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REVIEW

Didactic strategies to promote creative thinking in classrooms

Estrategias didácticas para promover el pensamiento creativo en aulas

Estratégias didáticas para promover o pensamento criativo nas salas de aula

Esmeralda Villegas[1]

Universidad César Vallejo, Chiclayo – Lambayeque, Perú

ID https://orcid.org/0000-0001-8338-4262

evillegasc@ucvvirtual.edu.pe

ABSTRACT. In recent decades an education that develops creative thinking has been promoted. The teacher must design learning strategies that strengthen this ability in students. The objective of this work was to carry out a detailed investigation on creative thinking and the strategies to promote it in this century. The methodology used was the documentary review of articles published from various reliable sources. Concluding that there is a need to stimulate the creative thinking of students to generate different solutions and face situations that arise in the context.

RESUMEN. En las últimas décadas se ha promovido una educación que desarrolle el pensamiento creativo. El docente debe diseñar estrategias de aprendizaje que fortalezcan en los estudiantes esta habilidad. El objetivo de este trabajo fue realizar una investigación minuciosa sobre el pensamiento creativo y las estrategias para promoverlo en este siglo. La metodología empleada fue la revisión documental de artículos publicados de diversas fuentes confiables. Concluyendo que existe la necesidad de estimular el pensamiento creativo de los estudiantes para generar distintas soluciones y enfrentar situaciones que se presenten en el contexto.

RESUMO. Nas últimas décadas, uma educação que desenvolve o pensamento criativo tem sido promovida. O professor deve projetar estratégias de aprendizagem que fortaleçam essa habilidade dos alunos. O objetivo deste trabalho foi realizar uma investigação detalhada sobre o pensamento criativo e as estratégias para promovê-lo neste século. A metodologia utilizada foi a revisão documental de artigos publicados em diversas fontes confiáveis. Concluindo que é necessário estimular o pensamento criativo dos alunos para gerar diferentes soluções e enfrentar as situações que surgem no contexto.

[1]Secondary Education Teacher. Language and Religion Teacher. **Correspondence:** evillegasc@ucvvirtual.edu.pe

1. INTRODUCTION

In the current context, the student needs to strengthen creative thinking due to the technological advancements that influence their learning. This leads him to seek creative and innovative solutions to become competent and solve situations in his daily life.

Creative thinking is considered a competence that does not follow a logical and sequential order. On the contrary, it is uncertain and disorderly (Hernández et al., 2018). This, together with critical thinking, is considered a thought process that involves skills.

Creativity is a fundamental part of creative thinking that relates two processes: thinking, then producing. This thinking can be stimulated by an unstructured process like brainstorming or structured like lateral thinking.

Teachers are responsible for developing the capacity for creative thinking in the classroom. In this way, the student's ability to solve problems, understand, and communicate with them will increase (Saragih & Napitupulu, 2015; Shin & Halili, 2015).

In various countries, there are researchers who are studying creative thinking and provide relevant information to work on it in educational institutions. Segundo et al. (2020) in Spain a study was conducted to investigate whether creative thinking can be improved through a reading and writing program. And at the same time, check if there is a correlation between improvements in creative thinking and academic performance. We worked with 60 5th grade students who received reading and writing activities for two months. The results showed a significant increase in creativity and a positive correlation between creative thinking and academic performance.

In the USA, a study was carried out in which it is proposed to promote creative thinking skills and cultivate a love for nature from childhood. This study was carried out with four-year-old children by measuring fluency, originality, and imagination. It resulted in a significant increase in students' creative thinking regarding nature (Wojciehowski & Ernst, 2018).

Carvalho et al. (2021) carried out research in Brazil, where the way to incorporate creative thinking in school was addressed. In order to obtain information, it was necessary to analyze the different conceptions of creativity, as well as the factors that favor or limit it. Concluding that teachers must apply programs related to creativity to ensure that students develop creative thinking.

In Perú, Chávez (2021) in his research, observed uncreative, rote, and repetitive students due to traditional teaching. That is why he proposes drawing as a didactic strategy to contribute to the creativity of students. In

the methodology, an elementary or basic type investigation was carried out related to the produced pandemic. The population was 103 students, a sample of 55 students, and a non-probability sample.

The objectives of this work were to review various articles and analyze his contributions related to creative thinking and the strategies to strengthen it in the classroom.

2. METHOD

A systematic review was carried out on the conceptual bases, importance, and search for strategies to promote the creative thinking of students in the various reliable databases such as academic Google, Eric, Scopus, Redalyc. It was considered that the articles used are updated.

Table 1

Study universe, axes and sub-axes

Study universe	Study axes	Study sub-axes
Theoretical review of teaching strategies to promote creative thinking in classrooms.	Conceptual bases of creative thinking.	Mental activity Ability Pedagogical process Skill Capacity Cognitive operations Sociocultural and psychological phenomenon Diseño instruccional Investigación-acción
	Strategies to promote creative thinking.	Design thinking: Instructional design Investigation action Design thinking: Myth writing The game Intercultural learning Audiovisual Metacognition Aerobic dance Team work Gamification

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3. RESULTS

Conceptual bases of creative thinking

Table 2

Systematization of information about critical thinking

Author / authors	Key considerations
Al-Mahasneh (2018).	Complex mental activity that requires finding solutions to achieve a new product.
Puspitasari et al. (2019).	Creative and critical thinking are processes that involve independent abilities and dispositions.
Wojciehowski & Ernst, (2018).	Ability to produce novel ideas in today's society.
Saregar et al. (2021)	A person's ability to create new ideas that can be applied to solve problems. Motivates students to think fluently, flexibly, original, and elaborate.
Carvalho et al. (2021)	A skill that allows people to face the challenges of everyday life. Which favors their maturation process and personal well-being.
Oneida (2019)	The pedagogical process focused on abilities and skills to develop their potential in creative thinking
Yildiz and Guler (2021)	It is looking for solutions, making conjectures or formulating hypotheses, modifying them, and finally communicating the results.
Redifer et al. (2021)	Ability to produce original and useful responses.
Zhuang et al. (2021)	It is a hallmark of human cognition, allowing us to generate new and useful ideas.
Huang et al. (2020)	Creative thinking involves flexibility, novelty, and elaboration.
Akpur (2020)	It is a separate structure from the other thinking skills and states that not all cognitive skills should be of critical thinking concern except interpretation, analysis, evaluation, inference, explanation, and self-regulation.
Redifer et al. (2021)	Refers to original and useful thoughts, answers, or products.
Segundo et al. (2020)	The ability to perceive, understand and generate new ideas from a problem and transmit the results. It is inherent in the generative and adaptive nature of human thought.
Moreno et al. (2020)	Part of critical thinking that, using cognitive operations, generates ideas and conclusions.

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Dogan et al. (2020)	Ability to produce useful and appropriate ideas.
Al-Dhamit and Kreishan, (2016)	Ability to create new ideas that are useful when applied in context. It is a reaction to different environmental, mental, social factors. Produces innovative solutions to any situation that arises in life.
Montaño (2020).	Sociocultural and psychological phenomenon. It occurs from the interaction between a person's thoughts and a sociocultural context.

Systematizing the conceptual bases of creative thinking, it is conceived as mental activity, capacity, ability, dexterity, and pedagogical process. It is a mental activity because it allows us to acquire new learning. It is a capacity because it develops the qualities and attitudes of the human being. It is a skill because it allows you to carry out an activity in an original and creative way. It is a skill because it allows the development of activities in an agile, fast and efficient way, and it is a pedagogical process because it allows the student to function inside or outside the classroom.

3.2. Strategies

Through the use of appropriate strategies, tools, and techniques, teachers must use learning models that develop creative thinking. To do this, you must have an entrepreneurial spirit; you must innovate to solve educational problems (Al-Mahasneh, 2018). Likewise, family participation influences the development of creativity (Gralewski & Jankowska, 2020).

Table 3

Systematization of information about learning strategies

Author / authors	Key considerations
Khuana et al. (2017)	Instructional design This strategy is based on educational theories that create new didactic designs to promote creative thinking. Describe how the individual learns concepts and new ideas.
González (2021)	Investigation action This methodology allows us to form critical judgments that help in the resolution of problems in a systematic way and to acquire values.
Hernández et al. (2018)	Design thinking: a methodology to innovate It allows innovation in any area of life, facilitating learning to reach viable solutions.
Puertas (2016).	Myth writing

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	It proposes the simulation game to stimulate the imagination, to reconstruct reality in its own way.
Glăveanu (2020)	The game
	Propone el juego de simulación para incentivar la imaginación, a reconstruir la realidad a su manera.
Marí et al. (2010).	Play is one of the most effective environments for supporting children's motor creativity and recreating their imagination by telling new stories.
Montaño (2020)	Formative game Four C: Create, Connect, Understand and Build up
	Boost the skills, competencies, and emotions of the players. It is produced individually or collectively. The individual relates to her environment, enriching her culture.
De Prada et al.(2020)	Intercultural learning
	This strategy allows the development of competencies that promote integration and interaction for personal fulfillment. It encourages openness and increases your creative potential.
Triviño y Vaquero (2020).	Audiovisual
	Images educate and can become ethical references for citizens. They have an important impact on youth by promoting reflection and social commitment.
Flórez et al. (2018)	Metacognition
	They propose metacognition as a strategy, allowing the subject to control what they learn in a meaningful way.
Main et al. (2020)	Aerobic dance
	They propose aerobic dance as a strategy to develop creative thinking. People who do aerobic exercise show more divergent thinking than those who do not.
Carvalho et al. (2021)	Teamwork
	It is aimed at stimulating convergent and divergent thought processes in the participants, according to the phases of creative problem-solving. Produces creativity by having to plan and execute a project. Promote role play by representing a character or role.
Parra et al. (2020)	Gamification
	It allows the realization of learning by discovery and the almost involuntary understanding of the contents. It is produced in a creative and enjoyable environment based on experience and play.

To promote creative thinking, tools, procedures, and planned actions must be used. Various strategies must be used that lead to better results. Schools must provide suitable environments where the student can develop her

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imagination, and in this way, the teacher can generate spaces for students to develop superior skills that allow them to function in an original way in any context.

4. DISCUSSION

Creative thinking occurs by generating new ideas and solving any situation that arises in life; however, several authors define it as a mental activity that produces helpful ideas in search of novel solutions to face different problematic problems in the environment when interacting in other contexts. They thus agree that creative thinking fosters creativity in an original, novel, and innovative way (Al-Mahasneh, 2018; Dogan et al., 2020; Huang et al., 2020; Montaño, 2020; Moura et al., 2021). It is understood then that creative thinking can be strengthened from the classroom, applying novel strategies that allow critical judgments, create new ideas, encourage imagination, express their emotions in a pleasant environment where they discover learning.

There are multiple strategies to develop critical thinking in students, the same ones addressed by the teacher. Action-research stands out by allowing the formation of essential judgments, the writing of myths that promotes the creation of new ideas, the game that encourages imagination and gamification by giving way to discovery learning (Glăveanu, 2020; González, 2021; Parra et al., 2020; Puertas, 2016).

It can be considered that creative thinking is promoted from the classroom, using various strategies that involve cognitive skills to train critical, autonomous, creative, and original people. Likewise, it is considered that creative thinking can be approached within the study plan and in different realities, which allows developing spontaneously, preparing people to face challenges that arise in society; however, according to Parra et al., (2020) this requires the constant updating of training and use of technologies by teachers.

In international research, creative strategies have been proposed that develop students' creative thinking. However, given that the reality of each country is different and by what was stated by Chávez (2021) in Peru, studies on strategies to develop creative thinking are scarce, and it is necessary to carry out novel studies that respond to the problem of traditional teaching that results in uncreative, rote and repetitive students.

5. CONCLUSIONS

Creative thinking is the capacity, ability, skill that each person possesses to produce, innovate, act originally and authentically when faced with difficult situations in the context. Inside the classrooms, it becomes a pedagogical process that must be practiced in the different learning activities.

Strategies are valuable and necessary tools and instruments that teachers use in classrooms to strengthen students' creative thinking autonomously and creatively, helping them solve problems in daily life.

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