



Creative thinking strategies: a view from basic education

Estrategias del pensamiento creativo: una mirada desde la educación básica

Estratégias de pensamento criativo: uma visão desde a educação básica

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teacher, basic education, strategies, student, creative thinking

ABSTRACT. The concept of creativity has progressed over time to become one of the fundamental human skills of this century. This study aimed to review different articles and analyze their academic contributions to creative thinking and the strategies used to promote it from primary education. The methodology used was the documentary review of 60 articles published in various reliable databases. The axes of the study proposed as conceptual definitions, characteristics of the creative student, and strategies used by teachers were taken into account. Concluding that there is a need to stimulate this thought so that students initially express their productions in the face of situations and challenges presented in daily life

PALABRAS CLAVE

docente, educación básica, estrategias, estudiante, pensamiento creativo

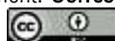
RESUMEN. El concepto de creatividad ha ido progresando a través del tiempo hasta convertirse una de las habilidades humanas fundamentales de este siglo. Este estudio tuvo como objetivo revisar diferentes artículos y analizar sus aportes académicos acerca del pensamiento creativo y las estrategias empleadas para potenciarlo desde la educación básica. La metodología empleada fue la revisión documental de 60 artículos publicados en diversas bases de datos confiables. Se tomaron en cuenta los ejes de estudio propuestos como definiciones conceptuales, características del alumno creativo y estrategias utilizadas por los docentes. Concluyendo que es necesario estimular este pensamiento para que los estudiantes expresen sus producciones de manera original ante situaciones y desafíos que se presentan en la vida diaria.

PALAVRAS-CHAVE

professor, educação básica, estratégias,

RESUMO. O conceito de criatividade progrediu ao longo do tempo para se tornar uma das habilidades humanas fundamentais deste século. Este estudo teve como objetivo revisar diferentes artigos e analisar suas contribuições acadêmicas para o pensamento criativo e as estratégias utilizadas para promovê-lo desde o ensino fundamental. A metodologia utilizada foi a revisão documental de 60 artigos publicados em diversas bases de dados confiáveis. Foram considerados

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aluno, pensamento criativo.

os eixos do estudo propostos como definições conceituais, características do aluno criativo e estratégias utilizadas pelos professores. Concluindo que é necessário estimular esse pensamento para que os alunos inicialmente expressem suas produções diante das situações e desafios que se apresentam no cotidiano.

1. INTRODUCTION

When faced with significant challenges, human beings must develop previously unappreciated skills, such as critical, creative, and practical thinking (Akpur, 2020). Educational institutions need to provide children with 21st-century skills to function competently (Yildiz & Guler, 2021). If these are stimulated from early childhood, they can be learned more efficiently, thus laying the foundations for creativity and reflection.

Teachers must update their knowledge, avoiding monotony to promote interest and creative development of thought (Posligua et al., 2017). The educator is the one who must exercise leadership that allows them to successfully carry out their facilitating and mediating action (Araujo, 2019).

Creative thinking is a skill that becomes a vital component of our normal psychological functioning (Dogan et al., 2020). One of its characteristics is that it produces new, original, and valuable ideas. This thinking implies flexibility, fluidity, novelty, and elaboration (Huang et al., 2020). In addition, it allows creative performance to lead to creative thinking and is evaluated based on originality and quality (Hardy et al., 2017).

In the same way, it acquires an ascending role in personal development and solving daily problems. Provides tools to face life's challenges, becoming a new way of thinking and acting on reality (Allueva, 2004).

Some authors argue that creativity is a cognitive process that results from creative thinking and becomes a valuable reflection of the individual (Karaca et al., 2020). Others consider it one of the most complex processes of the human being, so identifying its configuration is a very challenging task (De Prada et al., 2020).

Creativity leads to problem-solving, change, scientific discovery, innovative social programs, job creation, and competitiveness in the business world (Sternberg, 2017). This development in young children seems to be a domain, but it changes with time and age (Tubb et al., 2020).

There is currently a health crisis produced by the COVID-19 pandemic. Schoolchildren are the most affected by the suspension of face-to-face classes. Leading them to stress and fear that does not allow them to function autonomously, critically, reflectively, and creatively. Faced with this reality, various investigations have contributed to solving this problem of creative thinking in different contexts.

In Turkey, a study was conducted to equip students with creative thinking skills by applying for a journal writing program at school. These activities produced positive results in the development of creative thinking skills (Şenel & Bağçeci, 2019).

Similarly, in Spain, a study was carried out to investigate whether creative thinking can be improved through reading and writing activities within the cooperative learning classroom. Obtaining as a result that if an innovative training program is developed in public school, creative thinking in children is improved (Segundo et al., 2020).

Through a study carried out in Colombia, it was determined that the writing of myths provoked a stimulation in the types of creative thinking of children between 8 and 11 years old. Thus raising your level of creativity (Puertas, 2016).

A study in Chile set out to determine the influence of didactic environments on students' mathematical creativity. These discoveries revealed the relevance of classroom work for the development of creative mathematical thinking (Araya et al., 2019).

The significant relationship between creative thinking and school performance was demonstrated in second-grade primary school children in Peru. Obtaining, as a result, a positive and meaningful relationship between creative thinking and performance in subjects related to art (Escurra & Peramás, 2018).

In this sense, this research work aimed to review different articles and analyze their academic contributions about creative thinking and the strategies used to promote it from regular primary education.

2. METHOD

It corresponds to a systematic review of documentary research in various databases such as Scopus, Academic Google, Ebsco, Dialnet, Eric, Science direct. For the search, the following descriptors were used in Spanish and English “creative thinking,” “basic education,” as well as the AND and finally OR connectors. The methodology used was the inquiry of the information. These studies were considered to have the last years as the publication date. Among the exclusion criteria, duplication and not finding adequate information for the topic of interest were considered. As the inclusion criteria, the name of the article, abstract, methodology was considered, and those primary education students were considered as participants.

Table 1. Study universe, axes and sub-axes

Study universe	Study axes	Study sub-axes
Theoretical review of strategies for creative thinking in basic education.	Conceptual bases of creative thinking.	<ul style="list-style-type: none"> - Capacity. - Ability. - Cognitive process
	Characteristics of students with creative thinking.	<ul style="list-style-type: none"> - Finding solutions. - Solve problems. - Expressive. - Originals. - Flexible - Competent. - Explorers. - Inquirers
	Strategies for promoting creative thinking.	<ul style="list-style-type: none"> - Play - Digital technology - Robotics - Collaborative learning - Dramatization - Myth writing - Reading images - GO_KAR model - Movie clip - Solving mathematical problems. - Problem-based learning

Source: self made.

3. RESULTS

The following results emerge from the table above:

3.1. Conceptual bases of creative thinking

Table 2. Systematization of the conceptual bases of creative thinking

Author / authors	Key Considerations
García (2017)	Ability to think breaking schemes to become original.
Saregar et al. (2021)	Capability for the digital age as technology advances rapidly within education.
Carrillo (2019)	Ability to break out of the usual models to invent solutions using novel techniques.
Ramírez (2014)	The ability that benefits the development of the person in the context of promoting autonomy, self-regulation, and active work.
Rochmad et al. (2018)	Relevant higher order skill in this century. It focuses on the different aspects of creativity.
Salamanca and Badilla (2021)	Computational and creative thinking are fundamental skills to face problems in the world.
Redifer et al. (2019)	Cognitive process that influences the performance of traditional academic tasks.
Glassner and Schwarz (2007)	Critical thinking and creativity are differentiated cognitive processes that work simultaneously to solve problems.
Sastre and Pascual (2013)	Cognitive process that leads to problem solving and is an important part of human activity.

Source: self-made.

From the previous considerations, theoretically we can affirm that:

Systematizing the conceptual bases of creative thinking, it's conceived as capacity, ability, and cognitive process. Allowing the subject to adjust his ideas to initiate novel actions. In the same way, it helps to solve everyday problems that arise.

It is a capacity because it leads to creative problem solving, it is a skill because it allows knowing the creative expressions and potential of the students, allowing facing difficulties in the environment, achieving significant learning and it is also a cognitive process because it involves different aspects of the person from basic thought processes such as perception, to more complex processes.

3.2. Characteristics of students with creative thinking

It is essential to understand the characteristics of creative people. Children who motivate this way of thinking have the advantage that they can adapt to new situations by finding solutions to obstacles without waiting for others to solve their problems.

It should be noted that these qualities do not depend so much on intrinsic factors. They are highly dependent on their education and career path and the environment in which they live. For this reason, many authors have taken care to identify some characteristics.

Table 3. Systematization of the characteristics of creative thinking in students

Author / authors	Characteristics
Wojciehowski and Ernst (2018)	Subject with the ability to find solutions, solve problems, combine different information relating what he knows with what is new he acquires, challenge assumptions, make decisions and seek new ideas.
Rieck (2009)	Subject with the ability to find solutions, solve problems, combine different information relating what he knows with what is new he acquires, challenge assumptions, make decisions and seek new ideas.
Oliveira et al. (2009)	Subjects that have original thinking allowing them to think of unique ideas. Flexibility leading them to change opinions. Elaboration perfecting an idea with novel details. Fluency when generating diversity of ideas.
Posada (2020)	Competent, dynamic and transforming subjects of their contexts.
Klimenko (2009)	Exploring, inquiring, reflective, imaginative and creative subjects.
Shabrina and Kuswanto (2018)	Subjects with the analytical capacity to face difficulties during their learning inside and outside of school.
Casillas (1999)	A novel, original subject who solves a problem and has a new vision of the world.

Source: self-made.

From the previous considerations, we can affirm that:

These characteristics work strategically in the formulation, construction, and resolution of situations and problems in different contexts. Of all the features of people who develop creative thinking, the importance of providing students with valuable tools to strengthen it stands out.

It is necessary to educate in creativity to have men and women who question reality and give novel answers. Thus, there will be creative, original, flexible, expressive, thoughtful, competent, innovative people who will strengthen the ability to find creative solutions.

3.3. Strategies to promote creative thinking

For Muñoz (2010), there is a need to use innovative and original strategies that stimulate creative thinking. Thus, we will achieve subjects capable of providing solutions, creating new ideas, imagining natural alternatives to face society's challenges. For Srikongchan et al. (2021), these skills can be improved as appropriate stimuli are received and different styles of thinking are respected.

Some authors state that didactic strategies are essential within teaching work, creating an optimal environment that offers solutions for teaching and learning. For Dinuta (2013), these combine different methods, processes, means, and forms of organization to achieve set objectives.

Creative thinking has awakened the interest of teachers by stimulating it from different learning environments. We are employing different strategies that help students to invent original solutions to solve various problems. Among them, we will mention some:

Table 4. Systematization of strategies for the promotion of creative thinking

Author / authors	Strategies
	Play
Angeles (2015)	It proposes designing creative games to enhance creativity, helping to develop different types of thinking, abilities, skills, imagination, curiosity, achieving significant learning.
Montaño (2020)	It raises the formative game four C: Create, connect, understand and build to achieve personal and social change. This strategy leads the student to solve problems, make decisions, generate ideas, assuming responsibility for the effect that what he feels, thinks, says, and does on the other.
	Digital technology
Murcia et al. (2020)	They propose the use of digital technologies using a BeeBot and a BeeBot iPad. This strategy encourages critical thinking, creativity, collaboration, and technological literacy by creating innovative tools that impact society.
	The robotic
Sullivan et al. (2015)	They propose using the KIBO robotics kit designed for children, turning them into little engineers who build robots using motors, sensors, and craft materials. Plus, it makes them programmers by exploring sequences, loops, and variables.
Rodrigues et al. (2020)	They argue that currently technologies in the field of robotics are being widely used and appropriate within the school environment.
	Collaborative learning
Peñaloza (2017)	It proposes collaborative learning using technological tools (Tics), improving social and collaborative skills, and fostering creativity. This contributes to spontaneous school activities and encourages creative, critical, analytical, and reflective thinking.
	Dramatization
Bustos and Pañata (2016)	It proposes dramatization as a didactic strategy within class plans in the different curricular areas. Allowing to influence creative thinking and facilitating the development of creativity, language, body expression and social skills.

Palacios (2020) He affirms that practicing this strategy is fundamental because it allows the reflection of attitudes, postures, actions, and styles of thought, causing a change in the child's behavior.

Myth writing

Puertas (2016) As a strategy, it proposes the writing of myths about the origin of the universe that allows creating stories, imagining characters from their perception of reality. Contribute to the artistic and cultural field by stimulating different types of creative thinking.

Reading images

Mendoza and Ponce (2021) It proposes the reading of images as a technique. This will allow to activate reading awareness, analyze the messages of the graphics, facilitating the student's levels of understanding. In the same way, it becomes a source of entertainment, improving expressive capacity and creative thinking.

Modelo Go_kar

Handayani et al. (2020) They proposed the GO_KAR model as a novel strategy to improve creative thinking skills.
This model allows students to ask research questions or formulate problems to carry out a solution design. You can implement in the science subject to enhance creative thinking.

Aliens Movie Clip

Griep and Mikasen (2016) They propose using movie clips about aliens and minerals from outer space to teach and disseminate chemistry. Thus, students will use their divergent thinking solving problems and stimulating creative thinking in chemistry, remembering for a longer time the experience they had with this subject.

Solving mathematical problems

Igoche et al. (2020) This strategy consists of asking questions or statements related to mathematical situations. Developing creativity by asking students open-ended questions encouraging them to creatively explore various ways or solutions to problems developing higher-order skills.

Problem-based learning

Ramírez (2014) It proposes a problem-based learning strategy to reinforce students' creative thinking, seeking different solution alternatives. In addition, the child tests her ingenuity, intelligence, and knowledge by working collaboratively and achieving meaningful learning.

Reinoso (2018) It states that by posing different situations or problems, the students are motivated to seek other solutions, strengthening creativity.

Source: self-made.



From the previous considerations we can theoretically affirm that:

Creative thinking plays an essential role by being the foundation for other basic skills. When the strategies are inadequate, students become memorable individuals who repeat knowledge (González & Díaz, 2006). Limiting imagination and creativity in this way.

The educational system must prepare students for the future, educating them according to individual needs. By applying various strategies, teachers create expectations in their day-to-day work and thus stimulate children's thinking, preparing them for problem-solving. Any human being can become creative, so it is necessary to start sowing from the classrooms a deep interest in knowing, discovering, and exploring.

4. DISCUSSION

As for the definitions of creative thinking, there is not only one because there are different authors who treat the same topic from other points of view so that the following description can be drawn:

Creative thinking is the ability to think and get out of the usual models to face the world's problems; it influences the performance of tasks and leads to problem-solving (Carrillo, 2019; García, 2017; Redifer et al., 2019; Salamanca & Badilla, 2021; Sastre & Pascual, 2013).

After analyzing the information, it can be said that this thought is critical because it allows us to face problems from different contexts, finding novel and original solutions that transform the mind of the person, opening it to new proposals.

In the current context, it is necessary to consider that students must be prepared to face the world, which can be achieved to the extent that creative thinking is stimulated. Thus, the people who develop it have particular characteristics that differentiate them from others, becoming competent, dynamic, novel, original, transforming subjects of their contexts which can analyze to face difficulties and find solutions to solve problems by opening their minds to multiple possibilities (Casillas, 1999; Posada, 2020; Rieck, 2009; Shabrina & Kuswanto, 2018; Wojciehowski & Ernst, 2018).

The development of this thinking plays an essential role in school age, being the basis for other skills. But unfortunately, the instructions given to motivate students to understand problems differently in the learning process are not adequate. This results in limited imagination when creating new ideas and solutions.

Over time, novel strategies have emerged that allow increasing creative thinking; some will be mentioned as innovative games to enhance creativity, robotics using the KIBO kit designed for children where they build robots, collaborative learning using technological tools (Tics). That encourage creative, critical, analytical, and reflective thinking, GO_KAR model to improve creative thinking skills and mathematical problem solving that develop higher-order skills in students (Angeles, 2015; Handayani et al., 2020; Peñaloza, 2017; Sullivan et al., 2015).

As a novel contribution after the review and analysis of the information, it can be considered that creative thinking is strengthened from different educational institutions, using various strategies that can be classified from different perspectives, such as gamification, technology, audiovisuals, reading and writing, problem solving and social skills. This, when stimulated, will allow competent training people capable of solving difficulties when facing the world.

As a contribution, it can be considered that creative thinking can be worked within the school in a transversal way, being used in any curricular area and different life contexts. It depends on the type of activities that people

develop to implement these skills that allow them to develop, refine, communicate and execute the ideas created to have an open mind to constant changes.

Likewise, it can also be rescued that critical and creative thinking are related and that one of them cannot be achieved without first going through the other and both contribute to achieving analytical, reflective, creative, and innovative beings, these skills being of an order higher than are necessary for this century.

Among the limitations found after the analysis carried out, it can be considered that the aforementioned strategies have been developed in developed countries that have conditions to be able to execute them with the students; however, if these are applied in a country that does not have the same conditions, the work is limited. The curricula of the different countries are different, some treat creative thinking in an isolated way within the teaching-learning process, and in others, it is considered fundamental.

5. CONCLUSIONS

Creative thinking allows you to develop new ideas and concepts. It allows people to be innovative and look for different ways to solve difficulties. It manages to satisfy needs, obtaining an original product as a result.

Encouraging creative thinking in students from the beginning to completing primary education means creating more autonomous, resilient, original, flexible beings with initiative, security, and leadership. Enhance their long-term success by becoming beings capable of facing any problem throughout life.

Creating a suitable environment to develop creative thinking is the first step to generate the suitable climate that invites the creation of ideas. However, the teacher must stimulate it through different pedagogical practices within an environment of respect, help, trust, and cooperation.

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