

THE DEVELOPMENT OF CHILDREN'S CREATIVITY: A SYSTEMATIC LITERATURE REVIEW

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Abstract: Creativity refers to the individual's ability to think constructively and generate new ideas, the universal characteristic of creativity is the novelty and freshness of ideas. 80% of creativity in children is product-oriented, in other words, creative children are those who are able to create new products or ideas, whether they are really new or things that have existed before but are renewed. The development of children's creativity follows a curved trajectory consisting of peaks and declines. Recent research states that the development of children's creativity has a linear direction of other developments. This article discusses the development of creativity in children using the Systematic Literature Review method to examine 53 articles from five databases, which finally resulted in seven articles that met the criteria to be identified in this study.

Keywords: A systematic literature review, Child, The development of creativity

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INTRODUCTION

Creativity has been a topic in psychological and educational research for decades (Kupers, 2018, p. 96). Creativity remains an elusive concept, which is why there are many different definitions and theories about what creativity is and how it emerges in children. Creativity is an individual's ability to think using new and different ways to solve problems in a unique and appropriate way (Santrock, 2012). Creativity is the process of thinking and responding constructively to existing ideas and making them new (Torrance 1993; Fearon et al., 2013). The universal characteristic of creativity is the novelty and freshness of ideas. According to the NACCCE (National Advisory Committee

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on Creative and Cultural Education), creativity is an imaginative activity that produces new and valuable results (Craft, 2005; Vidya, 2016). And creativity is a very important need for individuals that must be developed from an early age (Munandar, 2012).

Every child has a creative talent (Hunhr, 1965; Urban, 1991). If a child's creative talent is not nurtured, then that talent will not develop, and even become a hidden talent that cannot be realized (Torrance, 1981; Teviana et al., 2012). According to their characteristics, children like to explore and are always curious about various things (Lehwald, 1986a, 1986b; Urban, 1991). Children seek new things and create new situations (Oerter, 1971; Urban, 1991). All changes that lead to new behavior in children are called creative processes. The characteristics of the creative process are changes in a positive direction, have clear goals and are constructive (Anderson, 1959; Urban, 1991).

Creativity in children focuses on products, meaning that a creative individual is someone who produces something new and valuable in one particular field (Ershadi & Ellen, 2020, p.144). A literature shows that 80% of creativity in children uses measures at the person or product level (Kupers et al., 2018).

The development of creativity in children fluctuates, there are several studies that report that in the childhood phase there is a decrease in the level of creativity. Consistent with other cognitive abilities and behaviors, creative abilities follow a curved trajectory consisting of peaks and slumps (Piaget, 1977; Sak & Maker, 2006). Factors that influence this decline in creative abilities include early parental teaching, socialization, and peers during child development (Camp, 1994; Smith and Carlsson, 1983; Torrance, 1967).

The ability of creativity is more easily seen when children are in the preschool phase, because at that time they give reactions that tend to be genuine compared to children who are at a higher age (Moran et al., 1983; Sali 2015). However, creative thinking can fade if it is not strengthened, therefore creativity must continue to be trained and developed (Torrence, 1967). Pre-school and the first years of primary education are particularly suitable periods for children with certain creative potentials, where they can develop and use this valuable potential (Bessis-Jaqui 1973; Sali 2015).

METHOD

The search methodology in this study uses a Systematic Literature Review that was carried out by Kitchenham and Charter Kelee. Systematic Literature Review is a term used to refer to a particular research methodology or research and development carried out to collect and evaluate related research on a particular topic focus.

Literature Search

The search process is used to obtain relevant sources related to the theme raised. The search was carried out using the search engine for Science Direct with the search site address <https://www.sciencedirect.com/>, Taylor & Francis Online with the search site address <https://www.tandfonline.com/>, Wiley Online Library with the search site address <https://onlinelibrary.wiley.com/>, PsyArXiv Preprints with search site address <https://psyarxiv.com/>, and ERIC with search site address <https://eric.ed.gov/?journals>.

Inclusion and Exclusion Criteria

These articles are included in the review if they meet the inclusion criteria, namely based on discussions about the development of children's creativity. Meanwhile, outside of these discussions, such as intelligence, intelligence, interests and talents in children will not be discussed in this article.

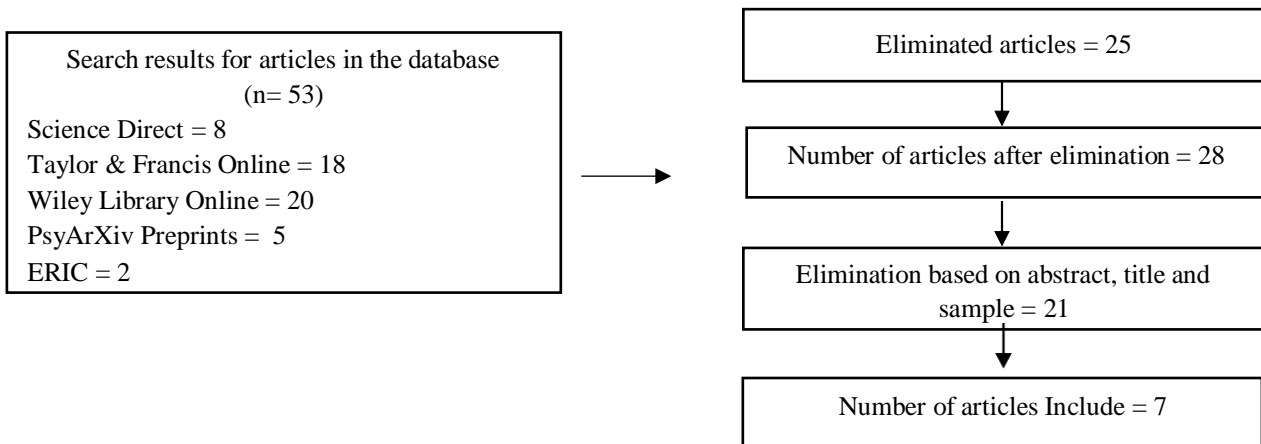


Figure 1. Article Eliminations Process Diagram

FINDINGS

Table 1
Studies on the Development of Children's Creativity

Author, Year	Sample (n)	Variable	Method, Instruments	Summary of Result
(Klaus K. Urban, 1991)	n = 272 children (aged between 4-8 years). Consisting of 135 girls and 137 boys.	- Creativity - Education - Age	The <i>Test for Creative Thinking- Drawing Production</i> (TCT-DP)	The creativity test results of very young children reflect their general state of cognitive development more than their specifics for the child's creative potential.
(Kupers et al., 2019)	-	Creativity	<i>Systematic Literature Review</i>	The essence of creative development consists of real-time transactions between the child and the child's social (teachers, peers, etc.) and material environment (tasks). 80% of creativity in children uses measures at the person or product level.
(Gunes Sali, 2015)	n = 201 primary school children	Creativity	- <i>Descriptive method</i> - <i>General Information Form</i> - <i>Torrance Creative Thinking Scale Figural Form A and B</i>	The results found that there were differences in children's creativity scores from grade one to grade five. This illustrates that the development of children's creativity changes in each period of development.
(Sak & Maker, 2006)	n = 841 students in grades 1 through 5 from four different schools in the United States and the majority of participants came from culturally and linguistically diverse groups.	- Creativity - Age - Grade - Math	<i>The Discover Assessment</i> (to assess problem-solving abilities as a manifestation of intelligence and creativity in domains of human ability)	The contribution of age to the development of children's creativity slows down around the age of 10 to 11 years for some time, and knowledge begins to play a more important role thereafter and there is no relationship between grade level and decline or peak of children's creativity.

(Claxton et al., 2005)	<ul style="list-style-type: none"> - Year 1998 n= 184 fourth grade students (85 boys, 99 girls) - In 2000, 124 students (57 boys, 67 girls) who were graded in fourth grade were reassessed in sixth grade. - In 2003, 75 students (29 boys, 46 girls) were graded in the ninth grade. 	Krativitas	<ul style="list-style-type: none"> - <i>Creativity Assessment Packet developed by Williams (1993)</i> - <i>Test of Divergent Thinking</i> - <i>Test of Divergent Feeling</i> 	An interesting finding from this study is an increase in the divergent feeling score which shows a significant increase. Meanwhile, divergent thinking scores reflect a slight increase between fourth and ninth grades; however, the improvement was not found to be significant between grades four and six or between grades six and nine.
(Saggar et al., 2019)	n = 56 children (mean age 9.20 years 7.5 months; 24 girls, 32 boys)	<ul style="list-style-type: none"> - Kreativitas - Jenis kelamin - Kecerdasan - Sisten syaraf 	<ul style="list-style-type: none"> - <i>Edinburgh Handedness Inventory</i> - <i>NEPSY-II Inhibition</i> - <i>Child Behavior Checklist (CBCL)</i> - <i>Torrance Test of Creative Thinking-Figural (TTCT-F)</i> 	Longitudinal research on children's creativity found that there were three developmental trajectories in children's creative abilities which clarified previous findings regarding the fourth grade slump creativity. This data-driven approach reveals that children vary in the onset of creative decline, and their creative abilities change over time
(Barraza et al., 2019)	<ul style="list-style-type: none"> - Kindergarten children (N = 73, 35 male, age = 5.26, SD = 0.44) - Second grade (N = 77, 39 male, age = 7.40, SD = 0.54), - Fourth grade (N = 78, 38 boys, age = 9.33, SD = 0.61) - Sixth grade (N = 65; 32 males, age = 11.34, SD = 0.50). 	Kreativitas	<ul style="list-style-type: none"> - <i>Torrance tests of creative thinking figural form (TTCT-F)</i> - <i>Goodenough-Harris drawing test (GHDT)</i> 	The results of this study contradict previous research regarding the typical fourth or sixth grade slump creativity. The general trend in the data is that kindergarten and second graders have lower overall creativity performance, with performance improvements in fourth grade increasing especially in sixth grade.

DISCUSSION

Children's Creativity Development

Creativity is an individual's ability to generate new ideas by combining various received information in its original form (Guilford, 1967; Barazza 2019). The emergence of creativity displayed by children cannot be separated from the social system in which children live (Sawyer et al., 2003; Kupers et al, 2018). Children are naturally creative and experience a decline when they enter the world of education, because children will lose their full freedom by following the rules and standards specified (Robinson, 2011; Kupers et al, 2018). Children have a desire to take creative action without realizing it. Their imagination, feelings and thoughts express their thoughts freely (Ozden, 1993; Sali 2015).

Research (Kupers et al., 2018) shows that the emergence of creativity in children often arises from collaboration between children and their environment, such as peers, or from teacher-student interactions at school. Creativity is referred to as a characteristic of an individual that can be influenced by the social environment. Creativity does not occur in isolation in the individual's mind, but creativity is a process that occurs through continuous interaction between the individual and the environment (Csikszentmihalyi, 1988). There is a peculiarity in children's creativity which tends to product level creativity by 80%, a creative child is he who is able to create new products or ideas, be it things that are really new or things that have existed before but are renewed (Kupers et al. ., 2018).

The development of creativity in children declines when the child is in the fourth grade level, this is the result of research (Torrence, 1967) known as the fourth grade slump in creativity. This study found that children's creativity begins at the age of three years and increases until its peak is reached at the age of about four years. The decline occurs around the age of five when children enter kindergarten and is followed by grades one, two and three of primary school. Around the age of nine at the end of third grade or at the beginning of fourth grade, there is a rather severe decline in almost all creative thinking skills, then comes a period of recovery, especially for girls in fifth grade improving the flexibility component and recovery in originality comes mostly in sixth grade. . This is in line with research by Raina (1980) who also reported a similar finding, namely a decline in children's creativity when they were at the fourth grade level.

The reason children in fourth grade experience a decline in creativity is because they are becoming more critical in their sensory perception (Krikpatrick, 1900; Torrence 1967). Most fourth graders tend to be perfectionists and easily discouraged by adult pressure. This perfectionist tendency at the beginning of fourth grade may well develop as the basis of one explanation for the creative decline of fourth graders (Barkan, 1960; Torrence 1967).

Over time and more and more researchers are interested in researching the development of creativity in children, there are several recent studies that report findings that are not in line with Torrence's findings about the fourth grade slump in creativity. Longitudinal research (Sak & Maker, 2010) did not find any declines or peaks found in children's divergent thinking development which was influenced by their grade level, this study clarified the fourth grade slump in creativity Torrence. The development of children's creativity is linear with other developments. Because in general there is a linear relationship between class and the child's divergent thinking ability. As children advance to grades, they also increase in age, knowledge, and experience. Therefore, children may show increased creativity development as a function of age, knowledge or other variables at each grade level.

Longitudinal research (Saggar, et al., 2019) on children's creativity found that there are three developmental trajectories in children's creative abilities. Using a group sequential experimental design and data-driven methodology this study found different developmental trajectories in creative abilities in middle childhood. This trajectory is related to specific behavioral factors that are positively associated with creativity. In addition, the study also found that developmental changes in creativity tracked brain development in the right frontal lobe as creativity increased over time, with the right lateral prefrontal cortex showing increased segregation or functional specialization. In summary, these findings reveal three developmental trajectories of creative thinking skills in creativity development during middle childhood and identify different neural and behavioral factors that track changes in children's creative abilities over time.

Post-hoc analysis revealed that among the three creativity trajectories, the first creativity trajectory (CT1) showed a decrease in creativity in their initial grade (i.e., T1 to T2; $p < 0.00001$) and an increase after the transition to the next grade (i.e., T2 to T2). T3; corrected FDR $p=0.042$), while the second creativity trajectory (CT2) showed the opposite pattern, namely an explosion of creativity in the early grades (FDR corrected $p=0.0061$) and a decline after transitioning

to the next grade (FDR corrected $p=0.0001$). The third creativity trajectory (CT3), showed no change in their baseline scores ($p=0.96$) and bursts of creativity after transitioning to the next grade (FDR corrected $p<0.00001$).

This data-driven approach thus reveals that children vary in the onset of creativity decline, with some children showing an earlier decline (CT1), some showing a later decline (CT2), and others showing no substantial decline or improvement (CT3). This finding clarifies past employment reports for the presence and timing of declines in creative abilities by identifying groups of children who varied in how and when their creative abilities changed over time.

Then research (Barraza et al., 2019) on the development of children's creativity in Chile, the results of this study also contradict previous research regarding the fourth grade slump creativity (Torrence, 1967). This study investigates the development of children's creativity in the key components of divergent thinking, namely fluency originality and elaboration. The results showed low performance in fluency and originality in kindergarten and second grade children, who then experienced rapid improvement in fourth and sixth grades. On the other hand, the elaboration component showed an inverse development, namely medium-low performance in kindergarten, declining in second grade and worsening in fourth and sixth grade. Taken together, these findings reveal interesting patterns that distinguish performance on creative tasks between younger children (kindergarten and second grade) and older children (fourth and sixth grade).

This study also observed children's responses when given a task with creative solutions, kindergarten and second grade children showed a conservative response profile, namely the tendency to give few answers while fourth and sixth grade children responded somewhat more innovatively, namely the urge to provide answers in bulk.

Overall, the findings of the study (Barraza et al., 2019) regarding the decline in creativity in Chilean children are that children in kindergarten and second grade have lower overall creativity performance, with performance increasing in fourth grade and increasing notably in sixth grade. This study also rejects previous findings that children's creativity is not linear with the direction of development and decreased creativity in fourth grade (Torrence, 1967).

Characteristics of children's creativity

Children's creativity is closely related to the ability to think creatively and affective abilities. Many literatures use creative thinking ability as a measure to assess individual creativity. Munandar (2012) states that divergent thinking and divergent feeling are characteristics of creativity. Divergent thinking consists of Fluency, namely the ability to generate many ideas, answers, and problem solving. Flexibility is the ability to generate varied ideas, answers or questions, Originality is the ability to produce new and unique expressions, and the ability to make familiar combinations of parts or elements. Elaboration is being able to enrich and develop an idea or product, and evaluation, which is to determine the benchmark for self-assessment and determine whether a question is right or wrong (Sak & Maker, 2006). Divergent thinking represents only one component of creative thinking and is not synonymous with creative problem solving (Runco, 2016). Then, the ability to diverge feeling consists of a curiosity drive, imaginative ability, the ability to solve problems, dare to take risks and the ability to respect oneself and others (Stenberg 1985; Maksić & Pavlović 2011).

The characteristics of divergent thinking and divergent feeling creativity (Munandar, 2012) are influenced by several things, including grade level. Research (Claxton et al., 2005) conducted a longitudinal study of groups of students from fourth to ninth grade. The divergent thinking test using repeated measurement ANOVA found a significant difference when comparing the averages in grades four, six, and ninth, a significant difference in scores was found in the elaboration factor $F(1, 25) = 23.34, p = .000$, and factor flexibility, $F(1, 25) = 2.193, p = .125$. The paired sample t-test revealed that the largest change in grades occurred as grades decreased from grade four to grade six, $t(25) = 3.52, p = .002$. No significant change in grades was found when comparing grades six and ninth, $t(25) = 1.46, p = .156$.

Divergent feeling test using repeated measurements of ANOVA found a significant difference in risk taking $F(1, 25) = 382.76, p = .000$; complexity, $F(1, 25) = 259.65, p = .000$; curiosity, $F(1, 25) = 241.78, p = .000$; and imagination, $F(1, 25) = 168.5, p = .000$. When looking at the change in factor scores from grade four to grade six, a significant decrease was only found for complexity, $t(25) = 3.45, p = .002$. The paired sample t test revealed a significant increase in mean scores from grade six to grade nine for risk taking, $t(25) = 19.82, p = .000$; complexity, $t(25) = 17.95, p = .000$; curiosity, $t(25) = 16.56, p = .000$; and imagination, $t(25) = 14.21, p = .000$.

The results of the study (Claxton et al., 2005) yielded two main ideas. First, finding that there is a decline in the creativity of children in fourth grade (fourth grade slump in creativity) which can be seen in the complexity and scores that measure divergent thinking, and second, the overall score in divergent feeling continues to increase along with the increase in grade level.

CONCLUSION AND RECOMMENDATION

Creativity develops throughout its life span from childhood to adulthood. Children's creativity follows a curved trajectory consisting of peaks and slumps. Previous research has stated that creativity decline occurs when children are in the fourth grade level, but more recent research shows that children's creativity develops in line with other developmental directions.

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