek, 2016)” in *Creativity: Theories – Research – Applications*.

Mark continued his service during the 2010s to the U.S. and international advisory boards, consultantships, and other partnerships begun in the

1990s. He additionally served as Distinguished Consulting Faculty for Saybrook Graduate University in San Francisco, CA, (2015-2018). He also accepted additional Advisory Board positions. The following Advisory Boards are highlighted and have continued into the present: Bay Area Discovery Museum's Center for Childhood Creativity in San Francisco, CA (2011), Institute of Creative Management & Innovation for Kinki University in Japan (2012); Utrecht Platform for Creativity and Innovation in the Netherlands (2016), Institute for Creativity and Innovation in Ismaning, Germany (2017), Lego in Billund, Denmark (2017), and Creativity & Innovation Center for Webster University in Geneva Switzerland.

Mark also was honored with being named a Steinecker Lecturer for the University of Regina, Canada and Claremont McKenna College Psychology Alumnus of the Year, the American Library Association's Outstanding Academic Title in 2013 for the "Encyclopedia of Creativity", and the Haass Lecturer for the Technische Universität in Kaiserslautern, Germany, and Honorary Dean for the Chinese & American Creativity Research Institute in Beijing in 2016.

Mark also seemed to present non-stop throughout the U.S. and abroad on varied topics from 2010 through 2018. These presentations include trips to California, Colorado, Georgia, Louisiana, New York, Oklahoma, Pennsylvania, Massachusetts, Maryland, Mississippi, Canada, China, Costa Rica, Netherlands, Spain, and many more... and most, more than once. You are encouraged to review the full list on his vita via his website to try to imagine how Mark accomplished the travel and preparation while conducting his teaching, research, and extraordinary publication output (Acar, Runco & Park, 2020).

Mark accepted an opportunity to serve as Director of Creativity Research & Programming at Southern Oregon University (SOU) in 2019. For Mark, that year saw no slowdown in productivity. He published 16 articles and chapters, including new chapters in the 3rd Edition of "Encyclopedia of Creativity," (Runco & Pritzker, 2019). Most of Mark's presentations of 2019 were made closer to work – at least occurring on the West Coast in California and at the 2nd Annual Creativity Conference SOU, although he did make time to present at Harvard on the East Coast and sojourn to South Korea before the pandemic shut the world down, travel-wise. Although new to SOU, Mark's work was recognized in his first year with receiving SOU's University Service Excellence award and being named a Transdisciplinary Fellow for University of Southern California's Santa Barbara's College of Creative Studies.

Mark's 2020, although light on presentations due to the pandemic, continued strong in research publications. He had 12 articles and book chapters published on a wide range of topics. These include book chapters such as, "Malevolent creativity (Glaveanu, 2020)" and "Subjectivity in creativity research (Carducci, 2020)" and the journal articles such as, "What should people be told when they take a divergent thinking test? A meta-analytic review of explicit instructions for divergent thinking" in *Psychology of Aesthetics, Creativity, and the Arts* and "Does Cognitive Style Moderate Expected Evaluation and Adolescents' Creative Performance: An Empirical Study (Lei, Deng, Zhu, Runco, Dai & Hu, 2020)," in the *Journal of Creative Behavior*. In

addition to teaching at SOU, Mark currently lectures regularly for Shaanxi Normal University in Xi'an, China, and at the Universidad de Cantabria, Spain.

As shared in the beginning of the chapter, Mark's vita was last updated in April 2021, almost a year prior to the writing of this chapter. At that time, Mark had 12 articles or chapters in press for 2021 with four articles or chapters already published, as well as delivered a creativity presentation to a company in Minnesota. (It is not known at this time if the event was held virtually or in person.) As also shared, he is tasked with coordinating the 2022 SOU Creativity Conference. By sheer volume, the amount of research, publications, presentations, and services provided to the various advisory boards and organizations he completes year after year is not only staggering, but inspiring – particularly when his teaching effort is considered. It speaks volumes to his passion regarding creativity as a research area. From any measure I can think of, Mark A. Runco, PhD, is clearly a Creativity Research Contributor Extraordinaire.

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CHAPTER THIRTY ONE

AFFECT AND CREATIVITY IN CHILDREN'S PLAY: SANDRA RUSS' BLUEPRINT FOR THE FIELD

JESSICA D. HOFFMANN & ZORANA IVCEVIC

ABSTRACT: Any thorough discussion of affect in children's play references Dr. Sandra Russ, clinical psychologist, professor of psychology at Case Western Reserve University (CWRU), and author of multiple books including *Pretend Play in Childhood: Foundation of Adult Creativity*. An avid player as a child, Dr. Russ became fascinated by how children used play to grapple with challenges in their lives. In this chapter, we discuss her contributions, including her basic science research on play, emotion, and creativity, in addition to her applied work in play interventions and in piloting telehealth methodologies. Further, we attribute Dr. Russ' wide-reaching influence in the field not only to her research and scholarship, but also to her inspirational mentorship and leadership over the decades, including the many graduate students she has mentored to become successful researchers themselves, her two terms as interim Dean of Arts and Sciences, and her leadership roles in professional associations, such as APA's Division 10: Psychology of Aesthetics, Creativity, and the Arts.

Affect and Creativity in Children's Play: Sandra Russ' Blueprint for the Field

Dr. Sandra ("Sandy") Russ is a Distinguished University Professor at Case Western Reserve University, Louis D. Beaumont University Professor in the Department of Psychological Sciences, and author of multiple books including *Affect and Creativity (1993)* and *Pretend Play in Childhood: Foundation of Adult Creativity (2014)*. Any thorough discussion of affect in children's play references Sandy. An avid player as a child, Sandy became fascinated by how children played out their problems, and she has been studying play and creativity in children ever since, for more than 47 years.

Jessica Hoffmann completed an interview over Zoom with Sandy on May 18, 2021 which is referenced throughout this chapter. Starting out, Sandy recalls her interest in creative thinking stemming from her childhood,

"My dad had such a creative mind...I was used to this broad thinking. He was also very funny. And then I would get around other people and you'd get bored within five minutes with them. They just couldn't think. That also led to some of my thinking that if people don't let them-

selves think they just get so rigid. So these early feelings about life I had as a kid led me."

Her undergraduate senior honor's thesis at the University of Pittsburgh studied preference for stimuli in high and low creative people with Alan Ross. Sandy remembers that while Ross became a well-known behaviorist, he had originally been psychodynamic, and had raised for her questions around the benefit of play therapy techniques with children, or whether the behavioral work directly with parents was more impactful.

As a graduate student of clinical psychology at the University of Pittsburgh in the 1960s, Sandy studied the role of affect in the creative process. In her recent chapter titled, "*Pretend Play and Creativity: Two Templates for the Future*" in *The Nature of Human Creativity* (Sternberg & Kaufman, 2018), Sandy reflects, "the creative process was exciting to read about, fit with the humanistic zeitgeist of the times, and seemed to reflect optimal development of the individual." (Russ, 2018, p. 264). She describes others who influenced her thinking and inspired her interest: from Anna Freud (1965) and Melanie Klein (1955) who noted the thoughts and feelings expressed through the free association that occurs during play, and Wäelder (1933) who observed the ways in which children repeat unpleasant experiences through play until they become manageable. Sandy writes, "As I read the literature, I noticed the consistency between [Greta] Fein's theory of affect and creativity and psychoanalytic theory" (Russ, 2018, p. 265). Upon graduating with her Ph.D. Sandy began to use play therapy with children experiencing anxiety and depression.

As a staff psychologist conducting psychodynamic therapy at the Washington University Child Guidance Clinic in St. Louis, Sandy continued seeing evidence for the connection between play and creativity. For example, children who became more open in their play, who shared more ideas and emotions, also seemed to become more creative in their thinking. Sandy made connections with the work of Sigmund Freud (1926/1959) who noted that repression interfered with the creative process, and Kris (1952) who hypothesized that people who can more easily access and integrate affective content into their thinking will be more creative. She sought to further explore this connection in children, and to understand the mechanisms that explained the association.

Sandy was hired to the faculty of Case Western Reserve University in 1975, and had her sights set on achieving tenure (a feat which just she and one other colleague eventually achieved, out of six new professors who had been hired at the same time). Her research goal was to study "affect in ideation." In her 2021 interview with Jessica, she stated, "I wanted to look at play and creativity but I knew I couldn't develop a measure of play in five years...and I didn't even particularly like the Rorschach...but I knew it could get at that construct of affect in ideation, which is what really interests me." In a series of studies using the Rorschach test, Sandy found that male children whose responses contained more affective content (scary monsters, blood) also generated more responses on divergent thinking tests (Russ, 1982; 1988). Yet, Sandy wondered, why was this effect not true for girls? Considering the critiques and limitations of the Rorschach, and with tenure secured, Sandy

made the decision to move on from the Rorschach as her primary measure of affect in fantasy, and develop one of her own, which would provide information to address her then emerging questions about affective processes in play.

The Affect in Play Scale

In 1987, Sandy began work on developing her signature measure, the Affect in Play Scale (APS). The measure was based on the premise that through observing a child's play, a whole host of cognitive, affective, and interpersonal processes can be observed. Sandy outlined these processes in a table, first published in her book, *Affect and Creativity: The Role of Affect and Play in the Creative Process* (1993), and then updated it to specifically address affect in the creative play process in her later books, *Play in Child Development and Psychotherapy: Towards Empirically Supported Treatments* (2004), and *Pretend Play in Childhood: Foundation of Adult Creativity* (2014).

Of particular note were Sandy's contributions to identifying the affective aspects of creativity, including openness to affect states, fantasies, and images, comfort experiencing emotions, deriving joy and pleasure from challenge and problem-solving, and cognitive integration. Historically, the affective and cognitive components of play were studied separately (Feist, 1995). Sandy notes this in her writing, "Piaget did not consider affect to be important in cognitive development whereas Freud did. As a result, different research traditions evolved" (Russ, 1998, p. 469-70). In what they termed "the cognitification of play," Rubin, Fein, and Vandenberg (1983) noted that most measures of children's play focused on cognitive processes rather than affective processes, a gap which Sandy sought to fill.

The APS, as it exists today, is a 5-minute pretend play task in which children, ages 6-10 are asked to play with two puppets and three blocks any way they'd like. The facilitator suggests "the puppets do something together", and children are prompted to "have the puppets talk out loud" for the purposes of coding the child's play, although non-verbal expressions are also scored. The play sample is video-recorded and can be scored for *Organization* (the quality of the plot and complexity of the story), *Imagination* (the novelty of the play and how children transform the blocks), *Comfort* (how easily the child engages in play and enjoys it), *Frequency of Affect* (a total count of affect units expressed in the play including not only feeling words, but affect-laden themes, such as "Oh no, I fell!" or "Yay, a sleepover!"), and *Variety of Affect* (a total count of the number of affect categories expressed in the play).

The Affect in Play Scale has been a staple of Sandy's research laboratory for decades, and a core component of the work completed by many of her graduate students over the years. Early studies demonstrated the connections between play processes (both cognitive and affective) and divergent thinking, independent of verbal intelligence, for both boys and girls (Russ & Grossman-McKee, 1990), and found that the relationship between play and divergent thinking were stable over time (Russ, Robins, & Christiano, 1999). Relationships between children's pretend play and other measures of creativity also emerged, including creativity in stories and teachers' ratings of make-

believe (Kaugars & Russ, 2009), affect expression when describing memories (Russ & Schafer, 2006), and in storytelling (Hoffmann & Russ, 2012; 2016).

With the support of Sandy, various students and colleagues have expanded the reach and utility of the original APS. The APS-P is a preschool version for children 4-5 years old, which provides more toys than the original APS (i.e. cups, a ball, plastic and stuffed animals, a toy car), and more structured instructions to help the young children get started (Kaugars & Russ, 2009). Currently, the APS-P instructions include introducing the child to each toy, before saying,

“That’s all the toys in the bag. Now we’re going to make up a story using the toys on the table. See how you can play with the toys. [exaggerate voice tones] This is the bear. He says, “I’m really hungry! Where can I find some food? [goes over to cups] Oh look, I found some cookies! I love cookies—yum yum yum! Here’s another cup. Oh yucky! I don’t like what’s inside there, yuck!” Now you keep playing. What happens next? You make up a story and I’ll tell you when to stop.”

Work with this measure has replicated much of what was found for the elementary school age children, including correlations with divergent thinking and creative storytelling (Fehr & Russ, 2016). Sandy and her graduate students developed brief rating (BR) versions of the APS and APS-P. The APS-BR (Sacha Cordiano et al., 2008) and the APS-P-BR (Pearson, 2008) eliminated the need for videotaping and allowed for in vivo ratings of the child’s play. Most recently, the APS scoring has been modified for use with existing play samples (APS-M; Zyga et al., 2015), such as play samples from the Autism Diagnostic Observation Schedule (ADOS), and a modified scoring protocol has been developed for APS and APS-P play samples that includes additional scores relevant to neurodiverse populations such as repetition of themes (M-APS; Dimitropoulos et al., 2017).

Pretend Play is Creativity

“There is a consensus in the field that creative products and creative processes are on a continuum. Therefore, creativity can be studied in all individuals and in children. Pretend play is a unique place in which to study creative processes. Pretend play can also be treated as a creative product.” (Russ, 2018; p. 265)

An elegantly designed assessment like the APS has many advantages, with applications for research and clinical practice. In Sandy’s own words, “I developed the Affect in Play Scale...in order to fill the need for a comprehensive standardized measure that assesses both cognitive and affective processes and that could be used in many research programs” (Russ, 2018, p. 267). First and foremost, the rigorous measurement and deep study of cognitive, emotional, and interpersonal processes involved in pretend play has supported a hallmark of Sandy’s work: play is not merely a precursor of

adult creativity, it *is* creativity. Creativity and pretend play have been studied together for a long time and Sandy is a pioneer and leader in this work. Sandy's body of research and applied work supports the argument that play is in itself a form of creativity. Using the terms in the influential 4c model of types of creativity (Kaufman & Beghetto, 2009), pretend play is best described as mini-c creativity - "the novel and personally meaningful interpretation of experiences, actions, and events" (Beghetto & Kaufman, 2007, p. 73).

Scientists start with defining their terms. So, what is creativity? Creativity is "the interaction among aptitude, process and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context" (Plucker, Beghetto, & Dow, 2004, p. 90). Creativity is observable in a behavior or a product described by a combination of originality and meaningfulness. Sandy's operational definition through the APS describes high quality pretend play as a behavior that also includes two crucial components: *imagination* – players generate novel and original elements of fantasy, as well as coherent *organization* – a cohort play narrative with a beginning, middle, and the end (Russ, 2014).

Sandy's foundational research shows that pretend play and creativity are based on a similar set of cognitive, emotional, and motivational processes. Divergent thinking is a cognitive ability at the core of creativity that has a long history of study (Guilford, 1950; Kaufman, 2019). In fact, oftentimes performance on divergent thinking tests is a measure of creativity used in research studies addressing diverse topics, from the role of mood in creativity (Baas et al., 2008) to the effectiveness of creativity training programs (Scott et al., 2004). Divergent thinking is not the same as creativity as defined above, but it is an important aspect of creative potential - ability to think of open-ended possibilities and generate multiple, novel, and flexible ideas. In divergent thinking, one starting point branches in many directions. Pretend play does the same. It starts with a kernel (*Underwater city! Archeological exploration in the desert! Harry Potter in space!*) and goes in many original directions. Blocks are transformed into bunkers, remote planet outposts, or remains of sunken ships. This conceptual equivalence between creativity and pretend play is supported by observed empirical relationships. Sandy's research shows that imagination in pretend play is not only related to divergent thinking in cross-sectional, but also in longitudinal studies with four, seven, and even ten year follow up after the initial play assessment and even after controlling for divergent thinking ability at an earlier age (Lee & Russ, 2018; Russ & Cooperberg, 2002; Russ et al., 1999; Wallace & Russ, 2015). These correlations are similar in size to those for performance between different divergent thinking tasks (Baer, 2014; Barbot et al., 2016).

Pretend play and creativity are characterized by the same key emotional and motivational factors. Central to theories of creativity is intrinsic motivation – experience of enjoyment and challenge in an activity; intrinsic motivation predicts frequency of creative behavior (hours of work per week doing art, number of created artworks), as well as creativity of behavior (measured by instructor ratings of student potential as an artist; Amabile et al., 1994). Anyone who has seen a child at play doesn't need them to take an intrinsic motivation inventory to realize they deeply enjoy doing it.

The affect in creativity and play is the focal aspect of Sandy's research; the tool she developed to measure quality of children's play focuses on affect and her pioneering book stressed this connection right in its title - *Affect and Creativity: The Role of Affect and Play in the Creative Process* (Russ, 1993). This book is an early synthesis of research on affect and creativity at the time it was a nascent area of study. It described the developmental and personality perspectives on the role of affect in creativity, with a prominent psychodynamic theoretical influence and became an important resource to those entering the field and imagining its next steps.

Sandy's studies of play examine both positive and negative emotions expressed in play, as well as the variety of emotions expressed. We have thus learned that children express a variety of positive and negative affect in play, that affect expressed in play is related to affect in creative storytelling (showing cross-situational similarity of performance), and that the amount of both positive and negative affect in play can predict divergent thinking test scores (Hoffmann & Russ, 2012; Russ & Schafer, 2006). Similarly, creativity researchers have identified many emotions present during the creative process (Botella et al., 2011; Glaveanu et al., 2013), and found that both positive and negative emotions can be related to creative thinking depending on time in the creative process (early vs. late), as well as cognitive and personality processes described in the influential dual process model of creativity (Baas et al., 2008; De Dreu et al., 2008; Kaufmann & Vosburg, 2002; To et al., 2012).

Pretend play and creativity are affect-laden. But affect does not just happen onto us. Rather, emotion regulation is an important process in both pretend play and creativity. Effective emotion regulation in elementary school children predicts both imagination in pretend play and children's performance on creative thinking tests (Hoffmann & Russ, 2012). The ability to effectively regulate emotions predicts creativity (measured in terms of peer nominations) in high school students who are open to experiences. Specifically, emotion regulation predicts greater persistence and maintaining passion for one's interests, which in turn translate into recognized creativity (Ivcevic & Brackett, 2015).

Sandy's work offers clues as to why emotion regulation matters for creativity and pretend play. She shows that affect-laden primary process thinking - thinking characterized by loose associations and fusing of distinct ideas or images - is characteristic of both pretend play and creativity. For instance, the amount of affect-laden primary process thinking measured by the Rorschach test is related to affect and primary process in play (Russ & Grossman-McKee, 1990). Unregulated, primary process thinking can be indicative of mental illness (Russ, 2000-2001). However, in pretend play and other forms of creativity, affect-laden primary process thinking is regulated or controlled and used in the service of enriching the activity.

Finally, both creativity and pretend play can be developed through learning. Creativity training programs result in higher creative thinking skills across age groups and training settings (Scott et al., 2004). Sandy and her students pioneered work on training pretend play and showed improved play skills in individual sessions, group interventions, and using telehealth interventions (e.g., Dimitropoulos et al., 2021; Fehr & Russ, 2016; Hoffmann & Russ, 2016; Russ et al., 2004).

More than two decades of research using the APS, left Sandy in a unique position when in 2010 Newsweek published a piece entitled “*The Creativity Crisis*”, based on the research of Kyung Hee Kim (2011) who analyzed almost 300,000 Torrance Test of Creative Thinking scores of children and adults, and asserted that scores have been consistently declining since 1990. While others also pointed out some methodological concerns with Kim’s study (e.g. Barbot & Said-Metwaly, 2020), Sandy used an accumulation of play data sets to question Kim’s conclusions. With 13 separate samples of typically developing school children’s play scores spanning a 23-year period from 1985 to 2008, Sandy noted that while Kim claimed a decline in creative thinking among children, a cross-temporal meta-analysis of play scores showed no such decline, and in fact imagination and comfort in pretend play had both increased over time (Russ & Dillon, 2011).

Play in Clinical Assessment

The Affect in Play Scale was designed to be brief, non-invasive, and to meet children through a modality that is natural to them. Sandy writes that “play is a natural form of expression in children (Russ, 1993; p. 34). This stance puts the APS at an advantage in filling a need for assessment within therapeutic spaces, including both those which are cognitive-behavioral and those which are more psychodynamic and psychoanalytic in nature, who can sometimes be resistant to assessments which can interfere with the therapeutic alliance and process. Sandy is a strong proponent of psychodynamic theory and therapy approaches. However, she took the sometimes unpopular opinion in psychodynamic circles that the inclusion of assessments to bolster the evidence base was essential. She writes in the introduction to her 1993 book,

“Psychoanalytic, psychodynamic, client-cent (nondirective) approaches, and cognitive-behavioral approaches as well, have proposed that change occurs in the child through the process of play. What is the evidence for this proposition? The movement toward empirically supported treatments is gaining increasing momentum...If play is to continue to be used as a major treatment modality, its effectiveness must be empirically demonstrated.” (Russ, 1993; p. ix).

Despite her contributions, Sandy recently reflected on the current state of play therapy in a recent interview:

“It’s no longer mainstream and it’s not going to be. This is part of why I went in the direction of seeing it as a tool for children, as a way to prevent mental disorders. In many ways that is where I started...look how these kids use play and how helpful it can be in therapy. If we could just help kids do that on their own, and many kids do but it’s those other kids who are so restricted. If we could just find ways to help them, it would give them another tool. I think that is the role of play. It has al-

ways been the role of play in normal development, so let's help parents enhance that... to see it more as giving them a tool for resilience."

With its flexibility and strong history of validation, the APS has spread beyond Sandy's lab, including the labs of Dr. Elizabeth Short and Dr. Anastasia Dimitropoulos, both at Case Western Reserve University, Dr. Karla Fehr at Southern Illinois University, Dr. Tuppet Yates at the University of California Riverside, and Dr. Ana Marcelo at Clark University. In personal correspondence with Jessica Hoffmann on June 6, 2021, Dr. Fehr wrote,

"Sandy is exceptional as a psychologist, academic, and role model/mentor. Her contributions have advanced the field significantly regarding understanding the importance of pretend play in childhood, especially as related to creativity, and developing play-based intervention protocols. In addition, her Affect in Play Scale continues to be the only assessment tool available that measures multiple processes within play, allowing for a more complex and comprehensive examination of pretend play."

One particularly fruitful direction has taken place in Italy, from the labs of Dr. Adriana Lis at the University of Padova, and Dr. Claudia Mazzeschi at the University of Perugia. This expansion of the APS allowed for a cross-cultural study of children 6-8 years old. Findings from this study uncovered that Italian children expressed a greater variety of affect in their play, while the children in the United States scored higher on imagination. The study was one of few to compare creative expression across two Western cultures, with most cross-cultural creativity studies comparing Eastern and Western rather than US and European differences. It highlighted the potential impacts of differences in parenting and educational philosophies between the countries (Chessa et al., 2013), and provided direction on how creative thinking and expression can be supported at home and at school.

These Italian universities also served as the sites for the confirmatory factor analysis of the Affect in Play Scale (Chessa et al., 2011), replicating earlier work started by Sandy herself (Russ, 2004), and confirming two main factors of pretend play: the cognitive elements of organization, elaboration, imagination, and comfort, and the affective elements of frequency and variety of affective expression. These findings support the notion, asserted by Sandy and others (e.g. Cherney et al., 2003; Russ & Niec, 2011), that observing a child's play is a valuable method for understanding their psychological functioning - emotional, cognitive, and social. The construct validity of the APS allows for rigorous research and clinical applications of play assessment, including examination of developmental trajectories and early identification of psychological distress.

One example of this application was a study in which the APS was administered to children as part of their intakes to a community mental health center, when there were questions around differential diagnosis between post-traumatic stress disorder (PTSD) and attention deficit hyperactivity disorder (ADHD). Results showed that the APS, through its five-minute, inviting play

protocol was able to differentiate the underlying cognitive and affective differences between these two diagnoses. As expected from the definition of PTSD and ADHD, while children without a clinical diagnoses typically have play scores that “hang together” – scores of imagination, organization, and affect expression rise and fall together – children diagnosed with ADHD showed low correlations between the organization of their play and their other play scores, while children diagnosed with PTSD showed no correlations between the integration of affect and organization (Hoffmann, 2014).

Play Intervention

With mounting evidence for the consistent and strong associations between play and other forms of creativity, Sandy noticed another gap in the field and the opportunity to address it: a play intervention for typically developing children that would help to demonstrate a causal link between pretend play in childhood and adaptive functioning, including creative ideation, coping, and adjustment. Reviews of past play intervention research suggested that they could successfully improve children’s play skills (Dansky, 1980; 1999), but while other studies had demonstrated improvements in problem-solving skills (Rosen, 1974), divergent thinking (Hartmann & Rollet, 1994), and positive affect (Udwin, 1983), Lillard and colleagues (2013) raised a number of methodological critiques of these studies and concluded there was no support for pretend play increasing creativity.

The first iteration of Sandy’s play intervention was launched in 2000 (Russ & Kaugars, 2000-2001) and continually improved versions on the one-on-one model of facilitator and child were tested in the decades to come with increasing success (e.g., Fehr & Russ, 2016; Hoffmann et al., 2012; Russ et al., 2004), leading to expansions such as group play versions (Fehr et al., in press; Hoffmann & Russ, 2016), and telehealth models (Dimitropoulos et al., 2017). Using a standardized set of toys that included dolls, figurines and accessories, animals, blocks, vehicles, and ambiguous toys (i.e. a toy that the child does not recognize as having a single definition, such as a piece of felt, or a wooden crescent shape), play facilitators prompted children to play using increasingly imaginative story stems (e.g., enacting play about a boy who goes to school, then, about a girl who lives on the moon). Alternating stories also prompted for varied emotional content (e.g., a sad story about a boy who lost his dog; a happy story about a birthday party). Facilitators helped children improve their play skills over a series of individual sessions using prompts, questions, reflections, summaries, modeling, attentive watching, and praise.

Sandy excelled at outreach to the community and forged fruitful partnerships with local organizations around the Cleveland, OH area, including the Cleveland Children’s Museum and Head Start centers. One significant partnership was with the Center for Research on Girls at Laurel School, under the direction of psychologist Dr. Lisa Damour. There, the play intervention was tested empirically with a sample of 60 girls in kindergarten through fourth grade, randomly assigned to receive four, 20-30 minute sessions of individualized play intervention with a trained facilitator, with the remaining girls serving as waitlist controls. Looking specifically at the “poor players” –

those students who received below average play scores at baseline – the results indicated that scores of imagination and organization were significantly improved at outcome compared to those with low scores who had been assigned to the control condition (Hoffmann et al., 2012). Students were also studied longitudinally with follow-up assessments showing that baseline imagination scores correlated with scores of effective coping collected 18 months later (Fiorelli, 2011). At the four-year follow-up, early pretend play not only predicted divergent thinking in the now 4th through 8th graders, but baseline pretend play and divergent thinking combined predicted students' math achievement scores, accounting for 31% of the variance. Notably, these results remained significant when controlling for verbal intelligence (Wallace & Russ, 2015).

In studies with preschool children, Sandy's work has highlighted the critical role of parents and caregivers in supporting pretend play in young children. For example, while a pilot study found medium to large effects of the play intervention on play skills when parents were included in each play session and asked to conduct additional sessions at home, when the intervention was run again without a parent component, the same effects were not found (Fehr & Russ, 2016). These results showed that parent coaching may be necessary for a play intervention to be effective for young children, as well as showing that the intervention must cross contexts, occurring not just during school, but also at home with parents who encourage pretend play. These findings fit well with research conducted on play intervention sessions, exploring the interactions between play facilitator and child (Hoffmann, 2016), in which some behaviors by the adults were significantly more conducive to high quality pretend play than others (attentive watching and modeling v. prompting and reflecting).

Telehealth Innovations

“As a result of my research program, there is a template for assessment of pretend play and a template for a play intervention protocol. Both templates are sufficiently flexible for adaptations for different purposes in future research” (Russ, 2018, p. 264)

With Dr. Anastasia Dimitropoulos, Sandy has pioneered an adaptation of pretend play protocols through telehealth video conferencing. While research supports telehealth as an effective means of psychological service in general, there remains an open question as to whether play interventions could be administered this way. Sandy and colleagues began with a pilot study to test the feasibility of a telehealth play intervention for children 6-12 years of age, diagnosed with Prader-Willi Syndrome (PWS), a genetic disorder that causes children to be constantly hungry, putting them at risk for obesity and type 2 diabetes. Children with PWS can also present with decreased social and emotional functioning compared to neurotypical peers, including difficulty interpreting and using social information and regulating emotions effectively (Holland et al., 2003). Children with PWS also show impairments

in their pretend play abilities, similar to those exhibited by children diagnosed with Autism Spectrum Disorder (Bennett et al., 2015; Zyga et al., 2015).

Sandy and colleagues identified the need for a telehealth intervention to study children with PWS, as enrolling local participants for frequent in-person interventions was not feasible with this rare disorder, affecting approximately 10,000 to 20,000 individuals total in the United States (Cassidy et al., 2012). In a proof of concept study, Dimitropoulos et al. (2017) successfully delivered a 6-week play intervention via telehealth to eight children with PWS. Next, the efficacy of the telehealth intervention was assessed with 15 children with PWS, ages 6 to 12 years old (Dimitropoulos et al., 2021). Following the intervention, children had significantly improved pretend play, as measured by the APS, and increased general cognitive flexibility on the Multidimensional Stimulus Fluency Measure (MSFM; Moran et al., 1983). Notably, this series of studies not only demonstrate the feasibility of play interventions over telehealth for the PWS population, but that such an intervention is possible at all. Secondly, the research group has achieved transfer effects from pretend play to divergent thinking and cognitive flexibility, a critical finding for supporting the theoretical linkage of pretend play and creative ideation.

Mentorship and Teaching

To Sandy, the heart of her lab was the students. In a recent chapter, reflecting on words of wisdom for future researchers, she writes,

“Graduate students have fresh ideas and often do not know what the obstacles are- so they just go ahead and do it. For example- Astrida Kaugars led the development of the pre-school adaptation of the play scale (APS-P); Jessica Hoffmann developed the adaptation of the play intervention for small groups; Olena Zyga led the telehealth approach. I had my doubts about all of the above, but my students forged ahead. And they were right.” (Russ, 2018; p. 276)

Sandy taught all levels of students. For undergraduates she offered a long-standing freshman seminar, *Psychology of Creativity*, as well as courses on *Creativity in the Arts, Sciences and Engineering*, *Children’s Play and Fantasy*, and *Creativity Through the Lifespan*. She also offered a *Hospitalized Child* class that included a practical element in which undergraduates served as volunteers, playing with children at the area hospital. At the graduate level, Sandy taught courses in child and family therapy, psychodynamic therapy, and the projective tools module of the psychological assessment seminar.

Dr. John (Jack) D. Mayer, who coined the term emotional intelligence with Peter Salovey and launched it as an area of research across subdisciplines of psychology, education, and organizational behavior, was a former graduate student of Sandy’s. In personal correspondence with Zorana Ivcevic on June 1, 2021, Jack reflected on learning under Sandy’s mentorship:

I remember especially Sandy’s absolutely amazing year-long course on personality assessment. As is customary,

she trained all us budding clinicians on what were then key psychological tests for clinical work, including the Exner Rorschach, WAIS-R, MMPI, and similar.

*Beyond those basics, however, Sandy was thinking deeply about the proper contents for such a course: her Ph.D. thesis had been focused on the role of assessment in treatment decisions and shortly thereafter she published an article on how to teach the course in the *Journal of Personality Assessment* (Russ, 1978). She openly discussed how to 'give people bad news' from an assessment in a manner that was so sympathetic to the recipient as to be hard for many of us to duplicate.*

Sandy's intellectual humility and willingness to consider diverse viewpoints on how to understand a person were truly remarkable to me. It was an intellectually-enriching experience to read work by master clinicians such as David Rappaport alongside then-startling critiques by Paul Meehl, and the seemingly-devastating criticisms by Walter Mischel, who began to set out more realistic limits of the field.

The debate among students in the course over how to best assess someone, which Sandy encouraged and respectfully moderated, formed a cornerstone of my intellectual development. Although I left clinical work to focus on research, my interest in the possibilities of understanding people was energized by her course and my interest in the topic was sufficient to launch me on a research career addressing questions raised in that seminar ever since.

The influence of Sandy's teaching and mentorship is clear in Jack Mayer's work. With influence from lessons about assessing diverse aspects of functioning, central to Jack's work is the conceptualization of personality as a system addressing four major functions: energy development (carried out by affective and motivational subsystems), knowledge guidance (cognitive subsystems), self-management, and action planning (Mayer, 2003; 2005; 2015). This model defines personality as including, but also broader than the dominant trait and social-cognitive approaches, and explicitly stresses the importance of dynamic connections between different subsystems (such as affective and cognitive ones). Such integrative work echoes Sandy's efforts to consolidate important points from different perspectives in clinical work, assessment, and the study of play.

Advocacy Successes

Sandy was hired to the clinical faculty of Case Western Reserve University by then chair of the department, Dr. Irving Weiner. At a gala in his honor at the Society for Personality Assessment in 2010, Dr. Weiner told Jessica that even though Sandy did not yet have as much of a research track record as some other candidates, he believed in her work and was confident in her.

When Sandy joined the faculty, the psychology department had just two other female faculty. “It was a tough road” Sandy stated. In the early 1980s Sandy converted her unpleasant experiences into a drive to become active on the personnel committee, and eventually became Chair of the Faculty Senate. Having struggled as a young faculty member, wishing she’d had more mentors, she made faculty development a high priority. Speaking of her time in administration, Sandy mused, “You could say it’s a lot of creative problem solving, but you’re looking at best practices from other universities...the satisfaction is doing something to help other people” she stated. As Chair of the Faculty Senate she succeeded in creating a policy that each faculty member had to be reviewed each year in writing, and that there had to be formal mentorship. She remembered, “...when that got voted in the Faculty Senate, everyone applauded. I still remember that. These were my peers and it was very meaningful.”

As Associate Provost, Sandy developed an affirmative action system for hiring and search committees in the late 80s and early 90s. These policies and practices related both to practices for women as well as people of minority groups. She touts as a great achievement, her policy that women who had a child had an extra year added to their tenure clock. “We were one of the first universities to do that,” she stated.

Sandy was also open to discussing with her graduate students the pros and cons of changing their names, and what name they used professionally. She reflected on women publishing under their maiden or married names. Sandy herself, whose maiden name is Walker, and who is married to psychiatrist Dr. Tom Brugger, maintains the last name “Russ”, the surname of her first husband, which she was compelled to keep as her professional identity was developed as Dr. Russ. While respecting the individual choice of each student, Sandy always acknowledged that this choice was only available to women now because of societal changes fought for by the women of her generation. Among her graduate students of the 2010s, a favorite story was that years prior Sandy forbade female graduate students from bringing baked goods to their dissertation defenses because the male students did not do this.

Sandy has also served two terms as interim Dean of Arts and Sciences. The first time, in 2003, she was a key player in advocating to the university president to give money to the college. “One of the things we did was save the theatre program which had a partnership with the Cleveland Playhouse,” (Sandy, 2021). The program had been in economic trouble, but this funding allowed it to remain in place and has been thriving ever since. “They were listed last year as one of the twelve best MFA programs in the country,” Sandy stated.

Contributions to the Creativity Societies

Sandy’s resume boasts a near endless list of committee and executive positions served. Always a bridge between the worlds of creativity research and personality assessment, Sandy serves on the editorial board of *Creativity Research Journal* and is a consulting editor for the APA journal *Psychology of Aesthetics, Creativity, and the Arts*. She was also on the editorial board for *Journal of Personality Assessment* (1985-1990 and 2002-2019), and an asso-

ciate editor of the *Encyclopedia of Creativity*, second edition (2011). Sandy has served advisory roles for both the LEGO Foundation (2018-19), and the Center for Childhood Creativity at the Bay Area Discovery Museum (2018-19).

Sandy remains an active member in the American Psychological Association's Division 10, Psychology of Aesthetics, Creativity, and the Arts. Now a fellow, she has played a variety of roles, serving as Program Chair (1999-2000), President of the Division (2000-2001), Representative For Division 10 to the APA Council (2004-2007), Chair of the Division 10 Nominating Committee (2009-2010), Chair of the Division 10 Fellows Committee (2011-2016). In 2002, Sandy won the Farnsworth Award for Service to Division 10, and in 2015 she won the Rudolph Arnheim Award for Outstanding Achievement in Psychology and the Arts. Reflecting on her time as President of the Division, Sandy stated,

"Division 10 was really important in developing a network of people...Bob Sternberg was president right before me. The big issue was 'should we have the word creativity in the title?' There were people opposed to it because it was an art and aesthetics group...It was very controversial...We got that name change through and what we wanted to do was pull more researchers into the area, especially in science, not just in art, but the full field, it should be a home."

Dr. James Kaufman, in personal correspondence with the chapter authors, wrote the following about Sandy and her contributions to the Division 10 community and beyond,

When I was first starting out and getting involved in Division 10, Sandy was one of the most welcoming and nicest people. She made me feel I belonged. As I got to know her better, I was astounded at how humble she was. Sandy is the world expert on the intersection of play and creativity, yet is modest, self-effacing, and quick to credit and praise others. Sandy is a topnotch scholar whose work covers a notably deep scope; her studies of play and creativity in unique clinical populations are especially noteworthy. I had long had a career goal of getting to collaborate with Sandy, and am thrilled our co-edited book is coming out in 2021!

Innovator and Incrementalist

"I've often gone against the grain...the pendulum swings back and forth. You can't let that guide what you do. The popularity of the concept...All of a sudden play and creativity got popular and there I was, but you can't let that determine what you're doing." (Russ, 2021)

Early career clinical psychologists often fantasize of finding their perfect balance – teaching, conducting research, and seeing patients – but this is not easy to achieve. Someone like Sandra Russ who truly sits at the intersection of all three, and does so with such excellency in each domain, is rare to find. Even more impressive, she achieved “trailblazer” status while embodying the qualities described by her colleagues in this chapter: humility, kindness, patience, and deep regard for others. Sandy serves as evidence that an academic can find success, and even eminence, by simply doing great work, year after year. Sandy’s acute ability to synthesize across fields, to explain complex concepts in accessible ways, to treat patients and research participants with such compassion, and to anticipate the research questions of the future, makes her an uncommon combination of incrementalist and Zeitgeist changer.

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CHAPTER THIRTY TWO

DEAN KEITH SIMONTON: A TRULY REMARKABLE CONTRIBUTION TO CREATIVITY STUDIES THAT WILL BE ONE FOR THE AGES

RYAN DANIEL

ABSTRACT: The research oeuvre of Dean Keith Simonton has propelled the field of creativity studies into new territory and brought with it a raft of critical insights. For over 50 years, Simonton, by applying a scientific lens, has interrogated some of the most important phenomena in the history of creativity studies, such as leadership, genius, talent, giftedness, and expertise. He has pioneered the application of quantitative methods, in particular historiometry, to the work of the great composers, to cinema, to visual arts, and to creative writing. While not without his critics, Simonton has offered the field of creativity studies a wealth of evidence-based insights and directions for future research. Importantly, his research often considers potential future realities for societies. Simonton is a generous scholar; he acknowledges the work done by pioneers in the field and that of his contemporaries. In addition, he seeks to make his often-complex work accessible to a wide readership and is dedicated to furthering the field of creativity studies.

Keywords: Dean Keith Simonton, historiometry, creativity, artists, genius

Dean Keith Simonton: A Truly Remarkable Contribution to Creativity Studies That Will Be One for the Ages

Highly creative scientists are ambitious, show a strong interest in science, read voraciously early on, and are high in openness to experience showing a broad range of hobbies and activities. Simonton fits this profile perfectly. His highly ambitious disposition pushed him through life and helped him refuse to conform to people's expectations and break all norms. (Damian, 2020, p. 514)

It was a challenge when starting to write this chapter about the eminent psychologist Dean Keith Simonton, given early searches of relevant literature and commentary revealed that Rodica Damian (2020) had already published a brief but excellent biography of Simonton in the third volume of *The Wiley Encyclopedia of Personality and Individual Differences*. In this biography, Damian (2020) describes the eminence of Simonton in the field of psycholo-

gy scholars, in particular his output over time and which already exceeds several of the most lauded psychologists in history, including Wilhelm Wundt, Sigmund Freud and William James. The major positive to come from the reading of this entry was that it confirmed my preliminary insights into Simonton's major contribution to the field of creativity studies and the subfields of eminence, talent, and genius in particular. Specifically, Simonton brings to the field of the traditional arts (in particular music, creative writing, and cinema) a disciplined and rigorous approach to investigating what are often seen as forms of creativity which are challenging to decipher and quantify in any measurable way.

At the time of writing this chapter, Simonton's output was simply staggering: 14 books, 155 chapters, 55 encyclopaedic entries, and 350 contributions to journals, periodicals, and annuals. On average he produces approximately eight publications a year which for any academic and researcher in higher education is outstanding, particularly given the quality and eminence of the journals and publishers that feature his work. In addition, one need only look at his works in progress to see just how productive he continues to be (Simonton, n.d.-b). When asked about this very high level of productivity, Simonton commented that it is much easier when working on many projects at the same time, and how a key benefit of this is that one idea on one project may have a surprising insight towards another (Damian, 2014).

Additional measures of quality and esteem include the fact that, according to Google Scholar, his work has been cited more than 31,000 times; he has a h-index of 85 (meaning 85 of his outputs have been cited 85 times or more) and an i10-index of 291 (meaning 291 of his outputs have been cited at least 10 times). He has been awarded countless prestigious awards and commendations (Damian, 2020) and he has been lauded for research studies which feature impressive datasets (Ginsburgh & Throsby, 2013). For a prospective or emerging scholar in the field of creativity studies, he represents a remarkable figure in terms of productivity and achievements and is a light on the hill for inspiration. He reflects very positively on the current state of the field, describing it as a "Golden Age for creativity research" (Simonton & Lebuda, 2019, p. 143). As Damian (2020) also states, "the inevitable conclusion is that Simonton himself would make an excellent participant in his studies of great psychologists" (p. 514).

One of the milestone moments in the field of creativity studies, frequently cited in creativity studies literature, was the keynote address by Joy Guilford at the American Psychological Association conference in 1950, where he argued the need for much greater work and research output in the field of creativity studies. Simonton was certainly one of the psychologists who took the lead from Guilford and voraciously pursued research and scholarship in the field and with intense passion, the latter often coming through in his writerly voice. Another feature of his research career is that he has never remained dogmatic, static, or monocular in his views or in the thinking and insights that he brings to the field of creativity studies. As he states, his work has "always been both substantively and methodologically diverse" (Simonton & Lebuda, 2019, p. 142). In another interview, he notes that "people should not forget that I have also published mathematical mod-

els, computer simulations, qualitative single-case studies, and even laboratory experiments” (Damian, 2014, p. 25). At the same time, his decades of work in reviving, developing, and applying historiometrics as a research methodology is, without question, what sets him apart as a true leader in the field of creativity studies and what makes him unique (Damian, 2014).

A key characteristic of Simonton’s career has been his determination to tackle obstacles and push through boundaries. For example, when applying for PhD studies in the field of social psychology—his great passion—he was told it was too unconventional by faculty at Stanford University. He was fortunate however to be able to pursue this passion at Harvard, completing his PhD in the field of the social psychology of creativity. This hurdle was another early example of Simonton’s steely determination, refusing to conform to the zeitgeist of the time in the field of psychology research, but rather laying the foundation for a research career that has played a major part in establishing the application of social psychology methodologies to the field of creativity studies. This steely determination continued, Simonton choosing to submit to a top tier journal in 1975 for example, despite being warned against it; the work was accepted soon after and received warmly for its freshness. Simonton (2002b) has had to display tenacity and courage in his career, remaining persistent and resilient to criticism and rejection, and maintaining self-belief in the quality and relevance of his research. A parallel can be drawn here to the great composer Beethoven—one of the artists featured in Simonton’s research oeuvre—with Beethoven often enduring painstaking struggles when composing many of his greatest masterpieces, and who faced ongoing criticisms and challenges in his lifetime.

A major feature of Simonton’s research output is the application of high-level quantitative research rigor to a domain of practice which traditionally rests on its laurels of “art for art’s sake”, or where its loudest constituents howl from the wings or stamp their feet arguing that great art cannot be measured, predicted, or explained. Simonton’s work demystifies the perception that art speaks for itself in magical or mystical ways, and offers direct insights into the structural, pattern-based, biographical, and temporal aspects relevant to the masterpieces in question, such as Shakespeare’s sonnets and plays or Beethoven’s symphonies. In relation to Beethoven, a remarkable achievement of Simonton’s computerized content analysis is how he demonstrated why the composer’s odd-numbered symphonies have proven more prominent than those with even numbers, a belief widely held in musical circles but not evidenced empirically prior to his research (Damian, 2014). Beethoven’s Third (Eroica), Fifth, and Ninth (Choral) symphonies remain far more known and lauded than any of the even-numbered symphonies. He also demystifies the notion of the genius element of the great creatives (Simonton, 2014a), in that through his historiometric studies, Simonton evidences that the great creative geniuses do not consistently produce works that achieve aesthetic or critical success (e.g., Shakespeare and Beethoven). He shows both the creative genius achieved by eminent artists, but also reveals that they produced works which did not reach the same heights as others; as an example, he cites the differences in terms of how successful Shakespeare’s play *Hamlet* has been in comparison to *Timon of Athens* (Simonton, 1986b).

In much of his research, Simonton focusses on the lives and output of eminent creatives in history, using historiometrics as applied to biographical data. In a detailed overview of the history, literature, and specific methods involved in historiometric research, Simonton (1999) refers to the three essential components of this approach: (a) it seeks to test nomothetic hypotheses concerning human behavior; (b) quantitative analyses dominate investigations; and (c) historical individuals, not living people, are the subjects of the inquiries. Simonton (1999) concludes this particular chapter by referring to how historiometry (given its distinct approach) has ongoing relevance and offers distinct advantages for “the scientific study of creativity in its most stellar form” (p. 125). He is perhaps best known for being a world leader in the use of historiometry.

In relation to myself as author of this chapter, it was inordinately refreshing to delve into a fascinating and very compelling body of research that brings an entirely new perspective by which to look at creativity within the art domain. It is a privilege to be able to offer some insights into the contribution of this remarkable thinker and researcher. However, to attempt to adequately overview let alone detail the remarkable number of studies he has undertaken would be simply perilous in any single publication. Further, a reader can engage with Simonton’s own very detailed, personable, and interesting autobiography of how his career and use of historiometry developed up to 1990 (Simonton, 1990), which today we could perhaps see as the first third of his career. Hence this chapter seeks to provide highlights, or examples of studies that provide evidence of Simonton’s contribution to the field and in particular, what constitutes giftedness, talent, and genius; the mad-genius paradox controversy; as well as how creativity (and genius) might be better understood in the fields of music composition, creative writing, and contemporary cinema.

Giftedness, Talent, and Genius

At the time of writing this chapter, one of Simonton’s latest publications set out to disentangle the concepts of giftedness, talent, and genius, three concepts that he has considered and researched for decades. Initially referring to how these three terms are largely interchangeable in the literature, he then provides an explanation of how giftedness is best associated with preadult years (childhood and adolescence), talent explains the nature (genetics) side of giftedness, while genius “entails adulthood achieved eminence rather than childhood elevated performance with respect to some established norms in a culturally valued domain” (Simonton, 2021, p. 399). As is common to Simonton’s views and research approach, he argues that genius is best identified posthumously, in order that there is sufficient time to allow the outputs produced—be they theories, ideas, military strategies, political decisions, art works, or innovations—to stand the test of time and remain as a crowning achievement in a field of endeavor or part of society. In conclusion, Simonton (2021) acknowledges that while his unpacking of these three concepts (giftedness, talent, and genius) has substantial merit, given the long tradition of research in the area and the current national definition of giftedness in the United States, there is more to be done. For any researcher interested in these

three concepts, Simonton's research output and most recent study provide a wealth of empirical findings and insights.

The Mad-Genius Controversy and Paradox

The perceived or real link between psychopathology and creativity has fascinated and challenged great thinkers, commentators, and researchers for centuries. There are countless references in the literature, for example, to Plato's idea of divine madness in poets, the idea of the muse, as well as the debates as to whether genius requires some form of accompanying symptoms of psychopathology. Debates range between those who state there is categorically no clear link between psychopathology and eminent creativity, those who argue that there may be a link, and those that argue there is in fact a clear link (Abraham, 2015). These debates continue: Kyaga (2018) describes it as "one of the fieriest debates in creativity research" (p. 114), while in his most recent writing on the subject, Simonton (2019) adds that the "mad-genius controversy concerning the relation between creativity and psychopathology is one of the oldest and most contentious in the behavioral sciences" (p. 17). Rather than adopt an either/or stance, which he argues too often dominates debates in the psychology field, Simonton (2018) argues that both sides have relevance; he is clear that "the relation between suicide and mental illness is complex" (p. 19).

In his research he raises a number of pertinent and challenging questions, for example, who decides whether an eminent creative or genius is in fact a victim of debilitating mental health disorders? Alternatively, in what ways is it possible to determine whether an individual's mental health disorder is a requirement for their achieved creative excellence or genius? Another compelling question he raises is in relation to whom you would compare the creative genius to: a randomly selected person or somebody closely matched across a number of variables such as age and gender? He also challenges the body of research that focusses on living participants for the testing of the psychopathology-creativity relationship, arguing that any point-in-time analysis fails to cater to the longer-term relationship between these two factors, and in particular whether it is a linear or curvilinear relationship. In addition, he argues that using a living sample is methodologically flawed given the work/achievements have not yet stood the test of time (Simonton, 2019), a valid point given in the art world, the likelihood of achieving enduring success and popularity is of prime concern in evaluating the merit of a contemporary work by a living artist.

In a major study focussed on 204 eminent creatives from Western civilization born between 1766 and 1906, Simonton (2014b) applies historiometrics to establish that geniuses in artistic fields are more likely to suffer from psychopathological conditions than those in the sciences. He found the relation between psychopathology and eminence changes across the five domains that were researched. For creative writers and visual artists the relation is positive and linear, but for the scientists, thinkers, and composers, the relation is described by an inverted-U curvilinear relation, with a different optimum for each. The optimum is at the lowest level for the scientists so that the overall relation proves negative, unlike the other four creative domains.

In another paper, Simonton (2017) discusses research that hypothesizes that those who go through diversifying experiences—such as the loss of a loved one at a young age—could be a crucial factor in the development of creative potential. While any developmental adversity, if severe, has the potential to destroy an individual’s creativity, the key is finding what Simonton (2017) refers to as the “sweet spot”. The hypothesis therefore is that those who go through significant adversity will display less intense symptoms of psychopathology. This was tested by Simonton with the data relevant to 291 eminent African Americans who lived and created before the civil rights movement, thus suffering poverty and severe discrimination. It was proposed that this group would suffer less symptoms of psychopathology than those in the majority (white) culture who had not experienced such hardship. Simonton confirmed that the African American artistic creators showed more signs of psychopathology than did noncreative African Americans, but what they also found was that none of the writers (including such poets as Maya Angelou and Gwendolyn Brooks) took their own life through suicide. He cites Maya Angelou as an example of an eminent artist who suffered extreme developmental adversity but who showed no signs of adult psychopathology.

In summary, the statement that perhaps resonates the most for current and future researchers with an interest in the highly contentious mad-genius area is that the creativity-psychopathology issue is “far more complex than meets the eye” (Simonton, 2017, p. 240). Yet rather than sit on the fence or further obfuscate the issue, Simonton offers a well-reasoned and balanced view, enabling others a basis by which to consider their own views and undertake new research studies: “Creative people as a group can enjoy more mental health than noncreative people, yet the most highly creative people may suffer more mental illness than less creative people” (Simonton, 2017, p. 244). As is typical of his desire to offer directions for other researchers, Simonton (2019) recently referred to seven elements that need to be addressed in future enquiries in the area of the psychopathology-genius paradox, namely “target persons, mental disorders, creative domains, specific hypotheses, quantitative assessments, data analyses, and theoretical explanations” (p. 17). Simonton’s pioneering work in this area, without question, offers a tremendous platform for further research in the field.

Creativity and Music Composition

Over the course of his research career, Simonton has investigated various factors and variables associated with eminent composers, the notion of the masterpiece, career trajectories (early, best, and last works), the swan-song phenomenon (final masterpiece), and aesthetics in music. As he indicates, composition is one of the most mathematical of the art forms, hence the suitability of using historiometrics as the dominant methodology (Simonton, 1986a). However, rather than rely purely on computational analysis, he brings in artistic, biographical, and historical conditions that had both direct and indirect impacts on the relevant musical masterpiece.

In an early study of 10 eminent composers of classical music, Simonton (1980) investigated the differential fame of 5,046 melodic themes created by this group, using computerized content analysis. As perhaps one of

the most famous examples, Simonton questions why it is that Beethoven's Fifth Symphony, with its accompanying "death knocking at the door" opening motive, is arguably better known than the majority of symphonies written by all other composers. Implementing a rigorous testing process, Simonton (1980) was able to identify that:

- biographical stress (e.g., a death in the family) has a direct impact on increased melodic originality;
- there is some decline in melodic originality in the latter part of a composer's career;
- as time progresses a composer must create ever more original themes to retain favor with audiences; and
- there is a positive linear function between the popularity of a theme and melodic originality.

At this point in his research career, Simonton (1980) acknowledged the need for a much larger sample of composers and melodic themes before generalisations could be made.

In a further study in this area, Simonton (1986a) analysed a larger body of data consisting of 8992 melodic themes, aggregated into 1,935 compositions, from 172 composers from the Renaissance period to the 1980s. Simonton (1986a) used four gauges of success in the quantitative method, namely composition popularity, aesthetic significance, accessibility, and minimum age. One of the interesting findings was that "composers born farthest away from the musical centers of their generation create works that are more accessible, less popular, and, most critically, less variable in the originality of thematic material" (Simonton, 1986a, p. 15). The other finding of significance was the "tendency for wartime compositions to display more extreme fluctuations in originality during the course of a piece" (Simonton, 1986a, p. 15), in terms of melody, rhythm, dynamics, and structure. Finally, Simonton (1986a) suggests that the "musical zeitgeist may provide the baseline for a composer's melodic thoughts, yet departures from this given pattern likely hint at the composer's emotional state at the moment of composition" (p. 15).

While more recent research (Meredith & Kozbelt, 2014) challenges the robustness of the results in a further study on composers (Simonton, 1989b), at the time it was considered very innovative. In this investigation, Simonton (1989b) looks at the concept of the swan-song phenomenon and a composer's final works. After initially referring to the fact that composers are generally most productive at the midcareer point, Simonton (1989b) set out to examine any distinctive features of composers' last works, including the extent to which the proximity of death results in a direct impact on musical form and content. Simonton (1989b) assessed 1,919 compositions (by 172 composers spanning almost 500 years) on seven aesthetic attributes: melodic originality, melodic variation, repertoire popularity, aesthetic significance, listener accessibility, performance duration, and thematic size. Simonton (1989b) found that composers aim to produce masterworks in this final phase, which are "apparently brief, relatively simple in melodic structure, but profound enough to acquire a lasting place in the concert hall" (p. 45). He then proceeds to argue that the swan-song phenomenon is not a myth, suggesting that

it is more an expression of acceptance, resignation, and contentment, rather than a sense of despair or tragedy. He concludes by proposing that the swan-song effect would have significant relevance to other fields, such as literature and the visual arts.

Creativity and Writing

The literary genius that dominates Simonton's research in this area is Shakespeare. In a study focussed on Shakespeare's 37 plays, Simonton (1986b) again uses historiometrics to interrogate the reasons why some of the plays achieved more success than others, notably bringing into the conceptual framework the need to consider the biographical background of the playwright (e.g., age and life experiences) as well as the surrounding circumstances of the time (e.g., political and cultural events). Applying a factor analysis using 19 indicators (e.g., frequency of performance on stage and film versions), the results indicate that there is a range of success or popularity across the 37 plays, ranging from *Hamlet* as most successful, to *Timon of Athens* as one of the least successful. In order to test the validity of the method, Simonton asked two professors, both experts in Shakespeare studies, to rank the 37 plays using such measures as the standard US grading system of A to F (with + and -), most personal plays, amplitude, and achievement. Totalling 15 measures, the "subjective judgments of these two experts reveal[ed] a tremendous concordance with the 19-indicator objective index" (Simonton, 1986b, p. 498) that Simonton developed and applied.

In another study, Simonton (1989a) analysed the 154 sonnets written and published by Shakespeare in 1609, now over 400 years ago hence with ample time for the works to have been exposed to the views and criticisms of readers, academics, and critical writers. After applying a rigorous system of quantitative analysis based on over a century of sources including anthologies, quotes, and literary digests—totalling 27 individual measures—Simonton (1989a) is able to demonstrate that the "exceptional sonnets among the 154 are those that treat an impressive diversity of themes, use extensive primary-process imagery, and convey all this manifest and latent content in a rich language that projects considerable arousal potential" (p. 713). While Simonton has also published numerous other papers focussed on Shakespeare, the two discussed briefly here provide an insight into how his application of historiometry enables keen evidence-based insights into the nature of Shakespeare's literary genius.

Creativity and the Cinema

Simonton's work on cinematic creativity came in the second half of his academic career, largely due to the experiences of one of his students who had to abandon an assignment in this area because of the lack of published empirical research (Henshon, 2011). Simonton (2002a, 2013b) immediately draws out the considerable distinction between the collaborative nature of making movies as against the individual creativity associated with eminent compositions, paintings, or plays for example. He cites two classic movies—*Gone With the Wind* and *Casablanca*—which were the product of a collective of creative

minds rather than individuals, although he does cite the often-referred-to significant focus on the director as key to a movie's success. He also highlights the vastly different monetary investment associated with producing films, particularly the Hollywood blockbusters such as the *Lord of the Rings* trilogy, one of the most well-known recent examples. His body of research has focussed on the factors which lead to a film's comparative success (Simonton, 2002a, 2009), the extent to which cinematic creativity is linked to a film's budget (Simonton, 2005), the impact of the music score on a film (Simonton, 2007b), the influence of sex scenes (Cerridwen & Simonton, 2009), the productivity of film composers over their career (Simonton, 2007a), and the impact of the screenplay on a film's success (Simonton, 2013b).

In an early study, Simonton (2002a) assessed 2,323 movies from the period 1928 to 2000 that were nominated for Academy Awards in the major categories. After applying selection criteria and predictor/control variables, Simonton (2002a) was able to identify that:

- directors and screenwriters have a significant effect on a film's success;
- other key persons such as actors and film editors have less of an impact;
- visual and sound effects have virtually no effect; and
- a film's success is a complex phenomenon and further research is necessary, for example, in relation to scepticism about the validity of Oscar nominations and wins.

In a second study related to film success, Simonton (2009) explores the aesthetic factors and associated complexities with determining the relative success of 1006 narrative films released between 2000 and 2006. By applying a number of endogenous and exogenous variables—such as film critic reviews, academy awards, budgets, ticket sales, and release season/year—he then constructs a recursive model to analyse the data and connect cinematic success with aesthetic and economic antecedents. Simonton (2009) proceeded to identify three general conclusions: (a) that cinematic products can be divided into works of art and works of entertainment, (b) that no predictor displays a consistently positive impact (he cites longer-running films as generally more favoured and awarded), and (c) that a film's success is not easily predicted given the range of intricacies involved. As typical of his work, Simonton (2009) describes this particular research as exploratory and recommends further studies.

In a 2005 study, Simonton set out to assess the impact of a film's budget on its cinematic creativity, using multiple criteria (critics' evaluations, awards, earnings). After identifying a sample of 203 narrative films released between 1997 and 2001, and applying a robust methodology, the results indicated that:

- large budgets do positively correlate to a film's earnings (e.g. *Titanic*);
- on the other hand, large budgets do not guarantee either award nominations nor wins, and are in fact a negative predictor; and

- while large budgets do enable excellent visuals, special effects, and music, it is great screenplays, directing, acting, and film editing that have more impact in terms of critical awards, and regardless of the budget size.

In conclusion, Simonton (2005) states that a great drama “buys more success than does copious cash” (p. 13).

Views of Others

A number of eminent psychologists and others have commented extremely positively on the numerous texts that Simonton has published, with key examples of the compelling recognition of the timeliness, thoughtfulness, and excellence of his work provided on Simonton’s website (Simonton, n.d.-a). Additional examples of the esteem to which his work is held include the following statements made by his peers:

- Stam (2003), in discussing the measurement of eminence through historiometric methods, states that “Simonton has to rank as one of its most skilled practitioners” (p. 277).
- Kozbelt (2008) refers to the three decades of “groundbreaking historiometric research on classical composers” (p. 182).
- Stroebe (2010) refers to Simonton as “undoubtedly the most important and prolific researcher in the area of the psychology of science. He developed an elegant quantitative model of the decline in creative potential, which predicts that the association between age and productivity is curvilinear and declines with career age rather than chronological age” (p. 662).
- Kozbelt (2019) later refers to Simonton as “easily one of the all-time most eminent creativity researchers (especially of Big-C creativity)” (p. 81).

Part of the research and writing of this chapter involved the author contacting a sample of his graduate students, these listed on his website and with publicly available contact details obtainable. Each was invited to reflect on their time working with Professor Simonton and offer any insights they wished to do; some did this by email while I had the privilege of speaking to a small number via Zoom. In general, there was overwhelming support for his work as a supervisor, colleague, and supporter. Given these individuals agreed to offer reflections on the basis of anonymity, they are referred to as Graduate A, B, etc., with a sample of reflections as follows:

- “I enjoyed his teaching style and the few meetings I had with him” (Graduate A).
- “He was on my dissertation committee, a study of creativity ... and supplied helpful advice throughout that process” (Graduate B).
- “Dean is a fascinating person, full of energy, a walking encyclopedia, a very creative thinker” (Graduate C).
- “This is a well-deserved honor for Dean Simonton” (Graduate D).

- “Aside from his enthusiastic support for my research, I remember him for his truly prolific publications on a wide variety of topics ... Dean has certainly enriched current thinking in psychology” (Graduate E).
- “I would not have been able to finish the program if Dean had not taken me as a graduate student” (Graduate F).
- “Those are the times I remember most fondly of my time with Dean – the discussions in his office with a small group of graduate students” (Graduate G).
- “He was pretty perfect as a doctoral adviser” (Graduate H).
- “He told me that if you are going to pursue an alternative area of research, be very good at it” (Graduate I).

Criticism of His Work

Like any pioneer in a research field, Simonton’s work has not been without criticism. One notable early example is referred to by Simonton (1990) as “the case of a reader who informed the journal editor that my paper was the worst he had ever read in an entire career of reviewing manuscripts!” (p. 108). Despite publishing extensive empirical support for his Darwinian theory of creativity, which brings in an evolutionary element to the creative process, this interpretation has often been challenged, with Hennessey and Amabile (2010) referring to this criticism being centred around the view that expertise (talent or acquired) has an essential role to play. As a more specific example, Simonton himself refers to how his application of a Darwinian theory of creativity to Picasso’s work *Guernica* “was attacked almost immediately” (Simonton, 2007c, p. 330). In a review by Galatzer-Levy (1985) of his 1984 book *Genius, Creativity and Leadership: Historiometric Inquiries*, Simonton is criticised for the way he assesses intelligence given his subjects are deceased, the way he interprets the quantitative results, and a general lack of detail relevant to the history of science. While there may be other negative assessments of Simonton’s work, they are difficult to find in the literature, in itself a sign of the respect with which his work is held amongst peers in the field.

Conclusion

By reading Simonton’s work and his interviews, one gets a clear sense of his passion for social psychology research and his genuine concern for the field and for the creativity studies research discipline. The following reflections exemplify his generous spirit and desire to see the best for the field, his peers, and the next generation(s) of researchers:

- “I would hope that the field would tighten links with the social sciences, such as economics, political science, sociology, and cultural anthropology” (Damian, 2014, p. 26).
- “I do have wishes for the future ... my main hope for the psychology of creativity is that it acquire more theoretical coherence” (Simonton & Lebuda, 2019, p. 143).

- “Whether my endeavor to untangle these concepts [giftedness, talent, and genius] succeeds depends on future developments in research and practice. It’s now out of my hands, but I have hopes” (Simonton, 2021, p. 404).

One of the features of Simonton’s research is his ability to interrogate and synthesize the literature, to justify, and to explain the key methodological issues relevant to the research undertaken, to present findings in a clear and compelling narrative, to provide directions for further work, and to extrapolate the relevance of the research to wider society. His research papers typically contextualize very important issues, then proceed to apply a clear and systematic methodology, after which interpretations are always balanced and thoughtful. He has made a conscious effort to make his complex work readable and interesting (Henshon, 2011). For example, his book *The Genius Checklist* (Simonton, 2018) is eminently readable, informative, and interesting, and would be a tremendous starting point for anybody that is curious about the genius concept.

Simonton’s work also raises several questions for the reader regarding the future in terms of creativity, productivity, geniuses, and genius moments. For example, to what extent are we likely to see another Shakespeare, Einstein, Napoleon, or Beethoven? Do our current educational, social, and cultural structures adequately facilitate and enable the realisation of new scientific or artistic genius? Why is it that in terms of the second half of the 20th century, we are yet to reveal in any significant way who are its geniuses? Or, in light of Simonton’s view that the test of time is needed in making such assessments, is it too early to tell? Will future generations look back and identify Bob Dylan, Banksy, Stephen Hawking, Warren Buffett, Barack Obama, Mark Zuckerberg, or Bill Gates as a genius in their respective fields?

Simonton also brings what I suspect is his sense of humor into his work at times. For example, in his 2017 paper on the mad-genius controversy (Simonton, 2017), his final statement—which follows reference to the very complex nature of this phenomenon and if/how it exists—is perhaps tongue in cheek or just simply honest: “Those who want simple answers should switch to questions that have really simple answers” (Simonton, 2017, p. 246). Similarly, when discussing how severe psychopathology in fact terminates creativity, Simonton (2010) remarks that “when geniuses commit suicide or die of a drug overdose, they cease to be creative” (p. 225). When asked about his role as a Distinguished Professor, he responded that it is “the easiest job in the world. All you have to do is be distinguished—in research, teaching and service ... if you’ve regressed to being merely ordinary, then you get demoted to plain Professor” (Henshon, 2011, p. 73).

Ultimately, Simonton (2013a) refers to the fact that while there are extensive insights into what makes a genius across many fields, he also argues that there is “a very long way to go before we obtain a complete picture of the artistic genius” (p. 43). At the same time he has made major advancements in the study of creativity as applied to eminent artists, as well as highlighting the need to further examine how sociocultural factors may or may not impact the aesthetic success of creative outputs. Nevertheless, he makes a

compelling argument in relation to the impact of artistic genius on the everyday lives of millions of individuals, an argument that is hard to challenge:

artistic geniuses generate creative products that have far more personal meaning than anything produced by the greatest scientific geniuses. In all likelihood, more persons have been profoundly affected by Shakespeare's *Hamlet*, Beethoven's Fifth Symphony, or Michelangelo's *Pietà* than by Newton's *Principia Mathematica* or Darwin's *Origin of Species*. From an economic standpoint, too, that differential means that more people are willing to pay more money to experience *Hamlet* on stage, hear the Fifth in concert, or view the *Pietà* in St Peter's than even to buy a second-hand copy of the two greatest scientific books ever written. Artistic geniuses are prototypical of the phenomenon. (Simonton, 2013a, p. 42)

Simonton is a humble man, arguing strongly that he was a precursor to the field, and that it is Theresa Amabile should be recognised as the true founder of the social psychology of creativity (Simonton, 2020c). He also has the view that his research output will be more admired than it will be followed explicitly (Simonton, 2020b), reflecting on the fact that few if any of his research students or his peers have pursued the use of the historiometry methodology, and commenting that he was supportive of his PhD students moving to other supervisors in order that they get the best possible mentor(s) (Henshon, 2011). He certainly is the sole research psychologist to spend an entire career studying eminent creators and leaders, hoping that if another researcher with a similar passion comes along, his work will offer a starting point (Simonton, 2020b). A decade ago he was even humble enough to admit that in the area of classical music, a younger researcher had emerged and who was conducting research "far superior to anything I have ever done" (Henshon, 2011, p. 74). While these various reflections are all humble and honourable, it is hard to argue against the reality that Simonton is a true trailblazer with a research legacy to date that should inspire any scholar with an interest in creativity studies.

Postlude

When considering which psychologist to write about for this text on trailblazers in creativity studies, I was quickly drawn to the work of Dean Keith Simonton, because like him, I grew up with an interest in classical music (amongst many other things). Countless people said to me that I had a great talent that I must surely cultivate, without my knowing what this meant beyond the superficial; for reasons that remain somewhat unclear to me I gradually increased my immersion in classical music, in my case the study of the piano and its enormous repertoire. While Simonton (2020a) demonstrates that music is a domain where both child prodigies and savants are commonplace, I was by no means a prodigy nor a savant, but one of the "ten-year" people he often refers to in terms of expertise acquisition, working tirelessly at the craft from the age of about 14 to 24 before I felt I had any real skill set or capacity to realize the notated musical score with an appropriate sense of style and emotional maturity. I was also drawn to his personal experiences of having to

fight hard to pursue the research career he was passionate about and to overcome many obstacles, rejections, and derisions. In my case I have had to overcome major career obstacles which have been heightened living in Australia, where sporting heroes are considered the geniuses in our society, far more so than artists and other eminent creatives who constantly strive for recognition both domestically and on the world stage. As indicated earlier in this chapter, for me, it has been a privilege to dive into the work of a great scholar and a wonderful contributor to the field of creativity studies and in particular, a scholar whose contribution is likely to be increasingly lauded in future. Simonton's work is not well known in the traditional creative and performing arts academic circles, given his primary domain is psychology and most academics in the arts are focussed very much on their specific discipline. I intend to change this and bring his amazing work in creativity studies into the traditional arts academy as much as I possibly can, so that Simonton's very important insights can inform our understanding of creativity and genius in the artistic context.

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Editor's Note

Dr Simonton sent in the following biographical note.

Additional Contribution by Dr DK Simonton

Dean Keith Simonton is a native of Los Angeles, California, where he was born in 1948. He obtained his 1970 BA in Psychology from Occidental College and earned a 1975 PhD in Social Psychology from Harvard University. By then Simonton had already launched an original and prolific program of empirical, theoretical, and methodological research on genius, creativity, leadership, talent, and affiliated topics. One highly distinctive feature of this program is that most of his empirical studies use objective and quantitative techniques to analyze multi-case samples of historic figures, from Nobel laureates in the sciences to presidents of the United States.

Notwithstanding this emphasis on historiometric research, Simonton has always used alternative methods. Indeed, he has also published laboratory experiments, mathematical models, computer simulations, meta-analyses, psychometric investigations, secondary data analyses, single-case studies, and interviews. This pluralistic approach has substantially expanded our scientific understanding of the cognitive, personality, developmental, and sociocultural factors behind achieved eminence in a diversity of domains—findings consolidated in various monographs.

All told, Simonton has averaged about one publication per month, including 14 books (11 sole authored, 1 edited, 1 co-edited, and 1 author-reprint collection), 160 book chapters in edited volumes (55 in handbooks), 55 entries in 29 encyclopedias, and 351 contributions to 134 different journals, annuals, and other periodicals (175 full articles and 176 shorter pieces). As if that total output were not striking enough, 93% of his publications are single authored. Yet despite the fact that co-authored work tends to be cited far more often (due largely to collective self-citations), more than 440 of his publications have been cited at least once, and almost 300 have been cited 10 times or more.

Not only does his research appear in top-tier journals, but their editors have promoted 46 of his publications as lead articles in such venues as *Psychological Review*, *Psychological Bulletin*, *Perspectives on Psychological Science*, *Review of General Psychology*, *Psychological Inquiry*, *Journal of Personality and Social Psychology*, *Journal of Personality*, *Journal of Experimental Social Psychology*, and *Journal of Applied Psychology*. Additionally, several of Simonton's single publications have merited even more prominent recognition, namely the William James Book Award (American Psychological Association, APA Div. 1), the George A. Miller Outstanding Article Award (APA Div. 1), the SPSP Theoretical Innovation Prize (APA Div. 8; since 2013 named after Daniel M. Wegner), the Otto Klineberg Intercultural and International Relations Honorable Mention (APA Div. 9), and three Awards for Excellence from the Mensa Education and Research Foundation (MERF).

Furthermore, his long-term efforts have garnered multiple career honors, including the Rudolf Arnheim Award (APA Div. 10), the Sir Francis Galton Award (International Association of Empirical Aesthetics; IAEA), the

Henry A. Murray Award (Association for Research in Personality and Society for Personology), the Joseph B. Gittler Award (American Psychological Foundation; APF), the Arthur W. Staats Lecture (APF), the E. Paul Torrance Award (National Association for Gifted Children), the Distinguished Scientific Contributions to Media Psychology Award (APA Div. 46), and the Mensa Lifetime Achievement Award (MERF). Moreover, Simonton has been selected Fellow of the American Association for the Advancement of Science, IAEA, the Association for Psychological Science, and 12 divisions of the American Psychological Association (viz. 1, 2, 5, 7, 8, 9, 10, 20, 24, 26, 46, and 52), besides election as President of IAEA and two APA Divisions (1 and 10).

One vital feature of his research program is that it displays significant unity in its vast diversity: Despite the range of methods and the variety of achievement domains, his inquiries are closely interconnected. Indeed, virtually all of his publications concern the psychological basis for exceptional personal influence within groups, including teams, networks, disciplines, nations, cultures, and civilizations (to wit, social psychology with the traditional causal arrow reversed 180°). Better yet, Simonton's program exhibits considerable continuity so that most topics are investigated for at least a decade, often yielding a dozen or more publications that combine to produce a cumulative effect—particularly when certain key findings are replicated multiple times under varying conditions. The table below may provide the best examples (see table on the next page).

Of course, these topics often overlap, some publications even treating several at once. Simonton's empirical research on eminent psychologists, for example, covers practically everything imaginable, from sibling ordinal position to the prevailing disciplinary *Zeitgeist*.

Additional biographical documentation is provided in his website located at <https://simonton.faculty.ucdavis.edu/>.

Topics	Years	Highlights
Career landmarks	1975-2021	1997 <i>Psych. Review</i> math model won Miller Award
Scientific creativity	1975-2021	2003 <i>Psych. Bull.</i> review won SPSP Innovation Prize
Sociocultural context	1975-2020	Western, Chinese, Japanese, and Islamic civilizations
Intelligence or IQ	1976-2020	1985 <i>Psych. Review</i> math model won Mensa Award
Family environment	1976-2021	Especially “diversifying experiences” (since 2000)
Education and training	1976-2020	Qualifying the “10-year rule” for deliberate practice
Psychopathology	1977-2020	1998 target article in the <i>Journal of Personality</i>
Multiple discovery	1978-2018	Predictive combinatorial models of the phenomenon
Classical music	1980-2021	Computer content analyses of $\leq 15,618$ melodies
Presidential leadership	1981-2019	2012 OUP handbook chapter consolidates research
William Shakespeare	1983-2009	Computer content analyses of his plays and sonnets
Eminent psychologists	1985-2020	1992 <i>JPSP Centennial Feature</i> (lead article for year)
BVSR creativity	1985-2021	1999 <i>Origins of Genius</i> won the James Book Award
Genetic contributions	1991-2021	1999 math model lead article in <i>Psych. Review</i>
Eminent women	1992-2020	First Ladies, Japanese writers, and psychologists
" African Americans	1998-2015	2008 <i>GCQ</i> article on $N = 291$ won Mensa award
Hierarchy of the sciences	2002-2019	Target article in 2009 <i>Perspectives on Psych. Science</i>
Film creativity/aesthetics	2002-2020	APA Div. 46 award; two books published by OUP
Openness to experience	2005-2021	B. F. Skinner case study in 2012 <i>Perspectives</i>

CHAPTER THIRTY THREE

THE POWERFUL VOICE OF DOROTHY SISK: GIFTED EDUCATION'S CREATIVE TRAILBLAZER

MICHELE KANE

For over fifty years, Dr. Dorothy Sisk, Conn Endowed Chair in Gifted Education at Lamar University, has challenged students and educators to think more creatively and to embrace creative expression as a way of life. Her passion for creativity began while a classroom teacher of gifted students in Garden Grove, California. Sisk is recognized internationally for her myriad contributions as an educator, researcher, author, consultant, editor, and board member. She was appointed to direct the US Office of Gifted and Talented in 1975. Dorothy is the recipient of the Distinguished Leaders Award from the Creative Education Foundation (CEF) in 1989; the Distinguished Service Award from the National Association for Gifted Children (NAGC) in 1983 and 1994; the Creative Lifetime Award from CEF in 1994; and was selected for the Hall of Fame Award of CEF in 2005. Dr. Sisk served as president of the American Creativity Association, and The Association for Gifted and Talented (TAG), the Florida Association for Gifted, and the World Council for Gifted and Talented Children (WCGTC), and editor of *Gifted International* from 1980-1993. Additionally, she is the author of fourteen books and has been involved in research grants totaling over ten million dollars. This chapter provides a portrait of a dynamic and powerful trailblazer, Dorothy Sisk, who has influenced generations through her consistent commitment to creativity, leadership, literacy, and gifted education.

Introduction

The first thing that you notice about Dorothy Sisk is her vibrancy. Radiating energy and enthusiasm, there is a sense of coming together with purpose. Dorothy quickly assesses the environment and is ready for the task at hand. Her demeanor invites participation as she listens attentively and responds with authority, insight, and authenticity. As a thoughtful and reflective leader in the fields of creativity and gifted education, Dorothy's focus remains one of servant leadership.

Now, in her fifth decade as an educator, Dr. Dorothy Sisk continues embracing life and learning and her lifestyle provides no evidence of slowing down. She maintains a dynamic presence as an academic, a researcher, an editor and author, board member, and an international consultant and presenter. Her many contributions have garnered recognition worldwide and multiple

prestigious accolades; yet, at the heart of her work there is a sense of equanimity that engenders a sense of calm.

Perhaps her dynamic vitality has to do with her own philosophy of life and a daily affirmation at the beginning of each day:

May I be healthy
 May I be happy
 May I be full of energy
 May I be kind
 May I be loving
 May I be peaceful

This intentional loving kindness practice aids as a guide as she encounters the blessings and challenges of what is about to unfold. Her focus is laser like and it serves to light her path.

Journey of the Heart and Spirit

A gifted storyteller, Dorothy Sisk's story is best told through her own powerful voice. Her personal narrative enhances the richness of her journey and provides a lens from which to view her inner world. Her words from articles, interviews, and personal conversations reflect the richness of her thinking and feeling. As generativity is the task of this stage of adult development, it is important to consider what she has to say about her body of work and her overall contributions. When asked about how she wanted to be remembered, Dorothy had this to say, "I guess my legacy would be to have made a change in the people that I work with and that I teach so that I would see them making a difference. So, in essence, I would be making a difference because of them and what they're doing." (M. Kane, personal communication, April 29, 2012)

It is the ripple effect that keeps Dorothy Sisk focused on the present regardless of the circumstances surrounding her. It is no surprise, then, that more recently her emphasis has been on the art and science of mindfulness and that she has authored several publications on this topic (Sisk, 2016; Sisk 2018). In promoting mindfulness for gifted people, Dorothy reminds them to return to their quiet center or core by focusing intentionally on the present moment with kindness and without judgement. Her work in this regard fosters not only foundational elements of how such experiences affect individuals neurobiologically, but also experiential demonstrations in her lectures and explanations in text of how to practically access these tools.

Breathing, visualization, meditation, deepened sensory awareness, and connecting to nature are only some of the means explored and all offer pathways to a calm place of inner peace (Sisk & Kane, 2018). While mindfulness is currently enjoying a resurgence, Sisk has long had a deep understanding of being present. The ability to remain in the "here-and-now" was a concept introduced in the 1950's and 1960's by humanistic psychologists Abraham Maslow and Carl Rogers with whom she studied. Over time, this mindful practice has allowed Sisk to position herself in creating a vision of what she chooses not only for her lifepath but also how each day will unfold. By forming personal intentions and in conversation with herself, she is able to

foster her inner voice and to listen for guidance (M. Kane, personal communication, May 19, 2021). Her intuition was honed early and she honors it. Additionally, there were influential mentors who provided guidance along the way leading to greater balance of heart, mind, and spirit.

According to Sisk, some of her teachers were the source of early inspiration and were significant in her development, especially related to intuition and spiritual intelligence. She relayed one tale about passing by a United Brethren church on her way to school and being intrigued by a huge stained-glass window of Jesus praying. She would stop and gaze at it and admire it.

So, one Sunday, instead of going to the Methodist church where we belonged, I went to that one [United Brethren], and when I went, (I had had to be about 8?) they said are you here for Sunday school? And I said yes. I was brought in and the lady's name was Miss Esther. She was the most kind, composed wonderful woman and she just made me feel like I was just so special. So I stopped going to the Methodist church and started going to this one. And she would tell stories from the Bible rather than reading them and I found myself, after she had talked about it, then going back to my own Bible and reading them. I had a minor in Religion in college and I knew that it was because of her. (M. Kane, personal communication, April 29, 2012)

Sisk's undergraduate education took place at Mount Union College, Alliance, Ohio where she graduated with a degree in education and psychology. She was the first in her family to attend college after graduating from Norton High School in Loyal Oak, Ohio as valedictorian. Her high school English teacher, Evelyn Moinet, who had graduated from Mount Union, now the University of Mount Union, had invited some interested students to a large meeting of alumni on their campus. Impressed by the congeniality and camaraderie displayed during that campus visit, Sisk made the decision to attend.

As a freshman at Mount Union, Dorothy was one of few underclassmen who was asked to participate in a Philosophy of Religion Club. It was there she experienced the duality of the inner experience of calm combined with the heady excitement of philosophical discussions. The group leader started each meeting by asking the members to go to a quiet place inside and access a sense of relaxation. This easing of tension had the benefit of feeling less threatened during vigorous and often heated discussions. After returning from the peaceful center the intellectually challenging philosophical questions would be posed by the group leader. Sisk recalled,

Each week we had an article to read and it was usually something that you didn't just read once, you didn't read it twice, you read it three or four times and then you went to the group meeting. And it was one of the most exhilarating experiences because it was ideas bumping up against one another so that in itself, between Miss Esther and this minor in religion I think was always was back there with my ideas about what was happening with spiritual intelligence. (M. Kane, personal communication, May 26, 2021)

Along with her academic emphasis on education and psychology, she also added the study of religion. The threads of this interplay between sophistication of thought, deep moral conviction, clear values, mindfulness, and creative expression would emerge in many ways during the course of Sisk's career.

Her spiritual worldview is also reflected in the collaborative work with Dr. Paul Torrance, the person called, "The Father of Creativity." In 2001, Sisk and Torrance developed the following definition related to their beliefs about spirituality, "spiritual intelligence (SQ) is defined as the capacity to use a multisensory approach—including intuition, meditation, and visualization—to access one's inner knowledge in order to solve problems of a global nature (p. 5)." This collaboration was one of the last professional projects for Paul Torrance and certainly put a punctuation mark on his distinguished career. Sisk emphasized that in their work together on spiritual intelligence they focused on this basic idea:

That we are interconnected as individuals, we are interconnected with the environment, we are interconnected with the animals, the plants, etc. and so that everything we do has an effect. That means if and when you can be in alignment with what is going on in the natural world then you also have alignment with yourself (M. Kane, personal communication, April 29, 2012)

Always, intrepid, these risk-takers embraced forward-thinking ideas. Sisk had this to say about the reluctance of educators in embedding these ideas into mainstream curriculum, "SQ can find natural expression in the classroom; yet educators are fearful of things spiritual, and in today's global world, fear is not only in education but everywhere" (2008, p. 25). Practical suggestions offered varied approaches including journal writing/reflection, study of spiritual pathfinders, service learning, and role-playing which sought to strengthen SQ for learning (Sisk & Torrance, 2001; Sisk, 2008). Thus, their work gave direction and support for those educators whose intention was to foster development in all domains of the self, including the spiritual.

The Creativity Connection

In a recent and detailed article, *Standing on the Shoulders of a Giant: J.P. Guilford*, Sisk chronicled her introduction as a young scholar to many new ideas related to the disciplines of psychology, education, and creativity (2020). Her narrative provided the entry point at which she began to ponder this critical intersection. As an undergraduate at University of Mount Union one of her psychology professors, Dr. Walter Webb, brought back to the class the questions posed by then American Psychological Association (APA) President, J.P. Guilford. Sisk recalled, "Dr. Webb challenged his undergraduate psychology students to address the two questions presented by Guilford: How can we discover creative promise in our children and youth? How can we promote the development of creative personalities? Those two questions became J.P. Guilford's professional passion and it became mine as well over the next fifty years (2020, p. 162)."

Garden Grove, California was the next stop after graduation from college for Dorothy. It was there that her foundational educational experiences were to occur as Sisk went on to become a teacher of gifted students at the elementary, middle, and high school levels from 1958-1964.

Probably my interest in creativity started when I was teaching with the kids because part of what I saw was that no matter what we did as a lesson they would always find some way to add a little creativity to it, even if it was taking a notebook and folding it and decorating the front of it (M. Kane, personal communication, May 2, 2012).

The response from these children was both a personal motivator as well as an affirmation of the inner drive of children who yearned for creative elements within their education. Specifically, under the mentorship of the gifted coordinator, Jeanne Delp, Sisk and her colleagues were encouraged to implement elements of creative expression into their lessons. The gifted program was just being developed at that time and there were new teachers of the gifted at each grade level. These educators worked together to compact curriculum, generate thematic lessons, and integrate learning experiences across disciplines. In another bit of synchronicity, there were three other teachers from the district who were roommates of Sisk. These teachers regularly had time to develop interdisciplinary, thematic units emphasizing elements of creativity. The power of those experiences is further explained:

Whenever we did any sort of simulation, they were just fascinated by it and when I was teaching the sixth grade gifted, Shakespeare, was the theme that we were using. And so, the students did *A Midsummer Night's Dream*, and what they wanted to do was to write their own play using the Shakespearean language and we had also been studying impressionistic and expressionistic art. They said, "Why don't we do the backdrops of our play using expressionism?" And what I was very fascinated by was the night that we did the play, some of the parents came up to me and said this looks like a Van Gogh and I was thinking, "Oh fantastic!" that they had picked up on that. So, I think the students initially led me into that space of creativity (M. Kane, personal communication, April 29, 2012).

Sisk noted that her interest in gifted education began her first-year teaching third grade in Garden Grove. She was teaching a cluster group of gifted students, above average students and average students and a fellow colleague had a class of above average students, average students, and students below average. Sisk remembered that collaboration quickly began between this pair of new teachers,

She [teacher across the hall] was an accomplished musician and would give impromptu concerts for all of us before or after school, and there was a constant flow of students back-and-forth from our classrooms, as we shared our talents. My students were studying famous authors and were eager to share their findings with our companion class. This experience taught me that "gifted strategies" are enabling strategies for all kids. The pace and product may be very

different, but the active, responsive classroom works for all abilities (Novello, 2009, p. 39)

It is apparent that seeds of creativity and gifted education were planted early in Sisk's career and her subsequent work, including *Gifted and Talented Children in the Regular Classroom* (Torrance & Sisk, 1997), were based on some of her earliest observations.

These daily interactions with students also launched another important facet of Sisk's involvement with creativity. For almost twenty years, she was involved with the Creative Problem Solving Institute (CPSI) in Buffalo, NY. A regular presenter, she co-authored several books under those auspices as well. She received the Distinguished Leader Award from the Creative Education Foundation (CEF) in 1989, the Creative Lifetime Award from CEF in 1994, and was selected for the Hall of Fame Award of CEF in 2005. However, it was her work with gifted children that was the springboard to summertime in Buffalo at CPSI. Sisk recalled:

I think those gifted students led me into that exploration of creativity and then I became involved with the Creative Problem Solving Institute, which came about primarily through the involvement of Don Treffinger. He invited me to come and speak and I did and then I continued that involvement for probably the next twenty years (M. Kane, personal communication, April 29, 2012).

The sense of exploration, play, invention, wonder, and camaraderie was one of the highlights of this time of summer respite. The capacity and potency of being within a group of like-minded colleagues gave rise to innovation in thinking. They shared experiences of joyful exploration of boundary breaking concepts. Clearly, this was influential in Sisk's later work in curriculum and instructional design as well as in the ways she created teacher training programs for the gifted. Her depiction of these times underscores the robust sense of enjoyment that comes from new discoveries about self and others and how the creative spirit emerges:

It was like a summer camp for adults, because what we might be doing was looking at dream analysis...we were looking at all kinds of opportunities to explore mysticism and Buddhism and how all of that was an effort to understand how similar we were. We weren't as different as we thought we were, and I just can't begin to even put in words what that experience was like. We had people like—J. P. Guilford from the University of Southern California was involved, and John Gowan, who was definitely a leader in creativity from UCLA, we had business people who brought a whole other perspective, and yet, when we got together there was just this unbelievable synergy. You'd go home and take all of this openness and then you'd be back in your environment and you'd think "This isn't the same!" And so, you have entry problems, and so we began to realize when people came to the Problem Solving Institute that we had to help them understand that when they go back to their environment that it's not going to be as open or as accepting as CPSI was (M. Kane, personal communication, April 29, 2012).

For gifted people there is often a sense of coming home or of finding one's tribe when immersed in experiences with like-minded peers who share similar interests. The willingness to be open and to push the limits of thinking can provide experiences that provide confidence, security, and perspective-taking. Yet, the caution, as Sisk mentioned is to recognize that these are extraordinary experiences in the lives of extraordinary people and the transition from elation to the mundane can be quite a jolt. These same lessons were ones that she would later share with gifted adolescents at the Texas Governor's School summer residential program that she has directed for decades.

Journey of the Educator

Jeanne Delp continued to be influential in fostering Sisk's personal educational journey as she encouraged her teachers to obtain an advanced degree. After six years in the classroom, Sisk enrolled in an M.A. Educational Leadership/Psychology program at California State University in Long Beach, California. Dr. Juliana Gensley, one of the original student participants in the Terman study of 1,000 gifted students, was a major professor. It was Dr. Gensley who required her graduate students to do case studies of creative individuals and so another seed was planted (Sisk, 2020). In addition, there was a research component to the courses that typically involved gifted children. Although, it was not defined as "action research" this is exactly what was in play. Graduate students would create innovative lessons or lessons to enhance social and emotional learning and then test the efficacy of their own creative products with their gifted learners. From her earliest days in the classroom to her current role of Professor, Sisk has remained involved and actively learning in tandem with the gifted students she serves, be they graduate students or secondary students, who come to campus to participate in summer programs. The joy of learning alongside her students has never wavered since her earliest days as a classroom teacher of gifted.

Dr. Gensley was a mentor and modeled the role of a mentor in another interesting ways. Sisk reflected on a set of particularly meaningful experiences:

Juliana was one of the major professors at California State Long Beach and she was an original Terman study participant. Every five years when they would have these reunions and there was one that just happened to be at the same time that I was a Master's Degree student. She took us with her and we sat in the back and we watched these people who were in their late 50s or 60s and who had known one another since they were nine and they interacted and interviewed one another as if they were children. It was absolutely wonderful. She shared with us the motivational aspect of knowing that every five years you would be asked to answer all these questions about what you have done, what you have accomplished, and that there was always that competitive spirit of keeping yourself active and involved (M. Kane, personal communication, April 29, 2012).

Notable luminaries continued to light the way for Sisk during this time of formal education. Another of her professors at California State Long Beach

was Ruth Martinson, a pioneer of Gifted Education in California. She was instrumental in the writing of the Marland Report and she was responsible for the extensive review of the research in the report. Dr. Gensley recommended that Sisk apply to UCLA for doctoral work in Educational Psychology, Curriculum and Instruction, and Special Education. Under the direction of Dr. May Seago, who was the Dean of the UCLA College of Education, Sisk was granted a graduate fellowship and from 1964-1966 she studied for an EdD at UCLA. Seago, another gifted student who participated in the Terman study, was interested in the creative potential of economically disadvantaged youth. She was committed to the idea that enrichment activities might provide a means of developing skills if they were identified early and provided with creative enrichment activities. Sisk proposed that the lessons she developed in Garden Grove might be used to suit this purpose and that an exploration of self-concept and creativity would be a good topic for a dissertation. Dr. Seago agreed and then recommended that an appointment be made with J.P. Guilford to secure his permission to use his *Alternative Uses* creativity test (Sisk, 2020). Concurrently, from 1965-66, Sisk secured a position as the Supervisor of the Gifted, Inglewood Independent School District, CA. Sisk recalled meeting J.P. Guilford for the first time:

At that time, I was directing the Gifted Program in Inglewood and I decided I wanted to use J. P. Guilford's test for the children. I went over to the University of Southern California and asked if I could have an appointment with J.P. and talk to him about it. I told him what I wanted to do and what my theory was that there was a relationship definitely between self-concept and creativity and he was very excited about it and yes I could use his tests and who was my advisor? And I said it's May Seago and he gave me a sort of startled look and he said, "You're not a USC student?" And I said, "No I'm not," and he took me by the hand we walked out into hall he called a couple of professors that were there and he said, "This is Dorothy Sisk, she's a UCLA student. She's over here asking if she could use my test for her dissertation, and I said yes!" I sort of went back to UCLA and told May Seago what had happened. Over the years J. P. became a colleague and a friend. (M. Kane, personal communication, April 29, 2012).

According to Sisk (2020), she spent another year speaking and working with both May Seago and J.P. Guilford as they supported the implementation of the "encounter" lessons that she designed to enhance and develop creative skills. Her dissertation results demonstrated what Sisk had hypothesized that the classroom behaviors of willingness to take a risk, curiosity, and the openness to exploring new ideas were equally beneficial.

Guilford wrote a letter of support as Sisk applied for a position as the Assistant Coordinator of Graduate Fellowship Program for Teachers of Economically Disadvantaged and Varying Exceptionality Students at University of South Florida in Tampa in 1966 and she joined the staff that fall. In a tribute to Marvin Gold, Sisk wrote, "I met Marvin Gold in 1966 at the Council for Exceptional Children (CEC) conference in Toronto, Ontario, when I was a graduate student at UCLA (2002, p. 62)." Gold and colleague Leonard

Lucito had crafted two federal grant proposals, one of which was to develop teacher training for economically disadvantaged gifted. Sisk described the program: “The M.A. program, designed in the professional development grant funded from BEH, was a prototype for other universities seeking to establish teacher training programs for gifted students. We offered classes throughout the state of Florida and began a summer institute for teachers that provided an in-depth experience for teachers from most counties in Florida (Sisk, 2002, p. 63).” Guilford’s Structure of Intellect was used as part of the teacher training for teachers of gifted and Guilford was invited to the University of South Florida to lecture and observe the Saturday enrichment classes. Designed for diverse low-income/high potential and gifted students, these enrichment classes “implemented the Creative Problem-solving process with the students as they worked through the five-step process of fact finding, problem finding, idea finding, solution finding and acceptance finding (Sisk, 2020, p. 167-168).” It is essential to note that inclusion and creativity were at the heart of this work. Eventually, the curriculum that was developed by the University of South Florida professors and graduate students led to a \$1,000,000 grant to the university from the Edyth Bush Foundation in Orlando, Florida (Sisk, 2020, p. 170). This allowed for teachers across the state involved in gifted education to have access to the materials developed.

For Sisk, it was also the beginning of her prolific writing and research program development, which crossed many of the core areas of gifted education including teacher training, classroom methods, and gifted programming (NAGC, 2019). This list from 1975, indicating necessary knowledge and skills for effective teachers of the gifted, has remained evergreen:

- Knowledge of Nature and Needs of Gifted
- Skill in:
 - Utilizing Tests and Test Data
 - Utilizing Group Dynamics
 - Counseling and Guidance
 - Developing Lessons in Creative Thinking
 - Utilizing Strategies Such as Simulation
 - Teaching at all Levels of Cognition
 - Relating the Cognitive and Affective Dimensions
 - Demonstrating Lessons for Gifted
 - Conducting Action Research (Sisk, 1975)

The early discovery of the power of creativity as a classroom teacher led Sisk to share many of her ideas with the teachers during teacher training sessions. Encounter lessons, group dynamics, circle partners, think pink, simulations and games, guided and free discussions, things to do boxes, bibliotherapy and centering and biofeedback were only some of her creative adaptations to instructional design and delivery (Sisk, 1977-78).

The ability of Sisk to have such broad vision and to provide a framework that stands the test of time is a testimony to her keen understanding of the needs of both the adults and the children they serve. Yet, Sisk has a message for all educators concerning gifted children related to their social and emotional needs. She outlined the inner challenges that are critical for educators to understand,

Gifted students want to live a life of immutable values, and they need to develop moral courage to step away from actions and behaviors of others that are outside of their ideals. Recently in a three-week residential program for gifted adolescents (the Texas Governor's School), the students shared that they have pulled away from friends who are using alcohol and drugs; consequently, they have lost many of their friends from early childhood. Being able to define themselves with their values is part of developing their individuality, and this can be a painful process. (Novello, 2009, p. 39)

In her book *Making Great Kids Greater, Easing the Burden of Being Gifted*, Sisk pointed out:

“The gifted are sensitive, perfectionist, and intense, and moral issues affect gifted students more deeply and at an earlier age than their peers. Gifted students may appear to be great kids and well adjusted, receiving good grades in school, but they still may suffer from feelings of inadequacy because their successes fall short of their ideals (Novello, 2009, p. 40).” Sisk is clear in addressing the needs of the whole child to ensure that there is a balanced approach related to their education.

Sisk's horizons expanded in other ways as well. Her colleague Marvin Gold was also a proponent of international collaboration, education, and outreach, especially related to teacher training. Therefore, there was a keen willingness on the part of the University of South Florida team to share their work involving teacher training and professional learning. These early career experiences, led to a global perspective and a deep recognition of the interconnectedness of the peoples of the world for Dorothy. For example, one such memorable experience has long remained with Sisk. She recounted,

We also worked closely with Bulgaria and their chief of gifted people, Levcho Zdravchev, to establish teacher training and educational programs for gifted students throughout Bulgaria. The Banner of Peace conference in Bulgaria was especially memorable. There were 30 low-income minority gifted fourth graders who went to Bulgaria to participate in the Banner of Peace conference with over 45 other countries attending and having groups of students. We had dinner at the then President's home (Todor Zhivkov). As a result, gifted became a priority in Bulgaria and those 30 students had an experience that would be a lasting life memory. You can imagine the contriving, imposing and planning that went on to secure funds and permission for the students from Philadelphia to attend. The Bulgarians wanted to know what the students would want to eat at the President's dinner. I suggested corn on the cob, and they were astounded and said only the horses ate cobs of corn in Bulgaria. The children slept in tents on a hill with all of the over 1,000 students attending. Madam Zhivkova, the daughter of Todor gave me access to one of the historic homes in Plovdiv to use for my work at any time. Each country brought a bell to be rung at the end of the conference and we had a bell sculpted and donated to represent the United States (Sisk, 2002; M. Kane, personal communication, May 15, 2021).

International experiences have continued throughout the career of Dorothy Sisk with at least fifteen appointments as a Visiting Lecturer worldwide.

Another leadership connection and collegial tie for Sisk was when she assisted Marvin Gold as he worked tirelessly to establish the Florida Association for the Gifted (FLAG). This organization provided both advocacy and support for gifted children and their teachers statewide and established connections and solidarity. Developing relationships and partnerships provided those teachers who felt isolated with a network of like-minded colleagues. Eventually, Sisk became the president of this organization and continued the formative that she had begun with Dr. Gold.

The Florida's Governor's School was established during this time, which was a program that supported gifted students who demonstrated academic and leadership abilities. Resources of colleges and universities within the state were utilized in meeting the needs of these gifted learners. This inaugural program became a national model and showcased the ways that secondary students could experience life on a college campus and reflected a creative approach to allowing secondary students to access living and learning in a collegiate manner.

From 1974-75, Sisk was the Department Chair of Human Effectiveness at University of South Florida; however, she would soon emerge on the national stage.

Journey of National Leadership

In 1975, Sisk took a leave of absence from the University of South Florida after being recruited to go to Washington, D.C. as the Director of the Office of Gifted and Talented. She remained in this position for five years. Sisk remembered these times as one of the highlights of her life (M. Kane, personal communication, May 14, 2021). During this period, she traveled extensively to all of the states, including Guam, as each one was awarded \$50,000 to fund a State Director of Gifted Education. Educating and planning with state directors as they began to create their plans for identification and services for gifted students was a rewarding experience.

Additionally, mini grants designed to assist gifted children were awarded in smaller amounts by this office for promising projects within various states. Sisk learned quickly that intensity, initiative, and passion seemed to ignite the successful project more than the dollar amount. In this manner she became a believer that one of the most essential things that someone who is in a leadership position in education can do is to empower the people they work with and give them the freedom and flexibility to come up with their own ideas (M. Kane, personal communication, May 14, 2021). Another dynamic initiative was to host the first National Conference on the Education of Gifted Culturally and Linguistically Diverse Students, which took place during her tenure in Washington, D.C.

There were other leadership lessons that soon became apparent as Sisk embraced her new position. In multiple ways, Sisk also exhibited her creativity during her time in the role of Director of the Office of Gifted Education. As J.P. Guilford said, the creative personality is a matter of those patterns or traits that are characteristic of creative persons, which include activi-

ties like inventing, designing, contriving, imposing and planning (Guilford, 1950, p. 444). She recalled her early days in Washington in the US Department of Education:

It was an interesting time because I worked with Ernie Boyer, the Commissioner of Education. Ernie Boyer was probably one of the most brilliant, visionary people in the whole wide world. When I arrived, there were 144 programs in the Department of Education. The first thing that he did was to prioritize these programs. He chose 7 programs to focus on and he brought 144 of us into this room and said he was going to announce what those seven were and Gifted was number seven. We met with him weekly, the seven of us and we were expected to identify the issues that you were going to deal with, how you were going to address those, and so on. (M. Kane, personal communication, April 29, 2012)

Drawing on those experiences in Garden Grove and at CPSI Sisk was able to foster a collaborative spirit among her colleagues so that supportive relationships were strengthened and people did not remain working in silos. She embedded creative problem-solving into her daily routine as she explained:

And I've always been a person that involved as many people as possible in whatever I was doing and so what I did, I took all 144 programs and I divided them up into groups of 10-20. I invited them in and I told them what I was doing and asked them to think of ways that we could collaborate.....it was fantastic! Career Education set aside funds for gifted, Title 1 put funding gifted preschoolers as a major goal, the Office of Education for Native American students proposed a joint conference with the Office of Gifted and Talented. Ernie was just absolutely elated that I was not just working in my own little niche. (M. Kane, personal communication, April 29, 2012)

The collaboration did not end as Sisk began to explore the topic of gifted learners being twice-exceptional with the Bureau of Education of the Handicapped. Through her efforts, she was able to make the bridge and established the awareness and recognition of what we now know as having characteristics of giftedness as well as learning or behavioral challenges (2E). Sisk recalled

I tried to explain that within all of these programs that kids are gifted. Bilingual children are gifted. Native Americans are gifted, Title One and kids of poverty are gifted, and they went ahhh, yes, and handicapped children are gifted. (M. Kane, personal communication, April 29, 2012)

The Presidential Scholars program was another successful program that brought the top two graduating seniors in each state to Washington to receive commendations from the US President. This recognition of outstanding students was a successful project of the Office of Gifted and Talented and was warmly supported by President Jimmy Carter (Simpson, 2019). Addi-

tionally, Sisk became a close colleague and friend of Senator Jacob Javits who honored her with a reception when she left Washington.

During her long career, Dorothy Sisk has also focused on leadership. Beyond the personal leadership she exhibits, Sisk has published widely on this topic, especially in relationship on how educators can nurture leadership in their students. Her 2013 book with Hava Vidergor, *Enhancing the Gift of Leadership*, was crafted because they both recognized that leadership as a type of giftedness was not acknowledged by many local school districts or even within national and international gifted organizations. Few sessions at gifted conferences showcase leadership as a type of giftedness. Sisk stated, "In the book we wanted to show that gifted children, from a very young age, can develop their skills of leadership. The book focuses on leadership development and the benefits to society of students learning to practice social responsibility, widening their circles of influence, and contributing to others, as well as to themselves (2013, p.56)."

Both in her work with Shallcross (1986) and Vidergor (2013) Sisk emphasized the role of failure as vital to the those who demonstrate leadership achievement. Overcoming obstacles with grace and equanimity is an important consideration. Her suggestions for developing leadership included the following,

One of the most important things to teach gifted students concerning leadership is the importance of being collaborative, to work toward consensus building, and to be willing to compromise. Another important thing to teach gifted students is to value process over outcome, and to see their own experiences with failure as experiences that can empower them. (Shaughnessy & Barnes, 2015, p. 57)

Sisk operationalized her ideas as she moved them into practice. The Texas Academy for Leadership in the Humanities was established in 1991 as a residential program for high ability students to complete their final two years of high school and first two years of college simultaneously (Simpson, 2019). This is a solid example of shifting from the theoretical global framework of leadership development to creating a program that exemplifies best practice.

Return to Academia

After five years in Washington, Dr. Sisk returned to the University of South Florida in her role as Professor Special Education, Coordinator of Teacher Training in Gifted Education where she remained until 1989. In 1989 she left the University of South Florida and assumed the C.W. and Dorothy Anne Conn Endowed Chair in Gifted Education at Lamar University. Fortunately, the then president of the university, Dr. Billy Franklin felt that it was important that a Texas Governor's School be established. Fundraising began almost immediately and the program has been ongoing from 1991-present with help from an initial \$3.1 million grant. This thirty-year program has had multiple loyal funders and built upon the success that Sisk enjoyed when she established the Florida Governor's School (Simpson, 2019). According to Sisk, "The Governor's Program is for sixteen-year-olds and it is a three-week

residential program, which is offered state-wide. We try to work on getting them to look at global issues, cultural issues, and how can you be a part of the solution and make a difference.” (M. Kane, personal communication, April 29, 2012)

The program illustrates Sisk’s beliefs about the development of global leadership as she serves as mentor and guide during this campus experience for the students. The program is a powerful example of how the themes of Sisk’s professional life; namely, creativity, leadership, gifted education, and social and emotional learning are woven into the fabric of the student experiences. She noted:

Leadership training aims to instill in students a sense of responsibility for the entire planet, and the importance of seeking justice and equality for all peoples. In addition, global issues or projects can be viewed or investigated from three different perspectives: the personal, the global, and the time perspective (present-past-future), demonstrating that global issues are complex and multidimensional. These investigations will enhance higher order thinking, problem solving skills and future thinking skills as the students tackle global issues. (Shaughnessy & Barnes, 2015, p. 57)

There is a rich diversity in the program as gifted youngsters gather from all areas of Texas. These young scholars are mentored during their time on campus not only by faculty but also by others who have been through the program and return as junior and senior counselors. These mentors are indispensable as many are first generation college students and know the challenges related to being successful in the college arena. Sisk also remarked on the responsibility of gifted youngsters,

Gifted students need to learn to be individuals and to become more aware of their gifts, it is equally important that they develop a sense of being other-centered in order to meet one of their essential needs—that of making a difference. When gifted kids are asked 'what is their quest?' most will answer "to make a difference." (Novello, 2009, p. 40)

This thriving program allows for all aspects of the gifted student—mind, body, spirit—to be nurtured and celebrated. The presence of Sisk living in the dorms alongside the students and becoming part of the learning community illustrates her willingness to engage and join as a member of the group.

In 2004, Sisk earned a PhD in Psychology from California State University. She had this to report on why she entered the classroom again as a student,

One day I said to myself, ‘What do you want to do when you grow up?’ and I thought I really would like to do some of the things that I had found so fascinating at the Creative Problem Solving Institute such as the dream analysis. I thought, that my degree has been from a long time, so I enrolled in California Coast University to do a PhD in Psychology. My dissertation was on using the work of Kazimierz Dabrowski to develop a curriculum for middle school kids and high school kids, and so that was quite an experience. I loved it. (M. Kane, personal communication, April 29, 2012)

It seems apparent that Sisk finds the intellectual challenges combined with creative endeavors to be satisfying and stimulating. In addition, the work of Dabrowski continued to inform Sisk's own work as she later addressed the role of intensity, sensitivity, and perfectionism in her 2008 book, *Making Great Kids Greater*, which includes addressing the social and emotional aspects of gifted people.

Grant-Funded Projects

Dorothy Sisk has been a prolific fund-raiser and grant-writer as she has procured significant monies during her academic tenure on behalf of gifted children and their families. One major grant was titled Project STEP-UP (1991-1994), and was extended by two federally funded early childhood family-centered Even Start Projects (Step-Up/Even Start II, (1994-98) and Step-Up/Even Start III (1998-2001). STEP-UP was a collaborative project with the states of Texas, Florida, Arizona, and Arkansas. The purpose of the program was to identify high potential students who were African American, Hispanic, and American Indian. After identification in grade two the students then looped with their teachers through grade four. Sisk reported that the results were phenomenal and that approximately 250 students were identified and served over the years. The follow-up programs involved parent education, seminars, and classes for low-income students to enhance their chances of success at the secondary level. This project also included teaching leadership skills to those involved as well as skills in developing creativity.

In 1995, Scientists in the Schools Javits Grant was awarded \$1 million to Lamar University and the Beaumont ISD. The program worked with middle school youngsters and followed them through secondary school. Sisk related the following about the project,

The idea was to take these high-potential kids and bring science professors out into the schools to work with them and then to bring them on campus where they had special seminars. At the end of the period of five years, then to determine how many of them graduated from high school and how many of them chose sciences as a career? 52% of them chose science as a career choice, 100% of them graduated from high school. It was quite incredible. (M. Kane, personal communication, April 29, 2012)

Other major projects included Teacher Quality Grants that totaled \$1.7 million from 1998-2014. This project involved training teachers in inquiry-based instructional methodologies in the disciplines of biology, earth science, math, and physics. Low-income middle school students and their teachers attended Saturday science seminars taught by Lamar faculty. Students benefitted not only from the instruction but also from becoming part of the larger collegiate community and experience life on a college campus.

Leadership in Gifted Organizations

Countless organizations have benefitted from the expertise, passion, and dedication of Dorothy Sisk. Her long-time commitments to those groups where

she feels connected and can be of service is apparent. In addition to her significant involvement, these organizations have also been the source of rich relationships that have developed over time, advocacy and awareness of the needs of the gifted have always been at the fore during Sisk's career. The contributions of Dorothy Sisk to multiple organizations are chronicled briefly below.

National Association of Gifted Education

One of many groups to recognize the significant involvement of Dorothy Sisk is the National Association for Gifted Children (NAGC). She received the Distinguished Service Award from the NAGC in 1983 and 1994. Extremely active, Sisk served on the board of directors for approximately twenty years and was involved in operations, board administration, conference planning, task forces and publications. Fondly remembering her time on the board, she conveyed that

When I came onto the board, it was a phenomenal time. We greeted one another, we were colleagues, we were friends, very little competition because everybody was there to contribute. Part of what I felt had happened in the beginning was that everybody was learning at the time and we were much more collaborative. NAGC was a collaborative model. And so, the philosophy about the NAGC board was that you needed that continuance of people so that there would always be someone there that would have had a sense of the organization. And of course, you know now that people absolutely do not have a history of what NAGC was all about, how it was started, and what some of the growing pains were. (M. Kane, personal communication, April 29, 2012)

Beyond her two decades as an NAGC Board member, Sisk has more recently been an active member of the Global Awareness Network which aligns with so well with many of her interests. The network was co-founded by colleagues Annemarie Roeper and Linda Silverman. In 2020 Sisk was honored with the Annemarie Roeper Global Awareness award that recognizes someone who advocates for gifted children to develop a strong sense of self, promotes positive social action and strategies to understand the perspectives of others, provides opportunities for global interdependence and diversity, facilitates peacemaking, and fosters care of the Earth. Sisk embodies the spirit of this award and promulgates these themes with ease.

World Council for Gifted and Talented Children

According the *History of the World Council* (2015), authored by Sisk, an International Conference for Gifted and Talented Children was organized by Henry Collis, then Director of the National Association for Gifted Children of the United Kingdom. Participants gathered from over fifty countries leading to attendance of over 500 people at this 1975 event. The need for an international organization supporting gifted education and gifted learners was clear. "An organizational meeting in San Francisco was called by Dr. Dorothy Sisk, the Acting Director of the U.S. Office of Gifted and Talented, to discuss the

proposal to create an international advocacy organization to advocate for gifted children (p.2).”

Incorporation papers were submitted that included representatives and founding members from three nations. Dorothy Sisk, was one of those founding members and she fulfilled the role of co-secretary. “The constitution was submitted, and the World Council for Gifted and Talented Children was officially incorporated and registered as a nonprofit organization in the state of Delaware on March 30, 1976 (Sisk, 2015, p.3).” The World Council’s mission remains, to this day, to focus world attention on gifted and talented children in order to ensure the realization of their valuable potential to the benefit of humankind. Sisk remained integral to the success of the World Council for Gifted and Talented Children (WCGTC), where she was executive administrator, and editor of *Gifted International* from 1980-1993. Her constancy through the sea of changes was beneficial to the organization and helped with continuity.

The Association for the Gifted (TAG)

The Council for Exceptional Children (CEC) is considered the leading voice for special and gifted education in the United States. This group encourages appropriate education and welfare for those students with exceptionalities. One of the many divisions of CEC, The Association for the Gifted (TAG) has been embracing and supporting the needs of students with gifts and talents for over fifty years. Specifically, the emphasis of the members is to advocate for these exceptional learners, to provide professional development for educators and develop appropriate resources such as teacher preparation standards.

During 1978-79, Sisk served as the President of TAG. With her many professional contacts worldwide, Sisk was able to foster stronger connections with similar organizations who sought to advocate for those children with gifts and talents.

American Creativity Association

The mission of the American Creativity Association, is to increase awareness of the importance of creativity in society and to promote the development of personal and professional creativity. Dorothy Sisk was a co-founder of this group in 1987. The main aim is to foster applying creativity, innovation and problem-solving, which are considered the three spokes to engender a more creative world. Resources and tools are available on their website.

International Literacy Association

Dorothy Sisk is a self-proclaimed voracious reader. She particularly enjoys adolescent literature as she feels that this helps her to be in touch with the concerns of today’s young people. For almost twenty years, Sisk has been involved with the International Literacy Association (ILA) serving as the Chair of the Reading for Gifted and Creative Students Special Interest Group and as the Editor of the Question Mark newsletter. She was invited to provide full day Institutes on culturally and linguistically diverse students and that led to an edited book in 2014, *Accelerating and Extending Literacy in Culturally and Linguistically Diverse Students*.

Sisk also uses her love of reading to her advantage during her global travels. An acclaimed international presenter, she has developed an effective means of connecting with others:

I also have a technique and I fell into this, whenever I do a consultancy or whatever in another country, what I do is I go and read their fables and their stories. So, when I am in Russia, I have read all of their literature that I can find in the public library that deals with their fairy tales and so on. Then I have in my head what they have in their head and I find that is unbelievably helpful. And so again it builds that bridge, the bridge of understanding. (M. Kane, personal communication, April 29, 2012)

Sisk says it is the stories of the authors that keeps bringing her back to ILA and the curiosity about the lives of these creatively gifted people through the lifespan from child to adult. The genesis of ideas and how a story is crafted and developed has continued to pique her curiosity for almost twenty years.

Sisk formed a faculty book discussion in the College of Education and Human Development at Lamar recently and developed opportunities for others to share in her passion for reading and conversation. Her expertise as a mentor and guide for faculty and students alike remains strong. She stays engaged with her work, her colleagues, and her passions.

Conclusion

Standing on the shoulders of distinguished mentors in the fields of gifted education and creativity as well as caring and thoughtful teachers and instructors, Dorothy Sisk has emerged as a distinguished scholar, researcher, and leader who is making a difference. She embodies the qualities of the mindfulness practices she espouses as she lives in each moment with kindness and curiosity. Her many achievements are overshadowed by her abilities of care, compassion, understanding, and respect for others. As a creative trailblazer, Dorothy Sisk leads an authentic life filled with joy and equanimity and we are all the richer for it.

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CHAPTER THIRTY FOUR

CONTRICIPATION: THE LIFE AND LEGACY OF MORRIS ISAAC STEIN

TARA GREY COSTE & HEINZ NEETHLING

I (Tara Coste) first met Moe Stein as a young doctoral student. As a cognitively oriented communication scientist at a university largely focused on engineering, I came to the study of creativity as I was looking into how scientists and engineers came up with innovative products. Because there was no one at my university doing research on creativity, I registered for several conferences specifically focused in this area. At one of those first conferences, I met Moe in a workshop he was doing for graduate students, and he quickly took me under his wing, sharing his vast knowledge of the field. Over time, he became my unofficial dissertation chair, answering questions and letting me bounce ideas off him with incredible generosity. Always supportive but with an honest rigor, he became my mentor and truth-teller, pushing me to become a better version of myself. He is why I am a professor, and his model of support is one I try to emulate with my own graduate students. I am honored to co-author this reflection on his life and legacy with one of those students.

In 1950, J.P. Guilford delivered his famous presidential address at the American Psychological Association in which he took psychologists to task for not doing enough to research the phenomena of creativity. Guilford's own research into this gap had less than stellar results. He found that "less than two-tenths of one percent of the books and articles indexed in the Abstracts for approximately the last quarter century bear directly on this subject" (Guilford, 1950, p. 445). He argued that "psychologists have seriously neglected the study of the creative aspects of personality. On the other hand, the social importance of the subject is very great" (p. 454). After this address, some very prominent creativity researchers in the field of psychology started to emerge, amongst them Morris Isaac Stein.

Morris (Moe) Stein came from humble beginnings. He was born in the Bronx on June 11, 1921 to Sam and Lena Stein, a tailor and a homemaker. His parents did not receive a formal education; Sam never went to school, and Lena only attended until the second grade ("Morris," n.d.). Stein was to follow a very different path. He attended high school at DeWitt Clinton High School (Glover, 2019), which was not what one would consider a typical high school. Clinton was an all-boy school that did not turn anyone away, and eventually, it became the largest high school in the world (Allyn, 2009). Clinton was considered a sociological experiment, taking inner-city boys and

sending them to a school on sizable grounds that gave the school an affluent country school feel. Like many of his peers at Clinton, Stein's parents were immigrants who were drawn to the Bronx due to its cheap and speculative housing. Because of this, Clinton had a diverse array of children from an amalgam of ethnic backgrounds (Allyn, 2009). For a boy living in a low-income family growing up during the Depression, attending a large school with marbled halls and a swimming pool must have felt as if he was entering a castle every day.

At Clinton, Stein was afforded with educational opportunities that his parents did not have. Due to the size and nature of the school, the faculty had more academic freedom in teaching that others did not. Because of this, the children who went to this school were unusually prepared to make their mark on society (Allyn, 2009). Clinton was a living testament to the fact that creativity in education could positively influence people long before it was regularly studied.

Developing a life-long love of learning through his years at Clinton, Stein subsequently earned his bachelor's degree and a master's degree at City College of New York. He attended Harvard where he earned another master's degree ("Morris," 2001). Stein then took a break in his studies to serve in the army. As with many of the early creativity scholars, he got his start in studying creativity during his service, evaluating personality traits for the military. While in the military, Stein worked for the Office of Strategic Services, the predecessor to the CIA. He worked in the assessment center and was charged with evaluating which people would be best suited for demanding roles overseas, in what we would call today "special ops" (Sawyer, 2006). This was particularly important work at this time in our nation's history as it was feared that international annihilation would be the price we would pay for a lack of creativity. Due to this concern, the military played a significant role in the development of the study of creativity.

After World War II, the military remained a vital source of new knowledge about creative thinking. Between 1945 and 1965, the concept of creativity was framed as a matter of national security and an object of geopolitical concern (Van Eekelen, 2017). American society was also beginning to seem increasingly constrained and regimented, causing people to worry about conformity (Sawyer, 2006). These societal beliefs clearly influenced the research psychologists that began to study creativity, and because of these societal beliefs, there was significant funding available for the study of it (Van Eekelen, 2017). The goal of supporting psychologists studying creativity was to better understand freedom and its place in American society. These goals matched well with Stein's beliefs. At the time, Stein (as cited in Sawyer, 2006) argued that to be capable of creative insights, the individual requires freedom—freedom to explore, freedom to be himself, freedom to entertain ideas no matter how wild and to express that which is within him without fear of censure or concern about evaluation. (p. 42)

Stein believed that by researching creativity, psychologists were defending freedom and helping save the world from nuclear annihilation, with liberal democratic societies being the most conducive to creativity (Sawyer, 2006).

After the military, Stein continued his education at Harvard, eventually earning his Ph.D. He then became a professor at Wheaton College in Chicago where he taught psychology and creativity (Glover, 2019). Following this, he was employed as the staff psychologist at the Veterans Administration in Boston, Massachusetts from 1947-1948. In 1948, he became part of the faculty at the University of Chicago in the department of psychology (“Morris,” 2001).

Published that same year was one of Dr Stein’s earliest works, the *Thematic Apperception Test: An Introductory Manual for its Clinical Use with Adult Males* (Stein, 1948). The Thematic Apperception Test (TAT) is a type of projective test that involves describing ambiguous scenes or pictures to provide clues to the underlying dynamics of a subject’s interpersonal relationships and self-attitudes. This research would continue, and in 1953 he published work on the effect of culture on creativity in individuals. Here Stein presented a series of hypotheses regarding the personality of the creative individual. He explored what gaps the individual must be sensitive to, the willingness to suffer ambiguity, and the willingness to engage and communicate with others. In this, he provided what would become a standard definition of creativity: “the creative work is a novel work that is accepted as tenable or useful or satisfying by a group in some point in time” (Stein, 1953, p. 311). This definition has been at the root of most contemporary definitions and models of creativity. Another important aspect of this piece is Stein’s argument against viewing creativity from the lens of “genius.” He posited that this approach is limiting, that a child fixing the bell on his bike exhibits the same behaviours, structurally, as the genius.

In 1954, the Center for Advanced Study in the Behavioral Sciences (CASBS) was established. This center was devoted to the production of knowledge and would offer select groups of social scientists and other scholars yearlong fellowships. More often than not, distinguished scholars came to the center at crucial, often early, stages of their careers (CASBS, 2019). Stein was one of these scholars. Although he was affiliated with the University of Chicago, Stein was offered a fellowship the first year the center was open and studied there from 1954-1955. This gave him time to make great leaps in his work. During the year that fellows are at CASBS, they do not work on anything except expanding their knowledge.

Stein’s research at this time was not solely limited to the field of creativity. In 1955, he co-authored the article *An Analysis of the Miller Analogies Test for a Scientific Population*, which looked at graduate students’ mastery of vocabulary as a predictor for graduate school success. This research suggested a more robust vocabulary test would be needed to improve the efficiency of the MAT as a predictor for graduate schoolwork.

Stein’s time at CASBS was influential, and his dedication to what he developed while there is shown in works published years later. Perhaps the most consequential of these volumes is his 1960 book *Creativity and The Individual: Summaries of Selected Literature in Psychology and Psychiatry*. This book would go on to have 24 editions between 1960 and 1980 and was published in both English and German. Stein’s lifelong drive to both contribute towards creativity research and analyze others’ contributions to the field became evident in this work. Continuing to show the scope of his interests,

Stein published the book *Contemporary Psychotherapies* in 1961. In this book, he looked at the work of ten different therapists. Their approaches to psychotherapy were depicted, and their current thinking about significant issues in the therapeutic process were explored.

More important work was soon to follow. Building on his earlier work on predictors of college success, Stein published *Personality Measures in Admissions: Antecedent and Personality Factors as Predictors of College Success* (1963). In this book, Stein provided a critical review of the literature from 1950 to 1960 on studies of relationships between antecedent and personality factors and various criteria of college success. He divided the review in terms of the following four approaches: the pilot experience (i.e., high school experience), the social or demographic approach (life history), the psychological approach (mainly personality tests), and the transactional approach (relationships between students and the college environment).

Stein also stayed on top of the important issues of the day. In 1960, during a presidential campaign speech, John F. Kennedy challenged 5,000 students at the University of Michigan to contribute two years of their life to help people in countries of the developing world. In 1961, within weeks of his inauguration, President Kennedy signed the order that established the Peace Corps on a temporary pilot basis (Peace Corps, n.d.). Creating an organization as complex as the Peace Corps was a huge undertaking. Nothing was in place when the order was signed, no volunteers, little staff, no screening/application process, and there were no agreements in place with nations wanting volunteers. And in this significant undertaking, there was no room for errors. The public was skeptical, and they vocally criticized the project. There had already been many problems with Americans who went abroad, so much so that the term “The Ugly American” was coined (Peace Corps, 1962).

Nevertheless, hope was on the horizon, and a call to action was made. Stein saw the need and responded to the call to help set up the Peace Corps. He became a consultant to the Peace Corps early on, assisting in screening the people who applied to volunteer. He received a contract for which he would study the first group of volunteers to go to Colombia. Stein was part of all the major aspects of the Colombia project. He worked in volunteer selection, and he used instruments to help predict the applicants’ overseas effectiveness. He was also part of the training and screening for the program and helped determine what the project would look like. While in Colombia, he observed the changes that the volunteers experienced and the development of the community development program (Ezekiel, 1968). It was not all smooth sailing. Despite the training that the volunteers received, they did not realize until they arrived in South America that they were not the only ones who had something to contribute. However, the project in Colombia was a Communal Action project which was defined as “the result of communities taking charge of their own problems and organizing in order to solve them, developing their own resources and potential, and utilizing resources outside the community” (Purcell, 2014, p. 143).

In 1966, Stein published a book on this work, this one titled *Volunteers for Peace*, which followed this first group of Peace Corps volunteers. 62 Peace Corps volunteers were given questionnaires in Colombia, and then

he did follow up with them 6 and 12 months after they left. Additionally, Colombian interviewers asked residents of 15 villages about their attitudes towards the United States and its volunteers. The book concluded with Stein suggesting that these volunteers and their reinforcements achieved both tangible and intangible results, listing schools, roads, aqueducts, health centers, and latrines started or completed, as well as sports leagues and co-operatives helped or begun (Dobyns, 1967).

Despite the significance of the Peace Corps work and other efforts, Stein remained devoted to the study of creativity. Former military psychologists in this era founded several research institutes to study creative individuals. Stein founded a research institute at the University of Chicago, called the Center for the Study of Creativity and Mental Health, in 1962 (Sawyer, 2006). In the following section, we will illustrate some of his most impactful and lasting contributions to creativity research.

In the 60s, Stein researched the creative process through the lens of societal need and the forces that influence creativity. In his 1963 work, *Creativity in a Free Society*, he describes the creative process as consisting of three phases: hypothesis formation, hypothesis testing, and communication. However, he did not believe that the process flowed neatly in this order. Stein's research found that the creative process did not occur in a systematic or orderly fashion and that creative people did not think in a rigid manner.

In this piece, he also examines the characteristics of the creative individual, sharing some important observations that are foundational to the field today. In his discussion of intelligence, he states that while there is a wide range of intelligence in creative individuals, most tend to fall at the upper level of a normal distribution. When he looked at the problem-solving behavior of creative individuals what stood out was not the ability to solve a problem but how it was solved. That is, the creative individual tackled a problem differently than someone who was not creative. The creative individual would spend more time and asked more questions that were oriented to analyzing the problem; they were "feeling out" the problem. The less creative person would spend more time and asked more questions about synthesizing the data and the information they had on hand.

Stein also discovered that the less creative person was more likely to avoid situations in which they might be blamed for their actions and situations where they might be regarded as inferior to that of a more creative individual. He argued that the creative individual is capable of indulging in play and can accept their own impulses; they have fun at work. Finally, he stated that creative individuals are not only capable of tolerating ambiguity, but they are also ready and willing to provide an atmosphere in which others can also share in the freedom that they experience.

Putting these initial observations to work, Stein wound up spending decades researching the socio-historical factors that influenced contemporary creativity training programs. He continued to make the argument that creativity is a process that occurs within a social context. Nearly 30 years after his initial research, Stein's (1992) *Creativity Programs in Sociohistorical Context* did an analysis of the societal factors that led to the development of the Creative Problem Solving Process, which his research had shown to be the father of almost all other training programs. His work

did not go unnoticed. The *Source Book for Creative Problem Solving* states, “Morris Stein has conducted the most thorough research into understanding the various training programs for developing creative ability of any scholar I know” (Parnes, 1992, p. 85).

Beyond his work on sociohistorical factors, Stein published *Manual for PCT: The Physiognomic Cue Test* in 1975. This publication detailed the reliability, test administration, scoring, normative data, and construct validity of the PCT (a measure for physiognomic perception as a cognitive control variable). Stein suggested that the PCT could be of use for studies that dealt with perception, creativity, cognitive styles, and studies on the relationship between personality and cognitive behavior.

In 1986, Stein published *Gifted, Talented, and Creative Young People: A Guide to Theory, Teaching, and Research*. This book covered quite a bit of ground, including the history of the research, theories, and concepts in this area, the characteristics of creative young people, the identification and selection of creative young people, a special focus on the disadvantaged and deprived, which tests could be employed, a proposed curriculum, evaluations, and more. Stein also explored programs for gifted, talented, and creative people in other countries. Stein’s work on the importance of intervention aimed at creativity in youth continues to be echoed by many researchers. Even half a century after the 1950 presidential address, researchers continue to emphasize that “students’ creativity has been found to suffer from the traditional teaching practices of evaluation, reward, competition, and lack of student choice” (Lilly & Braamwell-Rejskind, 2004, p. 104).

This was not the only significant stance that was foreshadowed by research that Stein did. At the end of the last century, a number of researchers including Alencar & Bruno-Faria (1997) argued that there is a growing recognition that organization creativity is a key factor to innovation and long-term success. Due to the globalization of competition in the business environment and the increased pace of change, organizations are urged to make the best use of their available resources, especially their creative human resources. (p. 271)

Over a decade before this, Stein published “Creativity is People” (1985) in the *Leadership & Organizational Development Journal*. Here, Stein made the point that while creativity should be managed in corporations and that although industrial and business management highlight the importance of creativity, they often failed to recognize the characteristics of creative people. He argued that the future depends on creative people, with particular emphasis on engineers and scientists. In this piece, Stein presented valuable data for the selection and management of creative scientists, engineers, and supporting personnel. He further argued that to do its job right, management needs to do far more to acknowledge the role it must itself play in the creative process. This bell is still being rung to this day. In 2017, the authors of *Creating Futures That Matter Today* are still arguing that “helping teams lean further into their intuitive, creative and imaginative capacities, more powerful futures can be designed” (Pool & Parker, p. 3).

It is not entirely surprising that some of the initial research in the field was not widely embraced when it was initially published. In the process of studying creativity, early researchers faced difficulties in orienting their

work as a body of literature because there was no guidance for the study of creativity. This issue prompted Stein to propose the formation of a consortium to coordinate and integrate the efforts of researchers in the creativity field (Isaksen et al, 1984). The researchers met at Stein's home to develop a conceptual schema to coordinate creativity research efforts. They were able to coordinate and discuss with each other research that they had been doing, what was successful and what was not. One of the results of this group was the development of the Research Planning Matrix (RPM) which represented the organizations and centers for the study of creativity (Isaksen et al, 1984). They would later use this model as their guide to quite deliberately further study in the field of creativity.

Undoubtedly, one of Stein's biggest contributions to the field came when he published *Stimulating Creativity Volumes 1 and 2* in 1974 and 1975. In this two-volume set, Stein creates a framework by which individuals and groups can stimulate creativity. These editions would be revisited often, ultimately being revised 14 times over the course of their publication run.

Stimulating Creativity: Volume 1, Individual Procedures covered the psychological and social factors that affect creativity. In it, Stein explored and reviewed past criteria of creativity and subsequently puts forth techniques that can stimulate creativity, based on social and psychological differentiating characteristics. Stein also addressed overcoming blocks to creativity by offering techniques an individual can employ. Kover's (1975) book review of Volume 1 says, "Stein has labored hard and has brought out perhaps the best summary yet of what is known about stimulating creativity in individuals" (p. 649). Always the mentor, Stein encouraged even further research in this volume stating:

Hopefully those who try the various procedures described here will make their experiences, their failures as well as their successes, known in appropriate publications. Such information together with the efforts of future investigators in this area will help us come closer to learning more about what kinds of procedures for stimulating creativity should be used by what kinds of individuals under what kinds of conditions to achieve creative results. (p. xiii)

Volume 1 did a deep dive into which techniques would be appropriate during each stage of the creative process. During the analysis, Stein considered models such as Creative-Problem-Solving (Parnes and Osborn), Brainstorming (Osborn), Syntectics (Gordon and Prince), and a personality-driven or personality-insights approach. Stein aimed to make individuals more receptive to creativity training programs or even to build on some of the examples given to create their own.

Stimulating Creativity: Volume 2, Group Procedures did a thorough review of the "major characteristics of groups, such as communication patterns, life span, competition, diversity, and leadership structure" (Singer, 1977, p. 40), and provided a robust exploration of the research and methods to enhance creativity in teams. In this volume, Stein lays the foundation for a body of work aimed at helping consultants, trainers, and leaders who seek to enhance creative potential and productivity in the workplace (as well as the scholars who study such efforts).

These volumes were aimed at a large audience to include organizational leaders, behavioral scientists, and graduate students researching organizational phenomena. Stein (1974) argued that

Teaching, supervisory, and managerial personnel should ... be aware of these factors involved in hypothesis-testing so that they will not only be supportive and encouraging to their personnel—even to the point of suggesting they set aside a problem for an extended period of time so that they can acquire a fresh view and return with more effective behavior—but will also assume more direct action in learning about the types of men they supervise, their capabilities, and the problems assigned to them. In so doing they should be able to assign the right man to the right job—the man who has demonstrated the most motivation and aesthetic sensitivity in working with certain kinds of problems—so that creative results may be attained. (p. 250)

Well known for continually putting creativity in context, Stein was clearly a forward thinker, arguing that creative work necessarily involves an element of social judgement and that creative insight “arises from a reintegration of already existing materials or knowledge, but when it is completed, it contains elements of something new” (Runco & Jaeger, 2012, p. 95). However, he cautioned that environments never have a completely predictable impact, and the influence of the environment is dependent on the individual’s perception of it.

Stein continued to push the boundaries of the field throughout his lifetime. For many years, he acted as editor for the *Journal of Creative Behavior*, celebrating and examining countless themes in this area from education to business to the arts. He would serve as a steadfast monitor and reviewer of the methods designed to stimulate creativity and research in this field (Singer, 1977). With careful examination of specific research studies, he challenged others on the way they thought about things, the implications of what they were doing. At one of the longest running creativity conferences in the world (CPSI), Stein often led a weeklong event that acted as a research hub. These special programs were aimed at addressing research issues and providing assistance with research concerns and concepts in creativity, especially for master’s and doctoral students (CPSI, 1996). His assistance, contributions, and collaboration with other scholars (and especially with students) cannot be understated.

As one colleague explains:

Moe Stein was an expert professor and researcher who would generously help researchers analyze and improve their research design and interpretation. He was especially patient with people who had inferior research preparation or were in programs of lower rigor than he preferred. He was constantly encouraging. I was aware of his in-person contributions before I got to know him, especially from faculty and students in and around the Buffalo State Creative Studies program. They were full of stories about his teaching of research methods, pushing for reliable rigor but always helpful. After I got to know him we often ran sessions together at the Creative Problem Solving Institute, ably assisted by a variety of researchers, work-

shopping theory, research design, and interpretation for all comers, no matter their background in research or creativity. Again, he was insightful and very supportive. But mentoring is more than giving expertise in an area. In organizations, while your boss should support your development, a mentor is someone outside the authority chain who helps you see what is really going on. Moe was expert and generous with these insights. Talking about the politics of publication as well as giving background on the true realities of much of the available research. (personal communication with Chris Barlow, June, 2021)

This work was not limited to the United States. Stein was recognized for his support of the field around the world. His impact and engagement during these visits was far reaching. In 1992, Kobus Neethling, the leading creativity expert in South Africa, asked Stein if he would speak at the First Annual Conference on Creativity in South Africa (Stein, 1993). A personal reflection on the influence of his South African outreach shares:

When I was young, Moe visited us in South Africa, and my father took him to a rugby match. Moe was instantly fascinated by the lateral passing in the sport and began comparing it to American football. He started making connections with creativity and talking about ‘lateral’ creativity. Moe was forever primed to make connections and share his insights. A few years later, my family and I took a trip to New York. During our stay, Moe acted as our tour guide, taking us around town, showing us the sites, treating us to unforgettable experiences and his wonderful company. Even though I was just a kid, Moe was incredibly generous with his time and his willingness to share. He was not only a great academic and researcher, but he was also a wonderful human being. I will be forever grateful for the time he invested in both me and my family. (Heinz Neethling, June, 2021)

Moe Stein was, quite simply, a good man. In 1994, Stein assisted in organizing The Brazilian Creativity Association. In 2000, he became a trustee of the Creative Center Education Trust in the UK (Glover, 2019). To further his reach and connections to researchers across the globe, he created an annual publication he called *Global Correspondence* which helped spread knowledge of the latest research on creativity and encouraged contributions from all sectors of the world. The lasting impact of this international outreach was important. As Yau’s (2012) book *Creative Geniuses* argues, “the complexity and specialization of today’s technological, overloaded information age will make it difficult for an individual solitary genius to emerge” (p. 620). Stein certainly believed this and continued working on the global publications until he died.

When Stein founded the Center for the Study of Creativity and Mental Health at the University of Chicago in 1952, he sought to better understand freedom and its place in American society (Sawyer, 2006). He sought the realization of a free society that would allow for the release of the creative potentialities in all of us and which would accept creativity in all areas of

human inquiry. He stated that a society fosters creativity to the extent that it encourages openness to internal and external experiences, to the extent that it values change and novelty. He argued that society encourages creativity when privileges, opportunities, and social interactions are based on personal qualifications and attributes, not one's social status or race (Stein, 1963).

Stein dreamt of a society that fostered creativity by providing its citizens with four basic freedoms: freedom for study and preparation, freedom for exploration and inquiry, freedom of expression, and freedom to be themselves. He asserted that "the challenge of our time does not lie in concerns with conformity but in the challenge to create the free society that will provide these freedoms" (Stein, 1963, p. 130). Stein explored and studied the why behind the motivation to create. What drives one person to create but not another? What Stein discovered was that the creative individual senses a lack of closure that the person cannot ignore, a lack of satisfaction with the existing state of affairs (Stein, 1953). This drives them to create an answer to provide closure to the problem at hand. And Stein firmly believed that creativity could be taught. He argued that people could be guided to go on an "excursion" in which they removed themselves from focusing directly on the problem at hand and look at seemingly unrelated considerations with the end goal of stirring up the individual's inner life (Stein, 1991).

One of Stein's final contributions came to him while reading the *New York Times* in which an article was published about what would be missing from education if there were no books. This is when Stein realized that he and his colleagues were limiting themselves by focusing on the problems of the creative person. He realized that when a creative runs into a problem, it is a problem for both the creative individual and everyone else (Stein, 1993). That is, both the contribution of creativity and the appreciation of creativity are important. As Stein (1984) explained,

CONTRICIPATION is a term I coined to call attention to the fact that everyone is or can be involved in the creative process. A person either contributes to the process or appreciates the process. Contributors need appreciators and appreciators need contributors. All too often attention is focused solely on the problems of contributors—the creative person has difficulty getting financial support; the creative person had difficulty being recognized, etc. But appreciators have problems also. Can you imagine what the world would be like without creativity? Imagine having insomnia some night and wanting to read a good book but no one had written it! Imagine wanting to listen to a symphony, but no one had composed it! Imagine needing medicine for a loved one who is ill but no one had discovered/developed it! Appreciators also would have problems in a world without creativity. (para. 1)

This concept has been lasting and is still being taught in creativity courses and books today. As Csikszentmihalyi (1996) argues, "to have a good life, it is not good enough to remove what is wrong with it. We also need a positive goal, otherwise why keep going? Creativity provides one of the most exciting models for living" (p. 10).

In 1991, Stein retired as Professor Emeritus of the Psychology Department at New York University. Yet his spirit and influence did not dim. He passed away at the age of 84 a still active and much loved man. Shortly after his passing in 2006, individuals across the world shared their experiences with him. Here are but a few of these sentiments:

“I remember Moe as funny, as being incredibly supportive of people trying to research creativity or trying to promote the tools of deliberate creativity.”

“Always a smile, quick wit, time to talk, intelligence and capacity to challenge the accepted norm. His support and guidance were offered in friendship and mutual respect.”

“I will keep as treasures all the books, works and tests he gave me, probably because he knew I considered him as the most important living scientist in the field of creativity, and that is how I shall keep him in my memory, and I hope posterity will grant him such acknowledgement.” (Barlow, 2006)

As an author, as an editor, and as a mentor, Moe Stein was and continues to be sorely missed.

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CHAPTER THIRTY FIVE

INTELLIGENCE, CREATIVITY, WISDOM, AND LOVE. WHAT ELSE? THE VERY PROMINENCE OF ROBERT J. STERNBERG'S CONTRIBUTIONS TO THE FIELD

JAMES OGUNLEYE

“There aren't many people who have [Sternberg's] insight and his flair; he couples a high degree of creativity with all the core skills that unfortunately aren't always available to highly creative people: he has the right statistical abilities, good analytical abilities, great communication skills.”

The previous quote is by Stephen J. Ceci, PhD, Helen L. Carr Professor of Developmental Psychology, Cornell University, USA, & the recipient of the American Psychological Association's E. L. Thorndike Award for lifetime contribution to empirical and theoretical psychology. (New York Times, 3rd April, 2001, Section F, p.1)

ABSTRACT: Robert Jeffrey Sternberg is a research psychologist par excellence. His five-stage research on componential analyses of analytical abilities or componential theory, the triarchic theory of human intelligence, the theory of successful intelligence, the investment theory of creativity (with Todd Lubart) and the propulsion theory of creative contributions (later expanded in collaboration with James Kaufman and Jean Pretz), the balance theory of wisdom, and the triangular theory of love resulted in the development of his theories of intelligence, creativity, wisdom and love, all-encompassing and highly prominent contributions to the field. Of the four constructs of intelligence, creativity, wisdom and love, Sternberg's *triarchic theory of human intelligence* is widely acknowledged as a distinguished feature of his highly productive and illustrious career. This chapter celebrates Robert J. Sternberg, provides biographical notes on some of his main scholarly accomplishments, and introduces his contributions to the theories and conceptual understanding of intelligence, creativity, wisdom and love. The chapter ends with an interview with Sternberg.

Keywords: Robert J. Sternberg, intelligence, creativity, wisdom, love, contributions

I—Introduction

This chapter celebrates Robert J. Sternberg. The chapter is divided into four parts beginning with i) introduction – biography, index of recognitions, awards and scholarship – ii) contributions to the theories of intelligence, creativity, wisdom, and love, iii) selected publications leading to, and arising from the development of the theories of intelligence, creativity, wisdom, and love, and iv) Sternberg’s pride and joy triangle, interview with Robert Sternberg, and concluding remarks.

Robert Sternberg’s contributions to intelligence, creativity, wisdom, and love are best understood by his ‘ordered’ – stage-by-stage research, pause-and-reflect – approach to observing, exploring, grasping, conceptualising and theorising psychological constructs empirically. In developing his influential theories of intelligence, creativity, wisdom and love, he began his research on componential analyses of analytical abilities (Sternberg, 1977; 2003a). The componential theory is based on a premise that “underlying intelligence is a series of information-processing components” (Sternberg, 2003a, p. xi). He argued, for instance, that intelligence researchers should be interested not only at the psychometric factors that underlie intelligence tests, but also information-processing.

The development of the triarchic theory of human intelligence took place at the second stage of Sternberg’s research. The idea came from his observations of three graduate students all of whom had contrasting personalities. Contrasting in the sense that the first student was brilliant academically with good memory and analytical skills – the kind of students that “conventional psychometric tests of intelligence emphasize” (Sternberg, 2003a, p. xiii). The second student was creative but possessed weak analytical skills. The third student seemed good in both analytical and creative skills. Close and detailed observations of the three individuals covering periods of their studentship and employment resulted in Sternberg questioning aspects of the assumptions he held at the first stage of his research.

I now realize that ... I had been asking the wrong question. By asking what information-processing components underlie performance on conventional mental tests, I had been able to identify how people solve such conventional problems. But I had assumed that these tests measured the universe of skills relevant to intelligence, and my assumption was false. By asking the wrong question, I ended up with an incomplete answer.

These observations led to the development of the triarchic theory of human intelligence.

- Sternberg (2003a, p. xiv)

Sternberg’s theory of successful intelligence (Sternberg, 1997; 1999a), stage three of his research, extended the triarchic theory. The theory is predicated

on three dimensions of intelligence – analytical, creative, and practical intelligences – the same interactive facets of the triarchic theory. The theory is based on a premise that intelligence can be ‘successful’ to the extent that individuals’ analytical, creative and practical abilities ‘balance’ or function collectively allowing them to achieve success in life within particular social and cultural environments. According to Kaufman & Singer (2004), Sternberg’s theory of successful intelligence “was the most extensively researched approach that attempts to go beyond g [general intelligence]..., beyond prediction of school grades to account for success in all settings of a person’s life” (p.326).

Stage four of Sternberg’s research resulted in the development of the Investment Theory of Creativity. According to Sternberg:

After studying intelligence for a number of years, it became clear to me that there is more to creativity than creative intelligence. There are people who appear to have creative intelligence but are unable to use it effectively in their lives because they have various kinds of blocks.

- Sternberg (2003a, p. xvii)

This led to Sternberg teaming up with his former PhD student Todd Lubart to propose the Investment Theory of Creativity (Sternberg & Lubart, 1991; 1995). In this theory, creativity is conceptualised as a *decision* which they explained in terms of decision making – the kind of decision making or creative thought process involved in *buying* and *selling* that would have been expected of a stock market trader. If creative ideas were a commodity, the creative person must *decide* when to buy *low* and when to sell *high*; or to use a comparable parlance, it is like an English supermarket in time past that must decide when to *pile it high* and when to *sell it cheap* (translation: a decision about when to sell large amounts of a product at cheap prices). There are six elements of the investment theory – intellectual processes, knowledge, intellectual style, personality, motivation, and environmental context; the “creative performance results from a confluence of these elements” (Sternberg & Lubart, 1991, p.1).

Stage four of Sternberg’s research on the Investment Theory of Creativity is twined with the development of the Propulsion Theory of Creative Contributions originally proposed by Sternberg (1999b) and later extended in collaboration with former PhD students James Kaufman and Jean Pretz (see Sternberg, Kaufman, & Pretz, 2001, 2002). Being self-critical, Sternberg reflected on the investment theory of creativity and concluded that the theory might have somewhat oversimplified creative ideas and underplayed the multiplicity nature of creative contributions – hence the development of the Propulsion Theory of Creative Contributions. The theory identified eight types of creative contributions; four of these forms of contributions were situated within the existing paradigms of work while the other three represent achievements that were situated outside the paradigms. These creative contributions are: replication, redefinition, forward incrementation, advance forward incrementation, redirection, reconstruction/redirection, reinitiation, and

integration. (The eight creative contributions are discussed later in the chapter.)

Stage five of Sternberg's research departs tangentially to examine wisdom – hence the development of the Balance Theory of Wisdom. In the balance theory, Sternberg posited that although successful intelligence and creativity are needed for wisdom but, on their own, are insufficient conditions for wisdom. Tacit knowledge is equally important just as it is important to practical intelligence. Wisdom is needed not only to achieve an individual's self-interest or someone else's self-interest, but also to balance those interests – specifically intrapersonal (personal gains/benefits), interpersonal (relationship with other people), and extrapersonal (relationship with community/organisations).

Sternberg's research on love, and the development of his influential triangular theory of love are discussed later in this chapter.

Biography – Robert J. Sternberg

Robert Jeffrey Sternberg is a research psychologist and scholar per excellence, and by every standard a colossus when it comes to cognitive psychology. His main research interests include intelligence, creativity, thinking styles, wisdom, love and close relationships, teaching and learning, and intellectual development. Born on 8 December 1949 in Newark, New Jersey, USA, to a house wife mother and a petty trader father, he attended Tuscan Elementary School, a public primary school in his home town of Maplewood, New Jersey. It was at Tuscan that Sternberg developed interest in intelligence following a run of poor performance on required group IQ tests right up to the 4th grade, age nine, when he began to turn things around to “please” his teacher, and became an “A” student (Sternberg, 2003a, p. x). Hence Sternberg never looked back: his interest in intelligence was firming up.

Sternberg had his secondary education at the 210 years old Columbia High School, a four year comprehensive regional public high school also in Maplewood. He graduated in 1968 – and later inducted into the school's Hall of Fame.

Sternberg received his first competitive academic award, the National Merit Scholarship, in 1968 to study at Yale University, Connecticut, USA, from where he graduated with a bachelor degree – *summa cum laude*, honours with exceptional distinction – in psychology in 1972. The same year, Sternberg won his second competitive award, the prestigious National Science Foundation Graduate Research Fellowship grant for his doctoral studies at Stanford University, California, USA, from where he obtained a PhD degree in psychology in 1975. As an undergraduate and post graduate student, he cut his teeth in research as a research assistant at the 100-year-old James McKeen Cattell-founded Psychological Corporation, New York (1968-1969), the Educational Testing Services, New Jersey (summer 1970), and Yale University's Office of Institutional Research (1970-1971). Following his PhD in 1975, Sternberg returned to the Department of Psychology at Yale University, this time as assistant professor (1975-80). Sternberg was an assistant professor in 1976 through to 1978 when he won major grants from the National

Science Foundation for his work on the *Componential Analysis of Human Intelligence*, which formed the basis of his componential theory of intelligence. Sternberg was made associate professor (1980-1993) and full professor (1983-1986). He was also IBM professor of psychology and education (1986-2005) and director of the *Yale Center for the Psychology of Abilities, Competences and Expertise* (2000-2005).

Sternberg joined Tufts University as Dean of the School of Arts and Sciences in 2005 where he doubled as the director of the *Center for the Psychology of Abilities, Competences and Expertise* until 2010. Later in 2010, he joined Oklahoma State University, USA, as provost, senior vice president, and Regents professor of psychology and education until 2013. He also had a difficult 5-month stay at the University of Wyoming, USA, as president and professor of psychology and education. Sternberg is currently a professor of human development at Cornell University, New York, USA and honorary professor of psychology at Heidelberg University, Germany's oldest university and one of Europe's leading research-intensive institutions.

A cognitive psychologist to the core, Stenberg is very active professionally and has a distinguished record of service to the psychology community in particular and higher education in general. He is a past president of the American Psychological Association (2003); President, *Education Psychology*, Division 15 of the American Psychological Association (1994-1995); President, *the Society for the Psychology of Aesthetics, Creativity, and the Arts*, Division 10 of the American Psychological Association (1999-2000); President, *Education Psychology*, Division 15 of the American Psychological Association (1994-1995); President, *the Society for General Psychology*, Division 1 of the American Psychological Association (1993-1994); President, *Theoretical and Philosophical Psychology*, Division 24 of the American Psychological Association (2000-2001). Outside the American Psychological Association, Sternberg is also a past president of the Eastern Psychological Association (2007-2008); the International Association for Cognitive Education and Psychology (2009-2011); and the Federation of Associations in Behavioral and Brain Sciences (2012-2013). He is a former Treasurer of the Association of American Colleges and Universities (2011-2013).

Sternberg is recognised and honoured by the global psychology community. He holds 13 honorary doctorates in 12 countries in 4 continents – with fellowships and scholarships from a number of national and international institutions. Notably, in the last forty years, as Yale Junior Faculty Fellowship (1978-1979), Yale Senior Faculty Fellowship (1982-1983), John Simon Guggenheim Memorial Fellowship (1985-86), Honoured Visitor Fellowship at the Taiwan National Science Council (December 1998), Sir Edward Youde Memorial Visiting Professor, City University of Hong Kong December (1997), IREX Visiting Scholar Fellowship to Russia (2000); and Fulbright Senior Specialist Fellowship to Slovakia (2005).

Sternberg is a recipient of numerous awards – some three dozen to date – including *James McKeen Cattell Award* by the Association for Psychological Science (1999), *E. Paul Torrance Award* by the National Association for Gifted Children (2006), *Presidential Award for Distinguished Lifetime Contributions to the Public Understanding of Psychology*, American

Psychological Association Division 46, Media Psychology, (2008), *Sir Francis Galton Award*, International Association of Empirical Aesthetics (2008), Grawemeyer Award in Psychology (2018), *William James Fellow Award*, Association for Psychological Science (2017), and *Ernest R. Hilgard Award for Lifetime Contributions to General Psychology*, the American Psychological Association, *The Society for General Psychology*, Division 1 (2017). Sternberg is listed in the Top 100 Psychologists of the 20th Century by an *APA Monitor on Psychology* report (2002), among many recognitions (see table 1). He is a member of the US National Academy of Education, the American Academy of Arts and Sciences, and a Fellow of the American Association for the Advancement of Science.

Sternberg has authored or co-authored over 1800 publications including textbooks in cognitive psychology, communication in psychology, and introductory psychology, which he's listed among the top 25 psychologists most-frequently cited in Introductory Psychology textbooks (Griggs & Christopher, 2016; Haggbloom et al., 2002). In terms of impact, Google Scholar analytics showed that Sternberg has been cited over 214,528 times at the time of writing; he has an h index of 223 and an i10 index of 1178 – both indices are measures of academic research impact (see for example, Hirsch, 2005).

Index of Recognitions, Awards, Publications, Fellowship, Academic Leadership, and Professional Services

[Sternberg] has put intelligence into investigations of intellectual abilities...combining experimental methods and theories of cognitive psychology with traditional mental-testing ideas in analyzing intelligent performance and individual differences...[and has] cross-fertilized and infused vitality into studies of individual differences and the experimental analysis of intellectual performances.

- Citation Extracts: *Distinguished Scientist Award for An Early Career Contribution of Psychology*, the American Psychological Association, 1981

Sternberg's Index of Recognitions, Awards, Publications, Academic Leadership and Fellowship, Doctoral Supervisions, and Professional Services is presented from the next page.

Table 1: Index of Recognitions, Awards, Publications, Academic Leadership and Fellowship, Doctoral Supervisions, and Professional Services

Recognitions – selected	Top 100 Eminent psychologists of the 20th century (#60), the American Psychological Association (APA Monitor, 2002)
	Top 200 psychologists of the modern (post WWII) era , <i>Archives of Scientific Psychology</i> (ranked #61), (Diener, Oishi & Park, 2014).
	Top 25 psychologists most-frequently cited in Introductory Psychology textbooks (Griggs & Christopher, 2016; Haggbloom et al., 2002).
	America’s Top 100 Young Scientists <i>Science Digest Magazine</i> , 1984
	Top 100,000 most cited scientists in PLoS Biology , (#713) & Top 0.01% of scientists in terms of impact (Ioannidis, Baas, Klavans, & Boyack, 2019) Average Self-Citation Rate (SCR): 13.78% (vs survey median SCR 15.5%)
	Top 50 Most Influential Living Psychologists <i>The Best Schools</i> ¹ , 2018
	President the American Psychological Association, 2003
Presidency	President <i>the Society for the Psychology of Aesthetics, Creativity, and the Arts</i> , Division 10 of the American Psychological Association, 1999-2000
	President <i>Education Psychology</i> , Division 15 of the American Psychological Association, 1994-1995
	President <i>the Society for General Psychology</i> , Division 1 of the American Psychological Association, 1993-1994.
	President <i>Theoretical and Philosophical Psychology</i> , Division 24 of the American Psychological Association, 2000-2001
	President

	the Federation of Associations in Behavioral and Brain Sciences, 2012-2013
	President the Eastern Psychological Association, 2007-2008.
	President the International Association for Cognitive Education and Psychology, 2009-2011.
Treasurer	The Association of American Colleges and Universities, 2011-2013
Awards – selected	<i>Florence L. Denmark Award for Significant Contributions to Psychology</i> Psychology Department, Pace University, 2019
	<i>Grawemeyer Award in Psychology</i> University of Louisville Grawemeyer Awards, 2018
	<i>Ernest R. Hilgard Award for Lifetime Contributions to General Psychology</i> General Psychology, Division 1 of the American Psychological Association, 2017
	<i>Distinguished Service Award</i> International Association for Cognitive Education and Psychology, 2011
	<i>Presidential Award for Distinguished Lifetime Contributions to the Public Understanding of Psychology, Media Psychology, Division 46 of the American Psychological Association, 2008</i>
	<i>Sir Francis Galton Award</i> International Association of Empirical Aesthetics, 2008
	<i>William James Award</i> The Association for Psychological Science, 2007
	<i>E. Paul Torrance Award</i> National Association for Gifted Children, 2006
	<i>Arnheim Award</i> Psychology and the Arts, Division 10 of the American Psychological Association, 2005

	<i>Interamerican Psychologist Award</i> Interamerican Society of Psychology, 2005
	<i>Anton Jurovsky Award</i> Slovak Psychological Society, 2004
	<i>Farnsworth Award</i> Psychology and the Arts, Division 10 of the American Psychological Association, 2003
	<i>E. L. Thorndike Career Achievement Award</i> Educational Psychology, Division 15 of the American Psychological Association, 2003
	<i>Arthur W. Staats Award</i> American Psychological Foundation and the Society for General Psychology, Division 1 of the American Psychological Association, 2003
	<i>Distinguished Scientist and Scholar Award</i> Positive Psychology Network, 2002
	<i>Outstanding Academic Title, CHOICE for International handbook of giftedness and talent, co-editor</i> American Library Association, 2001
	<i>Distinguished Lifetime Contribution to Psychology Award</i> Connecticut Psychological Association, 1999
	<i>The James McKeen Cattell Award</i> The Association for Psychological Science, 1999
	<i>Palmer O. Johnson Award</i> American Educational Research Association, 1999
	<i>Sylvia Scribner Award</i> American Educational Research Association (Division C), 1996
	<i>Distinción of Honor SEK</i> Institución Educativa SEK, Madrid, Spain, 1997
	<i>International Award</i> Association of Portuguese Psychologists, 1991
	<i>Award for Excellence</i>

	Mensa Education and Research Foundation, 1989
	<i>Outstanding Book Award</i> American Educational Research Association for <i>Beyond IQ: A triarchic theory of human intelligence</i> , 1987
	<i>Citation Classic Designation</i> Institute for Scientific Information for Intelligence, information processing, and analogical reasoning for <i>The componential analysis of human abilities</i> , 1987
	<i>Research Review Award</i> American Educational Research Association (co-recipient), 1986
	<i>Distinguished Scholar Award</i> National Association for Gifted Children, 1985
	Among <i>Outstanding Young Men and Women</i> <i>Esquire</i> Register 1985
	<i>Cattell Award</i> Society of Multivariate Experimental Psychological, 1982
	<i>Boyd R. McCandless Young Scientist Award</i> the American Psychological Association, Developmental Psychology, Division 7 of the American Psychological Association, 1982
	<i>Distinguished Scientist Award for An Early Career Contribution of Psychology</i> the American Psychological Association, 1981
	<i>Insight in the Gifted Award</i> Spencer Foundation, 1982
	<i>Sidney Siegel Memorial Award</i> Stanford University, 1975
	<i>Wohlenberg Prize</i> Berkeley College, Yale University, 1972
Honorary Doctorates Honorary doctorates awards	13 universities, 12 countries, 4 continents
Fellow	American Academy of Arts and Sciences
Fellow	The US National Academy of Education
Fellow	The American Association for the Advancement of Science

Publications – Metrics, Productivity & Impact Indices	1,800
Articles, Book Chapters, and Books	
h index – number h of works cited at least h times [a significant measure of the impact of Sternberg's published work]	223
i10 index – number of works cited at least 10 times	1178
Google Scholar Analytics – Sternberg's work citation count	214,528 times
Grants Funding & Contracts	\$3,022,986
Over 50 grants; over \$20 million US dollars –\$250K and above – selected	<i>National Science Foundation /OERI (9/1/1999–8/31/2003)</i>
	\$2,520,000 <i>Office of Educational Research and Improvement (National Research Center on the Gifted and Talented/OERI: (10/01/00–9/30/06)</i>
	\$1,500,000 <i>Office of Educational Research and Improvement (Collaborative with University of Connecticut, University of Virginia, and University of Georgia): (6/90–5/95)</i>
	\$1,476,000 <i>Office of Educational Research and Improvement (Collaborative with University of Connecticut, University of Virginia, and Stanford University (10/1995–9/2000)</i>
	\$1,376,162 <i>Army Research Institute (10/92–6/99 with extension)</i>
	\$1,000,000 <i>Private Donation from Karen Jensen, Seattle, Washington (9/15/03–9/14/07)</i>
	\$780,221 <i>Army Research Institute (10/85–09/90)</i>
	\$749,976 <i>Institute of Education Sciences (8/01/03–7/31/06)</i>
	\$660,854 <i>Army Research Institute (1/01/03–10/30/05)</i>
	\$561,344

	<i>Army Research Institute (9/30/00–11/30/03)</i>
	\$495,927
	<i>Temple University (1/01/01–12/31/05)</i>
	\$430,000
	<i>Office of Naval Research (10/77–09/82)</i>
	\$350,000
	<i>National Science Foundation (4/1/05–3/31/07)</i>
	\$330,000
	<i>Office of Naval Research and Army Research Institute (10/82–10/85)</i>
	\$309,265
	<i>William T. Grant Foundation (9/1/2000–8/31/2003)</i>
	\$299,988
	<i>Davis Educational Foundation (7/1/06–6/30/08)</i>
	\$298,416
	<i>Office of Naval Research (10/85–9/88)</i>
	\$297,093
	<i>McDonnell Foundation (in collaboration with Howard Gardner/Harvard University) (12/87–11/90)</i>
	\$289,000
	<i>Venezuelan Ministry for the Development of Intelligence (01/83–12/85)</i>
	\$273,000
	<i>College Board/Educational Testing Service (8/1/2000–7/31/2002)</i>
	\$270,200
	<i>Spencer Foundation (Collaborative with Lynn Okagaki/Yale University) (3/88–9/91)</i>
	\$256,894
	<i>National Science Foundation /Educational Research Initiative (Stevens Institute of Technology) (10/01/00–03/30/02)</i>
	\$250,000
	<i>Arthur Vining Davis Foundation (2/1/2009-6/30-2010)</i>
	\$249,150
	<i>Office of Educational Research and Improvement (2/17/1997–2/16/2000)</i>
	\$249,893

	McDonnell Foundation (<i>Collaborative with Howard Gardner/Harvard University</i>) (2/91–2/94)
Editorship – selected	Founder <i>Review of General Psychology</i> , official publication of the <i>Society for General Psychology</i> , Division 1 of the American Psychological Association, now publishes by SAGE
	Editor-in-Chief <i>Educational Psychology Series</i> Lawrence Erlbaum Assoc., 1996–2007
	Editor <i>Cambridge University Press Textbook Series in Psychology</i>
	Editor <i>The APA Review of Books: Contemporary Psychology</i> , 1999–2004
	Editor <i>Psychological Bulletin</i> , 1991–1996
	Guest Co-Editor <i>Terminological Controversies in Gifted Education, Gifted Education International</i> , 2021-2022
	Guest Co-Editor <i>Teaching for Positive Creativity, Educational Sciences</i> , 2021-2022
	Consulting Editor, <i>Interamerican Journal of Psychology</i> , 2006-2010
	International Editor <i>Asian Psychologist</i> , 2005–2006
	Consulting Editor, <i>American Journal of Psychology</i> , 1979–1981, 1989– 2005
Successful Supervision of PhDs & Post-Doctoral Researchers – selected count Notable former PhD students – also celebrated in this book	Over 60 former doctoral students and post-doctoral research fellows Todd Lubart James C. Kaufman
Academic Leadership – selected	Professor of Human Development Cornell University, 2014 - Present
	Provost, Senior Vice President, Regents Professor of Psychology and Education, and George Kaiser Family Foundation Chair of Ethical Leadership,

	Oklahoma State University, 2010-2013 President and professor of education and psychology University of Wyoming, 2013 Dean of the School of Arts and Sciences Tufts University, 2005-2010 Director & Professor of Management, Yale Center for the Psychology of Abilities, Competencies and Expertise (PACE Center), 2000-2005
Professional Committees – selected	Chair <i>James McKeen Cattell Award Selection Committee of Association for Psychological Science</i> (2009- 2010)
	Chair <i>Publications Committee, American Educational Research Association</i> (2007- 2009)
	Chair <i>Elections Committee, American Psychological Association</i> , 2004-2006
	Chair <i>American Psychological Association Task Force on Governance</i> , 2003
	Chair <i>AERA Outstanding Book Award Committee</i> , 2002
	Chair <i>American Educational Research Association Nominations Committee</i> , 1986–1987
	Chair <i>G. Stanley Hall Awards Committee (APA Division 7)</i> , 1986
	Chair, <i>APA Early Career Award Committee in Learning and Cognition</i> , 1984
Marquis Who's Who Listings –	<i>Who's Who in America, Who's Who in American Education, Who's Who in American Men and Women of Science, Who's Who in the East, Who's Who in Medicine and Healthcare, Who's Who in Science and Engineering, Who's Who in the World</i>

II—Contributions: Introducing Sternberg’s Theories of Intelligence, Creativity, Wisdom, and Love

Triarchic Theory of Intelligence

A contextual view offers an escape from the vicious circularity that has confronted much past research on intelligence, in which an attempt is made to escape from old conceptions of intelligence (such as the psychometric one that gave rise to IQ tests) by creating new conceptions (such as the information-processing one); the new conceptions are then validated (or invalidated!) against the old conceptions for lack of any better external criteria.

- Sternberg (1984, p. 270)

Michael Gardner’s (2011) seminal review of theories of intelligence grouped major theories into four types – psychometric, cognitive, cognitive-contextual, and biological. *Psychometric theories* seek to understand individual differences, and identify sources of, and factors responsible for the differences on cognitive tests performance. Psychometric theories are arguably the earliest and most prominent of the four categories of intelligence and, ironically, ones that seemed to lack consensus amongst psychometricians on how best to approach the theory². *Cognitive theories* seek explanation for, and the understanding of thought processes that result from human behaviour. A characteristic of the cognitive theories is “their focus on the idea that how and what people think leads to the arousal of emotions and that certain thoughts and beliefs lead to disturbed emotions and behaviors and others lead to healthy emotions and adaptive behavior” (DiGiuseppe, David & Venezia, 2016, p.145). *Cognitive-contextual theories* “emphasize processes that demonstrate intelligence within a particular context (such as a cultural environment)”, (Gardner, 2011, p.79). In other words, intelligence – i.e. behaviour, thought process action – is determined or shaped by contextual factors and influences like culture. *Biological theories* see/view intelligence in terms of its relationship with the brain and its functions; or where intelligence is viewed as “essentially a genetically determined biological entity” (Wahlsten, 2002, p.245).

Sternberg’s Triarchic Theory of Intelligence is a type of cognitive-contextual theories which approaches the study of intelligence in relation to the context of its occurrence. According to Sternberg, the development of the triarchic theory was borne out of the need to “generate some kind of external standard that goes beyond the view, often subtly hidden, that intelligence is what IQ tests happen to measure” (Sternberg, 1984, p.270). In Sternberg’s view, traditional conception of intelligence is limiting, narrow in application and restricting contextually especially to academic activities such as academic success and achievements. In other words, aside from academic success and achievements, traditional IQ measures ignore social-cultural contexts of intelligence especially for non-specialists, or ordinary people, who might

equally be interested in social abilities (see also Sternberg & Grigorenko, 2004; Suzuki, Naqvi & Hill, 2014).

In other words, individuals have different abilities that enabled them to demonstrate intelligence in varied contexts – be it in academic or non-academic contexts or environments. As the ‘father of cognitive psychology’, late Ulric (Dick) Neisser and his colleagues posited in *Intelligence: Known and Unknown* (1996, p.77):

Individuals differ from one to another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by taking thought. Although these individual differences can be substantial, they are never entirely consistent: A given person’s intellectual performance will vary on different occasions, and in difference domains, as judged by different criteria.

Still, Sternberg looked at the work of key contextualists in the field and their approaches to intelligence – including John Berry’s radical cultural relativism (1974), William Charlesworth’s ethological approach to studying intelligence (1976, 1979), and John Baltes’ attempt to reconcile methodologically contextual and psychometric intelligence theories (Baltes & Willis, 1979, 1982). Sternberg took a position that viewed intelligence as comprising a set of abilities, each of which represents a form of thinking. His contextualist approach thus sought to integrate psychometric theory and the componential theory in an attempt to “expand the ways in which intelligence is conceptualized as well as studied” (Sternberg, 1984, p.312).

Sternberg’s starting point was to offer a definition of intelligence in context, “as consisting of purposive adaptation to, shaping of, and selection of real-world environments relevant to one’s life” (Sternberg, 1984, p.271). He not only acknowledged constraints that might be placed upon this view of intelligence, but also addressed them preparatory to proposing the triarchic model. First, *the real world* ‘constraint’. Intelligence must be view in terms of behaviour in real world environment, not in a dreamt up, made-up or fantasy environment. Second, *relevance*. This has a dual condition: intelligent behaviour has to be relevant in the environment while the environment has to be relevant to the individual’s life. Third, *purposiveness*. Intelligence must serve a purpose or be goal-oriented “however vague or subconscious those goals may be” (p.272). Fourth, *adaptation*. Adaptation to the individual environment is as important as the *shaping* of the environment (fifth). The sixth condition relates to the individual’s selection of the environment. However, when it is not practical or desirable to *adapt* or *shape* the environment, “one may attempt to select an alternative environment with which one is able, or potentially able, to attain a better contextual fit” (p.273).

The Triarchic Theory of Intelligence (1985). The triarchic theory absorbed the componential theory of Intelligence offering a particularly contextual and broad understanding of the construct. The theory is made up of three subtheories – componential, experimental, and contextual. Componential subtheory comprised of three components – where a component is defined in this context as “an elementary information process that operates on

internal representations of objects or symbols” (Sternberg, 1984, p.281). The three components or types of mental processes are: metacomponents (critical for decision making, for example), performance components (the mental process involved in progressing, or taking actions on decisions or plans), and knowledge-acquisition components (the mental processes involved in operationalising decisions or plans).

Each of these subtheories is associated with three kinds of ability or intelligence: analytical or componential intelligence, creative or experimental intelligence and practical or contextual intelligence. Each kind of intelligence is highlighted in the following paragraphs:

Analytical intelligence. In essence, this is academic intelligence; it is the application of components of intelligence to analyse problems, examine information or to evaluate material in order to identify information (for example) needed to solve problems. Analytical Intelligence involves the ability to think abstractly; and how individuals relate to their internal world. The use of critical thinking skills and academic problem skills *aligns* analytical intelligence with the traditional IQ measures. According to Sternberg, analytical intelligence is akin to being *book smart*.

Creative intelligence. IQ tests do not necessarily capture creativity; creative intelligence fills this gap. Creative intelligence is the ability to use existing knowledge to solve problems; or the ability to apply knowledge in varied contexts to familiar or unfamiliar situations to achieve a *valued* outcome or goal (see also Ogunleye & Tankeh, 2013; Ogunleye, 2016).

Novelty and automation are two categories of creative intelligence – the former involves an individual’s ability to address a problem for the first time while the later involves an individual’s ability to perform a repeated task automatically (see Shrestha, 2017).

Practical intelligence. Key intelligence determinants are *adaptation* to changing environment or situations and *shaping* the world around the individual (for example). Practical intelligence is comparable to being *street smart* and the use of common sense to deal with every-day activities or tasks (i.e. knowledge and information application to real-world situations – Brown, 2002). According to Sternberg, individuals might score high in practical intelligence base not on any formal or taught learning but on the knowledge they have acquired tacitly. Practical intelligence abilities are generally not captured in traditional IQ measures and assessment. (See figure 1 from Sternberg’s (1985) Triarchic Theory of Intelligence.)

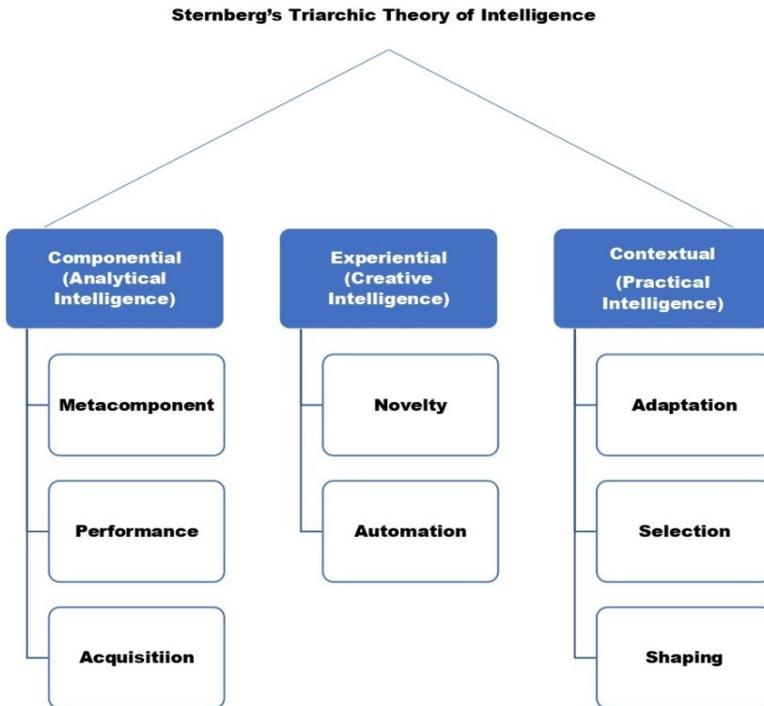


Figure 1: Sternberg's (1985) Triarchic Theory of Intelligence

Criticisms of the triarchic theory

It goes without saying that a major work of the kind of the triarchic theory of intelligence has not gone without criticisms – something that Sternberg did anticipate and welcome even if he rejected particularly those directed at the practical intelligence subtheory. One criticism was that the data on which the *triarchic theory of intelligence* was based was insufficiently robust to inspire confidence. One of the critics was late British academic psychologist Paul Kline whose thrust of argument was that the triarchic theory lacked thought and “non-contingent concepts” (Kline, 1991, p.873). Linda Gottfredson (2003a, 2003b) took issues with Sternberg's theory on practical intelligence, the third facet of the triarchic theory. She posited that Sternberg was selective in his choice of evidence thus ignored those that did not support the subtheory – and, consequently, overstated “the evidence for practical intelligence and understanding it for g [general intelligence]” (Gottfredson, 2003b, p. 416). According to Gottfredson, “practical intelligence is really job knowledge or personality or something other than intelligence” (p.420). She queried:

[I]n only two of the four tacit knowledge tests (management and academic psychology) did the subscales of a tacit knowledge test correlate among themselves, and only two studies administered

different tacit knowledge tests to the same sample. The correlation between tacit knowledge in management and in academic psychology was fairly high (.58), but that was in a sample of Yale undergraduates, not workers. In the only study of workers that administered two different tests, the correlations in its three samples (between knowledge for management and military leadership) were notably smaller, .06, .32, and .36. As for the correlations between IQ and tacit knowledge, they were .14 in the study of 45 managers, .02–.25 in the three samples of Army officers, and .04–.40 in five samples of college students or Air Force trainees. However, why should the former set (.06–.36 for workers, .58 for students) be labeled high and the latter not (.02–.25 for workers, .04–.40 for students), especially when the latter are all artificially depressed by severe restriction in range on IQ? (p.421).

The criticism that practical intelligence, in essence, measures personality or job knowledge, but not intelligence is strongly rejected by Sternberg. He rejected also the suggestion that he may have conflated his testing for personality (job knowledge) for tacit knowledge. According to Sternberg (2003b, p. 407-408):

This argument represents a misunderstanding of the nature of tacit knowledge. We have constructed tacit-knowledge measures for students (Sternberg, 2002; Sternberg et al., 1993) and for children living in rural Alaskan and Kenyan villages ... These children have no formal jobs so it is not clear what it would mean to say that their knowledge is “job knowledge.” Tests of practical intelligence do not correlate significantly with tests of personality such as the California Personality Inventory (CPI), insofar as we have assessed such correlations (see Sternberg et al., 2000). We used to believe that tacit knowledge is all domain-specific. Our research has convinced us that this belief was incorrect. We found high correlations between different subtests and tests of tacit knowledge, although we did not find high correlations of these tests with g-based measures. Thus, the tacit-knowledge tests seem to yield a general factor that is different from psychometric g (Sternberg et al., 2000).

Earlier, in a 1995 interview he gave to the *Skeptic* magazine, Sternberg was queried about practical intelligence abilities, and was asked whether he added anything new beyond Carroll (1993) extensive factor analysis of human cognitive abilities [in Carroll’s reanalysis of 460 datasets from published work from 1930 to 1985 covering measures of cognitive ability – see also Beaujean (2015)]. Sternberg told *Skeptic* magazine (Miele, 1995):

That criticism is simply false. If you look at the correlation between tacit knowledge for being an academic researcher and tacit knowledge for being an executive, the correlation was pretty high—about .5 to .6. But in terms of teaching job knowledge, probably no one who is a psychologist went to business school or vice versa. Tacit knowledge is something you pick up from the environment. I don’t care what you call it.

If you want to call it job knowledge or the ability to use job knowledge or the ability to use common sense knowledge that you pick up, the name isn't important. What I'm saying is, whatever you want to call it, it's at least as important as the academic sort of intelligence and it's not the same thing as that. I don't need to argue about the name attached to it.

Notwithstanding the criticisms, Sternberg's triarchic theory and its contextualist approach move away from the consensus around the general intelligence theory. The triarchic theory *thus* represents a significant shift in conceptual and theoretical understanding of intelligence – that intelligence is broad, pluralistic, multifaceted, and multidimensional in nature. The triarchic theory aptly captured this nature of intelligence beyond what traditional IQ measures.

The Investment Theory of Creativity

There are a number of different approaches one can take to understanding creativity. Torrance preferred a psychometric approach to understanding creativity. My colleagues [Todd Lubart, James Kaufman, Jean Pretz] and I have chosen to use a confluence approach as a basis for our work on creativity.

- Sternberg (2006, p. 87)

Sternberg once defined creativity as “the ability to produce novel, high-quality, task-appropriate products” (Sternberg, 2003b, p. 105). Decision making is at the heart of this definition; a decision to be creative has to be intentional – to produce ‘novel’ and tasks appropriate products, to shift through information to find one relevant or appropriate to the tasks to accomplish or outcome to achieve. This conception of creativity is consistent with the rational model of decision making which involves: identifying the problem, generating alternative solutions, evaluating alternative solutions, selecting and implementing the solutions. It is also consistent with the concept of buying low and selling high common in the stock market trading cycles; it is a form of strategy which traders generally used to time the market when they buy stocks at low prices and sell when prices peaked.

In the Investment Theory (Sternberg & Lubart, 1991; 1995), creativity is conceptualised as a decision making. In other words, it is not enough to possess creativity skills such as divergent thinking skills, etc, the creative individual has to make decision to be creative especially if rewards are attached to the outcome/product of the creative act. According to Sternberg (2006, p. 90):

To be creative one must first decide to generate new ideas, analyze these ideas, and sell the ideas to others. In other words, a person may have synthetic, analytical, or practical skills but not apply them to problems that potentially involve creativity. For example, one may decide (a) to follow other people's ideas rather than synthesize one's own, (b) not to subject one's ideas to a careful evalu-

ation, or (c) to expect other people to listen to one's ideas and therefore decide not to try to persuade other people of the value of these ideas. The skill is not enough: One first needs to make the decision to use the skill.

There are six aspects of the Investment Theory or what Sternberg called "a confluence of six distinct but interrelated resources" (2006, p.88) – each of which is presented in the following paragraphs:

Intellectual processes (intellectual abilities/skills). These are synthetic, analytic, and practical–contextual skills; the same skill sets identified in the *triarchic theory*. In the investment theory, the creative individual (the 'trader') follows the rational model of decision making – i.e. ability to think divergently, to see problems in new ways (synthetic skill); ability to sift through one's ideas to determine which idea/s to progress or not progress; ability to persuade others, or sell to others the value of one's ideas (the practical–contextual skill). It is important that the three skills set confluence.

Knowledge. The importance of knowledge in creativity is widely acknowledged (see Byrge & Hansen, 2011; Ogunleye & Tankeh, 2013; Ogunleye, 2016). At the individual level, Amabile's (1997) exposition on the componential theory of individual creativity identified *expertise* as a prerequisite for individual and small group creativity. In the investment theory, sufficient knowledge is needed to move the 'field forward'; but just as knowledge is important in facilitating creativity, it can also constitute a hindrance to creativity.

Intellectual style (styles of thinking). This is the way in which individuals apply their knowledge and abilities to problems (Lubart, 1994). In other words, styles of thinking involve *decisions* about how individuals apply their skills.

Personality. The personality attributes of the creative individual are ingredients for creative functioning; individuals' personality can influence not only how they go about making decisions, but also their attitudes to or preferences for risks.

Motivation. This can incentivise individual *decision* to be creative; motivation is central to Amabile's (1997) componential theory of individual creativity that identified, among other things, "intrinsic task motivation" (p. 420) as a prerequisite for individual creativity.

Environment. Creativity is a condition of the environment in which people live and operate: the environment nurtures, enriches, and sensorily stimulates human creativity (Cheyette, 1977; Taylor, 1971). According to the investment theory, a supportive and rewarding environment is essential for creative ideas; the individual must then *decide* how to respond to challenges that might exist in the environment.

Confluence. None of the six components could achieve outcome in isolation; interactions of the six components are essential to achieve the desired outcome (i.e. decision to be creative).

Creativity is a decision making; creative individuals are willing and able to *buy low* and *sell high* in the realm of ideas. The premise behind the theory is similar to the concept of buying low and selling high common in the stock market trading cycles.

The Propulsion Theory of Creative Contributions

A creative contribution represents an attempt to propel a field from wherever the field is to wherever the creator believes the field should go. Thus, creativity can be seen as being propulsive in nature. The creator may or may not intend his or her creative work to be propulsive, but creativity of a work is a function of the way the work is judged in the context of a field rather than of what the creator intends to happen to the work. Some people attempt unsuccessfully to be creative; others create with no particular intention to do so.

- Sternberg, Kaufman & Pretz (2001, p.78)

Creativity is multifaceted and multidimensional. So are the developmental trajectories of creativity. So are the creative contributions arising from these trajectories – be they everyday creativity (Richards, 1990, 2010), ‘little c’ Creativity (Craft, 2001), ‘mini c’ Creativity (Beghetto & Kaufman, 2007), and ‘Pro-c’ Creativity (Kaufman & Beghetto, 2009).

Creative contributions arising from each trajectory differs variedly in terms of the amount of creative products or outcomes that the individuals have created or achieved, and in the kinds of the creative products or outcomes that they have created or achieved. The questions then become: what forms of creative contributions might these take? How might these forms of creative contributions and the relationships between them be best captured, categorised and dichotomised to reflect the amount and the types of creativity they display? Sternberg’s attempt to answer these and related questions led to the development of the *Propulsion Theory of Creative Contributions* in the late 1990s. He published the theory originally in 1999 but extended it in 2001 when he collaborated with his former PhD students James Kaufman and Jean Priez.

Sternberg’s (1999b) Propulsion Theory of Creative Contributions examined uniquely creative outputs/products, which could be “anything from a creatively-written e-mail to a revolutionary new communications device” (Kaufman & Skidmore, 2010, p.378). The propulsion theory identified seven kinds of creative contributions; four of these forms of contributions were situated within the existing paradigms of work while the other three represent achievements that were situated outside the paradigms.

The eight forms of creative contributions are highlighted in turn as follow:

1. Replication – essentially, a reproduction of the past or current creative products/outcomes; replication form of creative contributions neither moves the field forward nor establishes it; the field is where it should be and all that *replication* does is to maintain the status quo.

2. Redefinition – in the context of propulsion theory, redefinition involves a re-examination/re-evaluation of the current field with a view to change; it is often a realisation that contrary to the current belief the field is not where the people thought it is.

3. Forward Incrementation – this type of creative contributions moves the field forward gradually in the direction the field is heading “to a point to which people are ready to go,” (Sternberg, Kaufman & Priez, 2001, p.85).

4. Advance Forward Incrementation – creative contributions arising from the advance forward incrementation pushes the field forward twice the rate of forward incrementation; in propulsion theory, advance forward incrementation moves in the same direction as the field but further down than others expected or are ready for the field to go.

5. Redirection – this is a form of creative contributions that takes the field to a new and different direction from where it was at a point in time.

6. Reconstruction/Redirection – creative contributions of the form of reconstruction/redirection looks backwards. According to Sternberg, Kaufman & Priez (2001, p.92), “an individual suggests that the field should move backwards to a point it previously was at but then should move in a direction divergent from that in which it has moved”.

7. Reinitiation – this category of creative contributions represents a paradigm shift; it pushes the field to a different but still yet-to-be-reached starting point, the creative individual then moves the field in a different direction from that point.

Sternberg’s collaboration with James Kaufman and Jean Priez resulted in the eighth form of creative contributions.

8. Integration – the type of creative contributions involves a synthetisation of hitherto opposing and unrelated ideas as the bases for new creative outcomes/products, for example.

There is a view that the characterisation of different types of *creative contributions* will continue as technology innovation particularly noticeable in the 21st Century advances (see Kaufman & Skidmore, 2010); the propulsion theory of creative contributions nonetheless offered a unique basis for evaluating creative work.

The Balance Theory of Wisdom

I have come to realize that some of the world's cruelest despots and greediest business tycoons are successfully intelligent. They have played within the sociocultural rules, which they have largely set. Thus, they have been enormously successful, often at the expense of countless countrymen who are left to their own devices, and often to death. It is for this reason that I have now turned my attention to wisdom.

- Sternberg (2003, p. xviii)

There is a view that Sternberg helped significantly to initiate and develop the scientific study of wisdom (see for example Maxwell, 2013). His *Balance Theory of Wisdom* (1988) is one of the most prominent theories on wisdom alongside Paul Baltes postulations on wisdom – especially his explicit theory of wisdom, otherwise known as the Berlin Wisdom Paradigm (Baltes & Staudinger, 2000). In Baltes' & Staudinger's Model, wisdom is conceived as knowledge – specific, general, factual and contextual – and conditions of life and the judgement individuals have to make about those conditions. In other words, wisdom is synonymous with expertise in the pragmatics of life but only to the extent that the wise individuals meet these criteria – rich factual knowledge, rich procedural knowledge, lifespan contextualisation, relativism, and uncertainty (Baltes & Staudinger, 2000).

Sternberg's *Balance Theory of Wisdom* is an explicit theory of wisdom. Like Baltes' Model, Sternberg's theory emphasizes knowledge but only to the extent that the knowledge is tacit – defined as “the procedural knowledge not explicitly taught and often not even verbalized that one needs to know to succeed in an environment” (Sternberg, 2003a, p. xv). The theory conceives successful intelligence, creativity, and tacit knowledge as critical conditions for wisdom. According to Sternberg (2003a, p. 152), wisdom is:

the application of successful intelligence and creativity as mediated by values toward the achievement of a common good through a balance among (a) intrapersonal, (b) interpersonal, and (c) extrapersonal interests, over (a) short and (b) long terms, in order to achieve a balance among (a) adaptation to existing environments, (b) shaping of existing environments, and (c) selection of new environments.

Sternberg's conception of wisdom is depicted in figure 2 (on page 711).

Wise, wisdom, and successful intelligence go together. It is not possible to be wise without an application of successful intelligence, but a balance is needed in terms of the responses to environment interests. Similarly, wisdom is required to *adapt* and *shape* the existing environment, and where appropriate, to select a new environment (see figure 2).

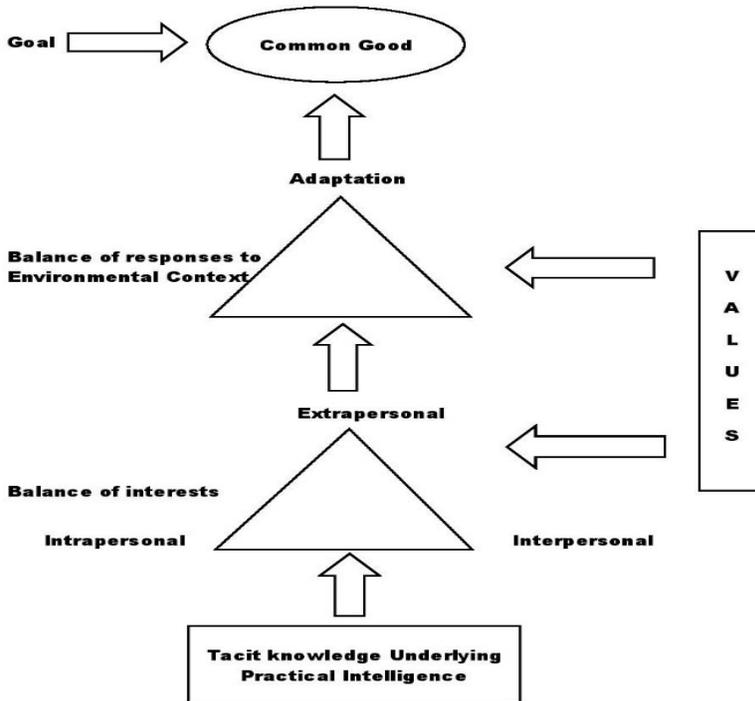


Figure 2: Sternberg's (1988) Balance Theory of Wisdom

According to Sternberg, there are seven *sources* of individual and developmental differences that have direct effect on the balance processes – these are:

Wisdom goals. People have differences in believe, views, and understanding of what constitutes ‘common good’, goals of wisdom.

Balancing responses to environmental contexts. Individuals respond to situations/environments differently; just as they adapt, shape or select new environments in different ways or differ in the way they balance their responses.

Balancing of interests. Personal interests and professional interests (for example) differ; such differences might necessitate the way people balance their interests.

Balancing of short and long terms. Differences in emphasis, short vs long-term goals, for example, might necessitate differences in the balance process.

Acquisition of tacit knowledge. The extent to which people acquire tacit knowledge may differ and might impact positively or negatively on the balance process – for example, in the approach to solving problems.

Utilisation of tacit knowledge. The balance process will be affected to the extent that people have differences not only in the way and manner they acquired and utilise their tacit knowledge but also in how well and how fully they have utilised the knowledge tacitly.

Values. The balance process will also be affected to the extent that people hold different values that underpin their approach to or the way they required or utilize intelligence and creativity to achieve balance in interests and responses.

Other skills that relate to wisdom

According to Sternberg, wisdom relates to other psychological constructs including: a) knowledge – tacit, and informal knowledge, b) analytical thinking – non-academic, but “the analysis of real-world dilemmas where clean and neat abstractions often give way to messy and disorderly concrete interests” (Sternberg, 2003a, p. 157), c) creative and wise thinking – often lead to creative and wise solutions, d) practical thinking – wisdom requires practical thinking; good practical thinkers are also wise individuals, e) also, wisdom requires social intelligence (see Sternberg & Smith, 1985) and emotional intelligence (see Goleman, 1995).

Foolishness

Foolishness is a psychological concept which manifests in a pattern of behaviour (Markovic, 2008), lacking wisdom (Sternberg, 2003a). Foolishness takes a variety of forms: a) the *fallacy of egocentrism*, when a person thinks that the world centers around them, b) the *fallacy of omniscience*, when a person (leader, for example) think they can have almost any information at the snap of a finger, or at their beck and call c) the *fallacy of omnipotence*, when a person wields so much power and can do almost anything they want, d) the *fallacy of invulnerability*, when one has the illusion of total protection from a huge staff or a large number of subordinates around them.

In the *balance theory of wisdom*, foolishness is often but not always excluded in the wisdom balance process.

In sum, wisdom is the application of successful intelligence and creativity directed towards achieving a common good. In achieving a common good, balance is needed among personal, interpersonal and intrapersonal interests and in the way one responds to this balance.

Triangular Theory of Love

My whole life I have been searching for love. At a personal level, after a number of false starts, I have found it. In my research – initiated when a love relationship in my personal life was failing – I have tried to come clos-

er to understanding what love is, how it develops, and why it succeeds or fails.

- Sternberg (2013, p.98)

The nature of intelligence, creativity and wisdom is multidimensional and multifaceted. So too is love. The philosophical and social constructions of love (Beall & Sternberg, 1995), the knowledge and understandings that people have about love and their experiences of love are different, multiple, and varied in forms. So were Sternberg's knowledge, understanding and experience, and the variables that informed his conceptualisation and theorisation of love. His theories were structural model of love, triangular theory of love, theory of love as a story, and the WICS theory – the wisdom, intelligence and creativity synthesised model.

The triangular theory of love is the most widely acclaimed among these theories and is discussed separately.

In conceptualising and theorising love, Sternberg adopted a stage-by-stage research approach as he did in the development of the theories of intelligence, creativity, and wisdom. He divided his research on love theory into five stages. The first stage examined three structural models of the nature of love in collaboration with Susan Grajek (Sternberg & Grajek, 1984). The research was based on the psychometric models of intelligence advanced by English psychologists Charles Spearman in the theory of general intelligence *g* (1927) and Godfrey Thomson in the theory of the 'bonds' of intelligence (1939), and American Louis Thurstone's theory of primary factors (1938). Sternberg & Grajek compared love intimacy (bonds) with each of these alternative models using factor analytic approach. The finding of the research was consistent with the Thomson's model in that, there were similarities in the structure of love "across the various close relationships in which one engages" (Sternberg & Grajek, 1984, p.312).

Two years later, Sternberg proposed the *triangular theory of love* (Sternberg, 1986, 1988) at the second stage of his research. The theory comprise three interactive components of love – namely intimacy, passion, and decision/commitment – which together form the vertices of a metaphoric triangle. The triangular theory of love was followed by the theory of love story at the third stage of his research. The latter theory identifies 26 types of love stories from a diverse range of social and cultural contexts – from business story to cultural story and from fantasy story to horror story. Sternberg argued that individuals love stories determine the kind of relationship they create; and that individuals with close loving relationships are likely to succeed if their stories closely match or if they relate closely to their love stories.

The fourth stage of his research examined *compatible styles* in love relationships. According to Sternberg:

Although the triangular theory and theory of love as a story captured diverse elements of love, they did not fully predict which couples would succeed and which would fail. ... I discovered that relationships could rise or fall depending on how well people were able to be

compatible across their stylistic preferences (2013, p.100).

In other words, love triangles and love stories are just as important as styles compatibility in relationships.

The fifth stage of Sternberg's research examined the interrelationships among intelligence, creativity, and wisdom (the synthesis of the three constructs) which led to the development of the WICS theory – an acronym for wisdom, intelligence and creativity synthesised model – and the role of WICS (see Sternberg, 2003a, 2003c, 2004).

The Triangular Theory of Love (Sternberg, 1986). The triangular theory of love conceptualised love as a metaphoric triangle with each of the three interactive components – intimacy, passion, and decision/commitment – not only connects by 'feelings' but which together form the vertices of a triangle. At the top of the vertex is intimacy, the left-hand vertex is passion, and the right-hand vertex is decision/commitment (figure 3).

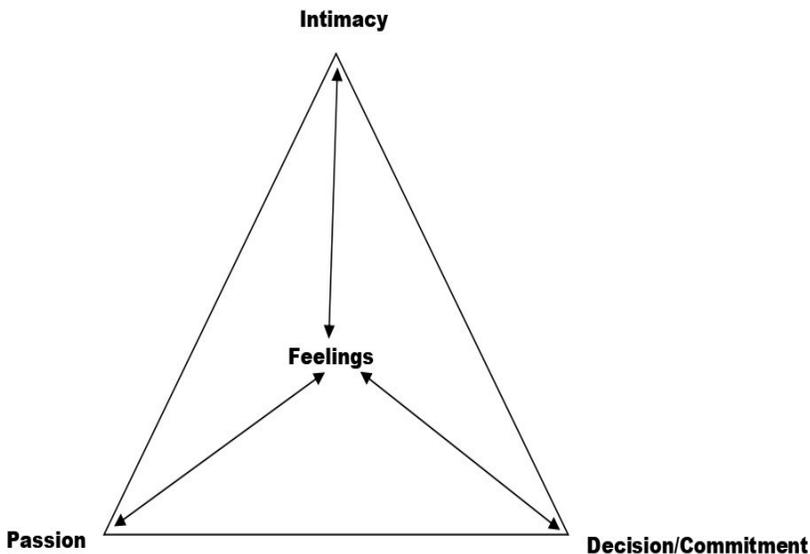


Figure 3: Author's adaptation of Sternberg's (1986) Balance Theory of Wisdom

The three components interact but result in different love types. According to Sternberg (1986), intimacy, passion, and decision/commitment in loving relationships connects by 'feelings' and show different aspect of love. Intimacy involves feelings of closeness, connectedness, and boundedness; passion involves feelings (that lead to), motivation and drive for romance, physical attraction, and sexual consummation; decision/commitment involves

feelings of and the decision to love in the short term and to commit to maintain that love in the long term.

According to Sternberg (1986, p. 119):

In general, the intimacy component might be viewed as largely, but not exclusively, deriving from emotional investment in the relationship; the passion component as deriving largely, although not exclusively, from motivational involvement in the relationship; and the decision/commitment component as deriving largely, although not exclusively, from cognitive decision in and commitment to the relationship. From one point of view, the intimacy component might be viewed as a “warm” one, the passion component as a “hot” one, and the decision/commitment component as a “cold” one.

As depicted in figure 3, the three components of love are separable but connected and interacted; thus the greater the intimacy the greater the likelihood for passion or decision/commitment and vice versa. In combination, the three components may give rise to the following eight types of love:

1. *Non-love*. The presence of intimacy, but absence of passion and decision/commitment in a loving relationship.
2. *Liking*. The “feelings one has toward casual acquaintances and passers-by in one’s life” (Sternberg, 1986, p.123).
3. *Infatuated love*. Love ‘at first sight’ is characterised by the presence of passion but absence of intimacy and decision/commitment.
4. *Empty love*. Characterised by the presence of commitment but absence of passion and intimacy. In other words, empty love comes from “the decision that one loves another and has commitment to that love in the absence of both the intimacy and passion components of love” (Sternberg, 1986, p.124).
5. *Romantic love*. Combines the intimacy and passion components of love.
6. *Companionate love*. Combines the intimacy and decision/commitment components of love.
7. *Fatuous love*. Combines the passion and decision/commitment components of love but excludes the intimacy component.
8. *Consummate love*. Combines the three components of love. It is “a kind of love toward which many of us strive, especially in romantic relationships” (p.124). However, reaching the apex does not mean that the attainment of *consummate love* is a guarantee that the loving relationship would last.

Sternberg’s triangular theory of love is a significant contribution to the body of knowledge on love relationships. The theory conceives love in terms of intimacy, passion and decision/commitment. These three components are separable but connected and interacted. The theory “provides a rather comprehensive basis for understanding many aspects of the love that underlies close relationships” (Sternberg, 1986, p.119).

III—Publications

Sternberg is a prolific writer and author of well over 1,800 publications including journal papers, books, chapters. What follows in table 2 is a selection of his publications leading to, and arising from the development of theories of intelligence, creativity, wisdom, and love—with running commentary by Sternberg.

Publications	Sternberg
Sternberg, R. J. (1972). A decision rule to facilitate the undergraduate admissions process. <i>College and University</i> , 48, 48–53.	My very first publication.
Sternberg, R. J., & Bower, G. H. (1974). Transfer in part-whole and whole-part free recall: A comparative evaluation of theories. <i>Journal of Verbal Learning and Verbal Behavior</i> , 13, 1–26.	The only publication I ever did that actually solved a problem definitively.
Sternberg, R. J. (1977). <i>Intelligence, information processing, and analogical reasoning: The componential analysis of human abilities</i> . Hillsdale, NJ: Lawrence Erlbaum Associates.	The book based on my dissertation. It introduced componential analysis.
Sternberg, R. J. (1979). The nature of mental abilities. <i>American Psychologist</i> , 34, 214–230.	My first attempt to write for a general psychological audience.
Sternberg, R. J. (Ed.). (1982). <i>Handbook of human intelligence</i> . New York: Cambridge University Press.	My first edited handbook. The start of a 40-year relationship with Cambridge University Press.
Sternberg, R. J. (1984). A contextualist view of the nature of intelligence. <i>International Journal of Psychology</i> , 19, 307–334.	My first attempt to apply a contextualist approach to human intelligence.
Sternberg, R. J., & Grajek, S. (1984). The nature of love. <i>Journal of Personality and Social Psychology</i> , 47, 312–329.	My first publication on love.
Sternberg, R. J. (1986). Intelligence, wisdom, and creativity: Three is better than one. <i>Educational Psychologist</i> , 21, 175–190.	My first paper linking intelligence, wisdom, and creativity.
Sternberg, R. J. (2000). In search of the zipperump-a-zoo: Half a career spent trying to find the right questions to ask about the nature of human intelligence. <i>The Psychologist</i> , 13(5), 250–255.	My first career retrospective—after 25 years.
Grigorenko, E. L., & Sternberg, R. J. (2001). Analytical, creative, and practical intelligence as predictors of self-reported	We showed that practical intelligence became more important in Russia following the fall of Communism.

adaptive functioning: A case study in Russia. <i>Intelligence</i> , 29, 57–73.	
Sternberg, R. J., & Grigorenko, E. L. (2001). Unified psychology. <i>American Psychologist</i> , 56(12), 1069–1079.	An attempt to argue for the unification of psychology as a discipline—followed in the footsteps of one of my advisors, Lee Cronbach.
Sternberg, R. J. (Ed.). (2003). <i>Psychologists defying the crowd: Stories of those who battled the establishment and won</i> . Washington, DC: American Psychological Association.	An important edited book for me—shows that really great psychologists are willing to defy the crowd, despite the price they pay for doing so.
Sternberg, R. J., Kaufman, J. C., & Pretz, J. E. (2003). A propulsion model of creative leadership. <i>Leadership Quarterly</i> , 14, 455–473.	Our application of the propulsion model of creative contributions to leadership.
Sternberg, R. J., & Sternberg, K. (2008). <i>The nature of hate</i> . New York: Cambridge University Press.	My first written book, with Karin Sternberg, on hate.
Sternberg, R. J. (2010). The dark side of creativity and how to combat it. In D. H. Cropley, A. J. Cropley, J. C. Kaufman, & M. A. Runco (Eds.), <i>The dark side of creativity</i> (pp. 316-328). New York: Cambridge University Press.	My first take on the dark side of creativity.
Sternberg, R. J. (2014). I study what I stink at: Lessons learned from a career in psychology. <i>Annual Review of Psychology</i> , 65, 1-16.	A review of the history of my research and why I did what I did.
Sternberg, R. J. (2015). Still searching for the Zipperumpazoo: A reflection after 40 years. <i>Child Development Perspectives</i> , 9(2), 106-110.	A review of my research for the first 40 years of my career.
Sternberg, R. J., Fiske, S. T., & Foss, D. J. (Eds.) (2016). <i>Scientists making a difference: One hundred eminent behavioral and brain scientists talk about their most important contributions</i> . New York: Cambridge University Press.	Contributions from 100 truly eminent psychological scientists on what made their careers what they were. They had in common their willingness to defy the crowd.
Sternberg, R. J. (2017). The danger of contempt in universities and in modern society. <i>Journal of College and Character</i> , 18(3), 208-214.	Contempt is rife in academia. Bad idea.
Sternberg, R. J. (2018). A triangular theory of creativity. <i>Psychology of Aesthetics, Creativity, and the Arts</i> , 12, 50-67.	My first paper on the triangular theory of creativity.

Sternberg, R. J. (2020, August 31). COVID-19 has taught us what intelligence really is. <i>Inside higher ed</i> , https://insidehighered.com/views/2020/08/31/pandemic-has-proven-standardized-tests-dont-measure-whats-important-opinion	In this article, I argue that COVID-19 has taught us what intelligence really is, and it's not IQ.
Sternberg, R. J. (2020). Toward a theory of musical intelligence. <i>Psychology of Music</i> , https://doi.org/10.1177/0305735620963765	A theory of musical intelligence combining my own theory of successful intelligence with Howard Gardner's theory of multiple intelligences.
Sternberg, R.J. (2021). Transformational creativity: The link between creativity, wisdom, and the solution of global problems. <i>Philosophies</i> 6, 75. https://doi.org/10.3390/philosophies6030075	This article presents a theory of transformational creativity as a link between creativity and wisdom.

Table 2: Selected Publications leading to and arising from the theories of Intelligence, Creativity, Wisdom, and Love

IV—Sternberg's Pride and Joy Triangle – Children, wife, and Students

When you're young, one of the things you don't realize as much as when you're older is how you can make lasting contributions through your work, but the most important lasting contribution I think you ever make in your life is through your kids.

- Sternberg in *Casper Star Tribune*, 8 March, 2013

As intimidating as his professional accomplishments were, Sternberg takes absolute pride and joy in his children, wife, and students. He is particularly convinced that his five children and dozens of doctoral students will carry – and pass on – the touch, a sure way to achieve immortality. Sternberg's Pride and Joy Triangle relates to his children, wife, and students. The metaphoric triangle is depicted in figure 4: Sternberg's five children, his "number one accomplishment", sit at the top-corner of the vertex while wife and students respectively sit at the right-corner and left-corner of the vertices. Sternberg sits at the centre of the triangle.

First-child Seth, from his first marriage, holds a bachelor degree in political science (with concentration in international relations) from Yale University, Connecticut, USA. He was over a year into his MBA programme at Stanford University, California, USA, when he literarily 'defied the crowd' (see Sternberg & Lubart, 1995), and dropped out of the course to follow his passion – tech entrepreneurship. In 2005, Seth co-launched Meebo, an instant messaging and social networking service provider which he sold in 2012 to Google for \$100 million. Seth was product management director with Google in 2014, when he defied cross-sectoral thinking at the time to co-launch and head up Honor Technology Inc., a California-based disruptive

home care network and technology platform that has raised over \$325³ million in equity funding to date. In August 2021, Honor Technology Inc. acquired Nebraska-based home care services group, Home Instead, Inc., to become the largest player in the global home care industry with the combined organisation representing \$2.1 billion in home care services revenue⁴ employing over 100,000 people across 14 countries.

Second-child Sara, also from Sternberg's first marriage, too holds a bachelor degree – *magna cum laude* and with distinction – in political science from Yale University (2002) and a JD from Yale Law School (2005) where she received the Stephen J. Massey Prize for excellence in advocacy. Also at Yale, she served as notes editor for the *Yale Law Journal* and articles editor for the *Yale Law and Policy Review*. In 2014, Sara received her PhD in social policy and sociology from Harvard University, Massachusetts, USA. Currently, Sara is full professor of law at Duke University, North Carolina, USA.

Sternberg's 10-year old triplets Samuel, Brittany and Melody are children of Karin, his wife of thirteen years. Karin is a cognitive psychologist, researcher and author; she holds a PhD in psychology from the University of Heidelberg, Germany, her native country. Sternberg described the type of love Karin has for him as “unconditional” – or what Canadian psychologist John Lee in his influential book, the *Colours of Love* (1973), labelled *agape*, the purest form of love. Karin returned the heart-soothing words in kind, described Sternberg's love for the family as first before anything else, second to none – *nulli secundus*.

Next to Sternberg's family are his students – particularly his several dozens doctoral, and post-doctoral researchers many of whom have distinguished themselves in their various fields. Two of his former PhD students, James C. Kaufman and Todd Lubart, are celebrated in this book. The students' feelings for Sternberg are mutual.

Sternberg's pride and joy triangle is complete – immortality is assured (figure 4).

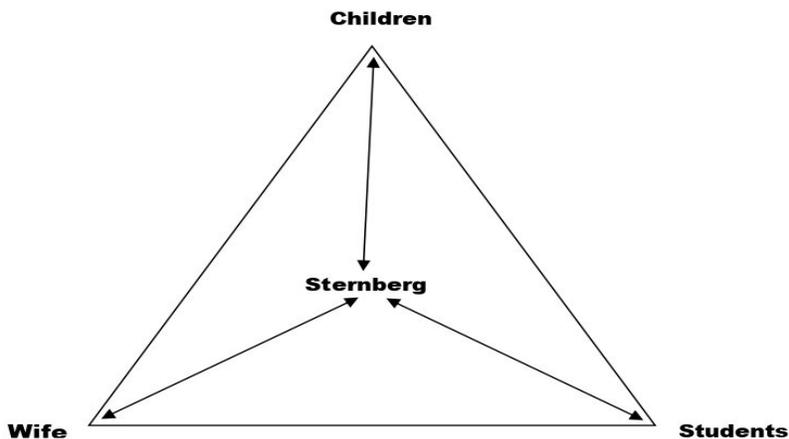


Figure 4: Sternberg's Triangle of Pride and Joy—the author's characterisation of Sternberg's pride and joy in his children, wife, and students.

Interview with Robert J. Sternberg

JO: What do you think are the main under examined areas of intelligence and creativity research 70 years after JP Guilford's APA lecture? More generally, what are your thoughts on the future of intelligence and creativity research?

RJS:

1. *Test development.* Development of tests of intelligence/creativity based on broader theories. Without investment in this area, educators and employers will keep using outdated tests.
2. *Instruction.* How can recent theories of intelligence/creativity be incorporated into teaching in schools? In particular, how can we put more emphasis on not only the accumulation of knowledge, but also on the intelligent, creative, and most of all, wise use of that knowledge.
3. *Theory development and testing.* We need theories, research, and development that relate intelligence and creativity to consequential real-world problems rather than to the trivial problems that have characterized so much of research and practice. We, as researchers, need to be more creative (and that includes me).
4. *Transformational creativity.* Why and how do some people use their creativity to make the world a better place, and what can we do to ensure that creativity is used wisely rather than selfishly for people's own personal ends, including ones that damage others.
5. *Transformation of the field.* The field is stuck in a narrow, somewhat conservative elitist mentality of the early 20th century. How can we reward research with a broader outlook that may help to challenge the assumptions that traditional research often has failed to question?

JO: Looking at your widely acclaimed theories of intelligence, creativity, wisdom and love, are there things (or comments) you would like to add that you have not published previously?

RJS: My most recent work is on five topics:

1. Intelligence, creativity, and wisdom as person x task x situation interactions. Only a first paper has just been published within the last week (on intelligence as a p x t x s interaction). The idea is that none of these constructs exist simply "in the mind." They exist interactionally. Those of us who view ourselves as "smart" should think about how we would do if we were living in a hunting/gathering culture, in a prison cell as a political prisoner who will be forcibly interrogated for strategic information we do not even have, or as a citizen of a dictatorship (which may indeed happen to us all).

¹Sternberg, R. J. (2021). Adaptive intelligence: Intelligence is not a personal trait but rather a person x task x situation

interaction. *Journal of Intelligence*, 9: 58, DOI: 10.3390/jintelligence9040058

2. Transformational creativity. I just had a first paper come out on that within the last month. I, like many scholars, once viewed creativity as a force for good. I believe that view was naïve. Creativity can be a force for good or bad. It's too easy to hope that, if we teach for creativity, it just will be used to good ends. Social media should have convinced anyone that that will not happen. How can we ensure that creativity is used for good purposes?

¹Sternberg, R.J. (2021). Transformational creativity: The link between creativity, wisdom, and the solution of global problems. *Philosophies* 6, 75. <https://doi.org/10.3390/philosophies6030075>

3. Cultural intelligence. We tend to be very narrow in viewing intelligence within our own cultural context. We want to go to another culture: Translate OUR test! Not their test, OUR test! We are studying now how to understand and assess intelligence in a multi-cultural context.

¹Sternberg, Robert J., Wong, C. H., & Kreisler, A. P. (2021). Understanding and assessing cultural intelligence: Maximum-performance and typical-performance approaches. *Journal of Intelligence* 9: 45. <https://doi.org/10.3390/jintelligence9030045>.

4. Transformational giftedness. Many of the people we are identifying as gifted are gifted in advancing their own interests but neither identify with nor care about the interests of others—perhaps beyond the context of the “service” they write down on their college application. We need to identify as gifted people who want to make the world a better place rather than merely get themselves into the best college, graduate school, or job.

¹Sternberg, R. J. (2021). Transformational vs. transactional deployment of intelligence. *Journal of Intelligence*, 9 (15), <https://doi.org/10.3390/jintelligence9010015>

²Sternberg, R. J., Chowkase, A., Desmet, O., Karami, S., Landy, J., & Lu, J. (2021). Beyond transformational giftedness. *Educational Sciences*, 11, 192. <https://doi.org/10.3390/educsci11050192>.

5. Scientific wisdom. We are developing scientists who are knowledgeable but often not wise. We need scientists who recognize the importance of their science serving a common good.

¹Wong, C.-H., & Sternberg, R. J. (2021). Measuring scientific wisdom. Paper submitted for publication.

JO: What are your thoughts on the recent upsurge in scientific research into wisdom? What role do you see for wisdom in the global response to the current pandemic?

RJS: It's great! That is exactly what we need. The field is burgeoning. Judith Glück¹ and I just had a book come out on the topic, and we have a textbook on the topic in press². The greatest problem is that people often study the topics that they find challenging. That certainly is true of me. We have to hope that the field of wisdom does not encounter the same dismal fate as the field of intelligence, converging on a commonly accepted but narrow model before the topic is fully explored.

¹Sternberg, R. J., & Glück, J. (2022). *Wisdom: The psychology of wise thoughts, words, and deeds*. Cambridge University Press.

²Sternberg, R. J., & Glück, J. (Eds.) (in press). *The psychology of wisdom: An introduction*. New York: Cambridge University Press.

JO: What is your number one accomplishment?

RJS: My five children: Seth, Sara, Samuel, Brittany, Melody. Professionally, nothing I have done has mattered a whole lot. I'm hoping my children and students do better!

JO: As you reflect upon your career, is there anything you would do differently?

RJS: That is a question one often asks oneself. I've made so many mistakes I don't know where to begin. In my theory of love as a story, I talk about a "history story," in which couples focus on their history and where they came from. I'm kind of the opposite. I try to think as little as possible about the past—both the modest successes and the more notable failures. Rather, I try to focus on what I can do to make a better difference in the future. My greatest failure is that almost nothing, or perhaps nothing I have done has really changed anything in the world. As someone once said to me, though, you have not failed until you give up, and I have not given up.

JO: What advice do you have for students and new academics/faculty who may have been inspired by your accomplishments, and want to follow your footsteps and distinguish themselves in the field?

RJS: Don't listen to all the people who tell you what you should or must do. Follow your own mind and heart. Focus on problems that are important to you, and try, through your research, to make the world a better place. A lot of academia is smug, small-minded, and very concerned about issues that are reminiscent of the philosophical conundrum of how many angels can dance

on the head of a pin. Find important personally meaningful problems that potentially can make a positive, meaningful, and enduring difference to the world beyond yourself and your close colleagues. And remember, if you are being creative, you will make a lot of enemies and people will try to sabotage you. So, develop a very thick skin. If everyone likes what you are doing, your career may go well, but you will make little difference or no difference at all.

Thank you.

Concluding Remarks

Robert Sternberg is undoubtedly a colossus when it comes to his contributions in the field. His development of the theories of intelligence, creativity, wisdom and love have contributed significantly to the conceptual understanding of constructs. This chapter merely introduces Sternberg's work – and barely scratches the surface – to give readers some 'one-stop shop' to celebrate a true giant in the field.

End Quote—Sternberg's Words on Marble

My work, like the work of most scholars who fall short of Piaget or Freud, will not be immortal. But I will be immortal through my students and through my five children and their children and their children onward. The secret sauce to achieving immortality is the form God intended for us—the ability to create a new generation of life and to have the greatest possible pride in the accomplishments of those who will follow.

- Sternberg (2016, p. 19)

Notes

¹. <https://thebestschools.org/features/most-influential-psychologists-world>

². <https://www.britannica.com/science/human-intelligence-psychology/Psychometric-theories>

³. <https://www.prnewswire.com/news-releases/honor-acquires-home-instead-to-transform-care-experience-for-caregivers-and-older-adults-301350109.html> ('Honor Acquires Home Instead to Transform Care Experience for Caregivers and Older Adults')

⁴. <https://www.joinhonor.com/about>

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CHAPTER THIRTY SIX

DAVID TANNER – RESEARCH SCIENTIST, CREATIVE DUPONT LEADER, GOOD FRIEND

FREDRICKA REISMAN

The KIE Creativity book for 2021 entitled *Celebrating Giants and Trailblazers: A-Z of Who's Who in Creativity Research and Related Fields* celebrates creativity gurus and I have the pleasure of writing the chapter recognizing Dr. David Tanner.

I have long admired Dr. Tanner's extensive list of creativity laden accomplishments. However, before getting into these, I want to share my personal experiences with Dr. Tanner. Upon being nominated by my doctoral students and Dr. E. Paul Torrance, I was recipient of the David Tanner Champion of Creativity Award of the American Creativity Association (ACA) in April 2002. As Dr. Torrance was too ill to travel from Georgia to Philadelphia, he asked Dr. Tanner to present the award in his stead. Dr. Tanner was eloquent. Fast forward to an ACA conference in Philadelphia in 2010, where Dr. Tanner was one of our conference keynoters – again eloquent. Then in 2013, Dr. Tanner suggested that I do a book dedicated to Dr. Torrance and his work. I suggested that we should co-author such an endeavor and that since it was his idea, he should be first author. The result is our 2014 publication entitled: *Creativity as a bridge between education and industry: Fostering new innovations*. North Charleston, NC: CreateSpace, an Amazon subsidiary. As Dr. Tanner has been extensively referenced, the following details are from his various bios.

David Tanner has a PhD. in polymer science and holds 33 U.S. patents acquired in his early career as a research scientist. He is past president of The American Creativity Association, and former Director of the de Bono International Creative Forum, a group of corporate executives who shared a passion for innovation. This group has been mentored by Edward de Bono, a British physician, psychologist, author, inventor, philosopher and consultant. Dr. de Bono originated the term lateral thinking, wrote the book *Six Thinking Hats* and is a proponent of the teaching of thinking as a subject in schools. His work is further described in his chapter in this book.

During more than 30 years of service at DuPont, Dr. Tanner held many management positions including Research Director of the Pioneering Research Laboratory and Technical Director, responsible for research and development, of the Industrial Products Division. This division was comprised of a group of seven businesses, including Kevlar®, Nomex® and Tyvek®. While at DuPont he implemented innovation-fostering methodologies that expanded beyond the technical groups into the marketing, manufac-

turing and business functions of the company. Many bottom-line results led corporate management to charter the Center for Creativity & Innovation, which developed and implemented innovation-fostering methodologies throughout the company. It is interesting that I named the Drexel-Torrance Center for Creativity & Innovation with a similar title without knowing about the Dupont Center.

DuPont's creativity related activities were documented in Dr. Tanner's first book, *Total Creativity in Business and Industry*. In his book entitled *Igniting Innovation Through the Power of Creative Thinking*, Dr. Tanner describes building an innovative organization.

David Tanner was instrumental in establishing The Du Pont Oz Creative Thinking Network, a volunteer group of Du Pont employees devoted to educating themselves and others in the field of creativity and innovation. This network was organized in 1986 and has a current membership of over 600 employees. It illustrates the power of grass roots support for learning and applying the skills of creative thinking, a field that people intrinsically value. The OZ project led to publication in 1990 of a book entitled: *ARE WE CREATIVE YET?* that couples essays expressing concepts in creativity and innovation with Bob Thaves' Frank and Ernest cartoons. In the December 1994, Volume 28, Issue 4, *Journal of Creative Behavior*, David Tanner further described the Du Pont Oz Creative Thinking Network.

David Tanner was supportive of those who reported to him. As technical director of DuPont's Fibers Department, in an address to the 1988 materials science conference celebrating nylon's 50th anniversary, he traced the events leading to a Dupont scientist's discovery: "In Du Pont, in the early 1960's, we were driven by two goals—a fiber with the heat-resistance of asbestos and the stiffness of glass. We visualized that a fiber of this type could fill many market needs. Experimental work indicated that the route to reach "new heights" lay with stiff chain aromatic polyamides. But these materials had evaded the scientist by nature of their extreme insolubility and intractability! The breakthrough came in 1965", Tanner continued. "Stephanie Kwolek, a research scientist at our Experimental station in Wilmington, made a major discovery. The most famous product of her discovery was Kevlar®, a polymer fiber five times stronger than the same weight of steel. The material of choice for bullet-resistant vests and many other applications generates hundreds of millions of dollars in sales worldwide each year."

Kwolek's discovery, David Tanner explained, marked the beginning of Kevlar's Research and Development phase. By 1972, "a task force of dozens of scientists and engineers of many disciplines" had scaled up a market development plant, leading to full commercialization by 1982. "During this period, in going from discovery to commercialization, we encountered several reality gaps and tough hurdles. To overcome these obstacles almost always required a multi-disciplinary approach," Tanner said.

To celebrate Kevlar's 50th anniversary, DuPont Protection Technologies kicked off a year-long celebration by sponsoring ESPN's X Games Aspen. The press release announced a film featuring the R&D of high-performance skis made with Kevlar® brand fiber— "invented by DuPont after DuPont scientist Stephanie Kwolek made her discovery of the first liquid crystal polymer in 1965. An advanced material synonymous with

strength, durability and performance in extreme conditions, it has been used in applications ranging from space suits and body armor to sporting equipment and cell phones.”

Dr. Tanner was President of David Tanner & Associates, Inc., a consulting firm in Wellington, Florida offering lectures, consulting and creative problem-solving sessions. I am very sad to share that Lee Tanner, David’s wife, has just informed me that my dear friend passed away on March 20, 2021. We have lost a Creativity Trailblazer.

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CHAPTER THIRTY SEVEN

E. PAUL TORRANCE, FATHER OF CREATIVITY, MINORITY OF ONE

(OCTOBER 8, 1915 – JULY 12, 2003)

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"It takes courage to be creative. Just as soon as you have a new idea, you are in a minority of one." ~ E. Paul Torrance

What kind of courage did it take for a boy born to sharecroppers in rural Georgia to become a world famous creativity researcher, and whence did it come?

On the afternoon of October 8, 1915, Ellis Paul Torrance was born to Ellis, who had a seventh grade education, and Jimmie Pearl, who had an eighth grade education, in their home on his grandfather's farm located about 10 miles east of Milledgeville, Georgia. His father worked the farm with one or two hired hands, and the family got by with the sales of the crops as well as eggs, pork, chickens, butter, and cream. The family was always in debt, but they had enough to eat with the food from the farm, fishing and hunting, and the clothes Jimmie Pearl made, often from flour sacks. The family made it through World War I and the Great Depression with hard work and some ingenuity (Hébert, et al., 2002; Millar, 2007).

There would seem to be little to predict that this child would grow up to do anything other than be a farmer like his father and grandfather before him, but there were some signs of early ability. Paul walked and talked early, and a visiting Evangelist predicted the Paul would have a brilliant career based on an examination of his head (Millar, 2007, p. 4). Also, Jimmie Pearl valued education; she had wanted to be a teacher and wished she could get more education, but that was not an option for her (Millar, 2007, p. 3).

Paul was an excellent student, but even with his obvious abilities and his mother's value for education, it is unlikely that Paul would have been anything other than a farmer, if not for a confluence of situations and events. First, bright as he was, Paul had vision and physical strength disabilities that hindered his farm work: with no depth perception, he could not plow a straight line, and with poor upper arm strength, try though he might, he could not pick as much cotton as others. Torrance frequently related the story, with a chuckle, that his father told him one night while observing him eat his English peas and pot liquor with a spoon, "It's plain now that you'll never be able

to make a living on the farm. You'll have to go to town and you'll have to get an education. It's time you learned to eat peas with a fork!" (Torrance, 1969b, p. 332)

Then, a ruptured appendix in fourth grade led to a long hospitalization and convalescence of six or seven months. During that time, Paul read voraciously, wrote letters and books, falling in love with scholarship. It may not be too unusual for a bedbound child to read and write, but Paul also critiqued and edited his own work. He credits his teachers with further spurring his love of academics by encouraging him and challenging him. He won county-wide essay contests in the sixth and seventh grades, was taught Latin with a small group of other bright children, and won first place for his district in the state Latin contest. By beating out students from some of the large city schools in the district, he gained the confidence that he could compete outside of his small area.

Also, he met and befriended a hired hand, Tom Swint, a Black man who had left the rural south for a while to live in Detroit. This man taught young Paul about the world outside of rural Georgia, and according to Torrance, "helped give me the courage to go away to graduate school after I had finally finished college" (Millar, 2007, p. 8).

"Since I reached the conclusion that the essence of the creative person is being in love with what one is doing, I have had a growing awareness that this characteristic makes possible all the other personality characteristics of the creative person: independence of thought and judgment, honesty, perseverance, curiosity, willingness to take risks and the like." ~ E. Paul Torrance

Yes, Paul fell in love with learning at a young age, but how did he exemplify the other characteristics of a creative person?

Paul's independence of thought and judgement can be seen in the ways he accepted and befriended people of all kinds. For example, his friendship with Tom Swint showed independence, not only because Tom was a Black man in the rural south at a time when Blacks and Whites did not mix socially, but also because Tom was disdained by Paul's father and neighboring farmers who thought of him as a "clever thief" (Millar, 2007, p. 8). Paul thought that Tom's biggest crime was probably moving away to Detroit for a few years, leaving his family behind. Also, as a lifelong Southern Baptist, Paul adhered to the basic tenants of the faith his entire life, but was not judgmental towards people who didn't share his faith. For years, he had a young woman who was openly Lesbian living in his downstairs apartment. They were friends, and he never said a bad word about her or anyone else.

His honesty was evident in both his personal and professional lives. As a devoutly religious man, he believed in following the commandments and living a good life. As a professional, he remained open and honest about his research, even when he was excoriated for it. Working on developing creativity, especially at a time when psychology was mired in behaviorism and observable, measurable results, Torrance often received intense criticism, both from his colleagues and outsiders, but he kept true to his vision and mission. As Passow said, "He has been criticized and his work has been questioned, but Paul has responded with honesty and grace" (Millar, 2007, p. 152).

Of course, this also exemplifies his perseverance to stay with an area of research in spite of professional discouragement and criticism. This perse-

verance was shown early in his pursuit of higher education. Immediately after high school, Torrance got a job measuring cotton acreage so that he could go to college for two years at Georgia Military College, a combination secondary and junior college. After this, he went back to work, but this time as a teacher, on a provisional certificate. The principal of Midway Vocational High School had become ill, and Paul was hired to substitute for him. The job required that he act as principal as well as teach the eighth, ninth, and tenth grades. This was a daunting job, especially for a shy young man with no teaching preparation or experience, so he began taking education courses by correspondence in addition to his heavy work load. Throughout his higher education, he persisted by working hard and attending classes where and when he could.

Young Paul took quite a risk by agreeing to such a job, but he showed his risk taking in other ways, too. Unable to save tuition money on his meager salary to go to Mercer University or the University of Georgia, he applied and was accepted to attend Georgia State College for Women that summer, as the only male student. This determination and risk-taking continued throughout his career as he pursued an area of study, creativity, so far outside of the norm.

After his stint at the Vocational High School, he was offered a teaching job at his alma mater, Georgia Military College, which afforded him the opportunity, along with a loan, to go to Mercer university in the summers while he honed his teaching skills. During this time of teaching and study, Paul discovered that he loved both psychology and teaching, so he continued to teach and go to school in the summers until he received his AB degree from Mercer in 1940.

Another important seed was planted at this time. Paul had taught some very challenging young men who tested his discipline at both the vocational school and the military college. Their behavior spurred his curiosity. He didn't see them as bad; rather, he thought the most challenging among them had a special spark. He didn't quite know how to conceptualize that spark until he read Margaret Broadley's (1943) *Square Pegs in Square Holes* in which she described creative people without a focused creative outlet as wild colts roaming the prairies. That thought, of these difficult young men as creative, stuck with him and served to inspire him. He later noted that many of the most difficult students went on to be successful in a variety of fields (Torrance, 1990).

Torrance sought to satisfy his curiosity and interest by doing graduate work in counseling psychology. He further showed his independence and risk taking by applying to a program in psychology when he did not have a very strong background in the field. So, the independent Paul enrolled in correspondence courses in psychology before he enrolled at the University of Minnesota. Of course, once at Minnesota, Torrance excelled at his studies, receiving an M.A. in 1944 in educational psychology with a minor in psychology. His professors encouraged him to pursue a Ph.D., but although he was offered a teaching assistantship, he could not afford to do so. He returned to Georgia Military College where he was promoted to principal of the high school and registrar of the junior college. While there, he established an outstanding counseling program that gained him professional recognition, and

also in 1944, he was offered a counseling position back at the University of Minnesota that would afford him the opportunity to take a doctoral course each quarter and engage in research and writing (Millar, 2007). He gladly accepted the position and published some articles before the military draft reached out for him in 1945.

It was the closing days of World War II, so even though Torrance's physical limitations would keep him out of active combat, he was drafted. Fortunately, the army made use of his training and assigned him to work as a psychologist. Due to his love of learning, burning curiosity, and independence, he learned a great deal from the other psychologists with whom he worked and through self-study. Among other things, he learned about the Rorschach Inkblot Test, the Bender Gestalt Test, and the Army Individual Intelligence Test. He was also proud of the counseling work he did with the servicemen, especially helping those who had been dishonorably discharged to deal with their anger and find their strengths in order to adjust to civilian life.

After 13 months in the military, in 1946, Torrance was offered a position at the counseling bureau at Kansas State College. Taking this position was quite a risk and challenge because the young people in such a vastly different geographical area (Kansas as opposed to Georgia or Minnesota) and with different experiences (college students fearful of another dust bowl, vs. high school students or servicemen) required flexibility in meeting their needs. But, Torrance took the position, and the next year was appointed Dean of Men at Kansas State College in addition to his counseling work. As was typical of him, no matter how much work he had, he pursued further study, arranging to learn about Rogerian counseling as well as psychodrama and sociodrama from leaders in their fields (Hébert, et al., 2002).

Finally, in 1948, through a combination of his savings, the GI Bill, and a special fellowship, Torrance was able to attend the University of Michigan as a full time student. Released from the burden of working while in school, he was able to complete almost all of the coursework for the doctorate in one year. He returned to Kansas State College in the fall of 1949 as director of the Counseling Bureau and professor of psychology, and in the 1949-1950 year completed the German requirements for his degree and wrote his dissertation. In 1951, he received his doctorate from the University of Michigan and started looking for a position.

"I have held that whenever one is faced with a problem for which he has no practiced or leaned solution, some degree of creativity is required." ~ E. Paul Torrance

From 1951-1957, Torrance worked with the U. S. Air Force Advanced Survival School. This school was established to prepare fighter pilots who are shot down to survive on the ground. Intrigued by the idea of developing a psychology of survival, Torrance took the job as Director of the Research Unit just as the Korean War began. Among the things they taught in the survival school were how to evade capture, what brainwashing techniques are used, how to live off of the land, how to be self-reliant and to cooperate with the group, how to use what they might have in different ways, and how to slow their pace to conserve their strength. It was tough training, but the

men who finished it were well-prepared. Additionally, Torrance's published articles on survival—including adapting to torture, pain, and failure, climatic extremes, deprivation and isolation as well as group dynamics—provided new insights into survival psychology, group dynamics, and sociology (Millar, 2007, p. 32). Torrance gained an international reputation through the 135 research papers on survival in extreme conditions that he and his research team published (Neumeister & Cramond, 2004). Most important to his continuing research, Torrance saw that teaching people to survive in unpredictable circumstances required teaching them to be resourceful and think creatively.

It was during his time working with U. S. Air Force Advanced Survival School that he conducted studies of jet aces. The basic question was, "What differentiates the approximately 5% of the pilots who are considered aces from other less successful pilots?" In observing and testing these aces, Torrance saw in them the same spark he had seen in the boys at the vocational school and the military school. The difference was that the aces had learned to focus their creativity productively (Hébert, et al., 2001).

It was also during this time that his basic survival definition of creativity, which started this section, was formulated. He concluded that the most successful pilots and the most likely survivors were those who could focus and use their creativity. His research demonstrated that creativity skills such as risk taking, courage, and independence (Neumeister & Cramond, 2004), as well as inventiveness, imagination, originality, flexibility, and decision-making (Millar, 2007, p. 32) were necessary for survival.

"Creativity is a distinctive trait of human excellence in all domains of behavior." ~ E. Paul Torrance

In 1958, with the end of the Korean Conflict, money for the survival school dried up, and Torrance decided to return to academia. He was offered and took the position of Director of the Bureau of Educational Research and Professor of Educational Psychology in the College of Education at the University of Minnesota. Torrance was excited to return to the University of Minnesota because he knew that the dean, Walter Cook, was very supportive of innovative research and there was an atmosphere of intellectual freedom and tolerance of philosophical differences (Hébert, et al., 2001). 1958 was also an exciting time in education as the launch of Sputnik and the space race spurred national interest and funding for research on giftedness. The National Association for Gifted Children was founded in 1954. Also, in his recently delivered and published 1950 presidential address to the American Psychological Association, Guilford had challenged psychologists to study creativity, noting that,

Of approximately 121,000 titles listed in the past 23 years, only 186 were indexed as definitely bearing on the subject of creativity. The topics under which such references are listed include creativity, imagination, originality, thinking, and tests in these areas. In other words, less than two-tenths of one per cent of the books and articles indexed in the Abstracts for approximately the past quarter century bear directly on this subject. Few of these advance our under-

standing or control of creative activity very much. Of the large number of textbooks on general psychology, only two have devoted separate chapters to the subject during the same period. (Guilford, 1950, p.445).

Perhaps most providential for Torrance's research, The Faculty Advisory Board to the Bureau of Educational Research (BER) recommended a 25-year study of giftedness. Torrance was interested in many aspects of giftedness, but he was finally given the opportunity and impetus to investigate his burgeoning interest in creativity. So began his lifetime pursuit of the study of creativity and some of his most important work.

During his time in Minnesota, Torrance also met and married his life partner, Pansy. At 45 years old, Pansy, a nursing student, was a nontraditional student who took Paul's class in the spring of 1959 because she heard he was a good teacher. He, at 43, was a long time bachelor. She was as outgoing and warm as he was shy and circumspect in personal situations. However, they found that they were both loved to read and write, had come from humble beginnings, loved cats, and had grown up Southern Baptists. Since Paul could not drive, Pansy started driving him to church. They often had lunch on those outings, and soon they worked together to start a church nearer to their homes. Over time, they realized they were attracted to each other and enjoyed each other's complementary characteristics. Also, Pansy was unable to have children, and Paul had not wanted to have children for fear they would inherit his physical disabilities (Millar, 2007). One evening in October 1959, Pansy told Paul that she wanted to marry him. His response was, "When?" They decided to get married on Thanksgiving Eve. The next day, Pansy called to ask Paul if he had changed his mind. Of course, he hadn't, in fact, he had been trying to get the courage to ask her (Personal Communication, circa 1990). So, they were married in the church on Thanksgiving Eve in 1959 and had a brief honeymoon in Chicago before returning to their home in Minnesota.

"One's self-image and image of the future have a great deal to do with what that person is motivated to do and able to do, as well as the extent to which he is able to change his behavior" ~ E. Paul Torrance

Torrance was really interested in recognizing and nurturing creativity in everyone. His work with the boys at the vocational and military schools, his reading of Broadley's book, his experiences with survival training and jet aces, his counseling experiences, and his research had all been brewing in his mind to point to the importance of creativity, but he knew that before he could do that, he would have to find a way to define and measure it. He definitely had a vision of his future working toward unlocking the mysteries of human creative potential. So, he began his longitudinal studies developing tests of creative thinking while he was in Minnesota. Publication of the *Minnesota Tests of Creative Thinking*, *Thinking Creatively in Action and Movement* (for preschool children), and his first book, *Guiding Creative Talent* (1962) brought him and his research team much public interest—too much attention. Torrance estimated that from 1961-1966, he received 3,000-5,000

inquiries each year about his research. As a person who always felt compelled to respond to queries, this took a toll on Torrance's health, and led him to resign as Director of the Bureau of Educational research and stay on as a professor of educational psychology (Millar, 2007).

In 1966, Torrance was offered a position as Professor and Chair of the Department of Educational Psychology, Research, and Measurement at the University of Georgia. Although he had been offered several attractive positions, this afforded him an opportunity to move back to Georgia and closer to his aging parents. Under his leadership, the department more than doubled in size and added three new programs—school psychology, gifted education, and child guidance clinic (Hébert, et a., 2002).

Although he was very busy in his new role, he continued his work on his creativity tests, now called the *Torrance Tests of Creative Thinking*, as well as several others. His move from Minnesota somewhat disrupted his longitudinal research, but he continued it to the best of his ability. Without much outside funding, he used his royalties and the support of Pansy and loyal students to continue his research (Hébert, et al, 2002; Millar,2007).

As evidenced throughout this story, E. Paul Torrance excelled and made an impact in many ways. His major accomplishments include 1,871 publications: 88 books; 256 shares of books or cooperative volumes; 408 newspaper articles; 538 reports, manuals, tests, etc. ; 162 articles in popular journals or magazines; 355 conference papers; and 64 forewords or prefaces (Creativity-Innovation. EU, 2017). However, three of his most important contributions were his creativity tests, The Incubation Curriculum Model, and The Future Problem Solving Program.

“I put the testing first because any science has to have some kind of measurement.” ~ E. Paul Torrance (Cramond, 2001, p. 117)

Torrance developed many creativity measures, with the Torrance Tests of Creative Thinking (TTCT, Torrance, 2017) the best known. This battery of measures, which has been translated into over 40 languages and is used throughout the world, is composed of two main components, Thinking Creatively with Pictures and Thinking Creatively with Words. Thinking Creatively with Pictures can be used for grades k-adult, and test takers draw their responses to three figural activities. Thinking Creatively with Words can be administered to grades 1 – adult, and test takers respond in writing to six exercises (Cramond, 1994). For years, Torrance and his fellow researchers investigated and tested stimuli to find ones that test takers from young children to adults could respond to, that both genders would find interesting, and that would encourage creative responses (Cramond, 1994; Torrance, 2008). With the battery compiled, Torrance collected scores on his tests from students in grades 1-12 in Minneapolis schools as well as IQ and achievement test scores. Then, he conducted 7-year (Torrance, 1969, 1972a), 12-year (Torrance,1972b), and 22-year (Torrance, 1981a,b) longitudinal studies, which tracked the creative achievements of the initial groups of students he had tested in the late 50s and early 60s. This work was continued through his students and colleagues with a 40-year follow-up (Cramond, et al., 2005) and

50-year follow-up (Runco, et al., 2010) This extensive research showed a strong relationship between test behavior in childhood and adult real-life creative behavior, thereby offering evidence of the predictive validity of the Torrance Tests of Creative Thinking.

With a reliable and valid test of creative abilities, Torrance could turn to his real interest, fostering creativity in individuals. In 1966, Ginn and Company asked Torrance to devise some creative activities to go along with their texts. These activities were the beginning of his Incubation Model (Cramond, 2013). In order to create the curriculum model, he reflected on the creative abilities that could be developed.

When asked what he considered to be the main abilities of creativity, Torrance replied:

The main components of creativity have been conceptualized in a variety of ways. I have conceptualized them as follows and have designed the scoring of the Torrance Tests of Creative Thinking and my teaching methods (The Incubation Model of Teaching) in accordance with this conceptualization:

1. Finding problems
2. Producing many alternatives
3. Being flexible
4. Producing original ideas
5. Elaborating
6. Highlighting the essence
7. Keeping open
8. Being aware of emotions and using them
9. Putting ideas into context
10. Combining and synthesizing
11. Visualizing richly and colorfully
12. Enjoying and using fantasy
13. Giving ideas movement and sound
14. Looking at problems and solutions in many ways
15. Visualizing things internally, below the surface
16. Extending boundaries by cutting through them or going beyond them
17. Letting humor flow
18. Glimpsing infinity (Shaughnessy, 1998, pp. 445-446)

“People prefer to learn creatively – by exploring, questioning, experimenting, manipulating, re-arranging things, testing and modifying, listening, looking, feeling – and then thinking about it – incubating.” ~ E. Paul Torrance

Thus, Torrance used his vast knowledge about creative individuals and what he learned about the responses of the most creative individuals on his tests to both revise the scoring of the tests and to conceptualize a three-stage curriculum model. The Incubation Model of Teaching (Torrance & Safter, 1990) is designed to incorporate creative thinking abilities and skills into any discipline at any level, from early childhood to old age. The three stages of the model include: heightening expectations, deepening expecta-

tions or digging deeper, and going beyond or keeping it going. The purpose of the first stage is to stimulate interest, curiosity, and motivation to learn. The purpose of the second stage is to give students the opportunity to think more deeply, make connections, use their senses, think creatively, and look for possible problems and solutions. The purpose of the third stage is keeping the learning going beyond the unit, lesson, and classroom. This is where this model is very different from most; instead of concluding and summarizing, the aim of the final stage is to keep students thinking, investigating, and applying their knowledge (Torrance & Safter, 1990).

Students who study creativity at select universities may learn about The Incubation Model, use it, and research it, but this model has not received widespread acceptance and application. This may be in part because Torrance used metaphors to describe the activities at each stage rather than standard curriculum language. It may also be because schools have put more emphasis on basic skills measured by traditional achievement tests rather than higher level thinking (Cramond, 2013).

“The skills of creative thinking must be recognized as mankind’s most important adaptability skills. Such skills must become basic to the curriculum of schools, homes, businesses, and other agencies.” ~ E. Paul Torrance

In the early 1970s, Torrance became concerned that the interest that young people had had in the future and world affairs in the 1960s was waning. He was also concerned by what he perceived to be a decrease in creativity in American society (Hébert, et al., 2002). Impressed by the Creative Problem Solving Process developed by Osborn and Parnes (Osborn, 1953/1967; Parnes, 1966), Torrance decided to try their method in a month long curriculum that he and Pansy developed for high school students using the process to identify and solve real potential future problems (Millar, 2007).

The Torrances were so bolstered by the results of this experience that they began the Future Problem Solving Program. The program soon grew from its start in Athens, GA in 1974 to a statewide, nationwide, and now international program. Now called Future Problem Solving International (FPSPI). According to the website, “More than 250,000 Future Problem Solving students from more than 37 states and 14 countries have participated in the last decade!” (FPSPI, n.d.).

The program, which has both competitive and noncompetitive components, also has both team and individual components. Students who participate in the original FPSPI competition (now called Global Issues Problem Solving) work in teams of four and compete based on grade level using a six-stage problem solving process to address scientific and social topics delineated by the organization from a vote. Example topics from the past include cyber security, robotics, ocean communities, and nutrition. The students research each topic, identify possible problems, choose a key problem to work on, brainstorm many solutions, develop and use criteria to evaluate their solutions, choose the best solution or combination of solutions, and develop a plan to implement it. Students work on practice problems throughout the school year and receive feedback from trained evaluators on their work.

Teams that do well in local competitions are invited to compete in the International Future Problem Solving Bowl held each summer.

Another competitive component is Community Problem Solving through which an individual or team of students work on a real local, regional, or global problem to solve it. Problems are categorized as Civic and Cultural Issues, Education, Environment, Health Concerns, and Human Services. One recent such project focused on making students and members of the community more aware of the need to drink more water. One result of their project was a grant that they received to purchase a hands free water fountain and bottle filling station for their school. Another group, concerned about the problem of teens texting while driving, has developed partnerships in the community, tried to raise community awareness of the issue, and are working on strengthening the laws pertaining to texting while driving. Students write up the information about their projects, and the top projects are invited to the International Conference.

Two other competitive components are Scenario Writing and Scenario Performance. In these, individuals create short stories pertaining to one of the identified topics set 20 years in the future. These stories should be imaginative, but also address a real problem in a logical way. The difference is that in the former, the students write a short story and in the latter they tell their story live or on videotape. Creators of the top stories are invited to the International Conference.

The non-competitive aspects of the FPSPI are designed to help teachers use the process in a non-competitive way incorporated into the curriculum. Action-Based Problem Solving (grades k-3), The Problem Solving Experience Curriculum (grades 5-8), and Problem Solving Across the Curriculum, which provides hundreds of future scenes that have been used in Global Issues Problem Solving are available as resources from FPSPI.

Although the creativity tests are what Torrance is best known for, the Future Problem Solving Program was his greatest pride (personal communication, circa 1995). After all, he was most interested in promoting and developing creativity in individuals all along.

Some Personal Anecdotes:

I was fortunate to be a student of Torrance's from 1979 – 1982. When he retired in 1984 to care for Pansy, who was in ill health, the College of Education began a search for someone to teach his creativity classes. In 1989, I was hired. I knew that there was no way that I could fill his big shoes, and fortunately, I was not expected to do so, but I was lucky that in his retirement, Torrance lived in a house just blocks from the university, so I could visit him and continue to learn from him until he died in 2003.

Of all of his great accomplishments as a researcher, none is better than his role as mentor, teacher, and friend to so many around the world. As evidence of this, you have to visualize his front porch. Torrance did not have a regular mailbox, even the largest ones could not contain the correspondence he received. So, he had a chest, a child's toybox, on his porch to hold all of the mail he would receive. Of course, he responded to it, so he paid a secretary to come to his house every day and help him with the correspondence.

Torrance showed his students that he cared, and we cared for him. He took a picture of every student of his on the first day of class and started a

file. A few years before he died, he gave me my file, and it contained every card and letter I had written to him over the years. He also wrote me a congratulatory note for publications that I had in my first years as an academic. It meant a lot to be held in such high regard.

He was a very responsive teacher. If I asked a question about some area of research, I would find a typed note in my office mailbox the next day with a reference citation or two and some information. Later, as a new assistant professor at UGA, I often had questions, and he was always open to meet with me and answer them. I was continually amazed by his incredible record keeping and memory. If I asked about something, he would go to his file cabinets and pull out an article about it. He always had the answer and knew where to get the files.

In his classes, he gave us reams of information that he had copied on colored papers. One day, as I left class, another professor said, "Well, I can tell you are one of Torrance's students. He runs off so much for his students on our mimeograph machine and with our paper." I responded, "No sir, Dr. Torrance has his own machine and his own paper that he pays for himself." There were always those who were jealous of him and looked for ways to put him down, so he was careful not to give anyone cause.

It was not known until shortly before his death that Torrance also paid for many graduate students' assistantships. They thought they had received an assistantship from the university, but he paid for them and never told them. It was only after he had retired that an IRS audit questioned the money he gave to the students, and many found out that he had paid their way.

For years, I would take the students from my creativity classes to his house to visit with him. He was always welcoming and gracious, but the students, who typically had many questions, were often quietly in awe. I still have former students who remember their visit with Torrance as a highlight of their graduate studies.

One thing that Torrance enjoyed doing was reverse gifting. So, when a group of us went to his house to celebrate his birthday, he would have gifts wrapped for us to take. These were typically souvenirs from his many travels abroad, and he took great delight in watching us choose and open our gifts.

There are so many stories of his humility, generosity, and caring that I cannot possibly relate them all here. But, the love and loyalty of so many of his former students, colleagues, and acquaintances gives testimony to the personal effect he had on so many.

In 2003, when he was dying, a graduate student who then lived in Torrance's basement apartment, Mohammed Badaway, and I were trying our best to care for him. I got frustrated that every time I went to the hospital, they would ask if I was family. Finally, I told them that I was his mistress. I knew that they would remember that and pass it on. Sure enough, I never had to answer that question again. Torrance thought it was a humorous, creative solution.

Mohammed cared for Torrance better than most sons would during his hospital stay, while in recovery in a nursing home, and later back in his own home. I was with him as often as I could to relieve Mohammed. Cherokee Princess, Torrance's beloved cat, lay with her head on his chest unless

Mohammed forced her to get up to eat and go outside for a bit. As soon as she was let back in the house, she went back to her post.

I was getting so many queries about Torrance's health that I started a listserv with updates several times a week. Only much later did I find that those updates were transmitted all over the world to caring friends and colleagues. Several people commented to me about my "mistress" status. I had had no idea that that story was sent to so many people!

Mohammed and I tried to be sure that one of us was with Torrance at all times. With the help of hospice personnel, he was never alone. One hot Saturday, July 12th, 2003, I had worked in my yard and got very sweaty, dirty, and tired. I decided to shower and lie down for a little while before visiting Torrance. Exhausted, I fell asleep and didn't wake until after 8:00 pm. I decided it was too late to visit, and I would go the next day. Mohammed had gone out to run some errands. That evening, with just the hospice nurse there, Paul Torrance took his last breath, and Cherokee Princess left her post.

When I found out the next day, I was consumed with guilt and remorse for not being there. Then, Virginia Macagnoni, a good friend of Torrance's and mine, told me that Paul had told her that he was ready to die, but Mohammed and I would not let him. That greatly relieved my guilt and allowed me to mourn him.

In the weeks following his death, I took on the job of going through all of his books, papers, and scrapbooks to determine which should go to the University of Georgia archives and the Torrance Center, which should go to family, and which should be thrown away. It was a very difficult task, and I was being pressured by the university to cull what I could because of space. I am sure I made some mistakes and threw away valuable data, but it was a daunting job and very emotional.

I feel that I was very honored to have been Paul Torrance's student, colleague, and friend. I was especially honored to have been with him during his last days. He has affected my life in so many ways, as he had so many others, the study of creativity, education, and psychology. He was truly a creativity guru and trailblazer.

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CHAPTER THIRTY EIGHT

DONALD JOHN TREFFINGER, PH.D.: CREATIVITY DRIVER

JOHN HOUTZ & EDWIN SELBY

ABSTRACT: This chapter describes and celebrates the creative life of Donald John Treffinger, PhD. Beginning with his basic education and background, the chapter reviews his burgeoning interest in creativity research and doctoral dissertation under the mentorship of Richard Ripple. Don's professorial career extends over 50 years, including university appointments at Purdue and the University of Kansas. It includes the directorship of the Creative Studies Program at Buffalo State. After his academic years, Don founded the Center for Creative Learning, Inc., in Sarasota, Florida, and continued his research, writing, and creativity education. Don may be considered the "third generation" leader of Creative Problem Solving (CPS), extending the model and approach begun by Alex Osborn (Osborn, 1963) in the 1950s, and Sidney Parnes (Parnes, 1967), and Ruth Noller (Parnes, Noller & Biondi, 1977) in the 1970s and 1980s. Don's career-long collaboration with John Feldhusen of Purdue and other scholars is known internationally as well. Don traveled to over a dozen countries leading education and training efforts in talent development and explicit instruction in the "tools" of creative and critical thinking. He has numerous career and life-achievement awards and served several capacities in professional societies. Among his post university years, and in collaboration with Scott Isaksen and Edwin Selby, Don Treffinger was well-known for development and promotion of VIEW: An Assessment of Problem Solving Style and the Levels of Service design, and for his work in developing CPS v. 6.1TM. He has published more than 300 journal articles, dozens of books, and delivered invited addresses too numerous to count.

Creativity Driver - IdeaDoc

"The gifted community lost a lifelong champion when Dr. Donald J. Treffinger, 78, passed away on October 16, 2019. Treffinger was an internationally known scholar, leader, researcher, author, teacher, and presenter in the areas of creativity, Creative Problem Solving, and gifted and talented education. Don authored more than 350 publications in his lifetime and gave generously of his time to the National Association for Gifted Children (NAGC). He served on the Board of Directors, as editor and advisor to the *Gifted Child Quarterly* and as founding editor of *Parenting for High Potential*. During his lifetime he was bestowed many honors, including the NAGC Distinguished Service Award in 1984, and the E. Paul Torrance Creativity Award in 1995.

However, he will always hold a special place in our hearts as a visionary who recognized the need to provide resources and support to parents, grandparents, and caregivers of high-ability children (from “In Remembrance: A Continuing Legacy,” *Parenting for High Potential*, March 2020, Volume 9, Issue 1).

Anyone in his adopted hometown of Sarasota, Florida, who knew Don Treffinger could recognize his car as he drove by. His Florida license plate read “IDEADOC.” Don was the Idea Doctor. He was a driver in his work; “riding” both theory and practice, seeking not only more ideas, but testing and improving ideas, seeking clarity of understanding and impact and effect. He was not satisfied until ideas were formed and reformed to lead to positive action steps. Donald Treffinger was a leader in the fields of Gifted Education, Talent Development, and Problem Solving Style. Don Treffinger drove himself and he drove others to expand these fields. When working with Don you could not help but strive for your very best.

Foundations

Donald J. Treffinger was born in Buffalo, New York in 1941. There he attended public and secondary schools. He also worked in his father’s locksmith business. In these years he became active in Buffalo’s Trinity Church. Following his undergraduate studies, he began seminary studies with the goal of becoming a United Church of Christ Pastor, and even gave several sermons. While his active involvement in church continued throughout his life, often in leadership positions, he decided to focus on teaching. In 1962 he turned to education taking an assignment teaching mathematics in grades five through eight. In 1963 Don married Judi Richard in Kenmore, New York. Judi and Don remained a loving couple together until Judi’s death in 2019. They raised two children, Kenneth Treffinger and Barbara Gerdeman, who have their homes and families in Florida.

In 1965 Don left his job at Buffalo’s Nichols School and entered graduate studies at Cornell University, working under the mentorship of Richard E. Ripple. Here he began his work in creativity. Don would often relate that upon meeting Dr. Ripple, he was told that he could study any area of Educational Psychology he wished. However, Ripple continued, if he was to serve as Don’s mentor, Don’s research would focus on creativity. Don’s reaction was typical: “You know, I just acquired a burning passion about the study of creativity!”

Don began his work at Cornell as a research assistant, impressing Dr. Ripple with his leadership and scholarship. In 1967 he directed Cornell’s Elementary School Creativity Project while serving as staff coordinator for the Finger Lakes Supplementary Education Center in Cortland, New York. This year also saw the first of Don’s co-authored articles being published, including one entitled “Teacher’s Attitudes about Creativity” (Treffinger, Ripple, & Dacey, 1967), which appeared the following year in the *Journal of Creative Behavior*. Don earned his doctorate (Treffinger, 1969) and moved on to an Assistant Professorship at Purdue University with a reputation already building in the field.

At Purdue, Don began a lifelong collaboration with Professor John Feldhusen (Feldhusen, Treffinger, & Elias, 1969; Feldhusen & Treffinger, 1971, 1977; Feldhusen & Treffinger, 1985; Treffinger & Feldhusen, 1996; Treffinger & Feldhusen, 2000). With John, Don solidified his interest in gifted education, continued research on the nature and development of creative thinking, and demonstrated the effectiveness of creativity training programs, including the Purdue Creativity Training Program (Feldhusen, Treffinger, & Balke, 1970), which relied on carefully developed self-instruction principles.

Don also began his relationship with the Creative Education Foundation back in Buffalo, New York, and with Sidney Parnes and Angelo Biondi. An early example of the material this relationship would produce was a research report supported by a grant from the U. S. Office of Education (Parnes & Treffinger, 1973). Don also began to serve as a member of the Editorial Advisory Board and book review editor for the *Journal of Creative Behavior* under Biondi's leadership. After leaving Purdue, Don went to the University of Kansas as Chair of the Department of Educational Psychology and Research. One final move in his academic career took him back his hometown as Director of the Center for Studies in Creativity at the State University College in Buffalo, New York.

In 1980, working with the Ventura California schools, Don developed a handbook for educators, recommending methods and techniques designed to develop creative learning for gifted and talented students (Treffinger, 1980). The following year, Don opened the Center for Creative Learning, Inc. (CCL) in Honeoye, New York. The Center gave him the ability to pursue new avenues of research and inquiry. It provided a site for presentations and workshops as well as a base for Don's consulting services. CCL also became a publisher of the *Creative Learning Today* newsletter and a variety of books and training materials. The Center moved to Sarasota, Florida in 1991. There the work expanded. Published materials included works written in collaboration with long-time colleagues (*Authentic Assessment, Profiles, and Portfolios*, Treffinger, Cross, Sortore, & Remle, 1993), by young practitioners in the field (*Big Tools for Young Thinkers*, Keller-Mathers & Puccio, 1993), and solo publications (Treffinger, 1994). Among the many in-house publications during this period were *Creative Problem Solving: An Introduction* (Treffinger, Isaksen, & Dorval, 1992) which is now available from Prufrock Press, and *Lost prizes: Talent Development and Creative Problem Solving for At-risk Students* (McCluskey, Baker, O'Hagen, & Treffinger, 1995.)

Don continued to make connections with other creativity scholars. His memberships in professional associations were extensive and impactful. He established relationships with universities throughout the U.S., Canada, Europe, and Asia. His body of research and writing continued to grow in breadth, depth, and impact. Don's work and collaborations influenced the professional lives of many. The memories of several of these individuals follows:

We Knew Don

John Houtz, Fordham University Graduate School of Education (Retired)

Donald Treffinger was a member of my doctoral dissertation committee at Purdue University and later a frequent workshop and conference presenter on CPS at Fordham during my own career. I was a Research Associate with him for CCL and attended many Sarasota networking conferences.

Purdue: I arrived at Purdue University, West Lafayette, Indiana, in August of 1970 as a newly accepted doctoral candidate in Educational Psychology and Research. Until he left to become department chair at the University of Kansas in 1972, I enjoyed the energy and challenge of Don Treffinger. My very first Purdue course was Don's and his teaching/learning approach was then (and, I believe, was to the end of his career) characterized by self-challenge (Treffinger, 2003). His course materials for Advanced Educational Psychology (AEP) were a series of 15 self-instructional modules. Each topic module listed a dozen or more questions in the form of a challenge. I could select the easier questions and research the answers for a lesser number of points. I could choose the harder assignments for more points, or I could "mix-and-match." To earn one's course grade, one had to accumulate enough points. Of course, an "A" required the highest point total. As instructional design, this course relied on self-initiative, real decision-making. No dependence on a professor telling you what to think or do!

It must be noted that in the 1960's and 1970's "programmed instruction" was a dominant theme in educational psychology. Don's own doctoral dissertation was an evaluation of such a program to develop creative skills among gifted students. Later, his work at Purdue with John Feldhusen and others to develop the Purdue Creativity Training Program (PCTP) also made use of programmed self-instruction design. I dwell on this early aspect of Don's career because the emphasis on research and training to improve thinking and decision-making, to go from theory to practice, was a career-long defining characteristic of Don Treffinger.

While AEP was the only formal course I had with Don, I learned a great deal more by attending his Friday evening pizza sessions across the river in Lafayette, Indiana, at the "Caboose." In those meetings usually 4 or 5 students and sometimes other faculty would talk about all manner of research ideas, what's recent in the journals and, of course, whatever good, bad, or interesting things were happening in the world. There also were larger gatherings of a more "athletic" nature, "retreats" if you will, where I learned about Don's skills in touch football. However, let the reader be advised that, being originally from Buffalo, Don's true sport was ice hockey.

While Don was a member of my dissertation committee, John Feldhusen was my mentor. But in my oral defense Don rapid-fired a number of names at me to see if I knew their works. A bit unnerved, I did pass, but John later "clued me in" that this was one of Don's favorite "techniques." What have you really read, Mr. Houtz? For Don, knowing the field was very important. He expected a great deal if you were to join in with his interests. When we traveled to conferences, to questioners at the end of our presenta-

tions, he invariably would answer and then return to the questioner with “Have you read the book or article by....”

Don celebrated his 30th birthday while at Purdue, and we decorated his office door in black crepe before he came to work. We knew we had time to decorate because it was very well known that Don never got to the office before 10 in the morning. Once at work, however, his non-stop typing on an old, non-electric typewriter could be heard through the door all day long until class time.

Don moved on to become a department chair at the University of Kansas by my third year at Purdue. I did drive to Lawrence, Kansas, to collaborate with him and Stuart Speedie (one of Don’s doctoral mentees at Purdue) on an article on assessment measures in problem solving (Speedie, Treffinger, & Houtz, 1976). It was a long time ago, but I do remember at least two of the meals—the first at a pizza restaurant, right after we arrived, which did not surprise me. But he and Judi hosted the second in their home, with little (then) Ken and Barbie. Judi and Don were wonderful parents, and both were always so happy to see us in their Florida home many years later.

Fordham: In the years after Don founded CCL, he and Edwin Selby (another of Don’s doctoral mentees) conducted annual Summer Institutes for Fordham students on creative problem solving. Don recommended Ed to me for an adjunct teaching position and that turned out to be a most happy career-changer for me. While John Feldhusen brought me to a career, it was Don Treffinger and Edwin Selby who helped to fill that career. Ed retired as Bene Merenti Professor of Education with more than 25 years at Fordham. During those years Don, Ed, and I collaborated on multiple doctoral dissertations, journal publications, and conference presentations concerning problem solving style and CPS. In addition, along with Don and Ed, my late Fordham colleague Giselle Esquivel created the current Spanish translation VIEW: An Assessment of Problem Solving Style during our Fordham years.

I was not a good traveler and never went on any of the many national and international workshops, conferences, or consultations that Don, Ed, and other CCL team members attended. But I did attend many Sarasota networking conferences and enjoyed Don’s updates on CPS and VIEW research and data. The favorite “name” for Don’s data updates was “The Chartman Cometh.” As the VIEW population grew, Don’s charts continued to show strong instrument reliability and validity (except for one pesky item that loaded on each of VIEW’s main dimensions. Later, as VIEW sub-scores within the largest factor were identified, we found even more evidence for the theory behind VIEW and its application to our understanding of the creative problem solving process (Selby, 2013).

While our Sarasota hotels were close to the beach, Don’s networking conferences involved real work, as new research ideas and idea “products” were often born there. But Don always planned some “down time” adventures for us during these conferences. I got to see the Barnum Baily Circus museum, visit several aquatic zoos, and experience bay area boat tours. On the other hand, once or twice an “unplanned” visit by a crocodile occurred out of the pond near the CCL office.

Don received many honors and awards during his long career (Fellow of the American Psychological Association, NAGC’s Life Achievement

Award, the E. Paul Torrance Creativity Award, and others). However, I observed on more than one occasion that this creative man was never comfortable receiving accolades at these events. I offer the hypothesis that as a high achiever, Don was impatient to move on to the next challenge. There always were four or five initiatives planned or underway at the Center. Keeping up with Don Treffinger was a daunting and impossible task. When Don founded CCL, Inc. he was finally freed from many of the rules he had to follow as a university professor, department chairperson, and director of a graduate program. CCL allowed Don to follow his own CPS tools, to be both generator and focuser, to be fully engaged in the creative process, and to meet his own need to be even more productive.

Don did not “suffer fools” easily. He expected hard work and commitment from others as much as he did for himself. Don was never ungracious. He always was generous with his time and resources. Invariably in questions from the audience at the end of his presentations, there would be ones like or to the effect of “Don’t you expect too much from people with all the work involved in creative problem solving?” Or, “As schoolteachers, we don’t have time to do all this creativity stuff!” Don would take a breath and then respond firmly - others might say pointedly - that he was a public school teacher, himself, and if one isn’t prepared for hard work, he or she shouldn’t be in the teaching profession. I remind the reader that Don’s emphasis on self-instruction dates back to his educational psychology course at Purdue. The virtue and necessity of self-learning and self-motivation have always been key to Don’s life and work. Indeed, they are key to being a “driver” of anything.

Joseph Renzulli, University of Connecticut

Don Treffinger, commonly known as “Treff” to his many friends and colleagues, not only distinguished himself through his research and writing, was also known for his kindness, marvelous sense of humor, and his willingness to be a mentor to anyone seeking his help. Don’s generosity to others was what earned him so much respect among his colleagues.

A number of years ago, a study was being conducted on scoring creativity tests by computer at our Center for Creativity, Gifted Education, and Talent Development. When he learned about the study’s need for hand-scored tests, he showed up at our center at the University of Connecticut with four boxes of scored tests and unselfishly assisted researchers in preparing these tests for machine scoring. He asked nothing in return and even declined an invitation to be a coauthor on the study. He loved working with young scholars to help them formulate their research agendas, giving careful, insightful, and encouraging feedback in his reviews of their work. He worked tirelessly with beginning and seasoned academics through many revisions as they crafted their messages. Whenever I finished an article or proposal, I always sent them to Treff before submission. They came back with lots of “red ink” on them, but I can say without reservation that his comments always made them better. He understood more than anyone with whom I have worked the value of brevity, practicality, and how to have an impact on teachers, administrators, and parents. To use Bob Sternberg’s term, his “tacit knowledge” for impactful results was something that was truly amazing.

Scott Isaksen, Creative Problem Solving Group--Buffalo

I first met Don when I was still a student. I was helping to organize the 1975 Annual Creative Problem Solving Institute at Buffalo State College. On the first day of the Institute, I decided to grab an early lunch and was sitting alone when a tall gentleman asked if he could join me. After some conversation, I found that I was sitting with J. P. Guilford. Soon we were joined by a group of individuals whose reputations in the field had truly preceded them. Among them was Don Treffinger. That encounter was a precursor for professional and personal relationships that in the future would often center around Don.

In 1981, I joined the faculty at the Center for Studies in Creativity at Buffalo State. By that time Don was serving as a resource leader for the Creative Education Foundation and Professor of Creative Studies. Not one to sit still, Don also was a member of the board of directors for the National Association for Gifted Children, the editor of the *Gifted Child Quarterly*, and in the process of opening his Center for Creative Learning (CCL) in Honeoye, New York. Don invited me to take part in many of the programs and services provided by CCL.

Eventually, I was appointed Director of the Center for Studies in Creativity at Buffalo State. Don Treffinger was leading the new graduate program in Creative Studies. His reputation and leadership both nationally and internationally attracted many teachers within the field. And so, we began to build on the rich tradition established by the founders of the program. This included the Creative Studies Project which had validated the value of our instructional program. After some examination, Don and I agreed that the program and instructional material needed to move beyond a sole focus on divergent thinking tools and find ways to give equal weight to convergence. Our work involved the other members of the faculty and many of our colleagues in the field. Using insights from the Creative Studies Project as well as our experiences in the field, we were able to successfully create complementary guidelines for convergent thinking or focusing and integrate new convergent tools in our training program and materials. These materials included several publications such as *Creative Problem Solving: The Basic Course* (Isaksen & Treffinger, 1985). Our approach was a blend of the best of the research, tradition, and field experience to that date. We looked at ways to make the main parts of the Osborn-Parnes model of Creative Problem Solving (CPS) more accessible and applicable to the ways people actually engaged in the problem solving process.

Don moved to Sarasota, Florida and took CCL with him in 1991. That did not end our collaboration or collaborations with other leaders in the field. We continued to work on many books and articles including several published by CCL, for instance our chapter in *Lost Prizes* (Treffinger, Isaksen, & Dorval, 1995). Working with Brian Dorval we tried to clarify the role of brainstorming (Isaksen, Dorval, & Treffinger, 1996a) and aspects of the type of climate for the promotion of creativity and innovation (Isaksen, Treffinger, & Dorval, 1996b). We also collaborated on publishing the third edition of *Creative Approaches to Problem Solving* (Isaksen, Dorval, & Treffinger, 2011), outlining the current approach to CPS.

I received much needed advice and support from Don when I decided to open my own private practice, the Creative Problem Solving Group

(CPSB). While this move on my part may have been seen as competition by others, Don saw it as an opportunity for both of us to grow. Away from the confines of academia, we were able to research and apply the outcomes of research to our own practices and to share these insights through a variety of publications and presentations. Working together was a unique experience. We would become so involved in a joint project that when working in the small hours of the morning, one of us would email the other with a question, idea, or suggestion, and receive a reply within minutes.

In the late 1990's, Don had been working with Ed Selby in developing an instrument that could be used to assess the problem solving style of middle school students. He suggested that I become involved in the project. We soon realized that, while appropriate for 12 year old students, the instrument that was being developed could be very useful to individuals, groups and organization at many levels, when faced with a problem solving situation. Several years of work followed. Working together, in both Buffalo and Sarasota, we drew on our combined field experience as well as research in cognitive styles and psychological type. The result was the publication of *VIEW: An Assessment of Problem-solving Style* in 2002, (Selby, Treffinger, Isaksen, & Lauer, 2002). It also laid the ground for the development of support and training materials. Through CCL, Don took over the duties of publisher and distributor. As he grew nearer to retirement, he and Ed transferred these duties to CPSB.

All this work was not without time for relaxation. Don was a big sports fan. When in Buffalo we would take in a hockey match. One time we traveled down to Cornell for a football game. We would always have dinner together, usually at one of Don's favorite restaurants from his days in Buffalo. Don also loved the arts. When working in Sarasota, we would often attend a local play or concert.

Don was not only a colleague, partner, and mentor. He was a true and close friend. We had a long and fruitful relationship. Together, we held workshops and institutes not only in New York and Florida but in Europe as well. Don was always ready to support my efforts. He was always the professional. Anything that he was involved in had to be top quality. His work in gifted education, creativity instruction, and style impacted all three fields around the world. I was privileged to join him in the writing of over 30 books and articles out of the more than 300 books and articles that Don authored or co-authored. I am honored to have been part of building his legacy.

Grover Young, Sarasota, Florida

Don was a networker long before social media and the internet. He had colleagues all over the world and thrived on collaboration and teamwork. CCL was a virtual center before modern technology. People were not based at the Center and did not have to actually be together face-to-face in order to collaborate and be creatively productive. Of course, we were just as productive face-to-face at conferences and institutes. We always came away with our next assignments. He was a process master. His toolbox was in his mind and he was able to pull out the right tool at the right time to focus the discussion into challenges, opportunities, and possibilities.

Don pushed the envelope in the fields of creativity and gifted education. Don believed in nurturing strengths, talents, interests, and potentials in everyone. Instead of asking “Am I creative?” or “How creative am I?” - it was more productive to ask “In what ways am I creative?” and, “What are my personal characteristics and strengths?” With this different perspective Don understood anyone could be ready and more able to be creatively productive. He usually carried a four-colored pen in his shirt pocket along with an “idea catcher.” Many promising ideas were first recorded and sketched out on a napkin or the back of a paper placemat.

Don presented in 49 of the 50 states and in many foreign countries. He promoted real problem solving with a variety of organizations. With the Future Problem Solving Program International (FPSPI) he nurtured and supported Community Problem Solving. He helped in the development of Destination Imagination and linked it to the CPS process. He was an advisor to the National Inventive Thinking Association, a member of the Educational Advisor Panel for Invention Place (home of the National Inventors Hall of Fame) and Camp Invention.

Don did a considerable amount of work on learning styles with Rita and Ken Dunn and with problem solving styles with Ed Selby. He coauthored a book for parents of young children with Rita and Ken Dunn in 1992, *Bringing out the Giftedness in Your Child* (Dunn, Dunn, & Treffinger, 1992). His work on talent development in New York, North Dakota, Michigan, Indiana, Florida, and Winnipeg, Canada, was extensive. Among many honors and awards, Don received the World Council’s International Creativity Award in 2005.

The description of Don as a “Creativity Driver” used in this chapter is appropriate, and not only because IdeaDoc was on his license plate. Whether working on a new project or on the road delivering a workshop, working with Don was always an exciting adventure. Don always pushed himself, pushed his team, and pushed the field in many challenging directions.

Patricia Schoonover, University of Wisconsin – Stevens Point

I first met Don when I hired him as a guest professor for a graduate class about gifted education at UW-Green Bay. I was working on my Master’s degree and working at UW-Green Bay in the School Services Bureau. That meant I did a lot of different things. One of the things I did was to organize graduate classes in gifted education and hire experts to teach them. The classes were four weekends with enough hours to equal a complete semester. Up to that point, all of the guest professors (John Feldhusen, Dorothy Sisk, and Joseph Renzulli) came formal and suited.

Don was a pleasant change. I was used to taking these experts out to dinner at posh places. Don told me that he preferred just a burger. “Did I know of a good burger place?” I did and we went there. Our conversation as we ate was comfortable and easy. He made me feel like we had known each other for a long time. At the same time, however, conversations with Don also were intense and challenging. Don challenged me to really consider what I did and did not know.

Don opened my mind to a more in-depth understanding of working with gifted students and the philosophy of gifted education at the time (about

1981). Up to that point, working with other esteemed professionals, I was constantly in awe in my extremely introverted and internal way. I live in my head and I had to come out of that space to meet and work with these people. With Don I felt like it was okay to be who I am and I was able to come out of my cave and actually discuss the topics at hand.

The real revelation came when I watched Don work with the students. The toughest audience you can have is a class of adults, especially adults who believe they know more. Don knew just exactly what to do. His manner was casual. In the beginning of each class there was easy banter about “housekeeping” items, as he always called them. But Don made sure, in his easy manner that you knew who the professor was. He was the teacher you respected, but at the same time, we felt that we always could add something to the conversation.

It is really hard to put my finger on it. You knew you could make comments, ask questions and be part of the conversation. But at the same time, he definitely held the floor and the respect that he most certainly had earned. My Master’s degree centered on gifted education and creativity. The latter is a huge topic so I narrowed it a bit by thinking about creativity within gifted education. During the weekends that Don was teaching I had the opportunity to talk with him about those two subjects. The discussions were always thoughtful, driven, and intense. They were very instructive and constructive.

Another opportunity to work with Don came when I signed up for a week-long workshop about gifted education and creativity. The class was quite large. I was in the student role and I was surrounded by people who hung on Don’s every word. There were group and individual assignments and activities. We had lots of writing and some folks had problems accepting Don’s critiques. They didn’t show it or talk about it with Don but talked about it over beers later on. I did not understand what it was they didn’t get. But I do understand now that these people wore their feelings more openly and wanted strokes, not constructive critiques. That week was probably the most intense week I have ever experienced, but also I learned more than in some semester-long classes. Don expected everyone to “get it” and he worked to make sure you did.

This was well before VIEW was developed, but Don did take the time to help us understand our preferences for working with others and how we might each become more aware and sensitive to how others prefer to work. This workshop was also the first time anyone had critiqued my writing (at least for graduate work). It was such a relief to finally get some worthwhile feedback on my writing and it has made a huge difference in my professional career. When I moved on towards doctoral work it turned out that Don was working with students at Walden University, a place that I had been looking at closely. At Walden I got an easy pass for most of my work until it got to Don. That’s when I had to get down to business, dig deeper and wider. His critiques were always honest and focused.

Don was a driving force. He was unusual in his own personal energy, both mental and physical. When our CCL groups would meet, the days were very, very full, but Don was still the engine that could keep on going into the night. Sometimes I just needed to get outside and walk (my internal style). Don did not seem to need that at all. Don always seemed to have a kind of

angle on things. Once he started to think about something, you could bet he'd have you look at these thoughts. There always were things to think about as we wound ourselves up for work the next day.

During the time that I was Executive Director of the Destination Imagination program, we began to incorporate the Creative Problem Solving process and tools. Our first step toward this goal was working with Challenge Developers. Challenge Developers were volunteers who worked in sets of three or four people to develop and write long-term and short-term challenges for the program. We took this group through the basics of the CPS process, style preference assessment using VIEW, and how the groups might work more effectively. We spent three days pacing the hotel halls checking on our "teams."

We began to think about how to do this for Destination Imagination world-wide. Don and I talked about what we observed with the Challenge Developers as we headed to the airport for home. How could we get CPS and the tools to everyone? I was at my gate with about an hour to spare, and Don had gone to his gate. All of the sudden, there was Don, very excited. He had drawn up a potential plan where we could get the tools to everyone. It was exciting, but I needed much more time (again, my style). Don and I continued to work together in CCL and eventually created the on-line CPS course. This was working with Don - non-stop, productive, and always exciting.

Edwin Selby, Center for Creative Learning, LLC and Fordham University

I first became aware of Don's work in 1974 having read *Improving Children's Creative Problem-solving Ability* (Treffinger, Speedie, & Brunner, 1974) while working on my master's degree in Educational Psychology. I was also teaching at School-Within-a-School, a magnet program for gifted and talented students in Newark, New Jersey. My thesis was therefore focused on gifted education and I had read several articles by Donald Treffinger. I was impressed by his open and inclusive approach that argued against putting students in boxes created by a single source of data. Having read the works of Harold Benjamin [often writing as J. Abner Peddiwell (Peddiwell, 1939)] and others, I already had a strong belief that instruction and assessment needed to be focused on awakening and building on individual differences. Don's writing reinforced that belief. It also supported me shortly after when I testified at a hearing before the New Jersey Legislature supporting increased funding for G/T programs. After that, family and work took over my focus. I moved to a more rural setting and a middle school teaching assignment. I did not yet realize that Don's articles would end up directing the course of my professional career years later.

In the late 1980's, I started to think about what I wanted to be when I grew up. My middle-school theater program was focused on guiding students in writing their own musical play each year. I was already involved in creativity and knew that I wanted more. I went back to the literature, and once again Don Treffinger's work was waiting for me. I decided to apply to the doctoral program at Walden University where Don was on the faculty. I reached out to Don requesting that he serve as my mentor. He agreed and my path was set.

Don's mentor (Dick Ripple) had inspired Don's interest in creativity. Likewise, Don inspired me.

Early in my program, I traveled to Don's home and CCL on Lake Honeoye in up-state New York. There I also met Dr. Michael Kirton and was trained in the theory and use of the Kirton Adaption Innovation Inventory (KAI; Kirton, 1999). This training became the basis of my doctoral research with my own students. The results of that study were blended into the work being done with the Creative Styles Study at Buffalo State and eventually led to the development of *VIEW: An Assessment of Problem Solving Style* (Selby, Treffinger, Isaksen, & Lauer, 2002, 2004).

Don was skilled at finding doctoral students and others that he came in contact with and bringing them into his work. Before, I knew it, I was assisting Don at a weeklong CPS institute at Fordham University in New York City. There I met John Houtz and began life as an adjunct professor in Fordham's Graduate School of Education. I continued to work with CCL, by then located in Sarasota, Florida, and in 2000 we were contracted by the Florida Department of Education to research an effective approach to identify potential creative talent for gifted programs in the state. We drew on Don's Purdue work with John Feldhusen. We also looked at every published and unpublished assessment we could find. We explored the many definitions of creativity, both big and little "C." We recommended a battery of tests designed to look at an individual's personal characteristics, behaviors and preferences, using self-reports and judges' ratings, and including tests of students' real achievements.

The state then asked if we could come up with a test that would provide one unquestionable score that would identify a student as creative. Our answer was that no single test could do that reliably, validly, and ethically. Somewhat expectedly, Florida then decided to take a different approach, but left CCL with a tremendous amount of good research. So, Don reached out to Joseph Renzulli and the National Research Center on the Gifted and Talented. The result was *Assessing Creativity: A Guide for Educators* (Treffinger, Young, Selby, & Shepardson, 2002).

My interest in helping my students develop their unique creative potentials was intensified. We had been playing with various informal tools that could help students identify their problem solving styles and then apply this knowledge to the CPS process. I served as a reader for a doctoral committee that used the KAI. Its findings and the work we had been doing led me to try again to build an informal instrument to use with my students. Don was happy to join me and eventually we saw the need to invite Scott Isaksen and Ken Lauer into the effort. As mentioned above, *VIEW: An Assessment of Problem Solving Style* was born (Selby, Treffinger, Isaksen, & Lauer, 2002, 2004; Treffinger, Isaksen, & Selby 2014).

Throughout his career, Don sought to put theory and solid research into practice. Just having an instrument was not enough. Next came a long effort to support it with solid research (Crerar, Maghan, Matos-Elfonte, & Houtz, 2011-12; Esposito, Roehm, Treffinger, Selby, Isaksen, & Lauer, 2004; Houtz & Selby, 2014; Johnson, Jackson, Selby, & Houtz, 2014; McCoy, Selby, & Houtz, 2014). While we were happy with the successful applications that were occurring in the field, our deeper understanding of style also im-

pacted our own work together, especially when it involved Scott Isaksen. We already were used to working with Don's Task-like approach to every challenge. But both Don and Scott were External Explorers, while I was an Internal Developer. I would sit, listen, and process long conversations between my two colleagues. After a time, one of them would stop their dialogue and ask me what I was thinking. At other times, I would stop them, and checking my notes, bring them back to a point they had discussed earlier. I would give them my take on that earlier idea, and the three of us would continue the conversation on that point. For many Explorers deadlines are often suggestions, for many Developers, like me, they are organizational tools. Both Scott and Don knew that tasks without deadlines went to the bottom of my to-do list. We always ended with my having clear deadlines for my contributions to the work.

At the same time, other work of the Center continued. The "Standards Movement" was sweeping the nation and many started to argue that creativity was in some way antithetical to standards-based education. Others could not see how we could financially support standardized instruction and teach creative thinking at the same time. Don put us to work on building a series of lessons for each major area of the curriculum, demonstrating how teachers could encourage creative and critical thinking while pursuing standards-based instruction. The result was *Thinking with Standards* (Treffinger, et al., 2003). In order to better support the teaching of productive thinking in classrooms and team-training settings, we produced *The Creative Problem Solving Kit* two years later (Treffinger, et al., 2005).

The CCL approach blended our experiences in many fields to take advantage of our shared understandings of style, CPS, gifted education, differentiation of instruction, and leadership. The effort to draw from the field experience of colleagues was evident throughout Don's career. The purpose always was to develop programs that could be used in any school. The *Levels of Service* program (Treffinger, Young, Nassab, & Wittig, 2004) for talent identification and development embodied this approach (Treffinger, Selby, & Isaksen, 2008; Treffinger, et al., 2008).

Don was always looking for ways to integrate his various activities. He attended a youth symphony concert in Sarasota and thought it would be a good thing to investigate the experiences of these highly talented students. The result was an article in *Parenting for High Potential* (Selby & Young, 2001, 2003) that explained how students from different backgrounds ultimately had many shared experiences that drove them towards the realization of their talents.

Our work with Future Problem Solving and Destination Imagination gave Don opportunities to put research on CPS and style into action. We expanded our research on the efficacy of the training and the use of creativity tools. Our team traveled coast to coast, and to both Europe and Asia. Our work, especially VIEW, has been translated into multiple languages. In 2011 Don, Pat Schoonover, and I began thinking about a text that would be a synthesis of our research. Don visualized a comprehensive guide for educators at all levels, a text that would be of value in any classroom where desired outcomes included helping students increase their creative potential. *Educating for Creativity & Innovation* (Treffinger, Schoonover, & Selby, 2013) was the

result. It was the last major work that we produced together. Don was extremely pleased that it was co-published by Prufrock and the National Association for Gifted Children.

Our team, with Don in the lead made many connections over the years, but the impact of Don's work reached many individuals and programs of which we were unaware. For example, several years ago, we got a call from the head of the gifted and talented programs offered at U.S. military base schools in Europe. They had adopted the LoS model and wanted to know if they were doing it correctly. After reading our books they had become excited by the idea of tailoring programming to individual strengths and needs. We learned they had been able to successfully implement the approach without much of our coaching.

Don drove our team to create. He often quoted a student who once exclaimed "creativity is hard work, but it's fun hard work." He encouraged us to take our ideas and his to better help students learn and apply the CPS process and tools. He wanted people's "hard work" to be both fun and productive, building on strengths, overcoming limitations, realizing positive potentials.

Marianne Solomon, Past Executive Director, Future Problem Solving Program International

For many years, Don Treffinger was deeply involved as a volunteer and consultant in Future Problem Solving Program International (FPSPi). He was a resource, mentor, and friend to me and many others in the program. Don was a guiding voice among our Community Problem Solving (CmPS) evaluators, providing evaluations of student projects which were both supportive and instructive. He had the ability to make students feel comfortable, while providing them with powerful and on-target feedback. He was a frequent guest speaker on creativity and the value of the problem solving process at both state conferences and the FPS International Conference. He led multiple sessions with students and directors on their personal problem solving styles using the VIEW assessment. FPS staff and colleagues were included in annual VIEW workshops and conferences. Through Don's leadership, CPS thinking tools became an essential part of our FPS training.

Serving as a consultant and advisor, Don created or led several activities aimed at training students, coaches, affiliate directors, and me. I remember joining Don at a Burger King lunch where we created a new approach for the final evaluation of the Global Issues Problem Solving booklets. At that time, I was still serving as the Florida Affiliate Director. However, our work together eventually had an impact on the entire FPS program. In 2006 and 2007, he led a team to evaluate FPSPi, involving participation by our entire international community - directors, students, staff, and parents. The results were supportive of what we had been doing, but also, as expected, offered many suggestions to improve the FPS experience at all levels, including our FPS International Conference.

Ken McCluskey, University of Winnipeg

Along with a host of others in the gifted education domain, I've been immersed in Don Treffinger's work since my career as a school psychologist

began in the Lord Selkirk School Division (Selkirk, Manitoba) in the mid-'70s. Aside from reading his material on creative thinking, self-directed learning, and giftedness, my colleagues and I also attended a few of Don's sessions at NAGC over the years. We knew a fair amount about him, but he knew nothing of us.

That changed abruptly in late 1991 when we invited Don to deliver the keynote address and follow-up presentations at our Interlake Coordinators' Special Education Conference in Winnipeg. His sessions were scintillating as usual, and more importantly, he introduced us to a new book that was about to be published, *Creative Problem Solving: An Introduction* (Treffinger & Isaksen, 1992). We were intrigued; so much so that three special education administrators – Phil Baker from Interlake School Division, Seamus O'Hagan from Agassiz, and myself from Lord Selkirk – decided to head to Sarasota for formal CPS training in January (which, considering Winnipeg winters, seemed a creative thing to do).

It was quite an adventure for "Team Canada" as Don dubbed us. Fortuitously, John Feldhusen, Scott Isaksen, and Ruth Noller were in town at the time, and Don invited them to join in the fun. Almost instantaneously we went from being outsiders looking in on "gifted-land" to legitimate players in a vibrant world of creativity. Yes, it was fun, but also amazingly productive. Using CPS strategies, we zeroed in on a real-life problem that our districts had in common: How might we reclaim some of the talented, yet at-risk young people who had dropped out or been pushed out of the school system? In his inimitable fashion, Don encouraged us to stretch our thinking, to consider various points of view, and to develop a real-life program to address this tragic waste of talent capital and human potential we identified as lost prizes (McCluskey, Baker, O'Hagan, & Treffinger, 1995).

Don's work (and thanks to him, the efforts of Feldhusen, Isaksen, and Noller) laid the foundation for our eventual program. Using CPS, mentoring, and other strength-based interventions, we were able to nurture hitherto hidden talents of our "lost prizes," guiding them as they used a toolbox of problem-solving skills to get "unstuck" from negative patterns of behavior, and helping them make more reasoned educational, career, and life decisions (McCluskey & Treffinger, 2002). Had it not been for Don, we would not have been successful in helping many disengaged youths turn their lives around. That project was the beginning of a quarter-century-plus collaboration for us and many others in Manitoba who came to respect Don as a truly prodigious scholar and an amazingly caring, sharing person.

Let me inject some of my favorite Don memories into the mix:

- In 1996, while still with our respective school districts, Phil, Seamus, and I were asked by Annabelle Mays, Dean of Education, to partner with the University of Winnipeg (UW) to host what everyone hoped would be a memorable conference on gifted education. It was a big thing for all of us, but we weren't sure we could pull it off. We did know, however, that having Don Treffinger as the keynote would help. I phoned and made the request. Realizing the importance of the event for us, Don agreed and asked if we could use some help. I said, "Yes please." The next day, Don let me

know that Grover Young would be coming along as well to do some sessions on inventing. “Perfect,” said I. Then Don, almost as an afterthought, added, “Oh, and Rita Dunn, John Feldhusen, Scott Isaksen, and Joe Renzulli have signed on as well.” Needless to say, our initial Dream Quest Conference was a rousing success.

- Another event that stood out for me was the 2007 World Council for Gifted and Talented Children’s (WCGTC) Conference in Warwick, England. It was my first keynote for the World Council and my first major address using PowerPoint. I didn’t trust the technology. Aware of my trepidation, Don rehearsed with me and I still remember the supportive looks he and Judi directed my way during the session. At the next WCGTC Conference in Vancouver two years later, Don and I were asked to deliver a joint keynote. I was more sanguine that time around; my only concern was squeezing all my Lost Prizes content into half of our hour-long time allotment. Knowing my concern (and the importance for me of this on-Canadian-soil happening), Don generously did his piece in less than 20 minutes, leaving me plenty of time in the spotlight.
- The International Centre for Innovation in Education (ICIE) Conference in Paris in 2008 was a special joy. Taisir Yamin had invited Don and me to each give keynote addresses along with many other scholars in gifted education. The networking was constructive and enjoyable. Most memorable was the time Andrea and I got to spend with Don and Judi on a tour of the metropolis, including wonderful meals and just the right amount of wine. Over our farewell dinner in the City of Lights, I had what Roger Firestien called a BGO – a “blinding glimpse of the obvious.” My professional collaboration with Don, as wonderful as it had been, was nothing compared to the friendship that evolved from it.
- Another magical moment occurred in June 2009, when Don was awarded an honorary Doctor of Laws degree from the University of Winnipeg. It was a special ceremony with an abundance of pomp and circumstance, enthusiastic education graduates, and, as expected, a masterful convocation address by the honoree. The *pièce de résistance* came that evening when Don and Judi dined with the graduates of our Winnipeg Education Centre (WEC) Access Program. A diverse group from mostly Indigenous and other minority backgrounds, the WECies (as they called themselves) had been unjustly disenfranchised throughout most of their lives. Their talents had rarely been recognized, yet alone nurtured. In an effort to level the playing field somewhat, we created an Access stream at UW where marginalized people were given an opportunity to enter an education pro-

gram as mature students and go on to become teachers in their own right. Supports and course offerings included CPS, mentoring, service learning, expanding gifted education, and talent identification and development. Basically, it was a post-secondary version of Lost Prizes, and again Don's influence was evident throughout the program. Against all odds, the resilient WECies in the class of 2009 had persevered, overcome daunting obstacles, earned their B.Ed. degrees, and obtained positions in Manitoba schools. All of our Access graduates that year were quickly hired by principals who recognized their talents and achievements. The newly minted educators were pumped to meet the man whose books they had studied, the man who helped develop many of their Access courses. Don and Judi were deeply moved by these graduates. One by one they shared tear-jerking accounts of their arduous journeys from despair to productivity. They were proud of what they had accomplished; Don was proud of them, and Judi was visibly proud of Don.

Jim Crumel, Sarasota, Florida

I met Don and Judi when my wife Priscilla and I moved from New Jersey to Florida and joined First Congregational United Church of Christ in 2003. Don and Judi had long been members of the church, and Don had served in many church leadership roles. Don introduced me to VIEW and the Center for Creative Learning. He graciously gave me the opportunity to use my business background to collaborate on several Creative Problem Solving projects and to participate in the writing of several articles and short books, including an article in *Tempo* on leadership and team performance (Treffinger, Selby, Isaksen & Crumel, 2007; Treffinger, Crumel, & Selby, 2013).

As the Chair of the Church Council, Don would take the time to start each meeting with different exercises to get everyone's creative juices flowing. When I later assumed the role of Chair of the Church Council, Don led a committee to restructure the church leadership to improve communications. He then collaborated with me to introduce VIEW to the Church Council and to its committees to improve teamwork by having members understand and appreciate how different styles affect how people work together.

Robert Purifico, Former CEO & President, Destination Imagination, Inc.

I interacted with Don in many ways and many times, so it is hard to qualify and quantify our relationship both personally and professionally. I can tell you that each interaction was always full of learning and frequently lots of eating at the Salty Dog in Sarasota.

I vividly remember the first time Don and I met. Destination Imagination had just ended a massive legal battle for its own life and soul. Pat Schoonover suggested that I meet with Don in Sarasota in June, right after the 2000 Global Finals in Iowa. I had known of Don Treffinger but had never met

him. So, off to Sarasota I went for the first of many meetings, workshops, and working vacations in the Sarasota area.

The first encounter was with Don and Pat in a Holiday Inn conference room with windows looking over the beach. I remember sitting there looking out the windows at a gorgeous view of the Gulf as Don ran through an introduction to CCL, its goals and mission. Somewhere during the course of that meeting a genuine and meaningful professional and personal partnership developed. I saw Don as an important source of information to help build the Destination Imagination program as well as someone from whom I could be mentored and learn. Don was recognized by all as an authority in the field of creativity and problem solving, who would help us better understand and articulate what the creative problem solving process was and specifically what it involved in terms of methodology.

I remember getting into a conversation with Don about the Odyssey of the Mind program where I had previously been Executive Director. Don described a meeting he had once had with leaders of the program about “process,” but seemingly they were never able to articulate what that “process” was that drove participants in solving the problems presented to them. The methodology explained was simple kids were given problems to solve and they created wonderful solutions to them which were both astonishing and incredible. The ‘process’ was a mystery. Having been involved with OM since its beginning in all aspects of program development and administration, I had to admit to Don that I never contemplated what the process was either. All I knew was that I worked very hard, but philosophically and educationally, I did not know what the creative problem process was, and I certainly could not articulate it.

I decided that it would be to the best interests of Destination Imagination to hire Don as our educational consultant with the goal of helping us to articulate that very process. The result, *Building Creative Excellence* (Treffinger & Young, 2002), was developed jointly by our program and CCL. Upon its publication, I remember holding it up in front of the Association Directors at Global Finals and telling them if anyone asks about the creative problem solving process utilized in Destination Imagination, give them a copy of this book. Finally, we could articulate the process alongside our methodology. For me, that was an immense foundational beginning in the relationship between Don, our program, and hundreds (more like thousands, now) of educators.

Eventually, I would have all the administrative staff and board members travel to Sarasota to learn from Don about the application of his approach to our work with kids. We also set up workshops with educators who we would bring to Sarasota. I remember feeling comfortable and reassured by having someone of Don’s educational stature associated with Destination Imagination. I considered him not only a professional colleague and consultant, but also a mentor who would help me to move the program along educationally on an international scale. On a yearly basis, I began to ask Don to attend Global Finals as one of our VIPs to speak with others, including sponsors, and help them to understand who we were as an organization in the field of education.

Typically, Don asked what else he could do to help. The answer to that question was clear to me. Global Finals occurred around graduation time for many participating high school seniors. They would often have to give up their graduation experience so they could take part in Global Finals. With Don's help, we designed a special graduation ceremony for any senior who wished to take part. Don was a keynote speaker and this became a yearly event and what better way to impart his knowledge of the field of creativity to young minds. With our respective Caps and Gowns, the event became one of the highlights of Global Finals. It was no surprise that each year Don would deliver an inspiring talk to all those in attendance. He had a real way of speaking to people that they could relate to and find meaning in while frequently being funny. That was Don, and for all he was and for all his contributions in the field of creativity and problem solving, and most importantly for his friendship and guidance, I will remain forever grateful. Rest well my friend.

Susan Beth Purifico, Director of Program Development, We R 3C, Inc. Don Treffinger, Doctor Don as I called him, was among the handful of individuals who changed my life. He revealed to me a discipline to living that not only inspired me and caused me to be a better person but also enabled me to encourage others to be all they can be. Don was a serious yet full of humor. He was a proud husband, a lover of his children, grandchildren, and dogs. He was a buffet's best friend, a theater season ticket holder, and supporter of the local arts. He stood out in his field yet was as comfortable enjoying the company, conversation, and laughter of friends.

Dr. Don was always ready to help. During a Saturday "tools" workshop, I became enthusiastically involved in a discussion of focusing tools with the workshop participants. After experiencing ALoU, PCA and Evaluation Matrix, the question came up how else can options be weighed. I started explaining the CARTS tool on a whiteboard, drawing an Evaluation Matrix and labeling the columns with C, A, R, T, and S. Suddenly, I could not remember what the A represented. I quickly announced a ten-minute break! I did not have my books with me, but true to my training I started to think about other options I had to find the answer. I opened my cellphone contacts list about to call another trainer but I called Don instead. On a Saturday he answered, and I exhaled and blurted out: "Dr. Don, this is Susan Beth and I'm in the middle of a tools workshop and I can't remember what the A stands for in CARTS!" He laughed that hearty laugh of his and said, "Acceptance." Whew! Saved by my CPS angel once again!

I was not schooled in gifted education or creativity during my undergraduate or graduate years. Yet, Dr. Don graciously brought me in and nurtured me in learning about CPS, creative and critical thinking, and the ways in which one is creative. His belief in me as one who could use the tools of generating and focusing, and teach others how to do so as well, was praise for which I remain humbled. For him to tell me I took to creative problem solving like a duck to water made me want only to paddle harder, swim farther, and fly higher. I was honored to collaborate with Don and the CCL team on several training and educational publications including *Successful Creative*

Problem Solving Teams (Treffinger & Purifico, 2004) written for the Destination Imagination program.

In 2004, Don invited me to accompany him to Virginia Beach Schools as his workshop assistant. Unlike many professional trainings that I have witnessed, the educators who attended this workshop hung on his every word, wrote everything down that he explained, and brought their textbooks with them to ask for his signature. They stood in line just for a handshake and stayed after sessions in hopes of a private conversation. I knew Dr. Don was “famous” and I knew he was a guru in gifted education and creativity, but that first road trip solidified my appreciation for the many hours I had spent learning from him. He was my mentor and he was my friend.

Laurie Bassin Abeel, University of Mary Washington, Department of Defense Education Activity

I knew Don Treffinger through my volunteer work with the National Association for the Gifted and Destination Imagination. Don’s reputation as a leader in both organizations was well established. His brilliance, kindness, and energy were easily recognized by any who came in contact with him. When Don invited me to join the CCL team in 2010, I didn’t hesitate to accept. What resulted was an experience that truly impacted my teaching and professional practice.

Learning how to use VIEW and then working with other teachers was a turning point for me. It literally changed how I teach. I became more aware that my students were not all like me, and I needed to make sure I differentiated to include more structure for my Developers. [Readers are advised to familiarize themselves with the Explorer and Developer styles of the Orientation to Change dimension of VIEW in Treffinger et al., 2002, 2004] Apparently, most of my classes were filled with Developers and as a very well-developed Explorer, I drove them crazy with the open-endedness of assignments.

Working with Don and CCL was a joy. We absorbed Don’s passion for creativity, gifted education, and talent development, passion that was infused into each of our projects. Don was interested in each member of our team, professionally and personally; this was clear both in our working sessions and our down time at lunch and dinner.

I traveled twice to Singapore with the CCL team to work with the staff of the Raffles Girls School. Our presentations were planned to allow us to cover the content while considering the unique needs of the school and the individuals involved in the training. Team members were assigned tasks that would tap into our expertise and move the agenda along. I was gratified to be able to contribute my own research that was presented on my second trip. This was typical of Don’s approach. Each member of our team was valued, and our work was honored.

Donald J. Treffinger: A “Driver Life” Summarized

Students, colleagues, and friends to Donald John Treffinger have praised his dedication to and pursuit of improved creative problem solving. Don was teacher, professor, author, editor, and program director. Don was critical

thinker, empiricist, and researcher. He was a learner from a legacy of older, prior creativities and a mentor to new generations. These aspects of Don's life are well-documented with books, journal articles, national and international presentations, and with honors and awards from numerous professional societies. Don added new instruments to creativity assessment and new variables to creative problem solving theory, process, and action. The more than 50 years of his creativity career extended to schools, the business world, and to the community at large.

As educator, Don promoted self-initiative and excellence, from the earliest design and delivery of his educational psychology courses to his leadership in the evolution of the CPS model (Isaksen, Dorval & Treffinger, 2011). CPS v. 6.1TM now involves explicit development of generating and focusing tools and understanding of their benefits as well as limitations. CPS includes a Levels of Service ("one size does not fit all") approach to instruction (Treffinger, Young, Nassab, & Wittig, 2004) along with the recognition of different problem solving styles ("how are you creative"). Don's decades-long service through Destination Imagination and Future Problem Solving has improved the creative capacities of thousands of young - as well as older but still "youthful" - thinkers worldwide. As researcher, through the Center for Creative Learning, Inc., and its publications, conferences, courses, and networking, Don enabled hundreds of colleagues to add to their own research skills and to the literature about the positive effects of creative learning across the full spectrum of general ability and talent, backgrounds and contexts.

Don also was a family man and a man of faith. Perhaps more than his academic achievement, the characterization of Don as creativity "driver" comes from Don's more personal dimension. It is well-established in personality literature that creative individuals exhibit seemingly opposite behavioral traits as they engage in creative thinking (Treffinger, Schoonover, & Selby, 2013). For example, they are open to new ideas but equally independent of mind, impatient, and dogged in pursuit of ideas to which they are committed. In his work, Don often seemed impatient, but he was never too hurried to listen to others. He always took time with those who struggled. He pushed for more ideas but recognized and welcomed criticism that took ideas "deeper" (like Paul Torrance) into the creative process. While Don's style as "Explorer" was dominant, he knew he needed and sought "Developers" to move ideas forward. For Don, the creative process was part of his being, both realized and likely still progressing.

Creative process literature also includes observations of very high energy and focus as well as quiet incubation and apparent pause and rest. To his students and colleagues, Don always appeared restless and high-energy. There was also reflection, incubation, a sustaining "calmness" surmised by colleagues but perhaps only seen directly by his wife Judi, his family and closest friends. Don's life also included leadership roles in his church. His life-long involvement in the community of faith was a most-satisfactory and essential source of guidance, rest, and inner strength that enabled Don to be a "driver" in his professional career. Perhaps seeking answers through faith to difficult questions is very much akin to traveling on difficult roads and toward corners we cannot yet see around. Despite health challenges in recent years, Don still was engaged in ideas about creativity. Unhappily, his lovely

wife Judi passed away less than a year before Don's own death. Possibly Judi's passing was the one "corner" Don preferred not to see beyond.

The beginning of Don's creativity presentations always included examples how quickly our everyday lives have changed, by nature, chance, or deliberate innovation. Quite often, he pointed out that many of us never saw 'whatever it was' coming, that change was an inevitable part of life. There always are challenges or roads ahead without signage. However risky or dangerous the effort, there are individuals who will plan, plow, and pave new roads. We know now there are ways we can aid all problem solvers (whether "Big C" or "little c" challenges) as they travel those roads. With due recognition to all those who "traveled" before or along with Don, it is safe to say that while he was with us Donald Treffinger was one of the steadiest "drivers."

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YouTube Video Resources

1. Keynote presentation in Paris, July 2008, about Creative Problem Solving for the ICIE annual convention. His talk describes 50 years of the evolution of the CPS approach and current research, development, and education activities at the Center for Creative Learning.
2. Don Treffinger from the Center for Creative Learning speaks with Andi Stix, founder of Synergy Westchester. Donald discusses creative thinking as it applies to Game Making. The Synergy Gifted Facebook page is running a national competition for gifted youth on game design (January 27, 2012)
3. NAGC/PHP by Laurie Abeel and the World Gifted Council by Julia Link Roberts.

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CHAPTER THIRTY NINE

MICHAEL WALLACH AND NATHAN KOGAN: INDELIBLE CONTRIBUTIONS TO GENERATIONAL UNDERSTANDINGS OF CREATIVITY TESTS

JAMES OGUNLEYE

ABSTRACT: The contributions of Michael Wallach and Nathan Kogan to creativity research are indelible. The two very eminent research psychologists responded uniquely to J.P. Guilford's 'call for action' for research into creativity and 'operationalised' his ideas about divergent thinking as noted below by James Kaufman. Wallach and Kogan were both alumni of Harvard University where they met and hatched out their collaboration. Their research collaboration on childhood creativity and intelligence birthed one of the most widely used instruments for measuring creativity – the Wallach-Kogan Creativity Test, from which an e-version was adapted, launched and administered in Hong Kong in 2004. This brief chapter celebrates Michael Wallach and Nathan Kogan, provides brief biographical notes on some of their scholarly accomplishments, and introduces their contributions to creativity - especially creativity assessment.

Keywords: Michael Wallach, Nathan Kogan, creativity, intelligence, creativity assessment, contributions

Biographies

Michael A. Wallach (8 April 1933 – 16 January 2020)

Michael Wallach was the younger and first author of the Wallach-Kogan Creativity Test (WKCT) fame. He was a research psychologist of note with interests in, amongst others, creativity in childhood, risk-taking and creativity and intelligence. Wallach was born in Manhattan, New York, United States, on 8 April 1933. Following his secondary education at the Columbia Grammar School, the oldest non-sectarian independent secondary school in New York, he proceeded to Swarthmore College, Pennsylvania, USA, to study psychology and earned a bachelor's degree 'with highest honors' in 1954 (see Stickler,



2014, p. 551). Wallach then proceeded to Harvard University graduate school from where he earned a doctorate in psychology in 1958. Wallach stayed on at Harvard, from 1958 to 1959, where he worked as an instructor. He was an assistant professor of psychology at Massachusetts Institute of Technology, MIT (1959-1962), associate professor of psychology at Duke University, North Carolina, USA (1962-66), and full professor at Duke University (1966-1972). After a year stint as William S. Gray Professor at the University of Chicago, USA (1972-1973), Wallach returned to Duke until his retirement in 2004. The same year, 2004, he was made professor emeritus of psychological and brain sciences until his passing on 16 January 2020. For nine years, 1963-72, Wallach edited the *Journal of Personality*; also for nine years, 1989-2008, he was Series Editor, *SUNY Series on Alternatives in Psychology*, State University of New York Press. Wallach was a fellow of 5 divisions of the American Psychological Association: *General Psychology*, *Experimental Psychology*, *Personality and Social Psychology*, *Psychology of Aesthetics, Creativity and the Arts*, and *Educational Psychology*. He authored or co-authored over 120 papers and 9 books.

Nathan Kogan (2 May 1926–28 April 2013)

Nathan Kogan's contribution to creativity research is legendary. Indeed, he was a leader who helped establish the field itself. With Michael Wallach, Nat operationalized many of J. P. Guilford's ideas about divergent thinking and developed many of the most popular creativity tasks used to this day. He also conducted groundbreaking research on how creativity is related to other constructs, such as intelligence and personality; this work remains some of the most cited scholarship in the field of creativity.

- James C. Kaufman (2014)

Nathan Kogan was the older and second author of the Wallach-Kogan Creativity Test (WKCT) fame. Like Wallach, he was a noted research psychologist with interests in cognitive, personality, developmental and evolutionary psychology among others. Kogan was born in Bethlehem, Pennsylvania, United States, on 2 May 1926. He worked in the small family business, selling and repairing jewelry; later, he attended Lehigh University also in Bethlehem, Pennsylvania, where he earned a bachelor's degree in 1948. Kogan proceeded to Harvard University, where he received his doctorate in psychology in 1954. He stayed on at Harvard for his post-doctorate from where he and Wallach met, and commenced his collaboration with Wallach. From 1959 to 1967, and from 2006 until his death, he served as head of the personality and social



behaviour research group and senior adviser on psychological research respectively at the Educational Testing Service, New Jersey, USA (see also Stricker, 2014). Following a sabbatical in Paris, France, from 1967-1969, Kogan joined the New School for Social Research, New York, USA, in fall 1969 as a professor and chair of the department of psychology in the Graduate Faculty. He remained a full professor until his retirement in 2006, when he was made emeritus professor of psychology. Like Wallach, Kogan was a fellow of the American Psychological Association with fellowship in seven divisions including the *Psychology of Aesthetics, Creativity and the Arts* (division 10). He served as the president of the Division 10 twice in 1980-1981, and 1989-90; he received *Farnsworth Award* for the ‘outstanding service to Division 10 of the APA’ in 2010, and the Sir Francis Galton Award for Outstanding Contribution to the Study of Creativity in 2002. Kogan held visiting professorships in several universities including Princeton, USA; Melbourne, Australia; Konstanz, Germany and the London School Economics, UK. He authored or co-authored of over 100 publications including journal papers, 5 books and chapters.

The Wallach and Kogan Creativity Measure

The need for creativity assessment was explicit in Guilford’s (1950) American Psychological Association presidential lecture that challenged the psychology community to explore creativity research to improve empirical understanding. Guilford did not prescribe any particular methodology for creativity assessment but admitted that he could not think of any appropriate instruments that will not involve ‘completion tests of some kind’ (p.449). He went on to postulate testable hypotheses on individual differences, including tests for fluency, novel idea, verbal associations, flexibility, and complexity that can validly and reliably measure creativity.

Michael Wallach and Nathan Kogan took up the Guilford challenge and ‘operationalised’ much of his ideas (Kaufman, 2014) with the publication of the *Modes of thinking in young children: a study of the creativity-intelligence distinction* (1965). This highly influential book reported two pieces of research that aimed to:

determine whether solid evidence could be found that would support the validity of a distinction between intelligence and creativity as modes of cognitive activity, and second, if a distinction between these concepts could be given acceptable empirical support, to investigate the possible psychological correlates of individual differences in creativity and intelligence when variations along these two dimensions were considered jointly.

The Modes of thinking in young children: a study of the creativity-intelligence distinction gave birth to the Wallach-Kogan Creativity Test, one of the widely-used instruments for measuring creativity (Villalba, 2008; Cropely, 2015; Bayliss, 2016) particularly within the category of divergent thinking. The Wallach-Kogan Creativity Test is ranked second only to the Torrance Tests of Creative Thinking, the most widely used and ‘longest-

running' (Houtz & Krug 1995; Kim 2006; Kaufman, Plucker & Russell, 2012, p. 62), and Guilford's Alternative Uses Task.

Together, the Torrance Tests of Creative Thinking, the Wallach-Kogan Creativity Test, and Guilford's Alternative Uses Task are particularly widely used to assess the creativity of primary schoolchildren.

Revisiting Wallach-Kogan Creativity Test

The limitations of conventional intelligence tests have long been suspected, but attempts to demonstrate those limitations empirically have not been easy to come by... Also, the purported measures of creativity had been administered under test-like conditions, whereas exercise of creativity calls for more relaxed, game-like circumstances. [We] showed: (1) Tasks could be defined which, on their face, looked relevant to creativity— tasks concerning the readiness of a person's flow of ideas and the uniqueness of the ideas produced. (2) These tasks could be administered under relaxed, game-like conditions. (3) Productivity and uniqueness of ideas, assessed under game-like circumstances, not only was consistent across different kinds of tasks, but virtually unpredictable from results on intelligence tests.

– Wallach & Kogan (1965, p.357)

The idea behind the Wallach-Kogan Creativity Test was traceable to Sarnoff Mednick's associative theory of creativity in which Mednick defined creative thinking as 'the forming of associative elements into new combinations which either meet specified requirements or are in some way useful... The more mutually remote the elements of the new combination, the more creative the process or solution' (Mednick, 1962, p.221). Divergent thinking 'often leads to originality, and originality is the central feature of creativity' (Runco & Acar, 2012, p.67).

A major appeal of the Wallach-Kogan Creativity Test lies in its 'game-sense approach' to assessing children's creativity (see also Cropley, 2000). Fundamentally, Wallach and Kogan believed that a game-like setting, relaxed atmosphere and conditions, and the absence of time limit – or less standardised testing procedures – are conducive for creative performance and output. This is particularly important given the well-established relationship between creative thinking and creative performance (Milgram & Milgram, 1976); and given that test tension, on the part of examinees, could 'mitigate' against creative performance, while scoring could be at the whims and caprices of the scorers (Child, 1993), and their predispositions (Jones, 1972; Foster, 1970).

The Wallach-Kogan Creativity Test is a battery of tests designed specifically for use with children to assess verbal and visual content. It comprises three verbal subsets and two ambiguous figural stimuli subsets. The latter are alternative uses and similarities – the most widely used being the alternative uses (Cropley, 2015); the former are pattern meanings and line

meanings. In applying the alternative uses, for example, schoolchildren were given open-ended activities and asked to come up with many possible common items that were in a general group – for example in the instances subsets, children were asked to name ‘all the round things they can think of’, or to generate possible similarities uses or unusual uses for common items such as a newspaper, shoe, key or tire, or to record ‘anything that moves on a wheel’ from a given list of responses such as a truck, a train, a car, or a lorry. The test is scored using four specific creativity indexes – fluency, flexibility, originality (uniqueness) and elaboration. Fluency of thinking measures the ease with which an individual uses and stores information and the speed with which s/he sums up ideas (Child, 1993). Flexibility measures the variety of responses; and, originality measures rare, original or infrequent responses given by the examinees (also see Acar & Runco, 2014). Elaboration is ‘suggested when the individual follows an associative pathway for some distance’ (Runco & Acar, 2012, p.67).

In the Wallach-Kogan Creativity Test, fluency was calculated by the number of responses; for flexibility, the number of different categories was calculated; for originality, responses were aggregated with each response compared with the total aggregate – higher total scores in a group indicates an aptitude for original thinking. Elaboration were assessed based on the amount of detail from no elaboration to elaboration.

Although the Wallach and Kogan battery is simple to administer, accurate rating of indices like elaboration can be challenging (Cramond et al., 2005) – hence some level of training on the use of the instrument may be needed to satisfactorily score or rate elaboration.

Reliability and Validity of the Wallach-Kogan Creativity Test

Wallach and Kogan set out to achieve two primary goals in their creativity measures. The first was to show a high degree of reciprocal relationship between the verbal and visual indices under measurement, and the second was to show comparably low degree of relationship with IQ scores. Using these two goals as the yardsticks, the Wallach-Kogan Creativity Test was fit for purpose.

Susan Crockenberg’s (1972) extensive review of selected creativity tests explained the discriminant validity of the Wallach-Kogan Creativity Test:

The ten creativity indices are strongly intercorrelated. Of the 45 correlations, 43 are significant beyond the .05 level, 41 beyond the .01 level. An item analysis to determine the extent to which every item is contributing to the score provided by the sum of all items indicated that all item-sum correlations were .40 or better; 71 of 78 were .60 or better. In addition, the verbal and visual indices were also highly intercorrelated, although less highly than verbal or visual measures were within themselves. Thus, whatever the battery measures appears to be a fairly unitary phenomenon.

– Crockenberg (1972, p.37)

Indeed, studies have supported the validity and reliability of the Wallach-Kogan Creativity Test over the decades. Without going down the list, a few examples will suffice. Three years after the publication of the *Modes of thinking in young children*, Cropley's (1968) research report of the administration of the Wallach-Kogan Creativity Test to 124 university students in Australia supported the validity of the battery; the results showed a 'high degree of internal consistency and relative independence of intelligence tests' (p.197). Similarly, Cropley & Maslany's (1969) administration of the Wallach-Kogan Creativity Test to 207 undergraduate students in Canada reported high reliability of the Wallach and Kogan battery. The results showed that the five creativity test-items under examinations not only 'clustered strongly among themselves', but also 'correlated poorly with the intelligence tests' (p. 395).

Crockenberg's (1972) selection of the Wallach-Kogan Creativity Test along with the Torrance Tests of Creative Thinking were, partly, because 'each has generated considerable evidence related to questions of reliability and validity; and each has been recommended for educational use' (p.28). Similarly, an investigation of the construct validity of the Wallach and Kogan Battery by Wallbrown, Wallbrown, & Wherry (1975) 'provided considerable support for W-K's theoretical foundations' (p. 83). Also, Milgram and Hong's (1993) investigation into the predictive validity of the Wallach-Kogan Creativity Test 'utilizing data collected over 18 years and found that these tests were better predictors of adult life accomplishment than intelligence or school grades' (p.135). More recent work by a plethora of authors including Rákóczi & Sztó (2021), Şahin & Lee (2016), Silvia (2008), and Griffith & Clark (1981) provided support for the Wallach and Kogan battery.

The development and administration of the e-version of the Wallach-Kogan Creativity Test was another measure of its reliability and validity (Cheung, et al., 2004), wide application and popularity. The latter adaptation was also a response to the increasingly use of computerised creativity tests (Palaniappan, 2012) or online assessment which became popular during the Covid-19 global pandemic. Lau & Cheung's (2010) administration of e-version of Wallach-Kogan Creativity Test alongside the print version to a sample of 4th Grade Chinese students to examine the comparability of both versions produced no surprises. The results showed that 'the two versions generated similar patterns of reliability coefficients and inter-correlation coefficients for the eight creativity measures (verbal and figural fluency, flexibility, uniqueness, and unusualness)' (p. 101).

Creativity and intelligence

Creativity and intelligence are two constructs that have been subjects of intense investigations and discussions among psychologists and educationalists over the decades. Guilford himself talked extensively about this in his APA 'call for action' lecture and spent much of his career exploring human intelligence – see Guilford (1950, 1967, 1987). As previously stated, the second goal of the Wallach and Kogan battery was to show poor correlation between creativity and intelligence when tests are administered under relaxed, untimed game-like conditions. The finding by Wallach and Kogan that creativity and

intelligence were distinguishable under the conditions in question was not only significant, but also against the prevailing ‘skepticism’ at the time (Stricker, 2014, p. 551). Subsequent findings by Cropley (1968), Ward (1968), and Cropley & Maslany (1969) supported poor association between creativity and intelligence.

However, forty three years after the publication of the *Modes of thinking in young children*, Paul Silva’s reanalysis of its original data using latent variable analysis found that ‘the latent originality and fluency significantly predicted intelligence’ (Silva, 2008, p. 34), suggesting that creativity and intelligence were more highly correlated than Wallach and Kogan studies showed.

Some criticisms of the Wallach-Kogan Creativity Test

The very essence of what Wallach and Kogan considered as an innovative approach to creativity assessment – less-standardised testing procedures such as emphases on relaxed and game-like atmospheres and untimed test conditions – were the basis of the criticisms of the battery. Seven years after the publication of the *Modes of Thinking Young Children*, John Hattie’s (1977) investigation into the ‘conditions for administering creativity tests’ found ‘little evidence against using timed test-like conditions as the norm for administering creativity tests’ (p.1249). Similarly, Hattie’s (1980) comparative investigation into the conditions for administering creativity for tests found that ‘conventional test-like condition seems optimal’ (p.87).

Creativity-intelligence testing procedures have moved with time as the Wallach-Kogan Creativity Test is routinely administered under timed conditions.

Conclusion

This chapter barely scratched the surface of the contributions of Michael Wallach and Nathan Kogan to creativity. The duo’s creativity assessment instrument – the Wallach-Kogan Creativity Test – remains influential and widely used in measuring creativity to this day.

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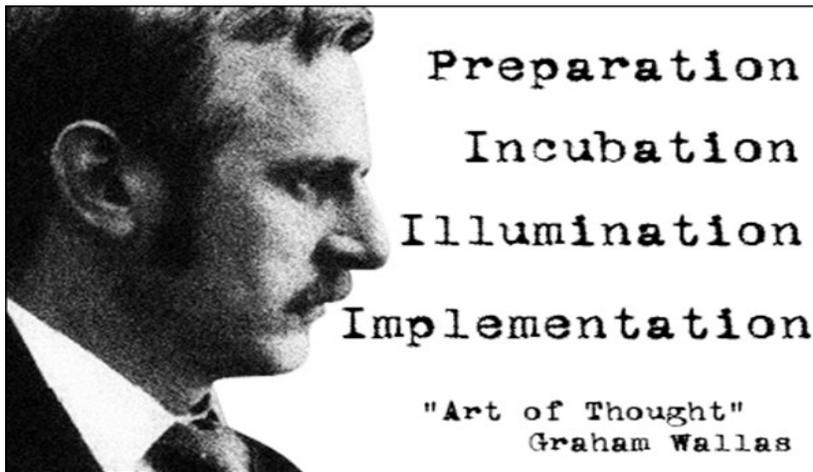
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CHAPTER FORTY

GRAHAM WALLAS: A GIANT STANDING ON GIANTS

FREDRICKA REISMAN

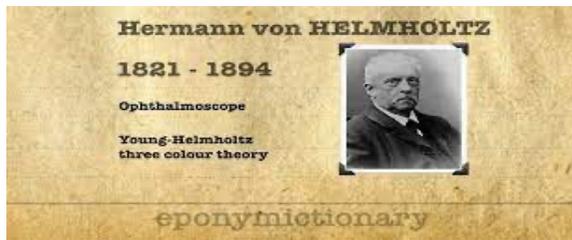
Graham Wallas was born in North East England in 1858 and died in 1932 at age 74. He married Ada Radford in 1897 and they had one daughter, May. He was educated initially at a school established by King Edward VI in 1552. Wallas held several teaching roles and was a co-founder of the London School of Economics. He also was politically active and was described as an English socialist, social psychologist, educationalist, and leader of the Fabian Society. The Fabians lobbied for the introduction of a minimum wage in 1906 (ranging from a high in Australia of \$12.59 to a low in Mexico of \$1.21 and middle ground for United States of \$7.25), for the creation of a universal health care system in 1911, for the abolition of hereditary peerages in 1917, and advocated for women's emancipation including supporting suffrage movements in Britain and internationally (Crawford, 1999). Pictured next is Wallas and components of his theory.



In his classic book entitled *The Art of Thought* (1926), Wallas mined ideas from the writings of Aristotle (p.63 of *The Art of Thought*), James (p.97), Dewey (p.98), Wundt (p.98), and Freud (in Varendonck, p.67). Wallas's model of creative thinking is particularly rooted in the ideas of Helmholtz and Poincaré. For example, Wallas selected this short excerpt from

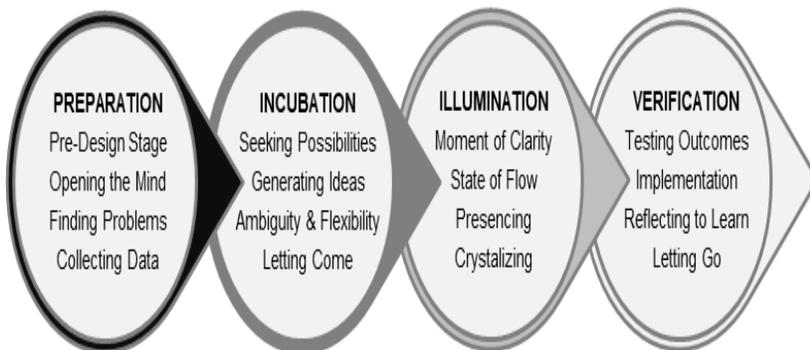
Helmholtz's 70th birthday banquet speech on November 2, 1891 in which Helmholtz described how his most important new thoughts came to him:

[Following] previous investigation of the problem in all directions...happy ideas come unexpectedly without effort, like an inspiration. So far as I am concerned, they have never come to me when my mind was fatigued, or when I was at my working table...they came particularly readily during the slow ascent of wooded hills on a sunny day" (Helmholtz quoted in Wallas, 1926, p.80; cited by Wallas from Rigano, 1923, p.267-268). Helmholtz is pictured below.



The baseline assumption in Wallas's writings is that "creative thinking can be delineated" and this led him to a "four-stage description of the creative process" (Runco, 2014: p.21). From Poincaré's writings, Wallas focused on developing the *incubation* stage of his 4-stage model of creativity, which are preparation, incubation, illumination, and verification.^[1] These stages are described next and depicted graphically in Figure 37.1.

Figure 1: Graphic Representation of Wallas's Four Stages of the Creative Thinking



Source: David Sledge Dissertation entitled Collaboration, Dialogue, and Creativity as Instructional Strategies for Accredited Architectural Education Programs: A Mixed Methods Exploratory Investigation-A Dissertation Submitted to the Faculty of Drexel University by David C. Sledge in partial fulfillment of the requirements for the degree of Doctor of Education (July 2021).

Preparation Stage

During the Preparation stage, the problem is investigated from all angles and includes the accumulation of information out of which emerge new ideas. The mode of thought in Preparation is conscious, voluntary, and regulated (Wallas, 1926, p.85). Wallas included logic, mathematics, experimental and observational sciences in Preparation.

Incubation Stage

The next stage involves unconscious processing where one is unaware that cognitive activity is going on. Wallas discussed this stage as having two aspects – positive and negative. The positive side involves a series of unconscious, involuntary cognitive events taking place. The negative side pointed out that during the Incubation stage we don't consciously deliberate on a particular problem. Wallas (1926) writes:

Voluntary abstention from conscious thought on any problem may, itself, take two forms: the period of abstention may be spent either in conscious mental work on other problems, or in a relaxation from all conscious mental work. The first kind of Incubation economizes time and is therefore often the better.

Also defining Incubation, Ut Na S & Ormerod (2009) write:

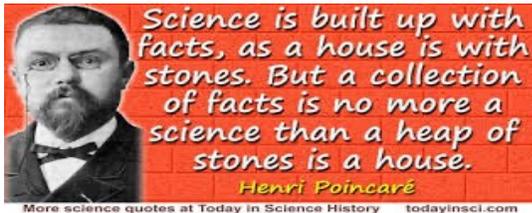
Incubation is defined as, when attending to a different task, humans forget about the previous unsuccessful attempts and can engage with the task anew, often leading to finding the solution. Incubation is related to intuition and insight in that it is the unconscious part of a process whereby an intuition may become validated as an insight. Incubation substantially increases the odds of solving a problem, and benefits from long incubation periods with low cognitive workloads. Incubation is related to intuition and insight in that it is the unconscious part of a process whereby an intuition may become validated as an insight. Incubation substantially increases the odds of solving a problem, and benefits from long incubation periods with low cognitive workloads (Ut Na S & Ormerod, 2009).

Illumination

Wallas found Poincaré's ideas on Illumination critical as Poincaré talks about the value of "procrastination," which is in fact a valuable part of ideation:

...that flash of insight that the conscious self can't will and the subliminal self can only welcome once all elements gathered during the Preparation stage have floated freely around during Incubation and are now ready to

click into an illuminating new formation. And Poincaré (pictured next) also says:



But, Wallas admonished that Illumination can't be forced:

If we so define the Illumination stage as to restrict it to this instantaneous "flash," it is obvious that we cannot influence it by a direct effort of will; because we can only bring our will to bear upon psychological events which last for an appreciable time. On the other hand, the final "flash," or "click" ... is the culmination of a successful train of association, which may have lasted for an appreciable time, and which has probably been preceded by a series of tentative and unsuccessful trains. The series of unsuccessful trains of association may last for periods varying from a few seconds to several hours.

Verification Stage

This last stage and the first (Preparation) are thought as the bookends of Wallas's theory as it shares with the Preparation stage a conscious and deliberate effort to test the validity of an idea. Once again borrowing from Poincaré's pioneering theories, Wallas cites Poincaré:

It never happens that unconscious work supplies *ready-made* the result of a lengthy calculation in which we only have to apply fixed rules... All that we can hope from these inspirations, which are the fruit of unconscious work, is to obtain points of departure for such calculations. As for the calculations themselves, they must be made in the second period of conscious work which follows the inspiration, and in which the results of the inspiration are verified and the consequences deduced. ... They demand discipline, attention, will, and consequently, conscious work ...(Poincaré, 1908)

Reflections on Wallas's 4 Stages

A most important aspect of Wallas's stages is their interplay and the fact that none of them exists in isolation from the rest. Wallas notes:

In the daily stream of thought these four different stages constantly overlap each other as we explore dif-

ferent problems. An economist reading a Blue Book, a physiologist watching an experiment, or a business man going through his morning's letters, may at the same time be "incubating" on a problem which he proposed to himself a few days ago, be accumulating knowledge in "preparation" for a second problem, and be "verifying" his conclusions on a third problem. Even in exploring the same problem, the mind may be unconsciously incubating on one aspect of it, while it is consciously employed in preparing for or verifying another aspect. And it must always be remembered that much very important thinking, done for instance by a poet exploring his own memories, or by a man trying to see clearly his emotional relation to his country or his party, resembles musical composition in that the stages leading to success are not very when success in thought means the creation of something felt to be beautiful and true rather than the solution of a prescribed problem, the four stages of Preparation, Incubation, Illumination, and the Verification of the final result can generally be distinguished from each other...when success in thought means the creation of something felt to be beautiful and true rather than the solution of a prescribed problem, the four stages of Preparation, Incubation, Illumination, and the Verification of the final result can generally be distinguished from each other (Sadler-Smith, 2015)..

Critique of Wallas's 4 Stages

An argument is that analysis of Wallas's four-stage model of the creative process (Preparation, Incubation, Illumination, Verification) suggests that a five-stage model is a better representation of his explanation of creativity. The five stages suggested are: Preparation, Incubation, Intimation, Illumination, and Verification (Sadler-Smith, 2015). It is argued that this 5-stage model accommodates more recent creativity research including neuroscience, imagination and intuition.

An additional suggestion for a 5-stage model comes from an eclectic group of instructors called the MasterClass involving Gordon Ramsey in cooking, Malcolm Gladwell who teaches writing, Robin Roberts who teaches effective and authentic communication, Ron Howard teaching Direction, Spike Lee and Martin Scorses who teach filmmaking, Helen Mirren and Samuel Jackson who teach acting, Steve Martin teaches comedy, Bob Woodward teaches investigative journalism, Itzhak Perlman who teaches violin and many more ([https://www. Mastclass.com/categories#film-tv](https://www.Mastclass.com/categories#film-tv)). The MasterClass version of the creative process is a 5-stage model is comprised of Preparation, Incubation, Illumination, Evaluation, and Verification.

But first, they say the following about the creative process:

“the evolution of an idea into its final form through a progression of thoughts and actions. The creative process involves critical thinking and problem-solving skills. From songwriters to television producers, creative individuals generally go through five steps to bring their ideas to fruition—Preparation, Incubation, Illumination, Evaluation, and Verification. These stages were first articulated by Graham Wallas, a social psychologist and co-founder of the London School of Economics who outlined the primary stages of the creative process in his 1926 book on creativity called *The Art of Thought*.”

The 5 Stages of the MasterClass Creative Process

The MasterClass staff write:

While all creative people apply unique methods and thought processes to their work, there are five stages that most creators subconsciously follow while pursuing their creative endeavors. The five stages of the creative process each flow logically into the next phase of the process. As you embark on your own creative process, unleash your mind and let your ideas grow through the five stages of creativity.

1. Preparation stage: As you begin the creative journey, the first stage involves prep work and idea generation. This is when you gather materials and conduct research that could spark an interesting idea. Brainstorm and let your mind wander, or write in a journal to foster divergent thinking; this will help you consider all possible approaches to building out your idea. In this first part of the process, your brain is using its memory bank to draw on knowledge and past experiences to generate original ideas.

2. Incubation stage: When you have finished actively thinking about your idea, the second stage is where you let it go. Part of creative thinking is taking a step away from your idea before you sit down to flesh it out. You might work on another project or take a break from the creative process altogether—regardless, you are not consciously trying to work on your idea. Walking away from your idea might seem counterproductive, but it’s an important stage of the process. During this time, your story or song or problem is incubating in the back of your mind.

3. Illumination stage: Sometimes called the insight stage, illumination is when the “aha” moment happens. The light bulb clicks on as spontaneous new connections are formed and all of that material you’ve gathered comes together to present the solution to your

problem. In this third stage, the answer to your creative quest strikes you. For example, you overcome writer's block by figuring out the ending to your story. It can take you by surprise but after the incubation stage, an idea has emerged.

4. Evaluation stage: During this stage, you consider the validity of your idea and weigh it against alternatives. This is also a time of reflection when you look back at your initial concept or problem to see if your solution aligns with your initial vision. Business professionals might do market research to test the viability of the idea. During this phase, you might go back to the drawing board or you might forge on, confident in what you've come up with.

5. Verification stage: This is the final stage of the creative process. It's when the hard work happens. Your creative product might be a physical object, an advertising campaign, a song, a novel, an architectural design—any item or object that you set out to create, propelled by that initial idea that popped into your head. Now, you finalize your design, bring your idea to life, and share it with the world.

Summary

In researching data regarding Graham Wallas's theory that he offered in his 1926 publication entitled *The Art of Thought*, his broad interests and accomplishments as a politician, philosopher, scholar, economist, educator, theorist, and more became apparent. Wallas borrowed insights of others and synthesized their ideas into a brilliant complex yet simple framework that is understandable and applicable. Wallas's gift to us is captured by the graphic designer Paula Scher as she likens Wallas's theory to the winning alignment of a slot machine, the same kind of "chance-opportunism" masquerading as serendipity that fuels much of scientific discovery (Scher, 2012).

Wallas's 1926 classic was published almost nine decades ago and is still widely referenced today. His work still serves as a "conceptual anchor" for many creativity researchers to name only a few (Orlet, 2008; Pagel & Kwiatkowski, 2003; Segal, 2004; Reisman & Severino, 2021, Reisman et al, contracted). Although some creativity researchers have proposed modifications (e.g. Cropley, D. & Cropley, A., 2012) most have held to the four-stage model.

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Graham Wallas

CHAPTER 41

GENERATIONS AHEAD OF HIS TIME—DAVID WECHSLER—THE INNOVATIVE PIONEER OF IQ ASSESSMENT

ALAN S. KAUFMAN

Dr. David Wechsler (1896-1981) has had a greater influence on intelligence testing than any other person in history. He pioneered the concept of clinical assessment and developed IQ tests that have stood the test of time and reigned supreme, not just in the United States, but throughout the world. He created a series of intelligence scales that became industry standards and underwent multiple revisions, beginning with the Wechsler-Bellevue (W-B; Wechsler, 1939), the Wechsler-Bellevue Form II (W-B II; Wechsler, 1946), the Wechsler Intelligence Scale for Children (WISC; Wechsler, 1949), the Wechsler Adult Intelligence Scale (WAIS; Wechsler, 1955), and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI; Wechsler, 1967). The Wechsler scales surpassed the Stanford-Binet Intelligence Scale (Terman, 1916; Terman & Merrill, 1937, 1960, 1973) in popularity sometime in the 1960s according to various test usage surveys. That was an exciting era in education, psychology, and medicine as the nascent learning disabilities movement came of age and the field of neuropsychology was born. As a consequence, clinicians demanded a *profile* of scores, not just the general ability factor *g*, for effective diagnosis. Wechsler's various scales have never looked back. Some test authors have tried to end that reign, starting in the 1980s, with theory-based tests (Elliott, 1990; Kaufman & Kaufman, 1983; Naglieri & Das, 1997; Woodcock & Johnson, 1989); others tried to reclaim the crown for the Stanford-Binet (Roid, 2003; Thorndike, Hagen, & Sattler, 1986). However, none have succeeded. In the 2020s, the descendants of the 1939 Wechsler-Bellevue, namely the Wechsler Intelligence Scale for Children—Fifth Edition (WISC-V; Wechsler, 2014) and the Wechsler Adult Intelligence Scale—Fourth Edition (WAIS-IV; Wechsler, 2008), continue to dominate the assessment scene in clinical psychology, school psychology, and neuropsychology.

I have written a previous biography of Dr. Wechsler (Kaufman, 2013), as have others, such as brilliant psychologist-historian John Wasserman (2018); and I have co-authored a biography with John (Wasserman & Kaufman, 2015). I have also written tributes to Dr. Wechsler a quarter century apart (Kaufman, 1992, 2016), as well as a layperson's book (Kaufman, 2009) in which I recount various memories and anecdotes about him, mostly based on my collaboration with him from 1970-74 during the development and standardization of the Wechsler Intelligence Scale for Children—Revised

(WISC-R; Wechsler, 1974). In the course of this biography of David Wechsler, I will quote liberally from all of these sources.

David Wechsler was born on January 12, 1896, in Lespedi, Romania. His early life was filled with strife (Wasserman & Kaufman, 2015):

Wechsler was the youngest of three boys and four girls born to Moses Wechsler, a merchant, and Leah (Pascal) Wechsler, a shopkeeper. The Wechsler family emigrated from a virulently anti-Semitic Romania to New York when David was 6 years of age, and he lost both parents to cancer within 5 years of his arrival. He was effectively raised by an older brother, a physician who would become his role model as a practicing clinician, academician, and author of scholarly professional texts (p. 1).

He died at age 85 in New York City on May 2, 1981. In an *American Psychologist* obituary, Joseph Matarazzo (1981) wrote about Wechsler, “Probably the work of no other psychologists, including Freud or Pavlov, has so directly impinged upon the lives of so many people” (p. 1542). Based on multiple indices of accomplishment, Wechsler has been identified as one of the 100 most eminent psychologists of the twentieth century (Haggblom et al., 2002).

Wechsler developed his expertise in the field of intelligence testing at about the same time that Lewis Terman (1916) updated and standardized Alfred Binet’s test for use in the United States:

His experiences just before, during, and after America’s entry into World War I paved the way for him to become the world’s leading expert in intelligence testing and clinical assessment. In 1917, working with testing pioneer Robert S. Woodworth at Columbia University, Wechsler earned his M.A. in experimental psychopathology on retention in Korsakoff’s psychosis; that same year he also worked under E. G. Boring, scoring army intelligence tests, as a civilian volunteer. After induction, while serving in the army’s psychology division in Fort Logan, Texas, Corporal Wechsler administered individual intelligence tests, including the Stanford-Binet, to recruits who could not be validly assessed by the army group tests (e.g., illiterates, suspected malingerers). In 1919, as an army student at the University of London, he worked closely with Karl Pearson (who developed the coefficient of correlation) and Charles Spearman (who promoted the theory of general intelligence or ‘g’). He then studied at the Sorbonne for 2 years, specializing in experimental and physiological psychology (Edwards, 1994). By the time he earned his Ph.D. in 1925, under Woodworth at Columbia (on the measurement of emotional reactions via the galvanic skin response), his meteoric career was already on the rise (Kaufman, 2013, pp. 1365-66).

As Wasserman (2018) reported: “Columbia was one of the few major universities that provided graduate experimental psychology training with a willingness to address applied problems, termed experimental abnormal psychology by Woodworth” (p. 28).

Further, Wasserman (2018) made the following insightful observations, echoing again Wechsler's difficult childhood and his wartime experiences:

In many ways, David Wechsler was an unexpected success—coming to the United States as a child amid a flood of Eastern European immigrants, losing both parents by the age of 10, compiling a relatively ordinary academic record in high school and college (while graduating early), . . . and not having become a naturalized citizen by the time of the war. Even so, these risk factors may have been somewhat ameliorated by the guidance of his accomplished older brother (pioneering neurologist Israel S. Wechsler, who became his caretaker and role model); the opportunity to provide military service as an army mental test examiner, thereby quickly learning about assessment and making key professional contacts; and by receiving his graduate education and professional psychology training at an opportune time and place in the development of what eventually would become 'clinical' psychology (p. 29).

And David Wechsler was, in many ways, a pioneer through his work bridging experimental and applied psychology (Kaufman, 2013):

In the mid-1920s, Wechsler was in the first wave of clinical psychologists, a breed of scientist-practitioners that represented a notable departure from the purely academic and experimental tradition of the American Psychological Association (APA). He was among the first to set up a private clinical practice and, in 1932, became Chief Psychologist at Bellevue Psychiatric Hospital, a post he held until 1967. Concurrently (1933–1967), he was a faculty member at New York University College of Medicine (p. 3366).

Further, an inner-directed Wechsler even analyzed himself (Wasserman, 2018):

After completing his fellowship at the Sorbonne, Wechsler traveled through France, Switzerland, and Italy, before reluctantly returning to the United States. . . . His ambivalence about returning, as disclosed to Edwards (1974), was reflected in his 1922 paper on the psychopathology of indecision (Wasserman, p. 31).

His intelligence scales represented a huge step forward in IQ testing:

French pioneer Alfred Binet developed the first intelligence test in 1905 (the Binet-Simon) and Stanford psychologist Lewis Terman translated and adapted Binet's work within the United States to produce the Stanford-Binet Intelligence Scale in 1916. However, it was American psychologist David Wechsler who dramatically, and permanently, changed the face of intelligence testing when he published the Wechsler-Bellevue (W-B), for ages 7–69 years, in 1939 (known in the literature as the W-B Form I because Form II was published in 1946) (Kaufman, 2013, p. 1366).

Some might question Wechsler's creativity in view of his life-long approach to test development, as described by Wasserman (2018): "For his master's thesis completed in 1917, Wechsler patched together a clinical memory battery from existing published and unpublished tests [,] . . . a pattern he was later to follow with intelligence tests" (pp. 29-30). However, Wechsler was indeed creative.

His test development contributions include the innovative decision to combine verbal and nonverbal skills to produce a truly global measure of intelligence. This inspiration was first sparked during wartime when he scored the group-administered Army Alpha and Army Beta—verbal and nonverbal tests, respectively (Yoakum & Yerkes, 1920). His insight in combining verbal with nonverbal tasks was innovative; previously nonverbal tests were considered valuable only for special populations such as individuals with a hearing loss and non-English speaking individuals. His creativity was in realizing that verbal and nonverbal tests should be used to measure the general intelligence of *everyone*. That decision, along with his clinical approach to the assessment of intelligence, rank among the greatest innovations in applied psychology during the twentieth century. In the words of psychometric guru Lee J. Cronbach (1958), "His scale represents the highest flowering of the pragmatic mental testing initiated early in this century, rather than a break into any new understanding of intellectual processes" (p. 1133).

Although he was a strong advocate for the value of intelligence testing, Wechsler openly acknowledged its limitations and tried to develop methods to measure the critical personal qualities that his pragmatic IQ tests did *not* measure:

One of the most significant limitations of intelligence tests, observed Wechsler, was that they fail to systematically capture the *non-intellective factors*, such as drive, persistence, and interest, that substantially influence test performance. Wechsler became convinced of the importance of non-intellective factors after recurrent findings that factor analyses of his intelligence tests never extracted more than 60–70% of the total variance, leading him to try (unsuccessfully) to develop tests for the remaining 30–40% (Wasserman & Kaufman, 2015, p. 3).

Despite the limitations inherent in what an IQ test can accurately assess, Wechsler consistently wanted to go beyond the numbers and interpret test profiles within a rich clinical context. He transformed IQ testing with his emphasis on assessing intelligence as an aspect of personality, points that he introduced to the world with eloquence in his landmark articles and books (e.g., Wechsler, 1928, 1930, 1935, 1939, 1944, 1950, 1958, 1971, 1975).

Wechsler's lasting imprint was as a test developer, not as a theorist. And, ultimately, his greatest contribution may have been his clinical approach to the measurement of intelligence. When the Stanford-Binet reigned supreme prior to the publication of the W-B, the main approach to test interpretation was psychometric, with the focus on the precise IQ, its percentile rank, the band of error surrounding the IQ, group differences in mean IQ (e.g., urban versus rural children); the main book on Stanford-Binet interpretation was written by

Quinn McNemar (1942), a statistician. Wechsler changed all that. He believed that intelligence was part of personality, and that personality variables affected how a person performed on an IQ test. He encouraged examiners to interpret the IQs and subtest scaled scores within the context of the clinical behaviors observed during the evaluation and the reasons for referral (emotional disturbance, dementia), and to interpret responses to specific items (e.g., verbal answers on social comprehension questions) in terms of their clinical content. Thanks in large part to his experiences as an examiner during wartime, his clinical acumen, and his responsibilities at Bellevue Hospital, which brought him into one-on-one contact with individual patients from diverse backgrounds with an array of diagnoses, Wechsler (in conjunction with innovators such as Rapaport, Gill, & Schafer, 1945) changed IQ measurement from psychometric testing to clinical assessment. That distinction still characterizes the training of clinical psychologists and neuropsychologists worldwide (p. 3367).

But Wechsler was more than just a “clinical” psychologist. He was also a superb psychometrician and statistician based on his apprenticeships with both Pearson and Spearman:

The Binet-Simon and Stanford-Binet offered a single score, global IQ, plus Mental Age (MA); the W-B offered Verbal, Performance, and Full Scale IQs, along with a profile of scaled scores on 11 separate subtests (one of which, Vocabulary, was an alternate and did not contribute to the IQs). The 1916 Stanford-Binet, and its subsequent editions were routinely administered to children, adolescents, and adults; however, they were never standardized (normed) on adult populations. Consequently, when Wechsler published the W-B, standardized on children and adults (including older adults), he effectively developed the first real test of adult intelligence [see Kaufman, 2010]. And, in 1939, he replaced the ratio IQ that had become a staple in the Binet scales with the ‘deviation IQ.’ Ratio IQs were based on an old formula that compared Mental Age to Chronological Age, and represented a ‘rubber yardstick’ because 1 year’s growth is quite different at age 5 or age 9 or age 15; the outmoded formula also was not applicable to adults. By contrast, deviation IQs are standard scores with mean = 100 and standard deviation (SD) = 15 for all three IQs at all ages. They are derived from the concepts of the normal curve and standard deviations, which avoid problems associated with ratio IQs (Kaufman, 2013, pp. 3366-67).

Wechsler did not “invent” the deviation IQ. Wasserman (2018) points out that, “Wechsler deserves credit for popularizing the deviation IQ, although the Otis Self-Administering Tests and the Otis Group Intelligence Scale had already used similar deviation-based composite scores in the 1920s” (p. 33).

And he was amazingly modest about his in-depth grasp of statistics and methodology:

He trusted me in all aspects of test construction and deferred to my knowledge of psychometrics; when he questioned a statistical decision, he would usually give in, saying, 'I'm just a clinician.' It wasn't until the WISC-R was nearing publication that I found out from someone else that Dr. Wechsler had studied statistics under Charles Spearman and Karl Pearson in London after World War I (Kaufman, 2016, p. 718; originally from Kaufman, 1992).

Though not widely heralded as a theorist, Wechsler's (1939) definition of intelligence has been widely quoted:

Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with [their] environment. It is global because it characterizes the individual's behavior as a whole; it is an aggregate because it is composed of elements or abilities which, though not entirely independent, are qualitatively differentiable. By measurement of these abilities, we ultimately evaluate intelligence. But intelligence is not identical with the mere sum of these abilities, however inclusive (p. 3).

This definition shows the influence of Spearman's *g* on his theory, but also advances the notion that there is more to intelligence than *g*.

Wechsler later specified that this definition was intended to reflect Charles Spearman's general intelligence factor ('global capacity'), L. L. Thurstone's group factors ('elements or abilities'), Lewis M. Terman's capacity for 'abstract thinking' ('to think rationally'), and Alfred Binet's emphasis on adaptation ('to deal effectively with one's environment'). . . . [He] considered verbal and nonverbal tasks as equally adequate measures of general intelligence, and he emphasized the importance of assessing people "in as many different modalities as possible" (Wechsler, Doppelt, & Lennon, 1975, p. 55) (Wasserman & Kaufman, 2015, pp. 2-3).

But Wechsler's psychometric and clinical contributions do not minimize the importance of his departure from the single score, a global IQ, yielded by the Binet. In fact:

An immediate benefit of the Wechsler approach to IQ testing was the large number of reliable and valid scores yielded by his tests – three IQs and an array of a dozen or so scaled scores on separate subtests. The Full Scale IQ provides a global measure of intelligence (as was provided by the Stanford-Binet). However, the addition of separate Verbal and Performance IQs allowed examiners to determine whether a person was better able to express his or her intelligence via verbal comprehension and expression, or nonverbally via the manipulation of concrete materials. And the subtest scaled scores – standard scores with a mean of 10 and SD of 3 for all subtests at all ages – permitted clinicians to examine a person's profile of strengths and weaknesses on cognitive tasks such as Information, Similarities, Block Design, and Picture Arrangement (Kaufman, 2013, p. 3368).

As early as 1932, Wechsler saw the importance of profiling an individual's pattern of strengths and weaknesses, and his books included extensive case studies built from test score profiles:

The separate IQs and the profile of scaled scores provided a breakthrough for researchers and clinicians who needed to go beyond a single, global IQ to better understand a person's abilities and disabilities. The global IQ masked areas of strength and weakness. The W-B, and later the 1949 Wechsler Intelligence Scale for Children (WISC) and 1955 Wechsler Adult Intelligence Scale (WAIS), spawned state-of-the-art research with patients diagnosed with neurological impairment in the left versus right hemisphere (Reitan, 1955; Meyer & Jones, 1957), with children and adolescents referred for reading and learning disabilities (Bannatyne, 1971), and with individuals diagnosed with autism (Murata, Nawa, & Okuma, 1974; Wassing, 1965). The comparison of Verbal IQ with Performance IQ (V-P discrepancy) was especially crucial for understanding the strengths and weaknesses of individuals with left-hemisphere damage ($P > V$), right-hemisphere damage ($V > P$), and autism ($P > V$). The separate IQs also contributed mightily to understanding the differential effects of aging on intelligence (Feingold, 1950; Jarvik, Kallman, & Falek, 1962) and to the theory of fluid and crystallized intelligence (Horn & Cattell, 1966) (Kaufman, 2013, p. 3368).

Despite the success of his tests both as clinical and research tools, and the fact that his 1939 definition never lost its popularity, he never stopped pondering the nature of intelligence and he continued to refine its definition. For example, at two APA meetings in the 1970s he emphasized that intelligence must be useful to society. He explained to a large audience at the 1973 APA symposium in Montreal—where we both talked about the forthcoming WISC-R (Kaufman & Wechsler, 2013): “Purpose and useful behavior—that’s one aspect of intelligent behavior. You can’t sit for 20 days on top of a telegraph pole like Shipwreck Kelly did when I was in college and claim that is an intelligent act. It has no purpose. It has no use.”

The next year, in an invited 1974 APA address that was later published in the *American Psychologist* as his most updated definition of intelligence, he continued on the same theme, explaining that intelligence is a multifaceted concept that must be interpreted within a sociocultural context (Wechsler, 1975): “[I]ntelligence cannot be equated with cognitive or intellectual ability. ... To be rated intelligent, behavior must not only be rational and purposeful; it must not only have meaning but it must also have value, it must be esteemed (p. 136).

Wechsler's array of tests began with the W-B Form I, from which all of his *adult* scales have ultimately descended, starting with the WAIS in 1955. Form II of the W-B (Wechsler, 1946) was not a commercial success and was replaced almost immediately with the WISC (Wechsler, 1949); in fact, the W-B II was the grandparent of all subsequent versions of WISC and WPPSI. Similarly Wechsler's widely used memory test for adolescents and adults, the Wechsler Memory Scale (WMS), which first appeared in a journal

article (Wechsler, 1945), is now in its fourth edition (WMS-IV; Wechsler, 2009).

From personal experience, it was evident that his genius and creativity did not diminish with age; when I collaborated with him on the revision of the WISC in the early 1970s,

he was in his mid-70s and as active and involved in his tests as ever. He showed me notebooks filled with new items, including comic strips he had cut out from newspapers to adapt for nonverbal test items. With his own tool kit, he had constructed a variety of wooden dolls and formboards, always in search of new ways of measuring mental ability” (Kaufman, 2009, p. 34).

And Wechsler’s creativity and intellect were matched by his uncanny vision into the future, a trait that John D. Rockefeller also possessed in abundance (Chernow, 2010). As I have written (Kaufman, 2013):

David Wechsler’s (1935) ideas were consistently decades, even generations, ahead of his time. He was an early advocate of measuring adaptive behavior skills, urging that daily behaviors, social demands, and functional living skills be considered alongside IQ test results before assigning a mental deficiency diagnosis. As J. D. Wasserman (personal communication, July 27, 2011) pointed out, Wechsler’s approach is ‘entirely congruent with even contemporary standards for diagnosing intellectual disability (Schalock and The AAIDD Ad Hoc Committee on Terminology and Classification, 2010).’ He also reflected current philosophies by urging caution and sensitivity about the consequences of applying labels such as mental deficiency and genius based solely on IQ, because, ‘Too much is at stake’ (Wechsler, 1971, p. 54) (p. 3369).

His vision also included cutting-edge research and theory yet to come (Kaufman, 2013):

In Wechsler’s lifetime, his scales were organized around the distinction between Verbal IQ (V-IQ) IQ and Performance IQ (P-IQ). Subsequent versions have emphasized four Indexes, two of which replaced V-IQ and P-IQ (Verbal Comprehension Index, or VCI, and Perceptual Reasoning, or PRI), and two of which were new: Working Memory Index (WMI) and Processing Speed Index (PSI). L. G. Weiss (personal communication, July 26, 2011) noted that Wechsler’s ‘early notions on the importance of mental manipulation (Arithmetic/Digit Span) and mental speed (Digit Symbol/Coding) were borne out by modern research and subsequently fleshed out into WMI and PSI, which increased his test’s sensitivity to clinical disorders and extended his influence well into the twenty-first century (p. 3369).

In the 1973 APA symposium where we co-presented about the WISC revision, Wechsler displayed his sense of humor, which was so much a part of his personality. After I finished my research-oriented part of our joint presentation, he started off by saying:

Alan, I didn't know how good a test it was until you came across with all this data! I had some suspicion that it might have some value since it's been translated into about 20-odd countries. . . . At any rate, in revising the test there are also the travails of parturition which only a mother—in this case a father—can testify to. It's pretty hard to eliminate certain items, and I think I was broadminded—but somebody said I was weakminded!

He was a memorable mentor to me:

Dr. Wechsler possessed a rare blend of humility and grandeur. From the first day I met him, he treated me with kindness and with a respect I had not yet earned. He was soft-spoken, yet every word was carefully measured and carried authority. He was a man of unusual compassion and unflagging integrity. He lacked patience for the pomp and circumstance and protocol that permeated the first few corporate meetings that addressed the issue of a WISC revision. The meetings were tedious affairs, spiced with old recollections by Project Directors Past. . . . At the end of the third meeting, when once more nothing was accomplished, Dr. Wechsler ended the meeting by stating simply that this was the last group meeting; from now on, he said, 'Alan will come alone to my apartment, and we'll hammer out the revised WISC.' And that's exactly what happened (Kaufman, 2016, pp. 715-716, originally in Kaufman, 1992).

I especially enjoyed Dr. Wechsler's warm, human side, which emerged in casual moments when he didn't have to be 'on.' The serious and sometimes gruff side came out in business meetings, and the occasional animal rage was reserved for anyone who challenged the perfection of nearly any of his hand-picked, time-tested items, especially one that had its roots in his original Wechsler-Bellevue scales. But he displayed unabashed boy-like enthusiasm when he showed off materials for the new subtests he was constantly working on (at age 75!). . . . And his eyes twinkled when he talked about his grandchildren; or reminisced about visiting Freud in Vienna; or spoke warmly about spending a week at the home of former Israeli Defense Minister Moshe Dayan and his wife; or boasted sheepishly about being greeted at the Bucharest Airport by the King of Romania (his birthplace in 1896); or played for over an hour with our son James, then 7 months old and called Jamie, when he and Ruth visited my family in Athens, Georgia, in April 1975. (Author's note—James, an international leader in creativity, has his own biography in this volume (Kaufman, 2016, p. 717; originally in Kaufman, 1992).

And he was quick to acknowledge his own mentors, as pointed out by Hargus and Wasserman (1993) and expanded upon by me (Kaufman, 2016).

In a 1975 interview, Wechsler credited Woodworth and E. L. Thorndike as contributing most to his intellectual development, and he also praised Augusta Bronner and William Healy for refining his clinical skills: 'they were both wonderful clinicians and they were

the first, as I recall, who had discussions of every individual case at which first the social worker would present her history, then the psychiatrist, then the psychologist, and they either praised the individual and so forth on the basis of these conferences' (Wechsler, Doppelt, & Lennon, 1975, p. 42). He also spoke often to me about how much he owed to Bernard Glueck of the New York Bureau of Child Guidance (where Wechsler worked in the early 1920s) for training him in a discipline that would later be known as school psychology (p. 723).

There are so many things to thank Dr. Wechsler for because more than any professor or older colleague, Dr. Wechsler inspired me as a person and professional. I have clear images of spending hours with him at his home, trying to convince him to delete or modify WISC items that were outdated or potentially offensive, arguments that were not easily, or always, won. Thinking back:

I'd take a taxi to his East Side Manhattan apartment, and for two or three hours, week after week, we'd engage in friendly battle. . . . Little did I realize then that those battles with the Master would shape my own development as a test author and trainer of school psychologists, and would remain forever etched—fresh and vibrant and poignant—in my memory (Kaufman, 2016, pp. 715-720, originally in Kaufman, 1992).

His humanitarian principles, expressed nearly a century ago (Wechsler, 1930), reverberate today:

The tendency in recent years has been rather to exaggerate and over-emphasize human differences, whether in the field of psychology, government or industry Now every democracy and particularly our own is based on the very contrary assumption; . . . for the differences between men, when the totality of the capacities is considered, is surprisingly small (p. 39).

So, too, does his perspective on when to downplay test scores (Wechsler, 1939):

The kind of life one lives is itself a pretty good test of a person's intelligence. When a life history (assuming it to be accurate) is in disagreement with the "psychometric," it is well to pause before attempting a classification on the basis of tests alone. Generally it will be found that the former is a more reliable criterion of the individual's intelligence (p. 48).

Author Note

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