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CREATIVITY IN PEDAGOGICAL RESEARCH - REVIEW OF SELECTED CONCEPTS

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The article attempts to systematize selected concepts of creativity in the field of pedagogical research. Researchers undertake various studies in each area of study due to many aspects, among others, the ambiguity and multidimensionality of the concept of creativity. The paper presents selected approaches to defining creativity and reviews theories concerning psycho-pedagogical aspects of the structure of the creative process.

Key words: creativity, creative process, creativity theories

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Introduction

Creativity is defined by many representatives of scientific disciplines, i.e., anthropology, philosophy, pedagogy, psychology, or cognitive science. The dynamic development of research in these areas makes the concept increasingly ambiguous and multidimensional, which means that there is no clear answer to the question of what exactly creativity is. On the one hand, this allows researchers the freedom to direct their research, but on the other hand, it leads to some difficulties in theoretical framing. Therefore, the study of creativity in the pedagogical field (and beyond) poses a challenge to researchers and, at the same time, introduces the need to provide definitional findings.

In historical terms, the definition of creativity comes from the Latin language – ‘creare’ (create), ‘creatio’ (creation), and ‘creator’ (creator). It was used in the context of divine actions. In the Renaissance, it was noted that a human being could also create. Still, the scope of creativity was referred only to art as creating new work, giving shape, and introducing order (Kabat-Szymaś, 2001). Then, creativity was discussed in the context of art and poetry. The first annotation of the concept of creativity – in the colloquial vocabulary of the English language was found at the end of the 19th century (Szmidt, 2013). Slightly later, creativity in terms of art, broadly defined, was presented in dictionaries of the Polish language (Szymczak, 1998).

In the pedagogical and psychological discourse, the discussion on creativity is most often taken in four dimensions: (1) creativity as a result (product), (2) as a process, (3) as intellectual or personality abilities (qualities), or (4) as a set of social stimulators (Popok 1988). Representatives of this type of definition of creativity were, e.g., Mirosław Szymański and Stanisław Popok – viewing creativity as a product that should meet specific characteristics, e.g., novelty, originality, generativity, and gain social acceptance (Uszyńska-Jarmoc, 2003). The creative effect is no longer as easy to study and describe in such a statement. By Morris I. Stein (1953), Carl R. Rogers (1954), Henry A. Murray (1959), Rollo May (1959), Donald W. MacKinnon (1963) or Richard J. Suchman (1957), creativity is the process of producing a new creation that is acceptable and useful to a particular group of people, at a specific time (Strzałeczki, 1969). Zbigniew Pietrasiński noted that creative products should be both new and socially valuable (Pietrasiński, 1969). A similar thesis was adopted by Polish and foreign researchers, emphasizing the creator’s intellect and personality traits in creating reality originally and unexpectedly (Trojanowska-Kaczmar-ska, 1971).

In another view, researchers focus on the 4P’s model of creativity: person, process, press, and product. Therefore, beyond the product and the creative process (discussed above), there is the press, i.e., the closest human environment: home, school, work, and the person as the creator i.e., the research pays attention to the set of personalities traits and intelligence, motivation or neurobiology (Sawyer, 2012). The creator’s personality or the individual’s creative qualities is a research perspective that allows pedagogy to focus primarily on the child and the teacher. In other discourse on creativity, one can see a combination of all the elements mentioned earlier, that creativity is “the interaction among aptitude, process, and the environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context” (Plucker, Beghetto, Dow, 2004, p. 90).

A well-known concept is also to view creativity through the prism of bipolarity, that is, the elitist and egalitarian approaches, otherwise known as the cre-

ativity of “big C” and “little c”. The first refers to gifted and eminently capable individuals whose creations are not only original but have a significant impact on the development of culture or, more broadly, the arts or sciences. It means “(big C creativity or BCC) refers to the creativity of the genius, seen in people such as Mozart, Picasso, and Einstein” (Ferrari, Cachia, Punie, 2009, p. 15). The egalitarian approach (little c or LCC), on the other hand, indicates that every person is creative, but to a varying degree, such as “could be seen as behavior and mental attitude, or as the ability to find new and effective solutions to everyday problems” (Ferrari, Cachia, Punie, 2009, p. 15). Thus, in research, this group, in particular, can include children – as creators (Nęcka, 2012; Szmidt, 2013), who, from a pedagogical point of view, can develop their potential when adequately supported and stimulated by adults (teachers and parents).

Selected theories of the creative process structure

We can better understand the phenomenon we are considering through theories, but we can also build our avenues of exploration based on them. A scientific approach, which is developed and expanded with new aspects and categories, (if necessary) changes the basic findings to remain independent, impartial, and morally grounded. Thus, the theory is neutral to anything that could introduce some contradictions (Pilch, Bauman, 2010). In the literature, one can find many positions on the theory of creativity. According to Edward Nęcka, the creative process is a mental process leading to producing a new and valuable idea (Nęcka, 2012). Thus, it is not only a thinking process but should also be supported by a theory characterized by high informational value, explanatory power, and heuristic (Popper, 1999). This means that attention, perception, imagination, memory, other cognitive processes, and some emotional states are also significant in the creative process (Nęcka, 2012).

This subchapter will present selected classical, cognitive, systemic, and cultural concepts. One of them is the approach of James C. Kaufman, who divided creativity into thinkers, including, e.g., Plato, Galton, and Freud, and researchers of creativity, e.g., Guilford (Kaufman, 2011). At first, researchers were interested in the creator’s person, then the cognitive processes that led to new products. These trends allowed for the establishment of undeniable theses about who a creative person is, what features they should have, and that the creative process is not just a thinking process. However, this concept did not explain all the concepts related to the nature of creativity. One of the proposals for consideration of the theory of creativity was the socio-cultural approach, which allows a much broader look at the creative individual and

their works. This conceptual trend can also be seen in contemporary theories. Another suggestion is the paradigms for studying the phenomenon of creativity and the dimensions of creativity. Among others, Robert J. Sternberg and Todd I. Lubart whose understanding explained the theory of creativity due to mystical, pragmatic, psychodynamic, psychometric, cognitive, and social-personalist approaches (Sternberg, Lubart, 1999).

Classical theories

Classical theories on creativity include associative, behaviorist, character (Gestalt), and psychodynamic approaches.

In the associative view, the mind is represented and described as connecting according to the association's certain (unusual or distant) rules, i.e., ideas that come together based on similarities, associations, or random juxtapositions (Szmidski, 2013). Representatives of this theory include Sarnoff Mednick and Arthur Koestler. Mednick presented the mechanism of creativity as the distant association of ideas, characterized by three ways: unexpected associations of foreign ideas, similarities, hidden associations, and the use of random combinations of stimuli. He also attempted to explain the phenomenon of individual and interpersonal differences in the context of creativity. He assumed that each person differs from another in the probability distribution. He also created a test of distant associations as a tool for measuring creative abilities (Nęcka, 2012).

On the other hand, Koestler made the theory of bisociation a mechanism based on fundamentals that are the same in every person (i.e., the logical part of idea formation is the same in every act of the creative process). This mechanism, however, involves capturing one idea in two different frames of reference simultaneously and, at a later stage, detecting previously hidden similarities (Szmidski, 2013). Associative theories have enjoyed success among other activists who focus on methods and human abilities toward creative thinking. Mednick and Koestler's approaches are still being used, especially in creative thinking training, creative thinking, and others related to generating new ideas and combining new solutions.

Behaviorists believe that creativity is a process that allows the generation of new forms of behavior. Usually, representatives consider it a special kind of causal behavior or an internal mediating process. Representatives of behaviorism in creativity theories include Daniel E. Berlyne and Robert Epstein.

Berlyne derived the theory of a new form of behavior based on Clark L. Hull's theory. In his thesis, productive thinking is creative when it produces socially beneficial effects (Nęcka, 2012). The concept of generativity by Epstein, on the other hand, refers to new forms of behavior resulting from

previously formed habits. In his understanding, the generation of new things and concepts serves to adapt to change or solve uncomplicated problems (Krauze-Sikorska, 2006). However, behaviorists are not in the habit of using the term creativity. They are likelier to use synonyms such as novelty, originality, etc. They also believe that the generation of new forms of behavior is fostered by competition, through which original behavior is reinforced. Thus, according to the behaviorist trend, the creative process generates new forms of behavior – both can be learned, strengthened, and modeled.

Character theories (Gestalt) are associated with a holistic understanding of human creativity. The term Gestalt from German means “configuration” or “perceptual pattern” (Szmidt, 2013). Thus, representatives of character theory claim that the brain creates a perceptual whole from raw stimulation, which is not just the sum of individual sensory components, but something far broader and larger (Zimbardo, Johnson, McCann, 2010). The authors of this concept distinguish between reproductive and productive thinking, in which we repeat our established patterns of reasoning and use new ways. Such situations also function in terminology as “incomplete structures” (Szmidt, 2013; Nęcka 2012). When we think “closing” is more challenging than imagining a figure, the solution we create is not always accurate. In this theory, the creative process is the ability to reorganize our perceptions. The process is a fusion of latent multisensory perceptions or a new configuration of already-known elements (Krauze-Sikorska, 2006).

Psychodynamic theories refer to the unconscious workings of the mind. Among the representatives of these concepts is Sigmund Freud, along with the conflict of id versus superego. Freud mentioned thinking in two types: primary and secondary. He described the former as impulsive, guided by the pleasure principle, while the latter is logical and subordinated to realism. In his view, creative activity is a symbolic struggle of conflicts in the unconscious sphere (Nęcka, 2012).

On the other hand, Graham Wallas’ concept of illumination says that the creative process is divided into four primary phases: preparation, incubation, illumination, and verification (Sternberg, 2001). Ernst Kris’ concept refers to creativity through the lens of a young child free from certain limitations anchored in adulthood (Nęcka, 1995). In conclusion, within the framework of psychodynamic concepts, the creative process is a spontaneous and unconscious striving for realization through action, which results in the products of the cold and conscious spheres of the personality.

Representatives of classical theories are often criticized, which seems to be justified. First, its incompleteness (because it describes only a selected part of the creative process) and its theoretical oversimplifications work against the classical concept. In analyzing creativity, classical concepts lack, among other things, intuition, logical reasoning, and hermaphroditic forms of thinking.

Cognitive theories

In these theories, cognitive processes are considered here as the basic components of the creative process. Despite the many well-known concepts, this trend continues to develop. In recent studies of the cognitive approach, special attention is paid to metacognitive strategies. Popular cognitive theories include the theory of divergent thinking, the idea of creative interaction, theories of creative problem solving, and the two tier model of the creative process by Mark A. Runco.

The theory of divergent thinking is reflected in contemporary approaches to creativity pedagogy. The concept of Joy P. Guilford presents theses and research tools for measuring creative potential known and still used by representatives of cognitive psychologists. Guilford divided the thinking process into convergent (convergent) and divergent (divergent) production. He also identified the factors of divergent thinking, which are essential measures of the level of creative aptitude: fluency, flexibility, originality of thinking, and sensitivity to problems. Guilford's research proves that there is no single general creative ability and that each person has the same basic skills regardless of the field of creative activity (Guilford, 1968). His research and tests have been criticized, especially for simplifications in the context of thinking. However, they are still very much used and are among the best-known in psychology and creativity pedagogy. Guilford's research was continued by Ellis P. Torrance, who added a factor: an elaboration. It is studied by analyzing the care and aesthetics of the execution of a given work, additional supplementary elements that fill a shared space of the work, and the number of details that relate to the description of a given work, idea, or concept.

In the theory of creative interaction, the creative process is treated as a phenomenon subject to the principle of self-control at different levels, i.e., the strategic, control, and execution levels. The creative interaction itself is continuous and reciprocal. Critical thinking is necessary for the work to be recognized in creative exchange. In critical thinking, the required elements are the consideration of evaluation and valorization, which favor the general acceptance of the work and its publication. Nęcka's theory of creative interaction has many merits (Nęcka, 2012), but its critics have a meaningful argument because it is not grounded in empirical research.

Theories of creative problem-solving are among the most popular concepts. Here, creative activities are conceived as solving a problem. One of the representatives of this trend is John Dewey, who distinguished the following five phases of problem-solving: sensing the difficulty, defining the problem, producing solution ideas, verifying ideas, and selecting a solution (Brown, 2012). His approach initiated thinking of creative activity as a set of actions

to address problems. This line of thinking was adopted in Poland by, among others, Jozef Koziellecki, who considered creativity as otherwise solving new problems: scientific, artistic, and organizational (Koziellecki, 1992).

The Creative Problem Solving (CPS) model is one of the best-known in Poland and the world in psychology and creativity pedagogy and, for example, in business. In Poland, in addition to Koziellecki, representatives of this model are Zbigniew Pietrasinski, Jan Antoszkiewicz, and Andrzej Góralski. While in the world, the most popular are Sidney Parnes, Scott G. Isaksen, K. Brian Dorval, and Donald J. Treffinger. The most popular CPS model in creativity pedagogy is divided into three phases: understanding the problem, gathering ideas, and planning action by Parnes, Noller, Firestein, Isaksen, Treffinger, Dorval, Puccio, and Murdock. The CPS model has been empirically verified many times, but it continues to receive criticism for being simplistic and prescriptive.

The two tier model of the creative process by Mark A. Runco is one of the best-known proposals for viewing creativity in creative psychology. In Runco's view, creativity should be understood comprehensively as syndromes of cognitive abilities and traits revealed and developed under favorable social circumstances and the influence of divergent tasks (Runco, 1995; Runco, 2003). The idea of perceived creativity is based on two critical stages in the creative process: the stage of problem discovery and formulation (problem motivation) and the stage of idea generation (the principle of fluidity, flexibility, and originality of the idea) (Runco, 2007). In addition, Runco also develops a "Simple Theory of Creativity" in which he assumes that the most important thing is the creative process, not the product and that a creative person values creativity and consciously invests time and effort in creative activities (Ruth, 2007). He believes that creative potential is in every person, not just and only in gifted or talented people. In pedagogy, the teacher should support the creativity of students by encouraging them to think creatively (Abraham, 2007) while modeling creative behavior and, above all, creating space for creative thinking (Sundararajan, Averill, 2007).

Among the most significant weaknesses in cognitive theories is that, in the context of pedagogy and creative psychology, they focus on the person of the creator and his mental processes, ultimately moving away from the socio-cultural context, which is given priority in modern research.

System and cultural theories

Systemic and cultural theories mainly revolve around the socio-cultural context, which is most desirable today. These theories include the idea of creativity by Teresa M. Amabile, the system theory by Mihaly Csikszentmihalyi,

the creativity model by Klaus K. Urban, the ecological theory by Roman Schulz, investment theory of creativity by Robert J. Sternberg and Todd I. Lubart, and creative class theory by Richard Florida. The sociocultural approach to creativity should include the interacting psychological, pedagogical, sociological, and anthropological studies of creativity. Thus, systemic and cultural concepts are to treat creativity in an integrated and at the same time, interdisciplinary way.

The theory of creativity by Teresa M. Amabile is component-based, meaning that its main theses consist of three components: directional ability, creative ability, and intrinsic motivation. In her view, creativity should be defined based on the product's characteristics, not the creative process, the creative person, or the creative environment. She points out that the creative trait should guide people responsible for recognizing whether something is creative. Amabile believes that the creative potential that resides in every person should be considered because of the three components mentioned above. However, only their intersection, not each part separately, can lead to high creative achievements (Amabile, 1993).

An assumption in the systemic theory by Mihaly Csikszentmihalyi is the thesis that creativity should not be considered a purely psychological phenomenon but also a sociocultural one and that only the works of gifted individuals or their creative person cannot be taken for its analysis. Creativity is a social system that makes creative judgments (Krauze-Sikorska, 2006). The author is concerned with where creativity is, not what it is. In Csikszentmihalyi's approach, three main systems are important: the individual - the individual context, the field of action - the social context, and the domain - the cultural context. The creative process is created when all systems begin to interact. This approach indicates that the creative process takes time because before all the elements begin to interact and produce changes to the existing domain or create new parts, a whole series of creative principles and rules must take effect (Krauze-Sikorska, 2006). Csikszentmihalyi's theory has numerous critics, primarily for its lack of empirical confirmation and inconsistent approach in the context of, among other things, treating the creative person as a system that produces a product and culture as a separate system that gives the product its creative value.

The model of creativity by Klaus K. Urban assumes that to live, we need to increase our creative potential, which should be developed and supported by society and education at large (Urban, 2003). The author relies on a four-facet paradigm for interpreting creativity (creativity as a person, a process, a product, and an external influence). To this paradigm, he adds the dimension of the problem and the environment. Factors inherent in the environment affect the creative person, the creative process, and the creative product, but also the acceptance of a given problem in the social context.

Urban also created a model that integrates the following six components: divergent thinking, general competence, specific knowledge and skills, task commitment, motives and motivation, and openness and tolerance of ambiguity (Urban, 2003). All these components work together in the creative process. In his view, creativity can be analyzed at three levels: individual, group, and social (global).

Roman Schulz's ecological theory appeals to the search for answers to the question: Where does creativity come from? What does creativity consist of? etc. Schulz recognized that creativity is the work of people, together with other creators, at a specific time, under specific sociocultural conditions (Schulz, 1990). In his opinion, creative activity can be based on various forms and domains, e.g., autonomous cultural-creative activity, modern human labor, socially innovative behavior, self-creation, and dimensions of creativity: due to the creative subject, creative process, creative product and sources of creativity (Szmids, 2013). In each field and each size of creativity, a person adopts a specific personality and activity. Different creative processes take place in them, and it is in this diversity that man's creative behavior is (Krauze-Sikorska, 2006). A common feature in the various fields of creativity can be innovation, a modern product, a change in the social context, or a program for self-development (Szmids, 2013).

The investment theory of creativity by Robert J. Sternberg and Todd I. Lubart includes a metaphor for buying and selling. Investing in the context of creativity means choosing a topic, but one that will lead to a new and valuable product. In this regard, the authors give several strategies for investing. First, anyone can be creative in an area they decide to take on. In the following steps, the authors mention the combined influence of resources, i.e., intellect, knowledge, thinking style, personality, motivation, and social environment. In each of these groups, some elements favor and hinder creativity. However, the effect of these factors can be non-linear, cumulative, or compensatory (Nęcka, 2012). Sternberg and Lubart's concept is grounded in empirical research. It is considered one of the more essential system theories in describing creativity.

The last, the concept of the creative class by Richard Florida, is one of the more recent approaches to analyzing creativity. It assumes that the creative class was formed mainly on the demand of society and the provision of creativity. Nowadays, there is a growing demand for creativity, and as a result, people are engaged in it. According to Florida, they are becoming more and more cohesive. He proposes a division between creative professionals and creators of new forms, who constitute the core of the creative class, according to the author. He includes, among others, computer scientists, architects, artists, mathematicians, engineers, athletes, teachers, designers, and consultants. Therefore, the ranks of creative professionals include salespeople, managers, health care, lawyers, and

technicians (Szmidt, 2013). In Florida's view, the creative class faces the challenge of creating new forms of social cohesion. One can have many objections to Florida's concept from a pedagogical point of view. Still, some of his theses call for reflection on the necessity of developing creative lifestyles and innovations, which today play an essential role in human functioning.

These theories are radically different from classical or cognitive ones. The voice of criticism toward these concepts primarily refers to education's reference to creativity treated as a system. However, they have an undeniable sociocultural approach and attention to the fact that the creative process is not only about cognitive processes. One of their greatest strengths is that they encourage research of an interdisciplinary nature. In recent years, interest in this aspect of creativity has grown significantly in pedagogical research.

Summary

Creativity in the social sciences is a multidimensional concept. Each field (including pedagogy) can also be analyzed from different perspectives. On the one hand – there is no accepted universal definition of creativity – this allows for openness in research contexts. On the other, however, it can cause chaos, caused of the hard-to-define, still mysterious nature of the concept. However, regardless of whether the definition of creativity starts from the subject, object, or socio-cultural conditioning, it can be studied in pedagogy in many ways. Previous attempts by researchers to understand and describe creativity allow the creation of ever newer concepts.

The concepts presented above in the approach to understanding creativity are only selected proposals in the pedagogical research approach. Among the numerous authors who study the phenomenon of creativity in pedagogy and psychology, there is a consensus on internal conditions (concerning the creative person himself) and external conditions (the broad environment in which the creative person resides).

In addition to subject and object definitions of creativity, it can also be interpreted in terms of levels. Whatever concepts are chosen – classical, cognitive or systemic, and cultural – they will depend on several internal and external determinants. At the same time, the multiplicity of creative concepts and research approaches leaves room for researchers to expand, deepen existing knowledge, create new analyses on creativity, and search for its new dimensions in pedagogy and interdisciplinary context.

Author contributions

The author confirms being the sole contributor of this work.

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