

**CHAPTER ONE****THE DECLINE OF CREATIVITY AND WHY ADULTS  
NEED TO BE CREATIVE****GAVIN SUSS  
ISABEL TREIDL****Abstract**

Earlier studies using psychometric tests have documented a decline in creativity over recent decades, as reported by numerous authors. The complexity of the world has increased due to local and global challenges. Despite this, many managers and leaders today complete their academic studies and training in environments that mirror those from 50 years ago. Such environments are increasingly irrelevant for the 21st century, especially with the recent influx of artificial intelligence, making traditional educational models even less applicable.

Both schools and industries must evolve, demonstrating agility and flexibility to survive in the current climate. The business world today is more competitive and dynamic than ever. Companies must implement innovative processes while developing products and procedures that are significantly different from those currently existing in the industry (Stein-Peri, Suss, Dorfam & Kolonetro, 2021). Achieving this requires a substantial increase in creativity. Creativity now plays a crucial role in the innovation process; it is no longer a 'nice to have' but a 'must have' (Ritter, Xiaojing, Cryjns & Biekens, 2020).

Addressing creativity is challenging. While everyone thinks they are creative and understands its importance, the reality is more complex. Research over the past three decades has confirmed that creativity can be taught and learned through training programs led by experts and educators in environments designed for ideation sessions and workshops. The setting is crucial for success in creative training (Davis, 2006; Reese & Parnes, 1970; Runco, 2003; Ritter & Mostert, 2016; Suss, 2020). Creativity spans various domains and is not limited to artistic activities (Kaufman & Baer, 2005).

This paper provides a theoretical review of the importance of creativity in the post-COVID-19 era and explores why it is essential to teach creativity to adults. Despite the decline in creativity among both adults and children, it remains one of the most critical skills for all ages, particularly for adults in the post-COVID-19 world. This paper addresses several key questions: Who, What, When, Where, How, and Why creativity?

*Keywords:* Creativity, Lifelong Learning, Adult Education, Innovation.

## Introduction

The recent outbreak of the COVID-19 pandemic has underscored a critical reality: individuals at all levels and organizations across all sectors and sizes must "find new ways to connect creativity, innovation, ethics, and sustainability" (Hölzle et al., 2020) to survive. Experts anticipate that similar crises will recur, becoming stronger and more resilient. The pandemic has highlighted the necessity of integrating creativity into decision-making and management. Existing research confirms that creativity is among the most crucial skills for the 21st century (Suss, 2016). Numerous studies have examined various relationships, connections, and variables of creativity and creative thinking in areas vital to leadership, management, quality, and decision-making. Creativity is essential in contemporary society (Weinstein, DiBartolomeo & Davis, 2014) because it facilitates problem-solving and enables progress across economic, scientific, social, and artistic domains (Hennessey & Amabile, 2010; Runco, 2004). It also enhances both the quantity and quality of decision-making.

Human society faces rapid and intense challenges impacting all life domains: family, employment, culture, leisure, and education. The pandemic has affected societies and communities globally in unforeseeable ways. People and organizations have become more vulnerable, operating in an ecosystem of uncertainty and frequent turbulence. Unprepared adults faced unemployment challenges, having to find ways to support themselves and their families, prioritizing income over learning and retraining by working longer hours and taking extra jobs to protect household incomes (Thériault, 2020). As in the past, today more than ever, adults need the "creativity muscle" to survive hectic times. However, most adults experience a decline in creativity as they age.

## Restriction and Everyday Creativity

Creativity is a complex topic. There is ample research on the relationship between creativity and intelligence (Batey & Furnham, 2006; Kim et al., 2010). While some studies support the idea that creativity is related to intelligence, others are less clear about the relationship. Nonetheless, all agree that creativity is complex and warrants further research. Various factors can influence human creativity, including motivation, personality, and cognitive abilities (Amabile & Pillemer, 2012). Space and environment are essential for everyday creativity (Suss, 2016). A famous example of the sociological impact of the environment on creativity is the Renaissance in Florence, a period of great cultural and artistic revival from the 14th to the 17th centuries. During this time, Florence became a center of learning and creativity, producing some of the most famous works of art, literature, and architecture in Western civilization, including the paintings of Leonardo da Vinci and Michelangelo, the sculptures of Donatello, and the buildings of Brunelleschi. The Renaissance environment emphasized classical learning, individualism, and a rediscovery of human nature's beauty and value, enabling many to pursue their creative and artistic passions.

COVID-19 challenged humanity, confining billions of people to their homes, shutting down transportation, and disrupting life as we know it. Such high-stress situations accelerated creativity, as the human brain is forced to work harder and think more creatively to find solutions. Stress can lead to increased levels of adrenaline, enhancing mental focus and alertness, resulting in more creative problem-solving. Sibley et al. (2020) found that the pandemic's stress and its dramatic impact on daily life—such as reduced physical space for individual activities, fewer direct communications, travel restrictions, and new work modes—strongly influenced people's experiences, behaviors, and attitudes. However, these changes often did not foster creativity. Motivation, personality, cognitive abilities, environments, and workspaces all significantly impact people's creativity (Hofreiter et al., 2021).

### **Why is creativity declining?**

Human creativity declines as individuals age, which is a troubling issue in psychology. This decline is particularly concerning given the increasing need to recruit employees at all levels who possess the highest professional potential and creative problem-solving abilities (Razumnikova & Bakaev, 2022). The decline in creativity begins at an early age. George Land and Beth Jarman conducted a test to measure the creative potential of NASA's scientists and engineers. From 1968 through 1983, they tested the creativity of 1,600 five-year-old children. Astonishingly, over 98% of these children scored at the genius level in creative imagination. However, when Land and Jarman (1993) retested the same children at ages 10 and 15, the results dropped to 30% and 12%, respectively. When the same test was administered to 280,000 adults aged 20, only a dismal 2% showed creative potential.

Despite these findings, there is hope: creativity is not a static attribute and can increase with age if it is cultivated and strengthened (Barbot, 2019; Suss, 2015, 2020). Society and many educational systems focus on knowledge acquisition and memorization rather than fostering imagination. Schools often emphasize the regurgitation of facts instead of promoting analytical thinking and creativity (Suss, 2020), indirectly contributing to the decline of creativity.

The COVID-19 pandemic posed extraordinary challenges for humanity, affecting the lives of billions and significantly impacting the global economy. Like all crises, it required immediate creative solutions at all levels—governments, institutions, and individuals. While many people experienced heightened creativity during the pandemic, they often reverted to old habits once the immediate crisis passed. Creativity has the potential to help people cope with harsh and uncertain circumstances (Hofreiter et al., 2021). Throughout history, significant creative achievements have often occurred under constraints (Stokes, 2005).

The human race's efforts to defeat COVID-19 can be described as successful, evidenced by the rapid development of vaccines and other medical treatments. Scientists, organizations, businesses, and governments demonstrated remarkable creativity under the unusual conditions imposed by the pandemic. However, as COVID-19 recedes and the world returns to more

predictable patterns, there is a risk of stagnation, with individuals falling back into old habits and predictable assumptions.

### **Can Creativity be taught?**

Creativity is a teachable skill, as evidenced by numerous studies (Hattori & Wycoff, 2004; Ritter, 2016). Suss (2016) emphasizes the importance of training employees to be creative within teams. Once trained, employees can engage in innovative behaviors that add value and drive change within their organizations. When seeking to generate meaningful innovations, collective processes based on communities of practice and linking individuals to groups play a more critical role than knowledge embedded in individual employees (Shipton et al., 2006; Sung & Choi, 2012).

Research confirms that creativity can indeed be taught (Karpova, Marcketti & Barker, 2011; Rose & Lin, 1984; Torrance, 1972; Suss, 2015). Well-designed creativity training programs typically result in performance gains that generalize across criteria, settings, and target populations (Scott, Leritz & Mumford, 2004). Training, in general, is a valuable path for organizations seeking to improve performance and business outcomes (Thang, Quang & Buyens, 2010; Suss, 2015).

The 2012 Adobe "State of Create Study" provided important insights, revealing a global creativity gap in five of the world's largest economies. The study showed that 8 in 10 people believe unlocking creativity is critical to economic growth, and nearly two-thirds see creativity as valuable to society. Yet, only 1 in 4 people feel they are living up to their creative potential. The study also highlighted a workplace gap where 75% of respondents reported being under pressure to be productive rather than creative, despite the expectation for creative thinking. This dissonance can be confusing and frustrating for employees, leading to depressed creativity and risk-taking.

Creativity is a teachable skill with a proven positive influence on creative abilities (Rose & Lin, 1984; Scott, Leritz & Mumford, 2004; Suss, 2015; Torrance, 1972). With motivation and the right approach, creativity can be developed, though not every individual will achieve high levels of creativity. However, practical and honest approaches can yield significant returns on investment for organizations. Research consistently underscores the importance and influence of creativity on organizations and individuals (Sternberg, 2007; Rasheed, 2012; Vogel, 2014; Suss, 2015).

Staying competitive in an evolving world requires understanding the ecosystem of creativity at multiple levels. This need will only grow in significance. The industry must quickly grasp that creativity is the future, and their survival and relevance depend on their employees' creativity (Suss, 2016). Creativity is essential to success in many disciplines and industries (Kelly & Kelly, 2012). Researchers and organizations have developed various creative training methods such as Brainstorming (Osborn, 1953), SCAMPER (Eberle, 1996), Lateral Thinking (De Bono, 1992), Mind Mapping (Wycoff, 1991), Creative Problem Solving (Parnes, 1992), Six Thinking Hats (De Bono, 1985), and others. The reason for the abundance of methodologies and creative tools is simple: they work. Suss (2014) detailed the ITE (Innovation

Through Education) program, and in 2016, the NCWM (New Creative Workshop Model), both of which are training programs for adults based on creative thinking and the aforementioned techniques, and reported successful outcomes.

In 2015, Suss published comprehensive research titled "Assessment of a Training Program: Employees' Attitude Towards Creativity and Innovation." The study aimed to examine the influence of training programs on employees' creativity and innovation competence, and to explore measurement in a multi-source framework, including performance and behavioral measures. It also sought to determine whether manufacturing organizations benefit more from creativity training compared to government organizations. The findings suggest that creative training programs (including the tools and techniques mentioned above) provide long-term benefits for all types of organizations. If organizations invest in creative training, particularly internal training, they can significantly enhance their employees' innovation perspectives and abilities.

There are two main approaches to creative training. The first is embodied creativity training, which focuses on developing the trainee's creative abilities through action-oriented methods (Byrge & Tang, 2015). The second is reflective creativity training, which focuses on understanding theories, models, tools, techniques, or processes through discussions, readings, lectures, seminars, and workshops (Robbins & Kegley, 2010). Both approaches have been successful. This paper focuses on the embodied creativity training program as a methodology to increase creativity among adults, as elaborated by NACCCE in 1999 as "teaching for creativity."

### **The WH Questions: Who, When, Where, How, and Why?**

#### ***Who:***

Who exactly needs creativity? Artists, designers, entrepreneurs, innovators, scientists, researchers, educators, business professionals, writers, content creators, and problem solvers—all of us, especially adults, can benefit from cultivating creativity.

Currently, there is a trend of risk avoidance and repetition of the same ideas, commonly referred to as the "copycat syndrome." This syndrome offers a safe way of navigating the workforce and life by mimicking successful models. People tend to repeat behaviors that are rewarded and avoid those that are punished (Association for Psychological Science, 2010). According to the Association for Psychological Science, children learn extensively by imitating adults, continuing this behavior into adulthood and applying it in business and daily activities. This imitative behavior aims to increase the likelihood of success in personal and professional life.

Humans also exhibit a natural tendency to prefer information that supports their existing beliefs while filtering out contradictory evidence, known as confirmation bias. This cognitive bias leads individuals to interpret and seek out information that confirms preexisting beliefs while disregarding opposing evidence.

In the business world, many companies experience the effects of copy-cat behavior. However, some companies, such as IDEO, Google, Amazon, and Apple, have succeeded by promoting creativity and disrupting traditional methods, strategies, and business plans (Soriano de Alencar, 2012). These companies share a common denominator: a proper organizational culture with key leaders who value creativity and consistently share their vision, emphasizing its importance within the organization.

To foster a creative culture, organizations must provide constant training, opportunities to update knowledge, and develop creative skills. This includes setting goals to achieve creative products, encouraging discussion and sharing ideas among team members, and recognizing and rewarding creative ideas and products (Soriano de Alencar, 2012). Similar concepts were presented by Norins in the 1990s, describing an ideal environment for creativity as one that nurtures a culture of pro-creativity, provides motivators such as recognition and incentives for creative ideas, and offers the best tools for idea exchange and training (Soriano de Alencar, 2012).

However, there is a significant disparity between the private and public sectors regarding creativity and innovation. The public sector is often slower to adapt and innovate due to factors such as risk aversion and a follower mindset. Unlike the private sector, which is driven by fierce competition and the need to attract customers, the public sector lacks similar economic incentives, reducing the urgency to stay current with trends and technology (Merchhiya, 2022).

Given these observations, the need for creativity is evident across all professions. While cultivating creativity in children and educational systems is crucial, current leaders, managers, and researchers must prioritize creativity to navigate the present and future challenges of the global ecosystem effectively.

### **When:**

When can we discover creativity? As we grow older, our capacity for imagination and risk-taking often diminishes, and our cognitive functions appear to slow down. It is a common belief, supported by research, that the adult brain works best in youth. However, recent findings suggest otherwise. According to the American Psychological Association, "The middle-aged mind preserves many of its youthful skills and even develops some new strengths" (Phillips, 2011). Although the brain does experience an inevitable decline due to aging, this decline follows a curve. Initially, the brain grows in shape and intellectual capacity, peaking around the age of 40. After this peak, it begins to decline gradually, becoming more convoluted and clouded until around the age of 70 or 80 (Kluger, 2019).

While studies have shown that memorization skills and perceptual speed deteriorate with age, other skills, such as numerical, spatial, verbal, and abstract reasoning, improve during middle age (Phillips, 2011). Patricia Reuter-Lorenz from the University of Michigan in Ann Arbor notes, "There is an enduring potential for plasticity, reorganization, and preservation of capacities" (Phillips, 2011). Similarly, George Bartzokis, a neurologist at UCLA,

asserts that "In midlife, you are beginning to maximize the ability to use the entirety of the information in your brain on an everyday, ongoing, second-to-second basis. Biologically, that's what wisdom is" (Kluger, 2006).

Promoting creativity is valuable across various domains and situations, given our brain's capacity to adapt and reorganize. Studies have shown that it is never too late to be creative. On the contrary, our brain can be a powerful ally, keeping us sharp by exercising both hemispheres when it is most needed. Creativity has the potential to grow and evolve throughout a person's lifetime. While it is often associated with childhood and early adulthood, creativity can continue to develop and flourish at various stages of life. Teaching creative thinking is valuable at any age, as it benefits individuals in numerous aspects of their personal and professional lives. Therefore, the question of when to cultivate creativity is especially relevant and crucial for adults.

### **Where:**

Schools aspire to be hubs of creativity, and many are trying to incorporate it into their curricula from K-12, as discussed extensively in academic literature. However, creativity should extend beyond art classes. Globally, there is a pressing need to revamp education to foster creativity comprehensively. For example, in 2008, British secondary schools embraced the challenge of integrating creativity across subjects, from science to foreign languages, implementing Torrance's test to assess progress. In 2009, the European Union declared the Year of Creativity and Innovation, hosting conferences on neuroscience and creativity and providing funding for teacher training to promote problem-based learning programs that reflect real-world scenarios (Bronson & Merryman, 2014).

China presents another example. Traditionally known for producing excellent test-takers through programs like the Program for International Student Assessment (PISA), Chinese educators have called for reforms. They argue that these tests emphasize memorization over critical thinking, essential for creativity and problem-solving (Gifford, 2010). Consequently, China is undergoing an educational reform at the governmental level to adopt a problem-based learning approach, moving away from the drill-and-kill teaching style (Bronson & Merryman, 2014).

In contrast, the situation in the United States is less encouraging. Kyung Hee Kim (2020) from the College of William & Mary identified a creativity crisis, discovering through analysis of nearly 300,000 Torrance scores that creativity levels have significantly dropped. Kim noted that the decline is most severe among younger children, from kindergarten through sixth grade (Zagursky, 2010). She attributed this decline to an overemphasis on international test rankings, such as PISA, which prioritize memorization over creativity (Kim, 2020).

Despite its importance, creativity is often perceived as frivolous or childish. However, the absence of creativity has serious repercussions, including career stagnation, a lack of purpose and accomplishment, and a detri-

mental impact on public and diplomatic arenas, especially as other countries advance in fostering creativity (Kim, 2020).

Creativity can be found in both expected and unexpected places. It often emerges when individuals embrace curiosity, open-mindedness, and a willingness to think differently. By fostering a creative mindset and seeking inspiration from various sources, creativity can be discovered in the world around us.

### **How:**

The development of creativity is a complex and multifaceted process that encompasses both nature and nurture. According to Susan Greenfield, while genetics play a significant role in creativity, it is nurturing and the environment that truly ignite creative potential (Graham, 2012). For creativity to flourish, the proper conditions must be created to foster and nurture it (Maley & Peachey, 2015). Humans have a unique ability to adapt to their environment, a phenomenon known as brain plasticity, which aids in the development of creativity (Graham, 2012).

Brain plasticity, or neuroplasticity, is a continuous process that allows for the short-term, middle-term, and long-term remodeling of neurosynaptic maps to optimize the functioning of cerebral networks (Duffau, 2014). In the context of creativity, neuroplasticity is crucial because individual experiences leave a lasting mark on the brain. Greenfield emphasizes that “the critical issue is not the contraction of the muscle, it is the thought that has preceded it, that has left its mark on the brain.” The more connections there are in the brain, the harder our brain cells will work to maintain them, especially in a stimulating and enriched environment (Graham, 2012).

When solving problems, the first approach often involves using familiar solutions, typically processed by the left brain. If these solutions fail, both hemispheres of the brain engage, with the right-side neural network scanning remote memories that might be relevant. This interplay between divergent and convergent thinking is essential for creativity (Bronson & Meryman, 2014).

Context and culture also play significant roles in the development of creativity. Cross-cultural research suggests that different cultures can either inhibit or facilitate creativity (Lubart, 1994; Zha et al., 2006; Kluger, 2006). There is a notable distinction between Western and Eastern cultures regarding creativity. Western cultures often view creativity as unique and far from traditional, celebrating individual accomplishments and self-actualization (Sawyer, 2013). In contrast, Eastern cultures, such as China, place a greater emphasis on harmony with nature and collective achievements (Rudowicz, 2004).

The evolution of these concepts is deeply rooted in the Theory of Evolution by Charles Darwin, which connects creativity with adaptability and problem-solving (Albert & Runco, 1998; Radclyffe-Thomas, 2014). This foundation has informed many modern theories and concepts about creativity, highlighting its dynamic and adaptable nature.



## **Why?**

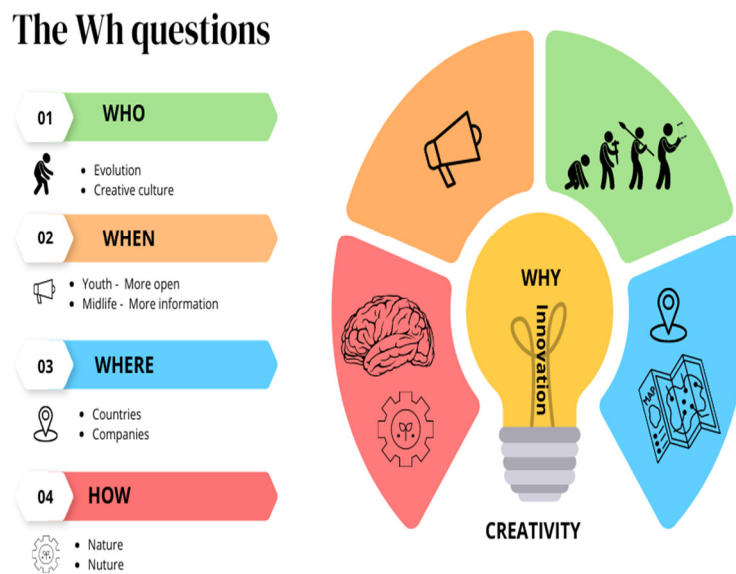
All these questions lead us to the most critical question: Why is it important to teach creativity? Teaching children creativity, or at least preventing its decline, is crucial. Humans have been losing the "battle" against machines for decades, and today, algorithms are prevailing. The Internet has disrupted industries such as the airline sector, creating fierce competition for ticket sales. From 1990 to 2007, almost 400,000 factory jobs in the U.S. were lost due to automation (Martin, 2020). During the peak of the pandemic, the U.S. lost approximately 40 million jobs. While some industries have returned to normalcy, others have changed permanently, with an estimated 42% of lost jobs gone forever (Rapoza, 2020). The trend of machines replacing humans is accelerating. Even conservative fields like law are experiencing dramatic changes with AI-driven products like "ROSS," which augment lawyers' cognitive abilities. This innovative tool has the potential to transform legal research, helping legal professionals save time, reduce costs, and make more informed decisions.

According to a study by MIT and Boston University, robots may replace as many as 2 million more workers in manufacturing alone by 2025. Daniel Susskind, an economic fellow at Balliol College, University of Oxford, and author of "A World Without Work: Technology, Automation, and How We Should Respond," states, "This is the result of the pandemic, which paved the road for automatization and to replace the work of human beings. Machines do not fall ill, they do not need to be isolated to protect peers, they don't need to take time off work" (Martin, 2020).

Creativity is a valuable human trait that enables innovation, self-expression, and thriving in a rapidly changing world. It is the fuel of civilizations and society. Creativity and creative thinking equip individuals with skill sets that encourage success in various aspects of life. It promotes innovation, enhances problem-solving skills, accelerates personal growth, builds adaptability, generates unique connections, and fosters collaboration.

According to economist Joseph Schumpeter, creativity is the core of capitalism and the engine of the U.S. economy and other leading economies (Sawyer, 2013, p. 249). China aspires to transition from 'Made in China' to 'Created in China' (Keane, 2006; Radclyffe-Thomas, 2014), bringing a new focus on creativity. In an increasingly globalized world, and with the importance of interconnected knowledge, companies, governments, and individuals need creativity to balance people, planet, and prosperity.

## WH questions (figure 1)



## Discussion

In today's postmodern world, change is the only constant. As a result, creative capacity is crucial (Tsai, 2012). Creative thinking is among the most sought-after skills in the 21st century (Suss, 2016, 2020; WEF report, 2020). However, the demand for creativity far exceeds its availability and development (Ritter, Gu, Cryjns & Biekens, 2020). Universities, colleges, schools, non-profits, the private sector, and even governments must address this issue, as it is vital to human progress and survival.

Certain work conditions can damage the creative process. Alencar's study highlights that a lack of opportunities to express innovative ideas and a lack of managerial reliance on employee creativity are significant barriers (Soriano de Alencar, 2012). Despite recognizing the need for creativity and innovation for organizational success, entrenched tendencies to maintain the status quo make it challenging to create conditions conducive to creativity.

Everyone harbors creative potential, but to enable these seeds to flourish, training and education in creativity are essential at all ages (Edelson, 1999). Unfortunately, this is not common in most educational systems. The industry has recognized the need for creative and innovative employees and has taken the lead in providing training and teaching for creativity (Suss,

2015). Teaching creativity effectively requires space, methodology, content, and passion. Some cultures and organizations underestimate creativity, taking it for granted.

This paper addresses the WH questions—How, When, Where, Who, and most importantly, Why? —to highlight the importance of creativity. Societies and organizations that seek to thrive in these chaotic times will need more creativity. While creativity is in decline, it is teachable and should be an integral part of school curricula and organizational training programs (Suss, 2015).

Creativity has always been valued in the U.S. and explored in other cultures, but it remains poorly understood. It encompasses psychological, physiological, socioeconomic, and cultural variables, making it complex and multifaceted. Despite its complexity, creativity defines us as humans—perfectly imperfect.

In 1996, Amabile, Conti, Coon, Lazenby, & Herron concluded that "All innovation begins with creative ideas" (p. 1154). Creativity drives innovation, enabling people to generate new ideas, products, and services that improve lives, benefit society, and advance technology. Teaching students to think creatively is perhaps the most effective and comprehensive skill necessary for leading change. This was true in the past and is even more relevant today and for the future.

Staying competitive in a rapidly changing world requires an understanding of the ecosystem of creativity at multiple levels. This trend will only intensify. Humans can still thrive during this hectic period by strengthening three key areas: values, empathy, and creativity. The business industry recognizes that its survival and relevance depend on the creativity of its employees (Suss, 2016). As discussed, creativity is crucial for adults as it enhances problem-solving abilities, adaptability, career advancement, critical thinking, personal fulfillment, emotional well-being, continuous learning, and social connection. It is a valuable skill that contributes to both personal and professional success and improves overall quality of life. As AI and other technologies evolve, human creativity will become even more essential and relevant for generating personal and professional value and innovation. The questions addressed in this paper aim to illuminate the domain of creativity and its necessity in the ecosystem where humans live, operate, and work. Creativity has long been in decline, but today and in the future, it is needed more than ever to address the significant challenges facing the world, such as COVID-19, dramatic climate changes, geopolitical conflicts, poverty, and hunger, among others.

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## Appendix

### Teaching Creativity in Israeli Companies post COVID - 19, mid 2022

Israel is known for its advanced ecosystem of Innovation and Technology. Israel is the “Start-up Nation”, and its economic and technological success has historical, sociological, and psychological roots; however, one key component is that Israeli companies (large and small) invest capital on creativity training and development.





Source: Large Israeli insurance company – Creative training 2022