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Teaching strategies and development of creativity in education

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Abstract: This study aims to analyze the role of education in a global context, emphasizing creativity as a key component for preparing new generations to face future challenges. It highlights international commitments such as the Incheon Declaration for Education 2030, which advocates for inclusive and quality learning opportunities. Systematic reviews synthesize findings from multiple sources, providing a comprehensive and robust perspective on the topic. This method allows for a deeper understanding of the theoretical foundations of creativity in education, particularly through models such as Guilford's framework and the 4P's of creativity. The review identified creativity as a fundamental element in education, structured around key aspects such as fluidity, flexibility, originality, and elaboration. The findings emphasize the importance of fostering creativity within educational environments to enhance learning opportunities and problem-solving skills. Creativity plays a crucial role in modern education, helping students develop essential competencies for the evolving global landscape. Integrating creativity-focused models can improve learning outcomes and better prepare students for future professional and personal challenges. Educational institutions and policymakers should incorporate creativity-driven frameworks into curricula and teaching methodologies. Emphasizing creativity can lead to more engaging and effective learning experiences, fostering innovation and adaptability among students.

Keywords: *Creativity, Education, Innovative Solutions, Systematic Review, Teaching strategies.*

1. Introduction

Education has a leading role in the global panorama, with spaces for discussion and research, such as the Incheon World Forum in the Republic of Korea, where the Incheon Declaration for Education 2030 was established, which is a collective commitment to ensure education that promotes learning opportunities, fosters creativity and prepares new generations for the challenges of the future. adapting to new situations and developing new skills [1].

In this sense, the Regional and Comparative Study, carried out by UNESCO in technical collaboration with the Center for Advanced Research in Education (CIAE) of the University of Chile, in 2019, analyzed data from 19 countries that make up Latin America and the Caribbean during 2018, whose results highlighted the urgency of strengthening skills for the twenty-first century. such as creativity, which is necessary to function in life facing future challenges [2].

Likewise, UNESCO's 2030 Agenda for Sustainable Development is set out in goal 4.4: "Ensure relevant skills for the world of work". This goal recognizes the importance of people acquiring the necessary skills to function successfully in today's labor market, which is constantly changing. Among these essential skills are creative thinking, collaborative work, communication skills and conflict resolution, among others. All of these are fundamental tools for people to adapt to the challenges of today's world and contribute to a more sustainable future [3].

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So, one of the pillars of education in the world should be creativity, this regardless of age or environment, it is essential for learning, work, life itself and to exercise active citizenship, unfortunately the Latin American panorama reveals that students do not have the adequate opportunities to develop their creative potential. Moreover, specifying; In our country, students have deficiencies such as insecurity, lack of self-initiative and little originality in their work. So this constitutes a great educational problem [4].

Creative people not only stand out for their ingenuity and originality, but also for their ability to successfully perform in various scenarios of daily life. This ability allows them to show their skills and various competencies to solve problems effectively, both on a day-to-day basis and in the context where they operate. To develop creativity from childhood, it is essential to encourage the development of each of their capacities, skills, and moral values in students from an early age. This involves providing them with a stimulating environment that allows them to explore, learn, and express themselves freely. Through play, arts, literature, and other creative activities, children can develop their imagination, critical thinking, adaptability, and problem-solving skills [5].

Education seeks to form individuals capable of learning by themselves, while creativity drives original thinking and the search for innovative solutions, the same that must be stimulated, sometimes learning, redoing and proposing creations [6].

Creativity allows students to enhance their potential, abilities, attitudes and aptitudes, including their creativity, which implies greater participation in the classroom, making learning an enriching and above all transformative experience [7].

In addition to this, it is said that the learning process must be joyful and playful so that students feel motivated to build their own knowledge, for which it is essential to create a welcoming, joyful and interactive environment that promotes their creative role, where it is essential that teachers implement pedagogical strategies that promote their learning, allowing children to build their learning in a meaningful way, allowing children to explore, discover and build their own knowledge, being protagonists of their own learning, assuming the construction of their own learning and knowledge [8].

In this context, the question arises: How do didactic strategies favor the development of creativity in education?, in this way it is theoretically analyzed how it influences the educational field. It is also established that the objective was to analyze how didactic strategies favor creative thinking in education.

2. Theoretical Support

Incorporate into the educational process; creativity requires a redefinition of the concept of education. This implies establishing specific objectives and focusing them on stimulating creativity from various aspects, such as those that promote critical thinking, as well as problem solving and the original expression of ideas [9].

Therefore, it is necessary to emphasize creativity as a fundamental element that influences the integral growth of people, being essential that they develop their creative potential to become citizens capable of facing challenges, providing innovative solutions and generating significant knowledge in various contexts, which is why it is necessary to promote creativity in the educational field [10]. Therefore, it is essential from the classroom to promote creativity by providing quality interactions and learning, which will allow better development among students [11].

It is important to remember that creative abilities are inherent to human beings. Providing children with opportunities to observe and investigate the world around them and exposing them to different forms of artistic expression and encouraging open and respectful dialogue are actions that contribute significantly to creativity. In short, cultivating creativity through education is an investment in the future, which lays the foundations for everyone to be able to develop fully and creatively in all areas of their lives [8].

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As part of this creative process, the student generates multiple ideas or solutions to a problem, it is through various alternatives and in different fields that he responds with novel ideas, visualizing the problems from unique perspectives, adding elements and modifying their characteristics [12].

It is throughout history that education seeks more effective ways to impart and acquire valuable knowledge, so tools and methodologies that respond to the aspirations and needs of each era are sought, always in line with the dominant modes of thought and the sociocultural realities of the moment, from which educational tools have emerged, from traditional methods based on memorization and passive transmission of knowledge, to more modern approaches that emphasize active student participation and collaborative learning [13].

In this way, the main objective of this article was to analyze the didactic strategies that favor the development of creativity in Education, which will be conducted through a systematic review given in the last five years; of the Scopus database, 69 in Redalyc. The study was based on the selection of scientific articles referring to teaching strategies and the development of creativity conducted by teachers and researchers in education. Creativity was found to be a fundamental skill for success in today's world. It is needed to solve problems, innovate and adapt to changes. Education plays a crucial role in the development of creativity and teachers, through their didactic strategies, are responsible for creating an environment that encourages the creative expression of their students. By implementing these teaching strategies, educators can create an educational environment that stimulates creative thinking in students, preparing them to meet the challenges of today's world with ingenuity, flexibility, and adaptability.

The studies were examined to identify the didactic strategies that underpin research on the development of creativity. In addition, it will be analyzed how this study will contribute to the educational field. By conducting this detailed analysis, the researchers were able to gain an in-depth understanding of existing research on collaborative work in programming teaching. This information is valuable for educators and researchers who seek to implement effective work strategies.

3. Methodology

The methodology considered was a systematic review with a descriptive level. Systematic reviews cover a wide range of research, synthesizing findings from multiple articles and sources of information. This comprehensive approach allows them to offer a more complete and robust perspective on the issue at hand, making them at the top of the hierarchy of evidence. By having a clear question, the most appropriate databases and search terms can be identified, which increases the efficiency of the process and the quality of the results [14].

The questions that the review sought to answer were clearly defined. This included the selection of databases, words, and search key strings. Articles published between 2020 and 2024 were taken into account, in Spanish, English and Portuguese.

The proposed databases such as SCOPUS, Web of Science, ProQuest and Redalyc were selected, so selected keywords were defined, as well as the application of filters, in terms of the years, from 2020 to 2024.

The initial chain was refined with the inclusion of: ("Didactic strategies" OR "teaching strategies" OR "instructional strategies") AND ("creativity development" OR "creative thinking" OR "creative problem solving").

The Prisma 2020 statement was used, which is significant in the way systematic reviews and meta-analyses (SR/MA) are reported. This new statement presents substantial changes that seek to improve the transparency, rigor and usefulness of this type of study, it provides specific recommendations on how to inform the use of automated tools at different stages of the review process, from searching for studies to synthesizing data [15].

In this statement, the number of articles reviewed, and data screened was recorded. From which it can be said that 162 articles were found in Scopus, 26 articles in Web of Science, 4 in Redalyc and 37 in ProQuest of Education, of which they were eliminated in Scopus; 2 for duplicity, 16 for revision of the

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abstract and 134 studies for title, leaving 10 articles; in Web Of science, 2 were eliminated due to duplicity, 22 were eliminated by title, leaving 4, in Redalyc 3 were discarded per title leaving 1 article, in ProQuest 1 was discarded for duplicity, 35 per title, leaving 1 article, finally being included a total of 16 articles in general, those related to the topic to be discussed.

Documentary analysis was used as a method to collect and organize information. To do this, an Excel-based registration tool was used, which included columns to record data such as author, year of publication, country of origin, databases, journal or source of information, research approach, summary of the document, objective, most important conclusions, URL and DOI.

4. Development and Discussion

Based on the theory of Guilford [9] who proposed a framework to understand creativity, which is based on four fundamental pillars, such as fluidity, flexibility, originality and elaboration, the "4 P's of creativity" has also gained great acceptance, where the characteristics of the creative individual are taken into account, as part of the process mention is made of the cognitive processes that are involved in obtaining the product, which is often influenced by the environment, known as the Press [13, 16].

We know that creativity is the implementation of creative thinking, the transformation of ideas into tangible realities, which drives us to explore new horizons, to challenge established norms and to find innovative solutions that positively impact our environment, it is then a dynamic process that allows us to address situations or problems from a fresh and novel perspective, looking for ingenious and unconventional solutions, which involves various elements, such as the context, the person, and the final product [17].

Among the tools to promote creativity, mention is made of practical learning, active student participation, collaborative planning and group discussions, not neglecting technological resources, different teaching strategies and the use of humor, as well as having classes challenging, dynamic, and varied, highlighting the importance of interdisciplinarity, connecting academic content with real life [16].

A teacher's ability to find different solutions to the same problem is a fundamental feature of his or her strategies, among which creativity in teaching must prevail. This skill allows educators to address educational challenges in an innovative and effective way, with better didactic solutions, adapting their strategies to the specific needs of each situation and making it easier to address new situations [8].

On the other hand, on many occasions students experience difficulties in solving various situations, as well as in solving problems, precisely mathematical, where they have to apply strategies according to the theme, where profiles are visualized part of creativity, because they present novel ideas and different approaches to solve the problem, pre-existing ideas are revealed with new questions to deepen the understanding of the problem and in the management of teaching strategies that promote the improvement of learning in this subject [18].

From another perspective, it is said that the development of creativity is linked to cognition, which establishes a direct connection between the teaching of creativity and the promotion of cognitive thinking. The inherent complexity of teaching and learning in various subjects, such as history, requires the development of abstract thinking in students, which is not only fundamental for the understanding of the subject, but also constitutes a prerequisite for the development of creative thinking, with collaborative strategies being a great support [9].

Another way to stimulate creativity is using metaphorical creativity workshops, incorporating brainstorming, word games and the creation of visual metaphors, where the pillars of creativity are highlighted, which can mean a significant development of the fluency, flexibility, and originality of metaphorical expressions. which helps students with a greater understanding of linguistic concepts and a better ability to use language creatively, such as English [19].

It is also stated that, in this search for the development of creativity, the use of the lateral thinking technique can be chosen, whose activities are designed with flexibility, adapted to the context and learning experience of each student, considering individual cognitive styles and stimuli that allow them

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to give prominence to the student, who will make decisions and assume responsibilities valuing the dimensions of creativity. The purpose of lateral thinking (LTT) is to challenge pre-established ideas and find creative solutions to complex problems, through two main phases, where you unlearn what you have learned, question assumptions, and open your mind to new possibilities. Different angles are explored [11].

According to Mírez and Moreno [4] our current education systems have a fundamental flaw: they do not encourage the development of students' creative potential. Instead, they promote uniformity and standardization, stifling originality, and the ability to innovate. This situation is worrying since creativity is not only a fundamental element for the intrinsic motivation of students but also constitutes the basis of innovation and human progress. By repressing it, we are limiting the possibilities of individual and collective development.

One of the methods that contributes to observing and evaluating the design and implementation of didactic strategies is the AAA (Anticipation, Activation, Acquisition) that serves to promote critical and creative thinking in videos of educational situations, through which the selection and adaptation of activities is analyzed, taking into account their relevance, variety, level of challenge and connection with the learning objectives. which guides, guides, and supports students to stimulate reflection, analysis, and creativity [20].

It can also be noted that it is vital to consider the learning environment, such as the type of activity and peer interaction, to ensure the effectiveness of pedagogical strategies, such as gamification, which focuses on active learning, collaboration, and self-assessment that show potential to enhance the development of creative thinking skills in students [21].

In the same way, Merrotsy [11] provides us with a solid foundation in the history of problem solving, the nature of problems and the conceptualization of creativity, practical tools and concrete strategies so that teachers can implement the teaching of creative problem solving in their classrooms, this through activities and resources that facilitate the understanding and application of the ideas presented, with which the student develops skills to plan, monitor and evaluate their own learning process, adapting to different situations and challenges.

Creative thinking stands as a fundamental tool in learning in general, whether in mathematics, English, robotics, managing to promote the development of high-level cognitive skills that go beyond mere memorization and mechanical problem solving, with which it is necessary to put aside learning of yesteryear and through innovative didactic strategies students in a general way develop their creative thinking, strengthening their general understanding, for which not only strategies are implemented, but also methods, such as the AAA, which proposes a methodology to evaluate teaching strategies that promote through the Anticipation, Activation and Acquisition of knowledge, improvisational learning or meta-analysis the effectiveness of various didactic strategies for the promotion of creative thinking in the classroom, where the development of creativity and thinking skills is also combined to improve learning, in attention to the perspectives of students and teachers on the role of creativity in education, where the fundamental role of creative thinking as a high-order skill to enhance the learning of mathematics is highlighted.

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Table 1.
Important aspects.

Aspect	Details
Theory of creativity	Guilford proposed a framework based on 4 fundamental pillars: fluidity, flexibility, originality, and elaboration [22]. The "4 P's of creativity" model was also introduced, which considers the person, the process, the product, and the environment (Press) [13, 16].
Definition of creativity	Creativity is the implementation of creative thinking, the transformation of ideas into tangible realities, seeking innovative solutions to problems, from a new and original perspective [17].
Tools to promote creativity	Hands-on learning, active student participation, collaborative planning, group discussions, technological resources, diverse teaching strategies, use of humor, challenging and dynamic classes, and interdisciplinary
Teaching strategies for creativity	Teachers must seek diverse solutions to educational problems, with innovative strategies that adapt to the specific needs of each situation [9].
Difficulties of students in creativity	Many students face difficulties in solving problems, especially in mathematics, where creativity manifests itself through the latest ideas and innovative approaches [23]. Teaching strategies should promote a deep understanding of the problem [18].
Creativity and cognition	The development of creativity is linked to cognition. Teaching creativity promotes cognitive thinking, which is necessary for learning in subjects such as history [24]. Collaborative strategies are central to this process [4].
Metaphorical creativity workshops	Use of workshops that include brainstorming, word games and creation of visual metaphors, to stimulate the fluidity, flexibility, and originality of creative expressions. This improves the use of language, as in English [19].
Lateral thinking	The use of the lateral thinking technique, with activities tailored to students' individual needs and learning experience, promotes creativity in the educational context.

In Table 1, in the conducted research, an analysis of various perspectives and approaches related to creativity in the educational context is presented. According to the theory proposed by Guilford, creativity is broken down into four fundamental pillars: fluency, flexibility, originality, and elaboration. Additionally, the "4 P's of creativity" model introduces key factors such as the person, process, product, and environment, recognizing the importance of the context in which creativity is developed [13, 16].

Creativity is defined as the implementation of creative thinking, transforming ideas into tangible realities, and seeking innovative solutions to problems from original perspectives [17]. In the educational environment, tools, and strategies to promote creativity are highlighted, such as hands-on learning, active student participation, collaborative planning, the use of technological resources, diverse teaching strategies, and the integration of interdisciplinarity. These tools help create a stimulating environment that fosters creativity in students.

Teachers must seek diverse solutions to educational problems, adapting innovative strategies to the specific needs of each situation [25]. However, it is recognized that many students face difficulties in problem-solving, especially in areas like mathematics, where creativity is expressed through innovative approaches and innovative solutions. In this regard, teaching strategies should promote a deep understanding of the problem, beyond mere mechanical resolution [18].

Creativity is intricately linked to cognitive development. Fostering creativity in the classroom promotes cognitive thinking necessary for learning in subjects such as history, with collaborative strategies being key in this process [9]. Furthermore, metaphorical creativity workshops, which include techniques such as brainstorming, word games, and the creation of visual metaphors, are effective tools to stimulate the fluency, flexibility, and originality of creative expressions, especially in areas like language learning [19]. Finally, the use of lateral thinking, through activities tailored to students' individual needs and learning experiences, also promotes creativity in the educational context.

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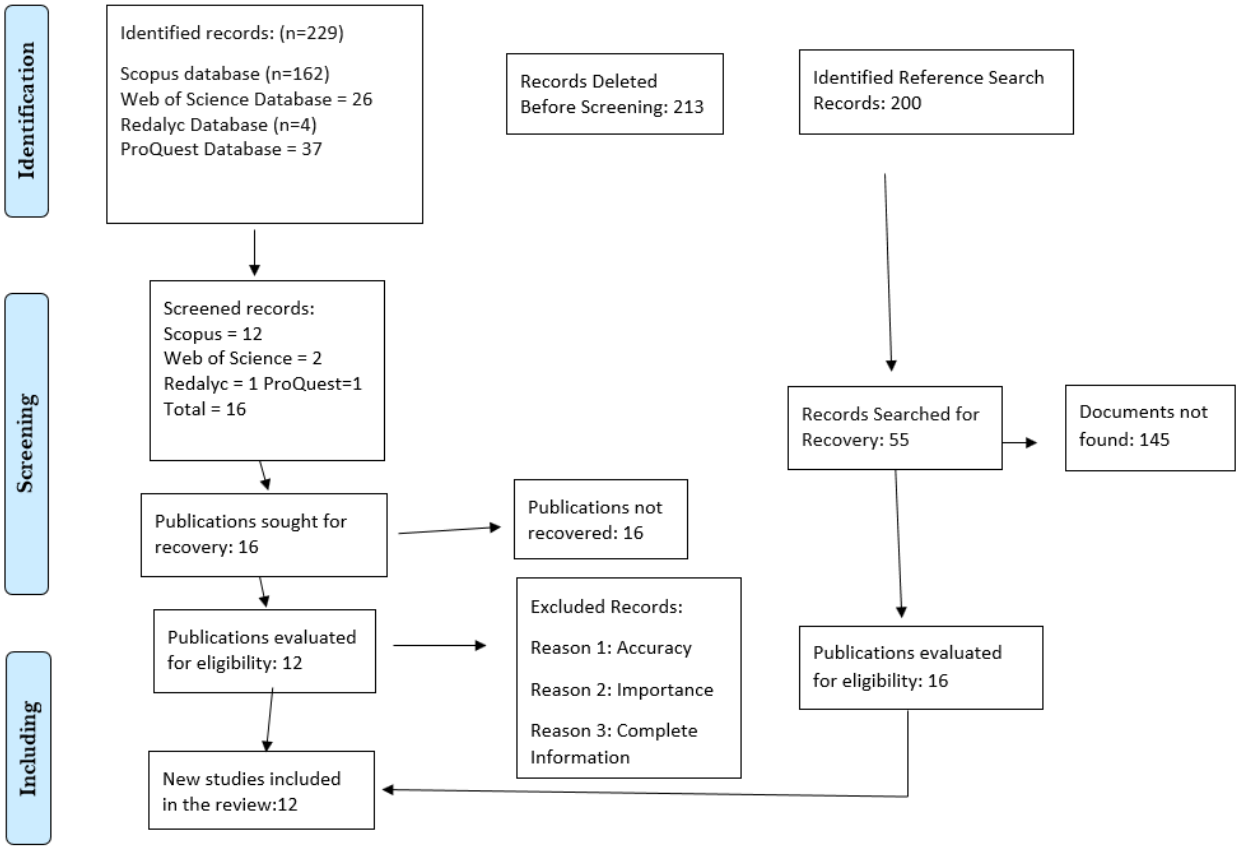

Figure 1.
Aspect related to creativity.

In Figure 1, there are some important aspects taking into consideration for Creativity:

- Theory of Creativity (Importance: 8): Theoretical foundations of creativity are key for educators to understand how creativity develops and can be nurtured. Knowledge of these theories allows for the creation of informed, evidence-based teaching strategies to foster creativity in students.
- Definition of Creativity (Importance: 7): Defining creativity provides educators with a clear understanding of what they aim to develop in their students. A well-rounded definition supports the design of strategies that can specifically target creative thinking and problem-solving.
- Tools to Promote Creativity (Importance: 9): In the context of teaching, tools designed to foster creativity, whether digital tools, materials for brainstorming, or creative frameworks—are essential. These tools empower students to express their creativity and can be integrated into various educational strategies to enhance their learning experience.
- Teaching Strategies for Creativity (Importance: 9): Effective teaching strategies are at the heart of developing creativity in education. These strategies include inquiry-based learning, collaborative projects, problem-solving tasks, and activities that encourage open-ended thinking. The right strategies motivate students to engage deeply with creative tasks and push their cognitive boundaries.
- Difficulties of Students in Creativity (Importance: 7): Understanding the challenges students face when trying to be creative (such as fear of failure, lack of confidence, or fixed mindsets) allows educators to tailor their strategies to support students' creative growth. Addressing these challenges ensures that creativity can flourish despite obstacles.

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- Creativity and Cognition (Importance: 8): Cognitive processes like divergent thinking and problem-solving are critical in creativity. Teaching strategies that tap into cognitive skills help students enhance their creative potential. For example, exercises that develop memory, focus, and flexible thinking can directly contribute to creative growth.
- Metaphorical Creativity Workshops (Importance: 6): Workshops that explore metaphorical creativity are helpful in providing students with innovative approaches to thinking. These workshops encourage students to think creatively and can be particularly useful in disciplines where abstract thinking is valuable. However, they may not be as central as more general teaching strategies aimed at creativity.
- Lateral Thinking (Importance: 7): Lateral thinking techniques—such as brainstorming, mind-mapping, and reversing problems—help students approach problems from new perspectives. These techniques are a powerful part of teaching strategies, fostering flexibility in creative thought and problem-solving.

5. Conclusions

UNESCO's Incheon Declaration for Education 2030 and the 2030 Agenda for Sustainable Development emphasize the importance of creativity in meeting the challenges of the future and adapting to new situations. However, the Latin American panorama reveals that students do not have adequate opportunities to develop their creative potential.

Creativity is fundamental to learning, work is not only limited to the arts, but is an essential skill to solve problems, think critically and adapt to changes. That is why it must be promoted from childhood in all educational areas. This is linked to the development of cognitive thinking, so it is necessary to use collaborative strategies to achieve it.

To encourage creativity, you need to create a learning environment that is motivating, joyful, and interactive. Students should feel free to explore, discover, and build their own knowledge through play, arts, literature, and other creative activities, where they highlight their pillars, such as fluency, flexibility, originality, and elaboration, for this teacher must implement pedagogical strategies that promote creative thinking, the original expression of ideas, and problem-solving in innovative ways. This will allow students to build their learning in a meaningful way and become protagonists of their own educational process.

It is necessary to provide children with opportunities to observe and investigate the world around them, expose them to different forms of artistic expression and encourage open and respectful dialogue are actions that contribute significantly to creativity, so education in creativity is an investment in the future: Cultivating creativity from education is an investment in the future of students, since it will allow them to fully and creatively develop in all areas of their lives, providing innovative solutions and generating significant knowledge in various contexts.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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