

A META-ANALYSIS STUDY ON THE ASPECT OF CREATIVITY IN EDUCATION

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Abstract: The success of learning in school is determined by the ability to find and use effective and creative learning strategies. Creativity is not only an important element in solving problems but also an indicator that individuals have higher levels of excellence functions. Creativity character is one of the issues that has not been widely discussed and actualized in the context of education, especially in the focus of creating an effective learning process. A systematic review was used to examine previous research on creativity in the context of education. This study reviewed 10 scientific papers based on the analysis in the study. The results show that creativity has a specific model based on aspects of the definition, characteristics of creative subjects, supporting factors, inhibiting factors, a domain of creativity, and creative strategies in school. Creativity is also a very important character and has a particular model both for students and teachers and for the principals.

Keywords: creativity, context of education, systematical review

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INTRODUCTION

The success of education in a school not only starts from wisdom, equality, and an integrated system but also the collaboration of important elements in the school. The collaboration in question includes the role and strength of the principal in creating a good school climate, teachers as educators as well as teachers who are the end the creation of a quality young generation, as well as students as educational subjects who will serve as leaders and future generations (Ramdani, 2018). One aspect that is considered important and characteristic that should be present in these elements is creativity. Based on the results of previous studies, that aspect of creativity is an aspect that plays a role in not only being

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education is more interesting, but it is also an indicator that each individual in it is active and able to develop its best potential which will then affect the success of education in the future (Ramdani, 2018).

Aspects of creativity are widely discussed in various settings of human life, especially in the discipline of Positive Psychology. Theoretically, creativity directs individuals to achieve goals in their own new, unique, and original way (Peterson & Seligman, 2004). Such ideas or behaviors must be adaptive, that is, they must be able to make a positive contribution to themselves and others (Peterson & Seligman, 2004). In the context of education itself, creative thinking belongs to the higher level of human executive functions, where this aspect plays a role in completing complex and useful tasks in the face of difficult and stressful situations (Delis, Lansing, Houston, Wetter, Han, Jacobson, & Kramer, 2007). Besides, creative teaching will encourage students to think creatively which then becomes an indicator that as a whole individual is not only able to solve problems completely, on the other hand, it becomes a sign that personality, knowledge, and motivation affect their environment (Strenberg, 2006).

This aspect of creativity is one of the characteristics that has not been fully built in the world of education. Studies conducted on outstanding students show that this aspect has not been much noticed by students, especially in their academic activities (Ramdani & Fahmi, 2014). Not only in students, but the low characteristics of this creativity also occur in teachers who teach in schools which are shown with the lowest scores on the Values in Action Inventory Scales (VIA-IS) scale compared to the such as openness of mind and love for learning (Ramdani, 2018). The purpose of this research is to review and review scientific articles and gain an understanding of concepts about aspects of creativity in the context of education.

METHOD

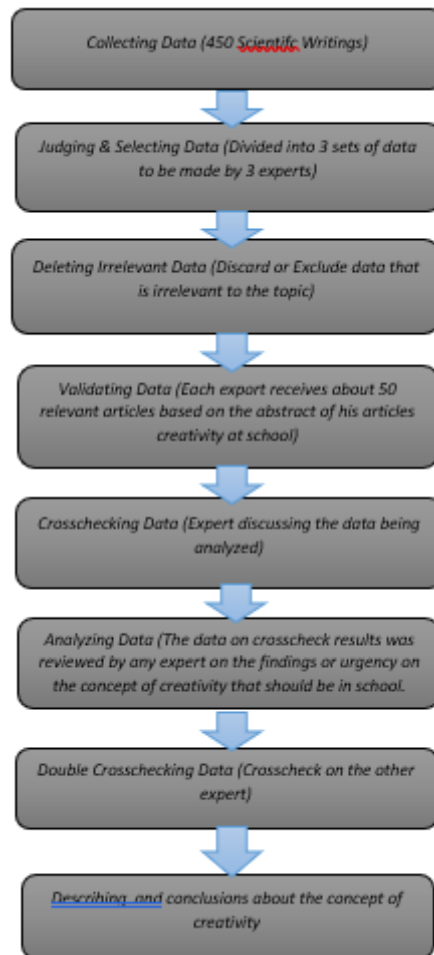
The study used qualitative research based on systematic reviews. This method is done by collecting scientific writings from various machines or databases related to the topic of creativity in schools (Ashford, Edmunds, & French, 2010). At this stage, researchers collected various scientific papers using the help of database engines science direct, sage, and Ebscohost.

Researchers used keywords such as "creative climate", "creative in school", "elements of creativity", "teacher's creativity", "teaching with creativity", "innovation in school", "school's creativity", "schools leaderships innovations", "sources of creativity", "creativity of schools principals", "students creativity" and "creative education". Then the next process is to conduct judgment and selection to obtain articles relevant to the purpose of research.

FINDINGS AND DISCUSSIONS

Findings

Based on the results of the review, 53 articles were selected as the articles most relevant to this study. Furthermore, important aspects of creativity are grouped into 6 major themes that will be explained in the results and discussions below.



Picture 1. Systematic Study Flow

Definition of creativity

Creativity is broadly defined and complex with a wide variety of points of view found in these articles. Creativity was originally defined as innate intelligence which then evolved into the result of a combination of one's innate abilities and the process of adaptation to the environment (Jahnke, Haertel, & Wildt, 2017). The notion of creativity then expands, where creativity is seen as the highest level of expressing a new idea and the ability to combine unrelated

topics in different ways to avoid common patterns (Krumm, Aranguren, Arán Filippetti, & Lemos, 2016). This means creativity is associated with the process of exploiting possibilities that may be at odds with conventional means (Taylor & Callahan, 2005), willingness to accept something new, and willingness to accept a risk and not be afraid of challenges (Jahnke et al., 2017).

In more detail, Lucas (2016) grouped five models of creativity developed, i.e. imaginative (playing with possibilities, making connections, using intuition), inquisitive (giving and asking questions, exploring and investigating, challenges), persistent (unique, persisting in difficulty, and tolerance), collaborative (giving and receiving input, proper cooperation, sharing results), and discipline (reflection on criticism, developing techniques, self-development). While in other groupings, creativity is divided into three perspectives: originality (getting things done in a way that has never been done before), novelty (creating something new), and difference or seeing something from a different point of view (Jauk, Benedek, & Neubauer, 2014).

Several other aspects are also added to creativity, such as the smoothness (the lack of ideas), flexibility (diversity of ideas), new authenticity and usefulness of an idea (Warren, Mason-Apps, Hoskins, Azmi, & Boyce, 2018), imagination, positive motivation, and independence (Maksić & Pavlović, 2011). Besides, Agnoli, Zanon, Mastria, Avenanti, & Corazza (2018) also add intrinsic motivation to students and environmental influences (inside and outside the school) that can predict the achievement/achievement of creative students. More philosophically Collard & Looney (2014) suggests that creativity is a fundamental development in individuals that will influence their happiness in life. These things start from the ability in using taste, imagination, thinking, and reasoning, as well as trying to do what is in their capacity.

The hallmarks of creative people

Based on the results of the review, found a variety of keywords that indicate someone is creative. The characteristics of creative individuals are those who are imaginative, have a great curiosity, a willingness to explore something unknown, love challenges, are not afraid to try something new, and can understand ambiguity. Creative individuals have effort and firmness, have a great self-efficacy of confidence in their abilities (Collard & Looney, 2014; Zhou, Shen, Wang, Neber, & Johji, 2013).

Creative individuals are also those who are interested in new and complex ideas, think abstractly, generalize ideas, predict possibilities, analyze a big picture/ thoroughly, unusual imagination and dreamers, like intellectual play, curiosity, find pleasure when playing with ideas, the ability to offer many solutions with various angles pan-dang, dare to take risks, consistent to try to hold something new, hyperactive or extreme energy and have a more positive self-concept (Taylor & Callahan, 2005). Meanwhile, according to Runco, Millar, Pickles, & Cramond (2010) creativity is when a person faces a

problem that has never been learned before but he knows how to solve it. Furthermore, creative people are also associated as task-oriented people, hardworking, and able to survive for a long time to achieve certain targets. They also have a desire to pursue their beliefs and dare to take risks for this.

Besides, another visible trait is that they have a very high intrinsic motivation to be creative in their field. Have very high self-discipline and are very dedicated to their work. Have a deep sense of what they are passionate about. Have a high standard for the work they do, think divergently, have extensive research on a particular field, and commit to their work. Also, they have flexible thinking, who are always looking for new situations and thinking of many possibilities (Taylor & Callahan, 2005).

In more detail, Boytos, Smith, & Kim (2017) group creative individuals into two groups, namely underdogs and top dogs. In more detail, Boytos, Smith, & Kim (2017) group creative individuals into two groups, namely underdogs and top dogs. Underdogs are people who fight hard to get something they don't have, whereas top-dogs are the ones who keep what they already have. Underdogs are people who fight hard to get something they don't have, whereas top-dogs are the ones who keep what they already have. While Kaufman & Beghetto (2013) classifies the levels of creativity into 4 levels, namely: big-C or eminent creativity, which is owned by great artists or scientists, pro-C or expert levels of creativity, namely creativity shown in the profession, especially by creators/creators who have not earned eminent status. While Kaufman & Beghetto (2013) classifies the levels of creativity into 4 levels, namely: big-C or eminent creativity, which is owned by great artists or scientists, pro-C or expert levels of creativity, namely creativity shown in the profession, especially by creators/creators who have not earned eminent status. little-C or everyday creativity that regulates one's creativity in life and daily experiences. little-C or everyday creativity regulates one's creativity in life and daily experiences. mini-C is subjective creativity that describes how a person has a new and meaningful understanding/knowledge during the learning process and experience.

Supporting factors of creativity

The level of creativity that exists in an individual is influenced by several factors. A family's social and economic status can influence a person's creativity. Some researchers support that families with good social and economic standing are capable of producing a more creative child (Castillo-Vergara, Alvarez- Marin, & Placencio-Hidalgo, 2018). The socio-economic status of the family and extrinsic support (e.g. intellectual activities at home such as the availability of books at home) have a positive influence on students' level of creativity. The environment also has a huge influence, where some studies have found that an environment that supports students' creative processes (e.g. at home or school) can better develop students' creativity. However, the influence of these factors only exists at an early stage (as a child).

The influence of these external factors no longer impacts when a student grows up. Meanwhile, intrinsic motivations from parents (e.g. identifying their mistakes rather than giving gifts) were found to not affect a child's creativity development (Gralewski & Karwowski, 2018).

A supportive social environment can also influence students' creativity. Students who get support from the school to develop creativity, they have a more creative self-efficacy and become a creative individual (Chang, Wang, & Lee, 2016). The existence of space for students to develop their creative thinking such as personal space, space for group discussions, space for experimentation, and space for social interaction (such as cafes and parks) positively influences the development of student creativity (Castillo-Vergara et al., 2018). (Gulliksen, 2017) also found that there is a close relationship between the game and the environment to creativity.

Furthermore, it was found that creativity in a person can predict the achievements of students in the school. A longitudinal study found that a person with a low IQ level is less likely to produce individuals with high creative achievements. However, a high IQ does not automatically guarantee the achievement of high creativity (Gralewski & Karwowski, 2018). Other studies have also revealed that emotional intelligence (EI) does not have any influence on students' perforations or achievements (Hansenne & Legrand, 2012). Besides, some studies have also linked creativity and one's academic achievement in school and found that there is a negative link between school achievement (GPA) and creativity (Gajda, 2016).

Creativity-based learning atmosphere

Creative learning is defined as a unique, planned, and meaningful exchange of knowledge between all elements of education in an individual. Some things that can be done in doing creative teaching are: involve more students (connecting the material taught with real-life); accuracy in using the concept of creativity in the classroom (distinguishing different types of creativity); give students clear instructions so that they can explain the specifics of an activity creatively); and take advantage of authentic creative opportunities such as evaluating the extent of students' creativity by looking at the correlation to learning outcomes (Rinkevich, 2011).

Some research also places teacher competence as one of the important factors to create creative learning. Chan & Yuen (2014) suggests that teachers who usually teach in classrooms with genius students have higher creative scores. This is because these teachers have confidence in their good creativity, creative personality, and ultimately influence their creative behavior.

Meanwhile, some assessments of the system to analyze creativity programs, among others: psychometric tests on divergent thinking, behavioral or personality tests of the past or characteristic personality, personality tests correlated with creative behavior, lists of activities related to creative

production, testing the scale of creative attitudes, using sophisticated techniques in creative works, expert assessment in assessing the level of creativity of the work or response, and consumer ratings (Lucas, 2016).

The level of creativity can also be seen from the extent to which students in the modernization era use technological advances as a forum for their creativity. Creativity in the digital age can be seen from 3 factors, the first is their achievements or activities that can be related to creative activities, the second is the creative activities that they often do in school, and the third is the actualization of themselves to digital creativity (Hoffmann, 2016; Delis et al., 2007).

Some ways can be done in schools to increase creativity including methods and ways of learning used, the development of professionalism, romanticizing creativity, identification and demanding students with extracurricular programs, as well as answers that are not specific or general answers (Maksić & Pavlović, 2011).

Creative teachers will produce an effective learning atmosphere, direct the class to a good intellectual atmosphere, increase the independence, confidence, and personal growth of the child. The characteristics of creative teachers are seen from several aspects, namely: first, aspects of learning (interesting presentations, the importance of learning, scientific applications with daily activities, and the use of stories as learning). Second, class management (resizing the class and holding class sessions outside). Third, tasks (creative tasks and creative group tasks). Fourth, interaction with students (encouraging students to dare to ask questions, using students' fundamental abilities, and providing positive feedback). Fifth, the character of an active and enthusiastic teacher, interested and attentive, thinking broadly and actively listening (Abedini & Broujeni, 2016). This is because children's creativity in the presence of their teachers is seen from self-reflective learning, independent teaching processes, showing great motivation and curiosity, creating or producing things, showing many or more perspectives, achieving the originality of new ideas, and doing to the maximum (Jahnke et al., 2017).

The creative climate in schools

Some articles emphasize the need for a creative environment that will help individuals learn and provide students with the support they need to think openly and productively. Creatives emerge from a mix of ideas, mixes of feelings, words, and deeds that are intertwined with each other in their world. one of them can be seen when they are given a problem and how they solve the problem with various types of solutions. One of the things that makes them creative is the critical thought process that has to be done. With the right environment and guidance, students can be invited to solve problems and not be afraid of being wrong. Because this creativity is related to the highest function

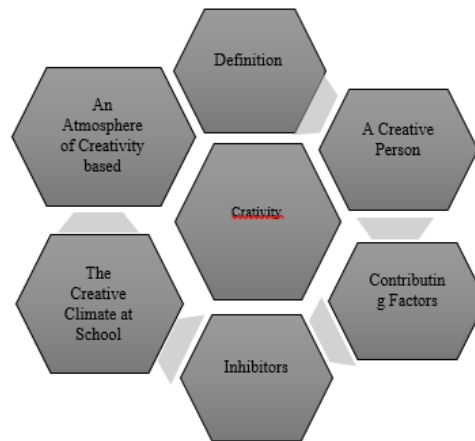
in thinking, it takes a systematic process to assess it (Castillo-Vergara et al., 2018).

Creativity inhibition factor

Some of the factors inhibiting creativity found in the article include social relationships that do not support creativity, cultural views, non-supportive environments, barriers that come from within the person, educational patterns, social relationships and cultural views, environments, and barriers that come from within a person.

Some of the general categories that are also signaled to be inhibitions in creativity-based education are resources and the natural environment, educational resources and environments, educators' personalities and qualifications and personalities. Natural resources and environments include the incompatibility and mismatch of techniques used, the loss and mismatch of existing facilities and infrastructure. Educational resources and environments include time and stress deficiencies, inappropriate curriculum, overcrowding of students, and a poor education system. educators' qualifications and personalities include incompatibility of teaching and behavior, lack of understanding of know-how and experience and guidance, lingering negative traits. Students' cauldrons and personalities include negative traits, as well as the loss of basic knowledge and abilities (Elisavet Konstantinidou, Gregoriadis, Grammatikopoulos, & Michalopoulou, 2014).

Besides, other obstacles in creativity include curriculum, assessment and teaching, teacher training, media development, and educational leadership and culture. Besides, other obstacles in creativity include curriculum, assessment and teaching, teacher training, media development, and educational leadership and culture. What schools should do is to support teachers to take on challenging and risky tasks, reassure students with positive advice and feedback and also support to thrive, and strengthen collaboration between stakeholders in schools (Collard & Looney, 2014). In summary, the results of a review paper on creativity are displayed in the chart below.



Picture 2. Conceptual Framework of Creativity

Discussion

Creativity is a very important discussion in the era of modernization and technological advancement today because it becomes one of the things that determine the quality of education and the development of children's abilities in school. The studies discussed in this study provide a clear picture of the importance of creativity in various human activities. Creativity is a concept that is very broad in meaning, so it needs to be described and detailed into a more operational form of explanation. Creativity is defined as a flexible ability that focuses on processes by using the highest function of thinking in humans (Zhou et al., 2013). Such a process requires each individual to think adaptively and selectively to various problems. Because of its complex nature, none of the measurements can see the construct of creativity directly or holistically (Lucas, 2016). So many experts say that creatively active people are those who have high intellectual ability (Abdulla & Cramond, 2017). Creatively simple comes up in a set of ideas, a mixture of feelings, words, and deeds that are intertwined with each other in solving a job or problem (E Konstantinidou, Zisi, Katsarou, & Michalopoulou, 2015).

Other perspectives describe creativity as an executive function that includes fundamental human abilities, especially in thinking something abstract (Hoffmann, Ivcevic, & Brackett, 2016). This then spreads into the individual which includes cognitive, social, emotional, to the characters who then bind to the individual (Maksić & Pavlović, 2011).

Creativity arises because it is driven by the intelligence potential of an individual in his life that has been shaped and genetically derived from their parents, so this level of intelligence depends on what parents give, teach, and apply in their children's lives (Burns, Zhang, Wieth, & Touyz, 2017). This innate

intelligence will then gradually become a basic knowledge that gives rise to confidence in the child (Bush, 2014). And what will amplify or weaken that potential is the environment in which the individual lives, whether it includes where he or she attends school, what they interact with, how to solve problems with his or her needs, and other contexts related to individuals (Collard &Looney, 2014).

There are several characteristics of creativity possessed by creative individuals. In general, creativity is depicted in three perspectives namely originality, novelty, and difference (Choi, 2004). Someone creative has the following characteristics: (1) imagination, (2) desire to always try, (3) original thinking, and great curiosity (de Alencar, 2014). In other perspectives creativity can be analyzed through several characters, including (1) imaginative (playing with possibilities, making connections, using intuition), (2) inquisitive (imaginary and asking questions, exploring and investigating, challenges), (3) persistent (unique, enduring difficulties, tolerance), (4) collaborative (giving and receiving input, proper cooperation, sharing results), and (5) disciplines including reflection of criticism, developing techniques, self-development (Soriano, 1985).

Creative traits are those who have an openness to experience personality, great curiosity, a willingness to explore the unknown, and a willingness to understand ambiguity (Collard &Looney, 2014). This openness reflects intellectual curiosity and a tendency to create new things (Burns et al., 2017). Creativity also relates to the authenticity of ideas, the willingness to experience, the willingness to accept something new, different, and possibly unreasonable, the willingness to accept risks in mind and action, and sensitivity to the beauty of the character of those ideas.

Creativity in the world of education is inseparable from two important aspects, namely teachers as educators and students as students. Creativity in the world of education is inseparable from two important aspects, namely teachers as educators and students as students. The form of creativity owned by an educator is seen from several aspects, namely: first, aspects of learning (interesting presentation, the importance of learning, scientific applications with daily activities, and using stories as learning). Second, class management (changing class measurements and holding class sessions outside). Third, tasks (creative tasks and creative group tasks). Fourth, interaction with students (encourage students to dare to ask questions, use students' fundamental abilities, and give positive feedback). Fifth, the teacher's character is active and enthusiastic, interested and attentive, thinking broadly and actively listening (Abedini &Broujeni, 2016). While the creativity of students in front of their teachers is seen from first, self-reflective learning. Second, an independent learning process. Third, show great motivation and curiosity. Fourth, create or

produce something. Fifth, show many or more from one perspective. Sixth, achieve the originality of new ideas. Seventh, do to the maximum (Jahnke et al., 2017).

Creativity is considered something very important in today's millennial era (Lucas, Claxton, & Spencer, 2013). The best way to be creative in the millennial era is to improve and be good at seeing what's in the global world, harnessing the media as a profitable source, daring to take on challenges, and not afraid to try.

A fundamental understanding of what creativity is and how indicators of creative people will then become early knowledge in determining what strategies will be used in the learning process that can improve those abilities. As the context in which education was built, from the beginning, it was supposed to build a creative school climate, where children were taught to deal with new situations with courage and confidence even though it was beyond the expectations of those children (Collard & Looney, 2014). With such a climate hopefully, children can develop with optimism because they are already accustomed to a variety of pressing and challenging conditions that in the end, they will use their abilities optimally to succeed. Besides, methods or strategies that can be done by teachers or schools for their children can be done with a variety of activities that build creativity such as self-reflective learning, self-learning process, showing curiosity and high motivation, producing something new, and trying to work to the maximum (Abedini & Broujeni, 2016).

Supporting factors related to creativity are individual hard work, environmental and group influences (Seng, Keung, & Cheng, 2008). Besides, other factors such as intellectual ability, knowledge, thinking style, motivation, environment, personality, and individual components in cultivating creativity (Strenberg, 2006).

The existence of intrinsic and extrinsic motivation and socioeconomic abilities of the family in providing learning facilities can have a positive influence on the level of creativity, but only at the early stages of childhood (Thoring, Desmet, & Badke-Schaub, 2018). Another more encouraging factor is that a supportive social environment can influence students' creativity. Students who get support from the school to develop their creativity have more creative self-efficacy and become creative individuals (Chang et al., 2016).

Another perspective reveals 3 challenges that affect creativity are smoothness (number of ideas), flexibility (diversity of ideas), authenticity (new and useful ideas). It can be concluded that someone who has creativity is required to have a diversity of ideas that are original and beneficial (Warren et al., 2018). Thus the factors described earlier are of serious concern that the concept of creativity is something very complex and should be understood very

operationally. So hopefully by understanding what is presented in this research can be a source of reference in viewing creativity as an important aspect of education.

CONCLUSION AND RECOMMENDATION

Based on the results of the review of the article, it was found that creativity has a complex definition with a wide domain. The characteristics of creative people ranging from their ability to think divergent, imaginative, challenging to diligent in doing things. While the factors that encourage creativity are the environment (family, community, and school) and motivation in a person. However, cultural and environmental influences can also hinder the development of one's creeds. A creative school environment and creativity-based classroom learning can influence a student's creativity development.

The results of this study on the concept of creativity resulted in characteristics about creativity. In addition to several factors that can support creativity, there are still factors that inhibit creativity such as social interests that do not support creativity, cultural views, unsupportive environments, and obstacles that come from within the person. This research presents a basic framework that can be used as a reference for other research in the context of the field directly. With the use of more empirical methods and studies in the field, the results of this study are very appropriate as a conceptual reference.

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