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EMPOWERING FUNCTIONAL CREATIVITY THROUGH CREATIVE LIFETIME LEARNING ENVIRONMENTS

Functional vs. Aesthetic

When we think about creativity, images of beautiful artwork and great classical musicians often come to mind. This type of creative output provides tremendous aesthetic value to civilization. Another type of creative output that benefits society is evidenced in novel, useful products that serve a function. Through the development of practical devices, processes and systems, "functional creativity" (Cropley & Cropley, 2010) solves the problems of humanity and expands domains to transform our world.

Functional creativity is the power behind the global economy. Creative ideas lead to novel, concrete solutions that are developed into innovative products and processes, which become enterprising ventures. The value of functional creations is not just in business, production and technology. These problem-solving creations address human social, environmental and political issues.

Creativity has three key ingredients: 1) novelty; 2) usefulness, relevance or appropriateness to a task; and 3) produces personal expression and/or societal improvement. Creations that provide purely aesthetic value are frequently solo, artistic expressions. Functional creations require a combination of divergent and convergent thinking skills as well as the ability to resist premature closure and the ability to close and reach completion. Some individuals are capable of excelling at these diverse abilities; however, building high-performing teams is often more expedient.

Functional creativity can be viewed as an interactive four-stage, non-linear process that is intertwined with high levels of communication and testing for feedback from scientists, technologists, domain and subject matter experts, investors and, of course, the market. These stages are often repeated in a looping fashion as individuals and teams solicit and receive feedback, revisit previous stages, and integrate knowledge gained into further iterations of concepts and products. Market and domain acceptance either provide or withhold the public acceptance and vali-

dation of whether the new offering is creative and timely (Csikszentmihalyi, 1999). The four stages include:

- Create—problem is identified and a selection of strong potential solutions are conceptualized
- Elaborate—the solutions are expanded upon and vetted for feasibility
- Pivot—in response to the elaboration and vetting, some ideas are eliminated, some pivot, and a final idea is identified as the solution for development
- Adapt—societal adoption through market entry of new products/processes

The outcomes of the functional creativity process are realized in three distinct elements.

- Creative Knowledge—ideas and concepts are formed and elaborated upon for potential new products, devices, processes, etc.
- Innovative Products/Processes/Systems—these concepts are developed into real products and/or process improvements
- Enterprise/Entrepreneurship—innovative products and processes are integrated into domains and enter the market for trade, barter and/or monetization.

Societies need active markets to progress. We will never reach a point where every idea becomes a successful new venture; so the market feasibility should be tested early and repeatedly with each new development to ensure that human and capital resources that are being applied to the fruition of this idea are utilized appropriately. The vetting that occurs in the ideation stage is very important so that time and resources are not wasted, particularly in already distressed economic climates. We must be particularly cognizant that ideas that are funded with government grants and subsidies that never reach the market successfully are actually a net drain on societal wealth and opportunity. Of course, there is the educational value of developing the creative entrepreneur for future success, but that, unfortunately, doesn't decrease the global debt in the near future. Respectful and ethical practices, not just financially opportunistic ones, must be instilled to sustain the earth, individuals and future societies. Ideally, countries across the globe should take a socially responsible approach in their utilization of resources by deciding on the best opportunities to pursue in the most efficient and honorable manner.

Raising Awareness

Many homes, classrooms and organizations do not foster cultures of creativity; and without practice and an intentional investment of time and resources, future generations may not be prepared to create, elaborate, pivot and adapt in the face of this ever-changing world. Parents and teachers are often so concerned with test scores and conforming behavior that they do not realize that their children may not be learning to think, just to repeat.

Raising awareness of the need to cultivate creative thinking skills in children, in young adults, in adults, in homes, classrooms and workplaces is a great first step. Although this need may be apparent to researchers and educators, we all have a responsibility to communicate this and campaign for reform. Creativity must be seeded through all aspects of our educational curriculum and steps taken to combat the effects of formulaic and other current teaching practices that intentionally or unintentionally suppress creativity. Success measures must be revised. Awareness to the masses is important so that interested parties can be advocates for change and ambassadors for establishing creative cultures for personal expression and societal improvement.

Start with the Children

Creativity is revealed in many levels ranging from mini-c or personal creativity, to little-c or everyday creativity, to Pro-C where professionals may begin to emerge as leading creators, and finally to BIG C (Ward & Kolomyts, 2010)—the eminent creators such as Einstein, Mozart, Cezanne and Steve Jobs. Expecting all children to become BIG C adults is unrealistic; but we can expect all to perform creatively. It is a healthy part of everyone's life to survive and evolve, showing our potential for originality and meaningfulness in work and play.

Creativity requires nurturing, practice and time. Many children have very busy schedules, leaving limited free time to stretch and explore their worlds independently, imaginatively, and creatively. People need some completely unstructured time to experience their worlds with no expectation of performance or deliverable.

Parents who experience life fully and provide opportunities for children to travel and experience the world, offer learning experiences that promote skill development and accomplishment, and enable overall supportive home environments and stimulating childhoods are more likely to raise children who become adults who attain creative achievement. Children who witness parents in flow states (Csikszentmihalyi, 2003) and who practice creativity learn to be creative. Prodigies are not born as developed creative geniuses; they come from cultivation,

practice and parental involvement (Howe, 1999). Incorporating youth into our worlds in a more holistic manner with kindness and patience, instead of filling all of their time with structured activities, would provide opportunities to model creativity in preparation for real-world adult life. Asking children for input in solving everyday problems can lead to valuable discussions and teaching opportunities.

It is important that we nurture the inner creator in each and every child. Television does not accomplish this goal; however, if you must watch TV, do it mindfully. People who make program selections that contribute to growth, dissect the programs with children to identify the plot and analyze the characters, and turn the set off when it becomes a waste of time have been shown to perform better on creativity tests (Kubey & Csikszentmihalyi, 1990). Hosting birthday parties that give kids a chance to build something and routinely taking the rigidity out of play by allowing kids to mix and match game pieces and toys, as they are individually inspired, and praising individuality rather than conformity fosters confidence.

Since J. P. Guilford's 1950 Presidential Address to the American Psychological Association, which implored psychologists to study issues of creativity, substantial work has been done to bring creativity to the classroom (Smith and Smith, 2010). Creativity is valued by teachers as a general rule; however, it often get pushed down on the list due to time constraints, opportunity costs and tradeoffs that are necessary to complete the requirements of current curriculums. Additionally, in our quest for peaceful, mainstream classroom environments, we medicate the outliers with Ritalin to avoid disruption, which may contribute to the decline of those young minds' ability to elaborate on their ideas (Runco, 2010).

Classrooms are conducted using IRE methodology (initiate, respond, evaluate). Although it is easier for teachers to teach for memorization and recall, children must be prepared to lead the world and should be trained to conceptual combine concepts, generate and explore ideas, develop analogies and communicate their thoughts. Emphasis should be placed on incorporating 1) open-ended questions that have multiple answers, 2) more "play" and fewer rules, 3) more imaginative solutions; not considering only what is practical, 4) ambiguity tolerance, 5) accepting mistakes as failing forward, 6) stepping outside of one's own areas of experience, 7) the belief that everyone is creative.
If children practice creativity, they will learn to be creative. In short, we need to train our children to think, not just to parrot back the single correct answer.

Creative teachers will help produce creative students. Changing the way we measure success in the classroom will be necessary. Minimizing the emphasis on standardized test results will allow teachers to stop teaching to the test and use the time to provide opportunities for students to express their creativity through projects and activities, etc.

Exposing teachers to creativity research and providing training for implement-

ing creative curriculum will enhance classroom and lifetime experiences. Ultimately, parents, governments and higher educational environments must support this so that everyone's goals align to praise individuality and place less value on conformity.

Leaders, Teams and Cultures

Creative leadership is essential to support cultures of creativity. If parents, teachers and workplace leaders are squelchers, ideas that could lead to innovation will be silenced. Establishing a culture that allows for failure without ridicule is paramount to creative learning environments. In the words attributed to Mother Teresa, "Kind words can be short and easy to speak, but their echoes are truly endless." (Mother Teresa, n.d.). Without kindness, trust is impossible; without trust, freedom of expression is stunted. Our competitive world makes this element extremely challenging.

In a world where people are trained to provide the one correct answer, there leaves little room for unconventional problem solving approaches. Setting up space for the gray area to emerge, to be explored and elaborated upon, allows new ideas to surface and grow. Great leaders motivate people to be the best they can be, give permission to others to be creative and nurture a culture of creativity in the family or organization. Allowing people to exercise control over their work and play environments, to find and develop their talent, to encourage risk-taking and to provide opportunities for fresh perspectives will help to seed a creative environment. Stretching people and allowing them to find their own areas for stretching without imposing too many rules that inhibit the ability to openly express ideas and become completely immersed in one's work is conducive to creativity. Avoiding too much specialization in employees and allowing for flexibility and autonomy will help sustain happy workplaces, which will be strong contributors to the common good in our future world.

Children and adults should not just be given group work experiences; they should be taught how to build creative teams. Steps for building teams and ground rules/activities may include:

- Identify necessary skill sets and recruit members to fill needs
- When possible, take people out of their normal environment
- Value all members through respectful listening
- Use productive thinking to identify and solve problems
- Exercise divergent thinking and connecting thoughts while de-emphasizing fluency of idea production
- Use flexibility and elaboration to progress original, unique projects
- Recognize and teach that deep domain knowledge is necessary for

eminent creations

- Encourage diverse stimuli and playfulness
- Limit unnecessary distractions
- Focus on collective voice; do not allow an expert to surface
- Avoid premature consensus
- Be patient with ambiguity
- Employ positive kindness; avoid negativity
- Highlight creativity as a process rather than an outcome
- Hypothesize, make assumptions, experiment, seek feedback, discuss, reflect, act and repeat
- Align goals; commit to initiatives; be accountable
- Include everyone in discussions so the value of individual parts to the whole are understood
- Over-communicate
- Avoid homogenous teams
- Prepare for emotional and intellectual stress; agree to disagree
- Switch roles during process or add new members to restore creative tension

Each domain and each individual brings constraints to the creative process; however, the analogies and combinations that are made that frequently lead to creative products are formulated through the same process of remembering and connecting knowledge, regardless of the individual or specific domain.

We do not know where the combinations that produce creativities will occur or by whom. The unexpected power of creativity is a result of two previously unrelated ideas or concepts finding a connection that turns into something unique and purposeful. There is a continuum of creativity that ranges from incremental adaptation to radical "aha" moments. The staying power lies in the incremental progress. Creativity often occurs through the matching of old knowledge to new information and interaction across domains. Therefore, social contact and communication with others, particularly with experts from other domains with alternate skill sets, can provide an environment for insight to occur. Diversity with opportunities to share is key to these interactions.

Lubart (2010) discusses various findings relating multi-cultural experiences to creativity. Exposure to multiple cultures and alternate languages enhances knowledge and can foster openness to new ideas through differing viewpoints and interpretation of subjects. Bilinguals have been shown to perform higher on divergent thinking exercises. Societies that are located close to contrasting cultures tend to show higher creative output, as do those with multiple political parties. Multicul-

turalism—exposure to several cultures—positively relates to creativity. Cultures that place value on creativity will out-perform those who do not.

Schools and organizations that have multiple cultures represented should embrace this diversity by incorporating culture sharing into their creative learning environments. An interesting way to do this is to have group members develop a story that depicts their cultural differentiation in an entertaining, elementary style. This can be a great exercise to equalize the playing field in a very interesting way and open the door for follow-up discussions.

Establishing creative learning environments need not include traditional reward incentives. Intrinsic motivation has been described as a personal passion for one's work, like a deep love that has no boundaries or conditions around one's devotion of time, energy and commitment. This emotional high feeds itself by more time and effort, and the reward is the internal satisfaction that the work itself provides. Intrinsic motivation is evidenced throughout the creativity process, and is specifically noted as the motivation in the early problem identification and ideation stage.

Extrinsic motivation is the term we use for external rewards, such as fame and fortune, that validate that the hard work is worthwhile to others. According to Collins & Amabile (1999), there are two types of extrinsic motivators: 1) synergistic extrinsic motivators which provide information and help the person complete the task while working in synergy with the intrinsic motives; and 2) nonsynergistic extrinsic motivators which lead to feelings of being controlled and are incompatible with intrinsic motives. Intrinsic motivation can be enhanced by extrinsic rewards as long as there is synergy and passion for the project.

Csikszentmihalyi (2003) describes the phenomenon of flow and soul, both within individuals and within organizations. The personality of individuals and organizations who achieve flow is described as the "existence of soul, when a system uses some of it surplus energy to reach outside of itself and invest it in another system, becoming in the process a stakeholder in an entity larger than itself " (pp. 145). Allowing one to explore and work in areas that are interesting leads to flow and is the greatest reward. If we used all of our energy simply to take care of our own needs, we would not grow. Soul and motivation allow for transformative change.

Take Time to Save Time

We should strive to consciously take time to cultivate lifetime learning environments with opportunities to explore interests and develop creative thinking and implementation skills. This will save time and resources when selecting projects to develop into novel, useful, outcome-oriented, functional creations that will advance the world appropriately. Applying creativity research to educational environments can lead to a cultural shift that includes opportunities for people of all

ages to exercise and practice creativity, develop idea generation skills, learn to avoid premature closure, adjust perceptions of risk and tolerate ambiguity. Combining these abilities with hard work, ethical approaches, intrinsic motivation and exposure to other domains and cultures will help soulful creatives evolve to the next level, as individuals and societies.

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Author's brief bio
Terri Zobel is Director of Programs and Services for the Laurence A. Baiada Institute for Entrepreneurship at Drexel University. As Director, Terri Zobel combines extensive skills in program development and delivery, business start-up and ownership, business management, customer relations, marketing, sales and communications to assist students, aspiring entrepreneurs and emerging companies in their entrepreneurial endeavours. Since her arrival, the Baiada Institute has enjoyed unprecedented growth and success. Terri has held positions in management, training and sales in industries as diverse as higher education, plastics manufacturing, floor covering distribution, retail and food services. Previously, Terri was founder and owner of McIlhenney Variety and was responsible for all functions of the business from startup to expansion. Under her leadership, McIlhenney Variety grew to two locations. Terri's enrollment in Drexel University's MS Creativity and Innovation program has increased her passion for educational environments that foster creative achievement.

References

Collins, M. A., & Amabile, T. M. (1999). Motivation and creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 297-312). New York: Cambridge University Press.

Cropley, D., & Cropley, A. (2010). Functional creativity: "products" and the generation of effective novelty. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge Handbook of Creativity* (pp. 301-317). New York: Cambridge University Press.

Csikszentmihalyi, M, (1999). Implications of a systems perspective for the study of creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 313-335). New York: Cambridge University Press.

Csikszentmihalyi, M. (2003). *Good business: Leadership, flow and the making of meaning.* New York: Penguin.

Howe, M. J. A. (1999). Prodigies and creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 431-446). New York: Cambridge University Press.

Kubey, R. W., & Csikszentmihalyi, M. (1990). *Television and the quality of life, how viewing shapes everyday experience*. Hilsdale, New Jersey: Lawrence Erlbaum.

Lubart, T. (2010). Cross-cultural perspectives on creativity. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge handbook of creativity* (pp. 301-317). New York: Cambridge University Press.

Mother Teresa. (n.d.). *goodreads*. Retrieved from http://www.goodreads.com/author/quotes/838305.Mother_Teresa

Runco, M.A. (2010). Divergent thinking, creativity, and ideation. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge Handbook of Creativity* (pp. 413-446). New York: Cambridge University Press.

Smith, J., & Smith, L. (2010). Educational creativity. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge Handbook of Creativity* (pp. 250-264). New York: Cambridge University Press.

Sternberg, R. J., & Kaufman, J. C. (2010). *The Cambridge handbook of creativity*. New York, NY: Cambridge University Press.

Ward, T., & Kolomyts, Y. (2010). Cognition and creativity. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge Handbook of Creativity* (pp. 93-112). New York: Cambridge University Press.