



Professional reconversion to ensure a better professional future

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Chapter 4 Creativity and innovation



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Introduction

Creativity and innovation have become paramount in the job market due to the dynamic nature of modern work environments, which require constant adaptability for competitiveness. Additionally, the rapid evolution of technologies demands companies to seek inventive approaches to improve their offerings. Recent events have further emphasized this need, prompting a significant shift in work practices and compelling enterprises to swiftly adopt novel solutions for operational continuity and customer service. Consequently, within this framework, creativity and innovation emerge as indispensable assets, enabling companies to navigate adversity and thrive amidst challenges, ultimately ensuring their survival and overcoming obstacles.

Creativity refers to the ability to generate new and original ideas, while innovation refers to the implementation of these ideas into products, services or processes that add value. Creativity is the starting point for innovation, but to be successful, innovation also requires the ability to manage change, the ability to adapt to customer needs and new technologies.

To encourage creativity and innovation, companies must create a favourable environment where employees feel free to express their ideas and experiment with new solutions. This requires a cultural change and the adoption of an open and collaborative approach to innovation management.

Therefore, it becomes imperative to understand how to acquire and improve these skills, which have become indispensable to meet the challenges of the modern world and to remain competitive in an ever-changing work environment.

Learning Objectives

- Understanding the concept of innovation and creativity and the different types.
- Understanding the importance of creativity and innovation in the modern work environment.
- Learning about the relationship between creativity and innovation, and how they can complement each other to create value.
- Understanding the challenges and barriers that educators face when teaching creativity and innovation as transversal skills.
- Understanding the role of the educator in fostering creativity and innovation.

4.1. What are creativity and innovation?

4.1.1. What is creativity?

Creativity is a crucial element in the job market, as it enables companies to continuously innovate, improve, remain competitive, and tackle complex problems. Creativity is the ability to think in new ways and apply new perspectives to old problems. It is a fundamental skill in business, allowing people to adapt and create unique approaches that may be even more suitable than proven methods.

The generation of new, valid, and relevant ideas, insights, or solutions is the process that characterises creativity. It involves combining existing knowledge, experience, and resources in new ways to create something new and useful. Creativity can take many forms, such as artistic expression, scientific discovery, or problem-solving. However, it is difficult to define creativity because its very nature is elusive. We know that it is the process by which something new is formed and, generally, most definitions assume that value is included in the new creation.

Personality variables associated with creativity are an amalgam of positive characteristics, such as curiosity, tolerance of different ideas, autonomy, imagination, self-confidence, persistence, motivation, etc. However, rather than believing that creative people possess all these characteristics, the authors agree that there are many different paths along which people can show their creative potential.

According to a humanistic perspective, the creative person has the awareness and skills to deal with crises in a transformative way. Therefore, the creative person can be understood as being in the process of achieving self-fulfilment and developing characteristics related to mental health, such as subjective well-being, resilience, optimism, quality of life, and other aspects emphasised by positive psychology. Creativity would involve the interface between motivation and a specific area of knowledge. Creative people would operate on behalf of their intrinsic motivation, considering it a key component in influencing the individual's ability to express their talents.

Encouraging employees to think outside the box and giving them time and resources to explore new areas with innovative ideas is the key to cost-effective business solutions.

4.1.2. Types of creativity

Creativity is one of the most important skills for anyone who wants to achieve innovative goals and solve problems in new and original ways. According to research conducted by Arne Dietrich, associate professor of psychology and chairman of the Department of Social and Behavioural Sciences at the American University of Beirut, creativity can be divided into four main types: deliberate and emotional, deliberate and cognitive, spontaneous and emotional and spontaneous and cognitive.

Deliberate and cognitive creativity is based on planning and experience. This form of creativity requires a focused mind, the ability to analyse and evaluate information and use it in innovative ways. Individuals using this type of creativity are often able to generate ideas that are relevant and applicable to their work, using their knowledge and experience creatively. This type of creativity can be useful for those working in fields such as science, technology, engineering, and medicine, where problem-solving and planning are crucial.

Deliberate and emotional creativity, on the other hand, utilises both logic and emotion. This type of creativity requires an open mind and an open heart, allowing emotions to guide the creative process. This form of creativity can be particularly useful for artists, writers, and marketing professionals, where emotion and sensitivity are important for the creation of creative and engaging products.

Spontaneous, cognitive creativity is creativity that is based on inspiration for a 'Eureka!' moment. This type of creativity requires good preparation and perfect timing, as ideas can come at any time, often when we least expect it. Individuals using this type of creativity are able to make innovative connections between different ideas and concepts, leading to new creative approaches and problem-solving in original ways.

Finally, **spontaneous and emotional creativity** is that which stems from the unconscious. This type of creativity can lead to ideas that are somewhat out of the box but can be highly creative and useful. Individuals using this type of creativity are often able to grasp the insights that emerge from their emotions and apply them creatively to their work.

4.1.3. What is innovation?

Innovation has long been regarded as one of the main drivers of economic and social development, as it improves the quality of life of people and organisations worldwide. However, the concept of innovation is very broad and complex and can be defined in many different ways.

In general, innovation can be defined as the process of developing and applying ideas, products, or services that are new and useful for the benefit of individuals, groups, or a broader section of society. In other words, innovation refers to the creative use of resources to create something new or to improve what already exists.

However, innovation is not just about coming up with new ideas: it is also about translating these ideas into valuable products or services for the market. This means that innovation can concern both physical products, such as technological gadgets or medical equipment, and processes or services, such as training programs or online platforms.

Realising innovation requires a creative process involving experimentation, implementation, and adaptation to changing circumstances. This also requires risk-taking, as many innovative ideas do not work on the first try. However, the innovation process is also highly rewarding, as it can lead to surprising discoveries and life-changing solutions.

4.1.4. Types of innovation

- **Product innovation** concerns the application of an idea or service that has undergone substantial development. This innovation may be related to the functionality of the product or to other techniques that enable new uses of that idea or service. For example, the introduction of new functionality on a smartphone is an incremental product innovation.
- **Process innovation**, on the other hand, refers to the development of new methods to achieve a certain output. The main objective of this type of innovation is to improve the efficiency and productivity of the company. For example, the adoption of new machinery or new production methods may represent a process innovation.
- **Organisational innovation** concerns new types of organisations or means of administration of organisations. This type of innovation is aimed at improving business management and increasing process efficiency. For example, the adoption of new personnel management systems or new organisational models may represent organisational innovation.
- **Marketing innovation**, on the other hand, concerns the use of new methods to achieve product development and associated packaging, cost forms, and promotional advertising. The main objective of this type of innovation is to improve consumer perception of the product and to increase its market penetration. For example, the introduction of a new advertising campaign may represent a marketing innovation.

In addition to these four types of innovation, other innovation categories have been identified.

- **Incremental innovation** involves adding features or functionality to an existing product, one at a time.
- **Architectural innovation** involves the application of existing technology or expertise to a new market.
- **Disruptive innovation**, on the other hand, refers to the application of new technologies, processes, or business models to existing industries.
- Finally, **radical innovation** is the rarest type of innovation and involves the creation of entirely new technologies or products for entirely new markets.

4.1.5. Relation between creativity and innovation

Creativity and innovation are two distinct but closely interlinked concepts. As Amabile (1996) argues, creativity represents the 'spark' of innovation, since it is the primary source of ideas that can be successfully developed and implemented.

Creativity is a skill that can be trained and learned like any other and can be stimulated by various sources, such as experience, education, environment, and personality. Experience is an important source of creativity, as it provides a knowledge base that can be used to generate new ideas and solutions. Education, on the other hand, can provide skills and tools to develop creativity, such as divergent thinking and problem-solving. The environment is another

important source of stimulating creativity, as it can influence the perception of problems and opportunities and provide resources and support for idea generation. Finally, personality can influence creativity through traits such as curiosity, cognitive flexibility, and openness to experience.

Innovation, on the other hand, requires a combination of creativity, resources, and skills to be successfully implemented. As Schumpeter (1934) argued, innovation can be seen as a process of 'creative destruction', in which old ideas and models are replaced by new ones. As stated before (paragraph 4.1.4), innovation can be classified into different types, such as product innovation, process innovation, marketing innovation, and organisational innovation, each of which requires different skills and resources to implement.

However, creativity alone is not sufficient to guarantee successful innovation. As King (1995) argues, innovation also depends on external factors such as the market, competition, regulation, and financial resources. Moreover, innovation also requires skills such as risk management, negotiation, and leadership, which may not necessarily be related to creativity.

The relationship between creativity and innovation can thus be seen as one of mutual dependence, where creativity represents a primary source of ideas and solutions that can be implemented through innovation. However, innovation also requires resources, skills and external factors that may influence its success. Furthermore, innovation can also be seen as an iterative process, in which creativity and innovation influence each other through feedback and adaptation.

4.1.6. Values of creativity and innovation

Creativity and innovation are indispensable for organisations to flourish in today's rapidly evolving landscape, allowing them to navigate market shifts and propel growth. Companies that prioritise these attributes are better positioned to enhance profitability and expand their product range, reducing reliance on single offerings.

Cultivating a culture of creativity involves fostering an environment conducive to experimentation, continuous learning, and collaboration. Recognizing and incentivizing creative contributions, embracing trial and error, and fostering open dialogue further sustain innovation.

Establishing cross-functional teams and leveraging digital platforms facilitate knowledge exchange, enabling employees to collaborate seamlessly regardless of location. By fostering an inclusive and supportive atmosphere that nurtures creativity, organisations can harness the full potential of their workforce and drive enduring innovation.

4.2. Teaching approaches to creativity and innovation

4.2.1. Teaching creativity and innovation

Teaching methods aimed at nurturing creativity and innovation are increasingly vital in education. Key approaches include:

Encouraging divergent thinking: Stimulate multiple ideas and solutions by posing open-ended questions and facilitating brainstorming sessions.

Fostering a growth mindset: Cultivate resilience and risk-taking by praising effort, providing opportunities to learn from mistakes, and promoting the belief that intelligence can be developed through dedication and hard work.

Encouraging interdisciplinary learning: Challenge students to approach problems from different perspectives by integrating knowledge from various disciplines and fostering collaboration among peers.

Providing opportunities for play: Foster exploration and experimentation without fear of failure by incorporating games, drama, or role-playing exercises into the learning process.

Encouraging risk-taking: Create a supportive environment where students feel safe to experiment and take risks, encouraging them to step out of their comfort zone and learn from both successes and failures.

Providing real-world experiences: Enable students to apply knowledge and skills to authentic situations by incorporating service-learning projects, internships, or other experiential learning opportunities.

Incorporating technology: Utilise digital tools and platforms to facilitate collaboration, communication, and creativity, enhancing students' ability to engage in virtual brainstorming sessions or create multimedia projects.

4.2.2. Challenges

Teaching creativity and innovation as transversal skills in modern work fields can be challenging for educators. One of the main challenges is the traditional educational system that prioritizes rote memorization over creative problem-solving. As John Maeda, a renowned designer and technologist, stated in the Design in Tech Report in 2018, "Creativity is the most important leadership quality for success in business today."

The emphasis on standardized testing and a one-size-fits-all approach often discourages students from taking risks and exploring new ideas. Moreover, the focus on academic subjects

such as mathematics and science often take precedence over developing creativity and innovation skills, which are equally important in modern work fields.

Another challenge is the lack of resources and training available for educators to teach creativity and innovation effectively. Many educators may not have the necessary knowledge and skills to incorporate these skills into their teaching.

In addition, some educators may be resistant to change and may not see the value of teaching creativity and innovation as transversal skills.

4.2.3. Barriers

In addition to the challenges educators face, there are also several barriers that prevent students from developing creativity and innovation skills. One of the main barriers is fear of failure. Many students are afraid to take risks and try new ideas because they fear they will fail or be judged negatively. As a result, they may not take advantage of opportunities to develop their creativity and innovation skills.

Another barrier is the lack of exposure to diverse perspectives and experiences. Students who are not exposed to different cultures, backgrounds, and experiences may not be able to think critically or come up with new ideas. Students may also be discouraged from pursuing creative and innovative endeavours because they do not see people who look like them or come from similar backgrounds in these fields.

4.2.4. The role of the educator

Educators play a crucial role in teaching creativity and innovation as soft skills, despite the challenges and barriers they may face. One of the key roles of the educator is to create a classroom environment that encourages creativity and innovation, providing opportunities for students to explore and experiment with new ideas, promoting collaboration and teamwork, and providing constructive feedback to help students improve their creative and innovative ideas.

They can also facilitate the development of critical thinking skills by teaching students to ask questions, analyse information and evaluate evidence. In this way, educators can prepare students for a life of learning and problem-solving, as stated by John Dewey, philosopher of education.

To help in the process of learning these skills, teachers must experiment with new ideas and pursue an inquiring approach in their teaching. They must be open to new challenges, resourceful, imaginative, and flexible. This also requires the adoption of syllabuses, textbooks,

and support materials that enable the teacher's professional creativity, as well as structure and support learning.

Effective teachers have a deep knowledge of their subject and an understanding of how students think about subject content at different stages of development, i.e. pedagogical knowledge. They are able to make thinking visible, helping students recognize misconceptions and manage their own learning.

4.2.5. Characteristics of a creativity and innovation classroom

A classroom that fosters creativity and innovation is characterised by several key features that create an environment that inspires and empowers students to think critically, take risks, and develop their creative potential.

Open and flexible space: fosters collaboration, experimentation, and exploration through an open and flexible space. It accommodates various activities like group work, individual tasks, and presentations, with adaptable seating options to promote a relaxed and collaborative atmosphere.

Tools and materials for creativity: provides diverse tools and materials to support experimentation and creation, spanning art supplies, science equipment, technology tools, and more. It offers storage and display spaces for student work, fostering pride in their creations and promoting sharing with peers.

Emphasis on critical thinking: A creativity-focused classroom prioritizes critical thinking, urging students to analyze, evaluate, and synthesize information. It recognizes that the creative process demands not only knowledge of the subject but also a willingness to question and challenge existing norms.

Collaboration and communication: are vital for fostering innovation and creativity in the classroom. Teachers promote these skills through group projects, peer reviews, and debates, encouraging students to share ideas and perspectives. Additionally, digital platforms facilitate communication and collaboration beyond the classroom.

Real-world connections: A creativity and innovation classroom should connect learning to the real world, allowing students to apply their knowledge and skills in meaningful ways.

Respect for diversity: A creativity-focused classroom promotes respect for diversity, ensuring all students feel valued regardless of background or abilities. Teachers employ culturally responsive teaching methods, acknowledging and celebrating student diversity while integrating their experiences into the curriculum. This approach cultivates an appreciation for diverse perspectives, fostering creativity and innovation among students.

4.2.6. Assessment

Assessing creativity and innovation in the classroom requires a nuanced approach that goes beyond traditional assessment methods. Here are several types of assessment commonly used in creativity and innovation classrooms:

Self-assessment: Students reflect on their creative processes, strengths, and weaknesses, and set goals for improvement. Teachers provide tools like rubrics to guide this process and foster metacognitive skills.

Peer assessment: Students provide feedback to each other, learn from different perspectives, and develop communication and collaboration skills. Teachers offer criteria or rubrics to facilitate constructive peer feedback.

Performance-based assessment: Students demonstrate their learning through tasks or projects, applying knowledge and skills in real-world contexts. Teachers design assessments that require problem-solving, creativity, and critical thinking.

Portfolios: Collections of student work showcase their creative processes, progress, and learning. Teachers guide students in selecting their best work, reflecting on their learning, and setting goals.

Formative assessment: Feedback provided during the learning process helps monitor progress, identify areas for improvement, and support creative development. Teachers use observation, questioning, and feedback techniques to guide students.

Authentic assessment: Students apply their learning to real-world contexts, solving problems, creating original works, and collaborating with others. Teachers design assessments that promote collaboration, communication, and creative thinking.

By using a variety of assessment methods, teachers can provide students with multiple opportunities to demonstrate their creativity and innovation skills and help them develop the competencies they need to succeed in the 21st-century workforce.

4.3 Good practices/applications in adult education

Utilising simulations and role-playing techniques is an effective strategy for cultivating creativity and innovation skills among adult learners. Through various activities such as business scenario simulations, critical incident role-playing, historical reenactments, future scenario planning, and problem-based learning simulations, participants are encouraged to apply their creative and innovative thinking in practical contexts. These immersive experiences not only enhance participants' problem-solving abilities but also foster collaborative learning dynamics (Johnson, 2015).

Moreover, hands-on labs and workshops offer valuable opportunities for adults to experiment with innovative methodologies like design thinking and rapid prototyping. By actively engaging in these practical sessions, participants are able to explore their creativity and innovative potential in a supportive environment, thereby promoting active learning and creative exploration.

Establishing connections with industry professionals further enriches the learning experience by providing access to real-world examples of innovation in action. Collaborating with industry partners allows adult learners to gain insights into current industry practices and trends, thereby making their learning experiences more relevant and impactful (Ferguson, 2018).

For example, consider a design thinking workshop where adult participants are tasked with improving public transportation in their city. Beginning with research to understand commuter needs, participants use tools such as user experience maps and visual brainstorming to generate innovative ideas. Prototyping and testing their concepts with potential users allow participants to refine their solutions iteratively, gaining practical skills that can be applied in their professional endeavours (Brown, 2009).

By integrating these practices into adult education programs, educators can create dynamic learning environments that empower participants to develop and apply their creativity and innovation skills effectively, ultimately enhancing their professional capabilities and career prospects.

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