Creativity and innovation in education: a review of the literature over the past five years

Creatividad e innovación en el ámbito educativo: revisión de la literature en los últimos cinco años

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Abstract

Creativity and innovation are closely related to the academic field, as they foster critical thinking and contribute to the development of cognitive, emotional, and intellectual factors essential to enhancing human growth. Within this framework, this study aimed to analyze the development of creative and innovative literature produced over the past five years. To do so, a systematic review methodology following the PRISMA protocol was used. The search was conducted in databases such as EBSCO, Scielo, Dialnet, Scopus, and the César Vallejo University (UCV) Repository, which allowed us to identify various studies on the topic. Finally, 25 articles were selected that met the inclusion criteria, specifically those published between 2019 and 2024. The analysis of these works revealed that, although there is moderate theoretical support, most studies lack a solid foundation on creativity and innovation. Furthermore, it is observed that many people are unaware of how to effectively apply creativity to improve their innovation habits, which directly impacts the quality of teaching methods for both teachers and students.

Keywords: education, creativity, innovation.

Resumen

La creatividad y la innovación están estrechamente relacionadas con el ámbito académico, ya que fomentan el pensamiento crítico y contribuyen al desarrollo de factores cognitivos, emocionales e intelectuales fundamentales para potenciar el crecimiento humano. En este marco, el presente estudio tuvo como objetivo analizar el desarrollo de la literatura creativa e innovadora producida en los últimos cinco años. Para ello, se empleó una metodología de revisión sistemática siguiendo el protocolo PRISMA. La búsqueda se realizó en bases de datos como EBSCO, Scielo, Dialnet, Scopus y el Repositorio de la Universidad César Vallejo (UCV), lo que permitió identificar diversos estudios sobre el tema. Finalmente, se seleccionaron 25 artículos que cumplían con los criterios de inclusión, específicamente su publicación entre 2019 y 2024. El análisis de estos trabajos reveló que, aunque existe un respaldo teórico moderado, la mayoría de los estudios carecen de una base sólida sobre creatividad e innovación. Además, se observa que muchas personas desconocen cómo aplicar la creatividad de manera efectiva para mejorar sus hábitos de innovación, lo que incide directamente en la calidad de los métodos de enseñanza tanto en docentes como en estudiantes.

Palabras clave: educación, creatividad, innovación.

Introduction

In an increasingly competitive society, creativity and innovation have solidified as fundamental pillars for technological, scientific, and social advancement. Therefore, this research aims to address the following question: What has been the scientific development of creativity and innovation over the past five years?

To conduct this study, we began with the premise of rigorously analyzing various scientific investigations related to creativity and innovation, recognizing their transformative potential in both society and the educational sphere. Consequently, the analysis is based on a comprehensive review of the literature from the past five years, acknowledging the necessity of conducting a specific and valid study on these concepts, given their importance as key factors in development and pedagogical improvement.

Globally, according to reports from the Organisation for Economic Co-operation and Development (OECD), the innovative methods implemented by educators across various subjects have yielded positive results in the learning of preschool and primary school students over recent decades (Sánchez, 2019). For instance, in Turkey, creativity, evaluated through fluency, originality, and elaboration, reached high levels in 49% of the cases studied (Srikongchan et al., 2021).

It is noteworthy that children's creativity plays a crucial role during the preschool period, which spans from birth to primary education. During this stage, children undergo comprehensive development in psychomotor, socio-emotional, cognitive, and linguistic areas, aspects that significantly impact their future. In this context, the education provided by both parents and preschool institutions decisively contributes to personality formation, as well as to the child's learning and development process (Yildirim, 2023).

Internationally, the Global Innovation Index (2024) emphasizes that creativity is the fundamental driver of the economy and progress. Consequently, countries like New Zealand, Canada, and the United States have implemented various programs aimed at fostering technological development and human talent, with the goal of establishing themselves as nations with high rates of creative and innovative growth. Similarly, Lestari & Sumarti (2018) indicate that in Indonesia, personal success is closely linked to creativity. The Tecnológico de Monterrey (2024) asserts that innovation and creativity in education involve transforming how educators apply new methods in daily school practice, adapting technical tools and leveraging digital technology to make learning more engaging.

In a related sense, Hana & Hacène (2017) and Wu et al. (2020) state that creativity emerges when two individuals approach tasks from different perspectives, overcoming the limitations of traditional educational methods. Consistent with this idea, a study conducted in Cuba by Corral-Joniaux et al. (2020) emphasizes the importance of educators contributing to the development of skills related to creativity and innovation within the educational process. This entails fostering the capacity to innovate and manage adaptation, with the aim of improving educational quality. Additionally, it is highlighted that scientific research, creativity, and entrepreneurial spirit are essential elements in the new concept of the pedagogical process.

In the case of Peru, the Índice Global de Innovación (2024), which evaluates aspects such as talent, technology, and tolerance, ranks the country in 69th place, with a score lower than that of countries like Argentina, Uruguay, Nicaragua, Brazil, and Chile. This reality invites reflection on the need to train agents capable of providing solutions to the unresolved problems of Peruvian society.

Thus, it is essential to foster creative capacity in both students and educators, as this skill generates the innovations that drive educational advancement. This facilitates the implementation of renewed and more effective

teaching methods, providing students with the necessary competencies for their comprehensive development. In this context, the ongoing research will focus on addressing the following question: What has been the scientific development of innovative transformation over the past five years?

Furthermore, this study is based on the collection and analysis of information from various scientific journals published in the last five years, aiming to theoretically understand the different definitions of creativity and innovation. This conceptual diversity enriches the understanding of both terms and supports their incorporation as fundamental elements in building an education oriented toward social progress. Thus, the analysis allows for reflection on how these notions can be integrated and enhanced to drive educational development that meets current demands.

In this regard, the general objective is to determine the development of creative and innovative literature produced in the last five years. Additionally, specific objectives include confirming and establishing the most relevant points and concepts related to innovation, as well as understanding the theories that underpin and explain this phenomenon.

Methodology

The methodology employed in this study is based on a systematic review, which allows for the logical and rigorous analysis, evaluation, and organization of information extracted from studies, articles, theoretical frameworks, and other relevant publications, always in coherence with the variables under study. To this end, non-experimental, descriptive, and systematic research designs were utilized, facilitating the analysis of various authors who have identified variables related to creativity and innovation. Furthermore, specialized databases and search engines such as EBSCO, Scielo, Dialnet, Scopus, and the Repository of César Vallejo University (UCV) were consulted, ensuring a broad and diverse coverage of the pertinent scientific literature.

To gather the necessary information, various research articles addressing elements linked to creativity and innovation were selected. Inclusion criteria were applied, considering quantitative and/or qualitative research, as well as articles containing the mentioned variables that had been approved by the responsible institutions. Moreover, the study encompassed the period from 2019 to 2024. In terms of exclusion criteria, works with non-evaluative research methods or unspecified methodologies, articles that did not address the variables under study, anonymous publications or those without institutional backing, and research prior to 2019 were discarded.

Search strategies

The keywords used were: "educational creativity," "pedagogical innovation," "pedagogical creativity," and "creative thinking."

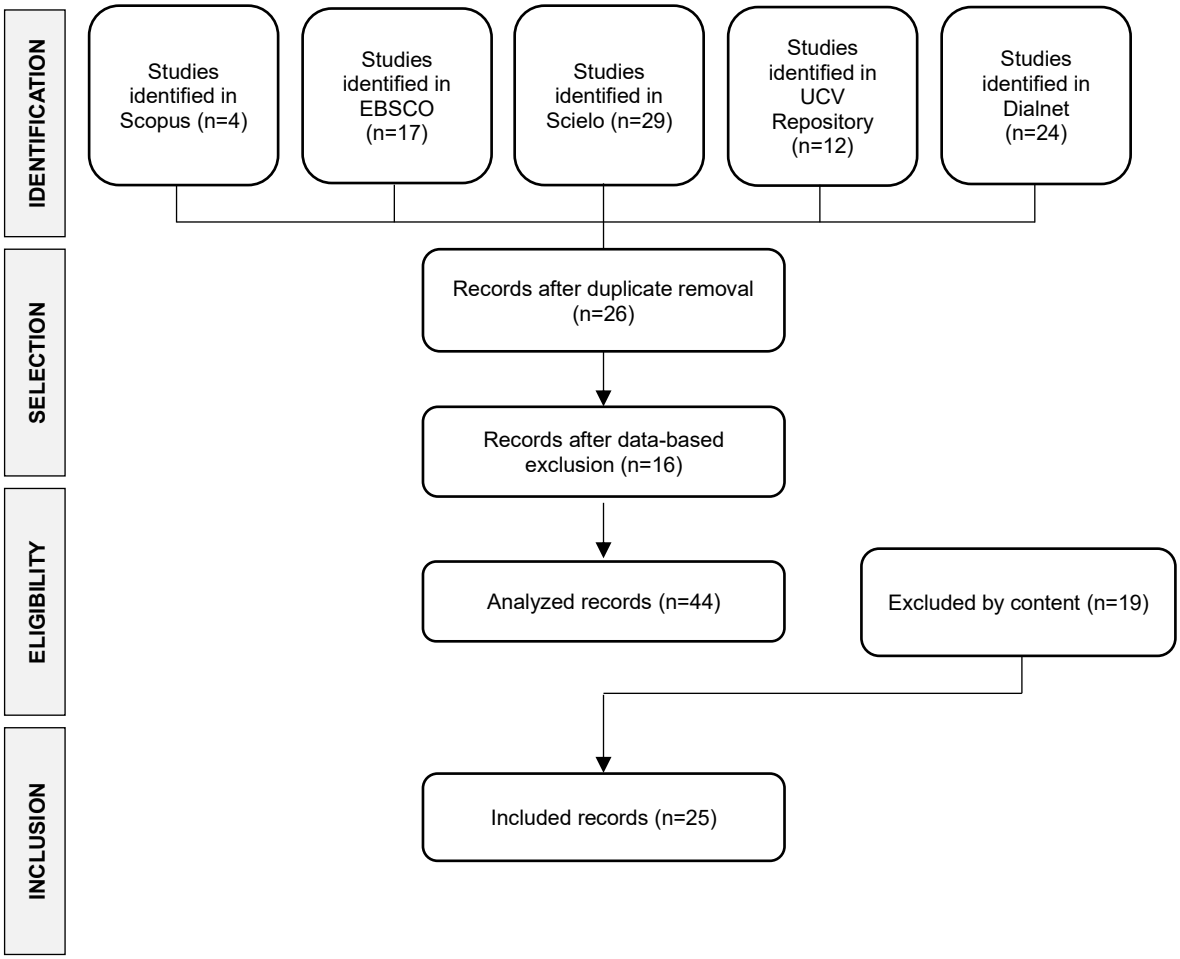
Selection process

In the initial selection phase, a search was conducted in the databases EBSCO, Scielo, Dialnet, Scopus, and the UCV Repository, with the aim of identifying studies that included both variables of interest. Subsequently, a specific search was performed using the aforementioned keywords, applying all established selection criteria.

In the identification stage, the following results were found: 30 articles in EBSCO, 237 in Scielo, 672 in Dialnet, 25 in Scopus, and 47 in the UCV Repository. Restricting the search to the period 2019-2024 reduced the results to 25 articles in EBSCO, 96 in Scielo, 130 in Dialnet, 7 in Scopus, and 29 in the UCV Repository. Subsequently, articles with clearly attributed authorship to an organization were selected, yielding 17 articles in EBSCO, 29 in Scielo, 24 in Dialnet, 4 in Scopus, and 12 in the UCV Repository. Finally, applying the inclusion criterion based on the presence of research variables, 3 articles in EBSCO, 8 in Scielo, 7 in Dialnet, 5 in Scopus, and 2 in the UCV Repository were selected.

This systematic methodology ensured the rigor and validity of the analysis, guaranteeing that the selected studies adequately responded to the research question posed and contributed relevant evidence concerning creativity and innovation in the educational sphere.

Figure 1
PRISMA method



Results and discussion

Through the analysis of the selected articles, various contributions by authors in research related to creativity are evident, showcasing both coherence and potential contradictions regarding the different theoretical frameworks considered.

According to Martín et al. (2024), our future is intrinsically linked to creativity. Thus, education must be conceived as a transformative tool that provides spaces for seeking solutions to new social problems. To address present and future challenges, it is essential to foster creativity in students at all educational levels. Although the concept of creativity has been approached from multiple disciplines and lacks a single definition, it is generally understood as the ability to generate new and useful ideas or create original solutions. Within the educational realm, several aspects have been identified that educators can consider to promote creativity, such as the creative process, the produced product, creative skills, and the environment in which this capability develops. Therefore, a practical approach involves understanding creativity as the interaction between skills, processes, and contexts, where an individual or group produces a tangible outcome that is novel and useful in a specific social context. From a sociocultural perspective, creativity is seen as a social and cooperative phenomenon influenced by the environment (Arce-Saavedra & Blumen, 2022; Troncoso et al., 2022).

Similarly, Gatti (2024) argues that creativity is fundamental for identifying the onset of a problem, formulating solid hypotheses, imagining multiple research avenues, and constructing explanations based on objective results, linking theories and prior knowledge with new challenges. In this regard, creativity is inseparably

connected to the generation of scientific knowledge, whose development requires communication, interdisciplinary cooperation, and collaboration among peers (Ávata Varas et al., 2022; Sandoval-Obando et al., 2020; Vázquez-Parra et al., 2024).

On the other hand, Monge et al. (2024) note that while creativity is commonly associated exclusively with the artistic realm, this perspective is limited from a social and educational viewpoint. Creativity is not restricted to the arts; rather, it forms a fundamental basis for supporting teaching and learning in any discipline, especially in the sciences. A recent study comparing the development of creative thinking in art and science classrooms found that while creative thinking was greater in visual arts classes, science classrooms offer an optimal environment for fostering open-mindedness and unconventional problem-solving processes (Corchuelo-Fernández et al., 2020; Hurtado-Mazeyra et al., 2022; Valencia Jama et al., 2024).

Moreover, Dueñas et al. (2024) highlight that the drive to foster creativity has persisted over time, with Einstein being one of its great advocates, considering it more important than knowledge. However, there is a paradox: many students do not perceive the necessity of constructing scientific knowledge, despite creativity being an innate capability in humans. The nature of science implies that definitions and concepts are human constructions requiring imagination, inquiry formulation, hypotheses, and modeling. In this sense, creativity encompasses cognitive development, imagination, and innovation—elements that are necessary but not sufficient for generating new ideas (García-García et al., 2024; Macías-Cedeño et al., 2024; Ramos Santana et al., 2024).

Regarding the variable of innovation, educational innovations have gained increasing relevance in the agendas and priorities of educational policies and systems, becoming ubiquitous and seemingly indispensable. Therefore, it is crucial to reflect on the meaning of teaching today and to question whether the traditional educational model meets the new demands of students and society. It is necessary to evaluate whether schools should remain as they are, reform, transform, or even close to make way for new educational options (Bastos & Carvalho, 2019; Rodríguez et al., 2023).

In this same vein, Venegas et al. (2024) indicate that educational innovation requires a paradigm shift that includes the use of advanced technological tools, efficient resource management, adequate provision of materials and infrastructure, curriculum updates, and the review of administrative processes and management philosophies. To achieve these goals, the willingness of educational authorities and the readiness of staff at each institution, especially teachers—who are the primary executors of the educational process—are indispensable. In line with this, Canizales et al. (2020) and Meneses-Navarro et al. (2020) emphasize that educational innovation promotes reflective, creative, and critical learning in the subject area of the teacher.

Thus, an educational landscape oriented toward lifelong learning is created, where teachers must consider themselves continuous learners, acquiring new skills in various areas to enrich their pedagogical practice. This change involves abandoning old paradigms considered unquestionable truths and adopting innovative ways of thinking that allow for the discovery of new possibilities previously unnoticed. Therefore, effective educational innovation requires that teachers and students teach and learn differently, creating institutions that are open, flexible, and capable of transforming problems into solutions. To this end, teachers must learn to question and transcend the traditionally internalized image of their role, recognizing that knowledge is not static and that learning must be continuous throughout their professional lives (Chen-Quesada et al., 2020; Núñez-Pacheco et al., 2022).

Finally, Gajardo et al. (2024) conclude that educational innovation encompasses multiple dimensions: technological, didactic, pedagogical, and above all, human. Introducing significant changes in the educational process involves modifying materials, methods, content, and learning contexts. For an innovation to be considered as such, it must generate a perceptible difference in the quality of content and add value to the teaching-learning process. Furthermore, the proposed innovation must benefit both the educational institution and external stakeholders (Bouincha et al., 2024; Zuloaga Cachay et al., 2022).

Conclusions

From the analysis conducted, it can be concluded that creativity in education involves fostering change and preparing individuals to develop qualities such as originality, flexibility, vision, initiative, and confidence. In this way, individuals are formed who are willing to take risks and equipped to face the obstacles and challenges presented both in school and in everyday life. Educational creativity is enhanced by developing individual and group potential, achieving a more effective use of resources during the teaching-learning process.

In this regard, it is impossible to speak of truly creative education without considering the importance of an environment that stimulates critical thinking and creativity in the classroom. Therefore, creativity and innovation are part of human potential, integrating cognitive, emotional, intellectual, and volitional factors. These components are activated in a conducive environment that facilitates the generation and dissemination of innovative products

with high social value, allowing for the overcoming of limitations inherent to the socio-historical context in which one lives. This comprehensive approach proposes a dialectical relationship between the fundamental dimensions that are often defined unilaterally: people, processes, products, and the environment.

Finally, the systematic analysis reveals that several studies present theoretical and conceptual shortcomings regarding creativity and innovation. Despite having moderate theoretical backing, many individuals are unaware of how to fully develop their creativity to generate significant improvements, which limits the adoption of innovative habits and, consequently, the implementation of better teaching methods for both teachers and students.

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