

Explaining the relationship between Creativity and the concepts associated with it

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Abstract:

Creativity is the ability, energy, and readiness an individual acquires through the systematic concentration of their mental abilities, willpower, and imagination, drawing on their experiences and knowledge. This concept has become the foundation of change and development processes. It embodies a set of comprehensive activities and efforts aimed at adding something new and valuable that enhances an individual's performance. Creativity is linked to many other intertwined concepts, such as innovation, invention, renewal, and others. Many of us can barely distinguish between these concepts and use them synonymously or to express creativity. Therefore, it is important to note that the concept of creativity is distinct from these concepts, despite its connection and overlap in many ways. This has led us to present most of the concepts associated with creativity in order to identify the most important differences between them.

Keywords: Creativity; Innovation and Improvement; Invention and Intelligence; Thinking and Intelligence; Change and Genius; Imagination and Renewal.

Introduction

The concept of creativity has captured the attention of many researchers for decades. Creativity appears to be a fundamental pillar of any organization seeking to develop its ability to address issues and problems and reach solutions by employing a contemporary creative approach, far removed from the traditional approach of trial and error. The Austrian economist Schumpeter is considered the first to focus on the concept of creativity in economics, in his book "The Theory of Economic Development" in 1912. Guilford (1950) is considered one of the first to draw attention to the study of creativity in his famous speech to the American Psychological Association in 1950. He also contributed to creativity studies with his "brain structure" model of mental processes. He emphasized that the concept of creativity is a fundamental component of the individual's mental structure, and that its study extends beyond the narrow confines of intelligence quotient. After Guilford, Torrance (1968) is considered the second figure in the development of creativity research.

Therefore, an individual can only be creative if they are capable of creative thinking, possessing the ability to discover new relationships or original solutions characterized by novelty and flexibility. A person capable of creative thinking is one who is capable of producing a number of original ideas, possesses a high degree of flexibility in response, and has the ability to develop ideas, activities, and innovation among individuals to varying degrees. Their results are creative, not routine or stereotypical (Muslim, 2015, p. 87).

Given that the concept of creativity overlaps with many other concepts-some use it as a synonym for imagination, sensitivity to problems, open-mindedness, intelligence, risk-taking, and others-it has become increasingly difficult to define a precise meaning for this concept, as each person constructs their own vision of creativity based on their own experiences and perspectives

1- Concept of creativity

Creativity is one of the most confusing concepts of human behavior. Many scholars use it as a synonym for imagination, originality, or open-mindedness. Some use it as a synonym for invention, intuition, risk-taking, exploration, or talent. Others consider it a synonym for intelligence. All of these perspectives and perceptions have made it difficult to define the concept precisely, as each person defines their own concept of creativity according to their own vision, field, and scientific specialization (Al-Dajani, 2014, p. 43). Scholars believe that the lack of consensus on a specific definition of creativity is not surprising. Rather, this is consistent with the view of Gundry and colleagues (1994), who asserted that any "attempt to reach a consensus on a specific definition of this term may conflict with the very idea of creativity" (Al-Rashidi, 2018, p. 10).

Researchers did not turn their attention to the systematic study of creativity until after 1950, when psychologist Guilford noted the lack of interest in this concept, which has recently become one of the most common terms in management literature (Tarfa & Boumediene, 2018, p. 361). Many believe that this concept is an inherited characteristic inherent in certain lucky individuals who are born with it (Fadaee & Abd Al zahrh, 2014, p. 1). while others believe that creativity involves certain personality traits and the nature of motivation (Patillon, 2014, p. 58). Stein (1953) was the first to offer a standard definition of creativity in an unambiguous manner, and unlike his followers, he was undoubtedly speaking of creativity per se. He did not discuss originality, although it is vital to creativity, nor did he discuss genius, although he offered a useful perspective on it (Runco & Jaejer, 2012, p. 95).

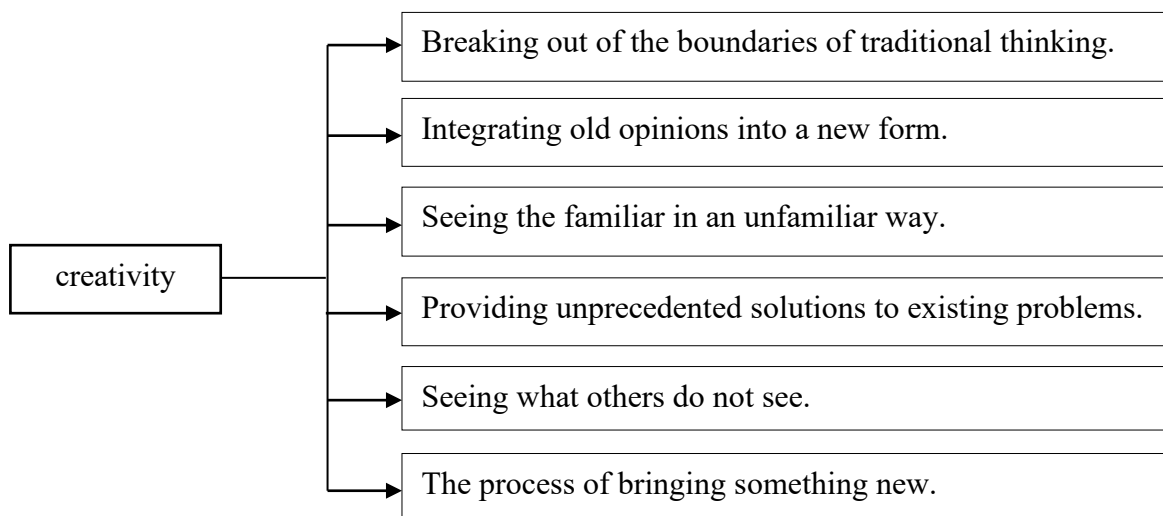
Researchers have endeavored to provide many definitions of the concept of creativity. Sternberg (2006) defines it as a special type of intellectual skill within an individual that enables him to see problems in a new way and escape the confines of traditional thinking (Sternberg, 2006, p. 88). While Runco & Jaejer (2012) define it as "the set of abilities that characterize an individual; these abilities determine whether the individual has the potential to exhibit creative behavior to a noteworthy degree (Runco & Jaejer, Op.cit, p. 94)". Okpara (2007) defines it as

"the ability to generate new ideas by combining, changing, or reapplying existing ideas" (Okpara, 2007, p. 2).

Researchers have confirmed that there is no specific definition for the concept of creativity, and the various definitions proposed in this field are not comprehensive; they include multiple dimensions, each focusing on important aspects of creativity. The idea of disagreement on a comprehensive definition of creativity is quite normal, and the attempt to establish a unified or comprehensive definition of this concept contradicts the very idea of creativity itself.

A summary of the key contributions of researchers regarding the concept of creativity can be presented as shown in Figure (1):

Figure (1): Some meanings of creativity



Source: Prepared by the researcher

2- Concepts Related to Creativity

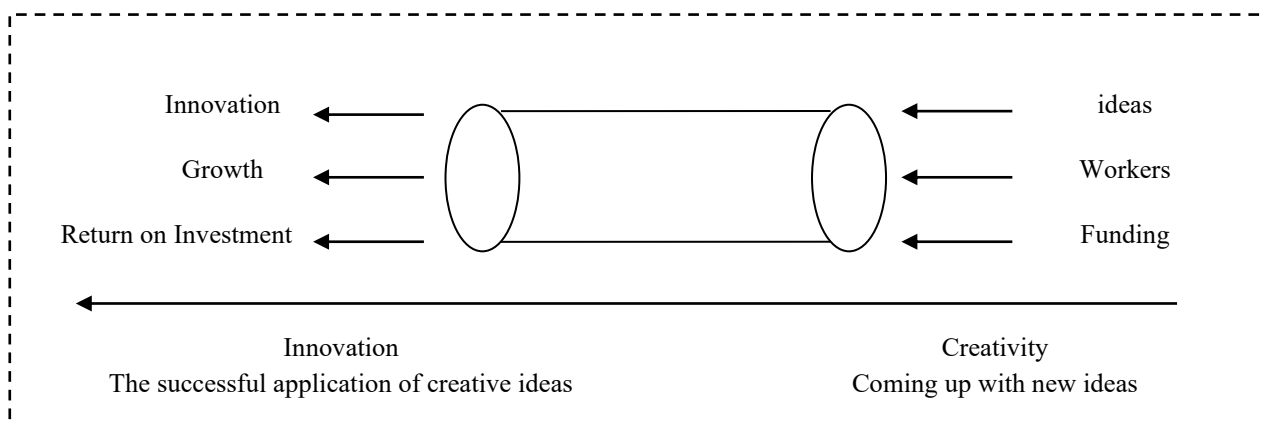
There are many cases in which the distinction between the term creativity and some of its related concepts such as innovation, improvement, invention, change, intelligence, thinking, etc., is not made, in addition to other concepts that overlap with the concept of creativity. The following is a presentation of these concepts, the purpose of which is to remove ambiguity and provide a clear vision of this concept and what distinguishes it from those concepts

2-1- Creativity and Innovation

Creativity is the process of arriving at a creative solution to a problem or a new idea, while innovation refers to the creative or appropriate application of that idea. It also refers to renewal as the reshaping or reworking of new ideas to produce something new. Mealiea & Latham (1996) clearly indicated that innovation and creativity can be used interchangeably. The (OECD) defines innovation as "the application of a new or improved product (good/service), process, or new marketing method, or a new organizational method in the organization" (OECD, site web, 2005).

Creativity has been used in many studies as a synonym for innovation, and some consider that the distinction between the two terms is more related to their expression than to any fundamental difference between them. However, others have differentiated between creativity and innovation from certain perspectives and considered these differences significant despite their integrative relationship. Cook (2000) indicated that the relationship between creativity and innovation is an integrative one, as shown in Figure (2), where there are inputs for the creative organization that include (ideas, workers, and funding) leading to the generation of unconventional ideas, and outputs that include (creativity, growth, and return on investment) leading to innovation through continuous improvements in production and achieving material gains.

Figure (2): Inputs and Outputs of the Creative Organization



Source: Aakif Khassawneh. (2011). *Managing Creativity and Innovation in Business Organizations*, Dar Al-Hamed for Publishing and Distribution, Amman, 1st ed, p. 36.

(John Locke) supports the idea that creativity and innovation are not the same concept. He states that the terms "creativity" and "innovation" are often used interchangeably; however, there are fundamental differences between them. In fact, creativity is a principal block of innovation, and this is reflected in the now widely accepted definition of innovation, which equates it to creativity plus successful implementation (Locke, site web, p. 1).

Creativity is a cognitive process that helps generate ideas, while innovation is the practical application of these ideas to achieve the organization's goals more effectively. This means that www.psychologyandeducation.net 2013

there is no innovation without creativity, and creative ideas remain just ideas if they are not actually implemented through the innovation process (Imam, Op.cit, p. 184). Therefore, innovation is the organization's ability to come up with something new that adds greater value compared to competitors, or it involves launching a new product in the market, creating a new method in the production process, or providing a service in a new way that satisfies customers and meets their demands (Boujhaish & Abdel Karim, 2017, p. 166).

Table (1): the main differences between the concepts of creativity and innovation

creativity	innovation
<ul style="list-style-type: none"> - Related to individual creative work. - Thinking about new things. - Producing new ideas in any field or domain. - Arriving at a creative solution to a problem. 	<ul style="list-style-type: none"> - Related to work in an organizational context. - Doing new things. - Successful implementation of creative ideas within a specific system. - Appropriate creative application for them.

Source: Prepared by the researcher

2-2- Creativity and Continuous Improvement

Improvement refers to the introduction of small or large modifications or changes to existing processes or products, making them more efficient, diverse, or user-friendly. While innovation represents a significant strategic leap that advances knowledge in research, continuous improvement involves small additions and partial modifications to better respond to market and customer demands, contributing to the creation and enhancement of competitive advantage. Although innovation is considered a primary source of competitive advantage, it is often rare, with limited sources for its realization, occurring only over long and sporadic periods, characterized by discontinuity and requiring significant investments in skills and knowledge. In contrast, continuous improvement is ongoing and involves the participation of all employees (Kharraz, 2018, p. 114).

Table (2): Comparison between Creativity and Continuous Improvement

	creativity	continuous improvement
The effect	- Short-term but radical.	- Lasts for a long time but is not radical.
Walking speed	- Big steps.	- Small steps.
The time frame	- Intermittent and non-gradual.	- Continuous and gradual.
The change	- Sudden and disruptive.	- Gradual and steady.
The contribution	- A few selected outstanding individuals.	- Each individual.

The input	- Individual, turbulent, individual ideas and efforts.	- Collective, collective efforts.
The spark	- Technological assumptions, new innovations, new theories.	- Traditional technical knowledge and the current state.

Source: Al-Akhdar Kherraz. (2018). Developing Creativity for Continuous Improvement: A Case Study of Economic Institutions in Western Algeria, PhD Thesis in International Finance, University of Tlemcen, p. 115.

The researcher here disagrees with what was stated in the previous table regarding the element of "contribution" and "input." If the process of continuous improvement is available to any individual belonging to the organization, then every individual has the opportunity to be creative within the organization as well. Creativity is not limited to a select few; rather, every employee or worker, regardless of their job level, can come up with an idea, meaning any individual in any organization can be creative. Some studies have refuted the prevailing belief that creativity is confined to a chosen few, which is a completely erroneous belief. Thus, creativity is not limited to a specific person or a certain category, nor is it exclusive to scientists and experts; rather, every individual is a creative personality, and the components of their personality include creative elements. These components and creative elements vary from person to person, depending on the climate or environment in which they live and interact.

2-3- Creativity and Invention

The concept of invention refers to the arrival at a completely new idea that is related to technology and impacts societal institutions (Najm, 2012, p. 126). An invention is something that introduces something new for the first time, although its elements and components already exist; however, some modifications are added to give it a new appearance and perform a unique function, such as the invention of the computer (KhairAllah, 2015, p. 54).

Invention is related to technology and its impact on community organizations, working on the artistic effects in generating new ideas. In other words, invention is the creation of an idea from a moment of genius and contributes to scientific progress. However, the idea alone is not an invention. For example, (Franquin) is the one who came up with the idea of the remote control for the television, but he is not the inventor. The inventor is (Robert Adler), who turned the idea into a working device in 1956 for "Zenith Electronics." The same applies to (Leonardo Da Vinci), who created a design for the helicopter, but he is not its inventor. The inventor is (Igor Sikorsky), who successfully flew it in 1940... and others.

In general, creativity is a new idea for solving an existing (current) or future problem outside the realm of convention, or it is a new way of thinking that provides an ideal concept. In contrast, invention is the result of creativity; it is the embodiment of the idea or the way of applying it in a manner that allows for its implementation or utilization. Typically, this idea takes

a long time to realize, meaning that invention is the creation of something new in the scientific or technical field, or it is the idea that transcends conventional industrial art.

2-4- Creativity and intelligence

Intelligence is "the ability to perform higher mental processes, especially abstract or symbolic reasoning," and it is defined by (Spearman) as "the ability to perceive relationships and deduce connections." Procedurally, it is what intelligence tests measure, and studies have shown that intelligence tests do not distinguish the creative from the non-creative, as they require reasoning ability and do not necessitate the generation of new ideas (KhairAllah, Op.cit, p. 237).

In fact, some scholars believe there is no deterministic relationship between creativity and intelligence, based on studies conducted for this purpose. These studies have shown that some intelligent people are not creative, while others with lower intelligence have demonstrated considerable creativity. On the other hand, some scientists believe there is a direct relationship between intelligence and creativity. For instance, Spearman views creativity as merely an aspect of general intelligence, although it is not necessary for an intelligent person to be creative, as there are other requirements for creativity and potential obstacles that may prevent a smart person from being creative. Additionally, individuals with average (or even below-average) intelligence can also be creative; high intelligence is not a prerequisite for creativity (KhairAllah, Op.cit, p. 10).

The intelligent individual may not possess the skill of creativity, but it is required for a creator to have a minimum level of general intelligence. In psychology, intelligence is an ability with which an individual is born and does not acquire from their environment. One of the characteristics of an intelligent individual is the ability to understand and learn... and they are capable of creativity. However, creativity does not require a high degree of intelligence; it is sufficient to have a higher level of average intelligence in order to be creative (KhairAllah, Op.cit, p. 237).

One of the famous studies in this field is Terman's study, which began in 1922. Terman and his assistants selected approximately 1,500 children from a total of 250,000 children with an IQ exceeding 140 degrees. They were then observed regarding their development and success in their academic lives over the course of several decades. Although Terman's research and similar studies have confirmed the existence of a relationship between intelligence level and creativity, IQ is not considered a sufficient and satisfactory condition for revealing and predicting creativity.

Many confuse creativity with intelligence, despite the clear differences between them. Intelligence refers to the mental and cognitive abilities that help a person understand and respond appropriately, as well as the abilities that assist them in performing a task better than others or successfully facing problems. Therefore, intelligence tests consist of questions that require logical and specific answers, unlike creativity questions. On the other hand, creativity is an activity based on creative thinking characterized by novelty and involves generating or creating

new ideas or finding previously unknown relationships, that is, creating something that did not exist before or presenting ideas that no one has addressed before, which contribute to the development and improvement of life. Thus, intelligence is necessary for creativity, but it is not essential for the intelligent to be creative (table 3).

Table (3): differences between the concepts of creativity and intelligence

The differences	creativity	intelligence
Type of thinking	Productive thinking, free and unconstrained	Consumer thinking, restricted by reception conditions
Type of tests	Creativity tests usually involve open-ended questions with unrestricted answers, requiring multiple responses, and often ambiguous ones that are difficult to prove.	Intelligence tests consist of questions that require logical and specific answers.
The purpose	Divergent thinking results in a number of solutions to problems that do not have a single correct answer, or identifies issues that others may fail to perceive.	Intelligent thinking requires effort to grasp and understand the presented things and matters, but it does not necessarily conclude with a solution

Source: Prepared by the researcher based on: Salim Al-Husniyah, A Logical Framework for Creative Management, p. 13, Date of access: 11/05/2019, from the website: <https://library.nawroz.edu.krd/lib.php?file=1030.pdf>

In addition, creativity requires a certain level of intelligence; however, a high IQ does not necessarily mean a high level of creativity. This means that the most intelligent person is not necessarily the most creative one, but a creative person must be intelligent to a certain degree. It is not a requirement for a creative person to be highly intelligent, although high intelligence helps the individual quickly gather and generate ideas.

2-5- Creativity and thinking

Human thinking is a mental and human phenomenon, one of the most important and complex psychological phenomena. Thinking is one of the higher mental abilities that distinguishes humans from other living beings that cannot use abstractions and symbols. The nature of thinking refers to many patterns of behavior and various situations; it is a comprehensive process that we use while practicing the processes of memory, imagination, intention, and belief. It is a process of symbolic mediation or the use of symbols to measure the time interval between presenting certain external stimuli and the responses produced. Thinking is considered an internal process and is often attributed to activity and the mind, and the process of

thinking cannot be directly observed but is inferred from observed behavior (Al-Qahtani & Metwally, 2016, p. 11).

Thinking is an internal vision that investigates experience for a specific purpose, meaning it is the skill of applying intelligence to experience. The process of thinking consists of non-material events in the mind, where mental processing of data occurs to reach a conclusion, solve problems, and control emotions. This involves processing things and events through words, concepts, and mental images instead of through actual physical activity (KhairAllah, Op.cit, p. 24). Thinking is defined as a mental process in which an individual employs their previous experiences and cognitive abilities to explore the situations or problems they face in order to arrive at appropriate decisions. It is an individual activity, but it does not occur in isolation from others, thus it takes place within a social context that is influenced by and shapes the surrounding environment (Al-Qahtani & Metwally, Op.cit, p. 12).

The relationship between creativity and thinking lies in their close or physical connection, much like a single body. Creativity cannot exist without thinking, as creativity arises from thought, which consists of flashes and internal visions within a person that require some degree of creativity and skill in mimicking the self and activating intelligence when beginning the thinking process. This process relies on one's intellectual and knowledge reserves and experiences to achieve what is called creativity. Thinking is an intangible event that occurs in the brain with the aim of processing data related to a specific subject to reach a certain conclusion, solve problems, and manage emotions. The relationship between creativity and thinking is that creativity is the product of the mental processing of things and events through concepts, words, images, and mental symbols. Thinking has multiple concepts and implications, including judgment, belief, expectation, intention, reasoning, memory retrieval, decision-making on specific matters, and imagination and creativity (Khasawneh, 2011, pp. 110-111).

2-6- creativity and change

Creativity is the unique product of the mind that comes in the form of ideas, methods, ways, behaviors, and other innovations that have never existed or been circulated before. Change, on the other hand, is a procedure or tactic implemented on an existing situation to transform from a current reality to a better reality in response to innovations and creative products to reach a specific goal. Here, the close relationship between creativity and change appears. Creativity is the main driver of change, and change is a responsive activity to the innovations or new products that creativity produces. This was confirmed by Amer (1991) when he defined change as a dynamic movement that follows methods and techniques used resulting from material and intellectual innovations. Khairallah (2009) also confirmed it when he said that creativity is the basic material in the processes of change and development. It was also confirmed by Jalda and Aboui (2006) when they said that change comes as a result of management's movement to confront new situations to benefit from the positives, avoid the negatives, and achieve goals. Jalda and Aboui (2006) also showed that creativity and innovation can be considered one of the branches of change, and that the administrative ability to create and

design creative organizations will become more important as the pace of change increases. He also believes that most Creative organizations have an internal drive for change (Khasawneh A. , Op.cit, p. 186).

Creativity is linked to change in terms of interconnection and interaction in the life cycle of creativity, as creativity and change form the essence of the spirit of the life cycle of creative ideas and their continuity, with each being connected to the other from the first stage of the life cycle to the final stage. There is no value in creativity without change, and no value in change without creativity. The point is: what is the benefit of creative outputs if they do not lead to any change for the better? Similarly, what is the benefit of change that is not based on new developments or creative outputs? Creativity comes to transform conditions into a better state, while change responds to new developments and creative outputs, with each driving and activating the other.

2-7- Creativity and genius

Genius is someone whose intelligence exceeds 150 on the IQ scale (Al-Suwaidan & Al-Adlouni, 2004, p. 19). Genius is born, not made, and geniuses are those who possess skill and achievement but are quiet and persistent. Genius is defined as having a great ability and high-level intellectual achievement. Therefore, the use of the term "genius" and its relationship to creativity is somewhat confusing, as not all outcomes of genius are necessarily creative, meaning they do not produce something new and valuable, and conversely, not all creative outcomes are necessarily the product of genius. However, genius and creativity may frequently overlap, and there is broad consensus on the possibility of the overlap between creativity and genius, both of which are based on high ability and skill, and both involve motivation and drive to work towards a specific goal.

The scientific evidence that genius is born and inherited, rather than made, and that creativity is hereditary, is very poor, and in fact, it is almost nonexistent. The classical study of "hereditary genius" conducted by Francis Galton in the 19th century on the inheritance of genius has been criticized, and other studies conducted since then have reached varied and primarily negative results. It has been directly shown that there is one factor that is genetically transmitted: intelligence. This factor has been important for both outstanding creative and non-creative achievements. The fundamental truth seems to be that geniuses and creative thinkers are made, not born (Ossama, site web).

2-8- Creativity and fantaisie

Imagination is the conception or illusion of something that does not exist, and it is the first step of creativity (KhairAllah, Op.cit, p. 17). Some interpret imagination as an illusion, a state that befalls a person who tends to dream and live in a world of delusion, which is a common misconception. Not all instances of imagination that overwhelm a person are abnormal or pathological; rather, imagination can be a source of creativity. Generally, imagination is not

something separate from reality, nor is it an absolute free entity that does not connect with the fields of life. It is the result of the experiences and knowledge that an individual acquires through the continuous interaction between them and their surrounding environment. Therefore, imagination is "the ability to depict reality in new relationships, and this same ability is the capacity to embody and represent things." Thus, imagination is a psychological activity in which processes of assembly and integration occur between the components of memory and perception, and between the mental images formed previously through past experiences, resulting in new mental formations.

The process of imagination is one of the fundamental processes that individuals resort to in their pursuit of new and unfamiliar ideas, concepts, and experiences. Thus, it is almost a shared process between curiosity and creativity. Here, creativity becomes the special ability of imagination, which enables individuals to deconstruct the existing frameworks and perceptual perspectives to a degree that allows them to reconstruct new ideas and concepts and form meaningful connections between these ideas and concepts.

The relationship between imagination and creativity becomes apparent when we notice that the creative individual is characterized by excessive imagination. Therefore, discussing imagination and its relationship to creativity is an attempt to understand more about this relationship and clarify the importance of investing in imagination for the educated individual, due to its impact on developing creative thinking. Vineck (1974) sees imagination as a mental activity that gathers mental images related to sensory perceptions and reshapes them in a creative and innovative way. This can be inferred by observing the apparent behavior, which takes different forms in individuals. Studies have focused on proving that imagination is, in fact, an essential and effective element in the system of thinking and mental activity, provided it is invested in a good way. Some researchers have linked curiosity, imagination, and creativity as integrated processes that ultimately aim to reach a better situation characterized by seriousness and appropriateness. Maggee & Davisa (1994) also affirm that imagination is an inherent component in creative processes, as the creative person possesses a high ability to control attentional processes, act, and process mental images, making them more capable of representing reality in an image.

Fiowers & Garbin, (1989) concluded that creativity results from one of three imaginary situations:

- A slight effort from therapeutic and transformational processes of images to create a good representation;
- Spontaneous generation of a new representation;
- A new representation that is not subject to restricted processes.

Some studies indicate a relationship between imagination and creativity in its abilities (fluency, originality, flexibility). It is clear that both imagination and creativity are part of an individual's mental activities, and these activities do not play their roles in isolation from one

another. We find that imagination is one of the mechanisms of creativity, which in turn calls for more imagination, resulting in a higher level of creativity. Some psychologists and educators have confirmed that creativity is discovered or appears in individuals who possess motivation, curiosity, and imagination.

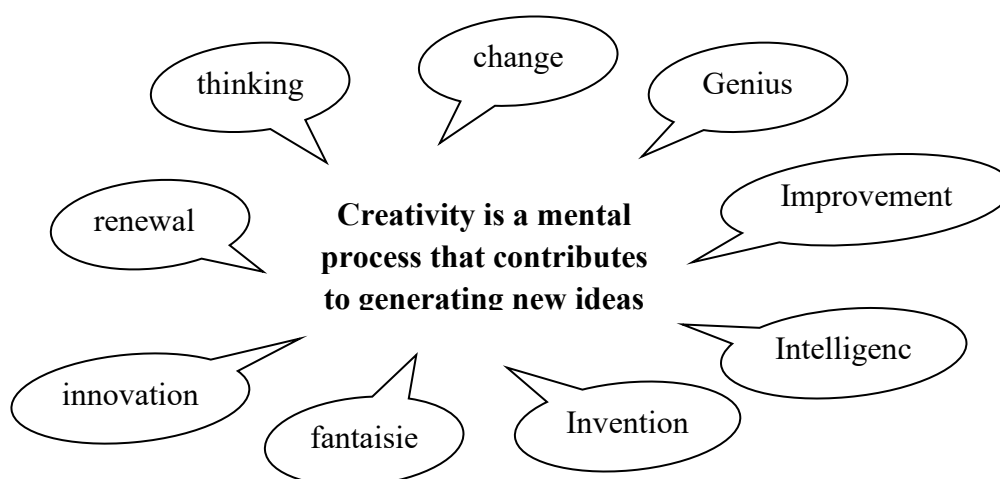
2-9- Creativity and renewal

Renewal is "introducing small or large modifications or changes to existing processes or products, making them more efficient, diverse, or suitable for use" (Ben Amoma, 2017, p. 26). In other words, renewal means reusing the old in a new way. Renewal is also defined as "restoring the aesthetic and functional value of something to what it was or at least getting closer to it, and renewal may be accompanied by development and modernization by introducing additions to the thing that restore its aesthetic or functional value and make it keep up with the current time" (Qandil, 2010, p. 124).

There is a relationship between creativity and renewal, as the former is broader and more comprehensive than renewal, such that every act of creativity is considered renewal, but not vice versa. Creativity is characterized by an element of originality, which is one of its most important features, while renewal is a process of transferring or reviving something that was previously invented.

Figure (3) illustrates the concept of creativity and the concepts associated with it:

Figure (3): Creativity Circle – Concepts Related to Creativity –



Source: Prepared by the researcher

Conclusion

Creativity is a complex phenomenon, with multiple dimensions. Research in the field of creativity has followed a broad path filled with branches, as some researchers see creativity as a personal trait or characteristic, while others believe that creativity is not a personal trait but rather a skill or process that achieves creative production, which develops in the context of various situations provided by the environment for the individual to enhance their ability to be creative. Many use the concept of creativity as a synonym for other concepts such as intelligence, innovation, invention, etc, without distinguishing between them, which has led to the difficulty of precisely defining the concept of creativity. Moreover, the inability to reach a specific definition of creativity is logical because the creative phenomenon itself is complex. Creativity, as previously mentioned, is about arriving at a new solution to a problem, and each problem requires original solutions that differ from another problem. Thus, creative solutions vary with different problems. From this perspective, the relationship of creativity to other concepts reflects a complementary relationship between them despite some fundamental differences. The essence of this relationship lies in employing and using the mind in the thinking process to reach original and unprecedented solutions.

Bibliographie

Al-Dajani, T. (2014). Building an Administrative Leadership Model for Administrative Development in Border Guards Using the Delphi Method. Dans *PhD Thesis in Security Sciences*. Riyadh: Naif Arab University for Security Sciences.

khairallah, J. (2015). *Administrative Creativity*. Amman: Osama Publishing and Distribution House.

Al-qahtani, S., & Metwally, F. (2016). *Learning Difficulties for Innovators and the Gifted* (éd. 1st ed). Anglo-Egyptian Library.

Al-Rashidi, A. (2018). Transformational leadership and its relationship to organizational creativity among deans and heads of departments at public and private universities in Riyadh. *Arab Journal of Security Studies* , 33 (71), 3-40.

Al-Suwaidan, T., & Al-Adlouni, A. (2004). *Principles of Creativity* (éd. 3rd ed). Cordoba Publishing and Distribution House.

Ben Amoma, H. (2017). The Role of Intellectual Capital Management in Encouraging Innovation at the Level of Higher Education Institutions: A Study of a Sample of Algerian Universities. Dans *PhD Thesis in Management Sciences*. Faculty of Economics, Business and Management Sciences: University of Batna 1.

Boujhaish, K., & Abdel Karim, A.-B. (2017). The Role of Information and Communication Technology in Developing Innovation Outcomes (A Comparative Study between Algeria and Tunisia). *Journal of North African Economics* , 13 (17), 159-176.

Fadaee, A., & Abd Al zahrh, H. O. (2014). Explaining the Relationship between Creativity, innovation and entrepreneurship. *International Journal of Economy, Management and Social Sciences* , 1-4.

Imam, A. (2014). *Human Development and Administrative Creativity: A Theoretical Study with Contemporary Scientific Application*. (éd. 3rd ed). Giza: Arab Foundation for Science and Culture .

Khairallah, J. (2015). *Administrative Creativity*. Amman: Osama Publishing and Distribution House.

Kharraz, A.-A. (2018). Developing Creativity for Continuous Improvement: A Case Study of Economic Institutions in Western Algeria. Dans *PhD Thesis in International Finance*. University of Tlemcen: Faculty of Economics, Business and Management Sciences.

Khasawneh, A. (2011). *Managing Creativity and Innovation in Business Organizations* (éd. 1st ed). Amman: Dar Al-Hamed for Publishing and Distribution.

Locke, J. (s.d.). *site web*. Consulté le 03 03, 2018, sur What are Innovation, Creativity and Design?: https://wiki.metropolia.fi/download/attachments/30273771/innovation_creativity_design.pdf

Locke, J. (s.d.). *What are Innovation, Creativity and Design?* Consulté le 03 03, 2018, sur https://wiki.metropolia.fi/download/attachments/30273771/innovation_creativity_design.pdf

Locke, J. (s.d.). *What are Innovation, Creativity and Design?* (site web) Consulté le 03 03, 2018, https://wiki.metropolia.fi/download/attachments/30273771/innovation_creativity_design.pdf

Muslim, A. (2015). *Creativity and Administrative Innovation in Organization and Coordination* (éd. 1st ed). Amman: Al-Mu'taz Publishing and Distribution House.

Najm, N. (2012). *Leadership and Innovation Management* (éd. 1st ed). Amman: Safaa Publishing and Distribution House.

OECD. (2005, 06 17). *site web*. (3rd edition) Consulté le 2019, sur What is Innovation?, Oslo Manual: https://www.economie.gouv.qc.ca/fileadmin/contenu/formations/mpa/materiel_pedagogique/defi_innovation/processus_innovation.pdf

OECD. (2005). *What is Innovation?, Oslo Manual*. Consulté le 06 17, 2019, sur https://www.economie.gouv.qc.ca/fileadmin/contenu/formations/mpa/materiel_pedagogique/defi_innovation/processus_innovation.pdf.

Okpara, F. O. (2007). The Value of Creativity & Innovation in Entrepreneurship. *Journal of Asia Entrepreneurship and Sustainability* , 111 (2), 2-5.

Ossama, H. (site web). Consulté le 5 30, 2019, sur Creativity and Genius: Inherited or Acquired: <https://www.sasapost.com/family-background-creativity-and-genius/>

Patillon, T.-V. (2014). Creativity, adaptability and lifelong career skills. Dans *Doctoral thesis in Psychology*. Paris, France: Cnam University.

Qandil, A. (2010). *Administrative Leadership and Innovation Management* (éd. 1st ed). Amman: Dar Al Fikr Publishers and Distributors.

Runco, M. A., & Jaejer, G. J. (2012). The Standard Definition of Creativity. *Creativity Research Journal* , 24 (1), 92-96.

Sternberg, R. J. (2006). The Nature of Creativity. *Creativity Research Journal* , 18 (1), 87-98.

Tarfa, M., & Boumediene, Y. (2018). Knowledge Management as an Intellectual Approach to Developing Administrative Creativity: A Case Study of Algeria Telecommunications Corporation in Aïn Defla Province. *Journal of Strategy and Development* , 351-373.

The, r. i. (site web). Consulté le 5 31, 2019, sur <http://kenanaonline.com/users/alenshasy/posts/435829>