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Creativity Development in Higher Education: Learning Styles and Teaching Practices from Students and Professors' Perspectives

Desarrollo de la creatividad en la educación superior: estilos de aprendizaje y prácticas docentes desde las perspectivas de estudiantes y profesores

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Abstract

Creativity development has become an essential competence in higher education, as it contributes to preparing students to respond critically and innovatively to contemporary social and professional challenges. Its development is associated with teaching practices, learning styles, and educational experiences that shape university learning environments. The aim of this study was to investigate the teaching practices, knowledge areas, learning styles, and extracurricular activities that promote creativity development in higher education from the perspectives of students and professors. A mixed-methods study was conducted. A structured questionnaire was administered to a purposive sample of 834 undergraduate students enrolled in Social Sciences and Humanities programs at three universities in Colombia and qualitative data were obtained through an open-ended question included in the same questionnaire and semi-structured interviews with eleven professors from the same universities. Quantitative and qualitative findings were integrated through methodological and source triangulation. The findings reveal convergent perceptions regarding the value of active teaching methodologies, multimodal learning experiences and visual and auditory learning styles. Both main actors emphasized the importance of problem-based learning, authentic learning experiences, and unconventional classroom activities for creativity development. The study also highlights the pedagogical value of structured uncertainty as a strategy for strengthening students' creative development.

Keywords: Multimodal Learning; Creativity; Higher Education; Learning Styles; Teaching Practices.

Resumen

El desarrollo de la creatividad es una competencia esencial en educación superior, ya que contribuye a preparar los estudiantes para responder crítica e innovadoramente a los desafíos sociales y profesionales contemporáneos. Su desarrollo está asociado con prácticas docentes,

estilos de aprendizaje y experiencias educativas que configuran los entornos universitarios. El objetivo fue investigar estas prácticas, áreas de conocimiento, estilos de aprendizaje y actividades extracurriculares que promueven el desarrollo de la creatividad, desde la perspectiva de estudiantes y profesores. Se aplicó un estudio de enfoque mixto, con un cuestionario estructurado a una muestra intencional de 834 estudiantes de pregrado de Ciencias Sociales y Humanidades en tres universidades colombianas, se obtuvieron datos cualitativos mediante una pregunta abierta en el mismo cuestionario y entrevistas semiestructuradas a once profesores de las mismas universidades. Se integraron los datos mediante la triangulación metodológica y de fuentes. Los hallazgos revelan percepciones convergentes sobre el valor de metodologías de enseñanza activa, experiencias multimodales y estilos de aprendizaje visual y auditivo. Ambos agentes destacaron la importancia del aprendizaje basado en problemas, experiencias auténticas y actividades no convencionales. Se resalta el valor pedagógico de la incertidumbre estructurada como estrategia para fortalecer el desarrollo de la creatividad en la universidad.

Palabras Clave: Aprendizaje multimodal; Creatividad; Educación superior; Estilos de aprendizaje; Prácticas docentes.

Introduction

Creativity in higher education has ceased to be an accessory feature of student profiles and has become a structural element of university education in the twenty-first century. The development of creative skills enables students to hypothesize, propose innovative solutions and actively participate in the production of meaningful knowledge. However, traditional pedagogical practices still prevail, strongly oriented towards mechanical memorization and content reproduction. These practices ultimately limit students' ability to apply knowledge and transform their academic environment through divergent thinking.

Numerous studies (Beghetto, 2021; Elisondo, 2023; Kaufman & Beghetto, 2023) have highlighted creativity as a dynamic process that develops within educational environments characterized by active participation, flexibility, and opportunities for exploration. In this context,

teaching practices, learning styles, and extracurricular activities become key factors for understanding how creativity can be promoted in higher education.

This study explores these dimensions through the perspectives of undergraduate students and university professors from Social Sciences and Humanities programs. It is based on the assumption that creativity in higher education is shaped by the interaction between teaching practices, learning styles, and institutional conditions that encourage active participation, collaboration, flexibility, and authentic learning experiences.

Furthermore, this study examines how students and professors perceive the relationship between teaching practices, learning styles, academic disciplines, and extracurricular activities in supporting creativity development. By integrating quantitative and qualitative evidence, the study contributes to a contextualized understanding of the educational conditions that promote creativity in higher education. In this sense, the present study contributes to a more contextualized and critical understanding of the educational environment that influence the development of creativity in university ecosystems.

The article is organized in the following sections: first, it presents the theoretical framework, focusing on the concepts of creativity, classroom practices and learning styles; second, it develops the methodology used; third, it presents and analyzes the results, and then its meaning is discussed in dialogue with recent literature. Finally, the general conclusions of the study are presented, focusing on creativity in higher education, teaching practices, and learning styles. Accordingly, the aim of this study was to analyze students' and professors' perceptions of the teaching practices, learning styles, academic areas, and extracurricular activities that contribute to creativity development in higher education.

Theoretical framework

Creativity in higher education

For several decades, universities have been criticized for relying on teaching practices that privilege content transmission, memorization, and reproduction over inquiry, creativity, and active knowledge construction (Børte & Zeivots, 2026; Cobo & Moravec, 2011). Although contemporary

students have unprecedented access to information through digital technologies, this reality has challenged higher education institutions to rethink how learning environments, teaching practices, and curricular experiences can promote creativity beyond the acquisition of disciplinary knowledge. Recent research emphasizes that digital transformation alone does not improve learning outcomes; rather, it requires pedagogical innovation, learner-centered approaches, and educational environments that encourage creativity, critical thinking, and active participation (Deroncele-Acosta et al., 2023; UNESCO, 2021; Zou et al. 2025). University creativity is directly related to the comprehension of academic language, the learning of verbal and procedural information, as well as the evaluation of experience and the ability to make judgments and formulate hypotheses (Ungvarsky, 2023).

Similarly, contemporary literature identifies diverse perspectives on how interdisciplinarity significantly impacts the development of creativity in university ecosystems (Griffith, 2023; Infante-Malachias & Araya-Crisóstomo, 2023; Moirano et al., 2020; Uzzi et al., 2013). Recent studies also emphasize that creativity emerges more readily in learning environments that encourage active participation, collaboration, and dialogue across disciplinary boundaries rather than within isolated academic domains (Dechaume, 2024; Vuichard et al., 2023). Moreover, the increasing integration of intelligent technologies into higher education has reinforced the need to redesign teaching practices and learning experiences that enable students to use digital resources creatively and critically (Zhang, 2024). In this context, the present study contributes to a contextualized understanding of how teaching practices, learning styles, and educational experiences shape creativity development in higher education.

Therefore, the university must provide systematic opportunities for the exercise of this creativity in learning contexts (Beghetto, 2021). Recent research emphasizes that creativity in higher education should be understood as a developmental process rather than as an innate individual trait. Accordingly, universities are expected to provide learning environments that encourage exploration, experimentation, collaboration, and reflective problem-solving through meaningful educational experiences (Beghetto, 2021). From this perspective, creativity develops when students actively engage in authentic learning situations that allow them to generate ideas, test alternative solutions, and learn from feedback and error. Consequently, the design of

classroom experiences becomes a central element in promoting creativity development in higher education.

From an innovation-management perspective, creativity becomes actionable when ideas are developed through iterative stages of ideation, experimentation, prototyping, and evaluation. These stages help transform initial ideas into context-sensitive solutions while enabling continuous learning from feedback and error (Ríos Echeverri et al., 2026).

According to Sternberg (2005), intelligence is defined as the ability to voluntarily adapt to the environment, to shape or select an environment. From this perspective, successful performance depends on the integration of four factors: a) creativity to generate novel and valuable ideas; b) analytical capacity to evaluate their quality and feasibility; c) practical intelligence to implement these ideas and convince others of their value; and d) wisdom to ensure that decision making and the implementation of ideas result in the common good of people (Sternberg, 1988, 2005). This integrative perspective highlights that creativity is not an isolated ability but a process that requires analysis, application, and responsible decision-making, all of which are particularly relevant in higher education.

Creativity in the words of Torrance (1974) comprises a series of skills such as sensitivity to problems, identification of a difficulty, inquiry of solutions and formulation of hypotheses, their testing and modification and, finally, communication of the results; activities widely linked to the exercise of creativity in the framework of the academy. In fact, according to De Bono (1992), creativity plays a fundamental role in the formulation of hypotheses, as it enables individuals to move beyond conventional ways of thinking and generate original explanations or solutions. From this perspective, analytical thinking alone is insufficient for scientific inquiry, since the development of innovative hypotheses also depends on creative thinking.

From Gardner's (2006) perspective, intelligence and creativity should not be understood as isolated concepts, just as there is not only one type of intelligence, but there also cannot be only one type of creativity. According to this author, education focused on the development of the creative mind will try not to repress errors, show an open character, offer multiple and diverse representations of the same entity of study and encourage enthusiasm for exploration. This leads us to think of an open and interdisciplinary model in Colombian universities, sometimes more focused on punishing mistakes and rewarding success, and not on developing the creative potential

of the student. In fact, for Corbalán et al. (2003), creativity is an integration of dimensions in which planes such as the cognitive and the socioemotional are located, so important when it comes to vindicate the potential of the student who takes risks and fails.

Thanks to the contributions made by Gardner (1993), Goleman (1995), Guilford (1967), Csikszentmihalyi (1996) and Kaufman & Beghetto (2023), it has been demonstrated that creativity is a multidimensional phenomenon influenced by cognitive, personal, social, and contextual factors rather than by a single individual ability. Consequently, creativity development in higher education depends not only on students' individual potential but also on the educational experiences and learning environments that universities provide. From this perspective, interdisciplinarity, collaboration, authentic learning experiences, and opportunities for experimentation become essential conditions for stimulating creative thinking. According to Landau (1987), creativity is defined as expansive and multifaceted thinking that is capable of relating multiple factors and encompasses the symbolization and representation of ideas in unconventional ways. Such a perspective reinforces the importance of educational practices that encourage students to apply knowledge flexibly, integrate different perspectives, and generate original solutions to complex problems.

Several studies have examined creativity as a higher-order competence that can be intentionally developed in higher education. Research by Elisondo et al. (2011), Sanz de Acedo Lizarraga and Sanz de Acedo Baquedano (2007), and Batey et al. (2009), highlights the close relationship between creativity and divergent thinking, emphasizing that university learning environments can strengthen students' capacity to generate original ideas, approach problems from multiple perspectives, and produce innovative solutions. Collectively, these studies suggest that creativity is not a fixed individual trait but a competence that can be fostered through appropriate strategies.

Finally, Elisondo et al. (2011) argue that creativity cannot be reduced to a single cognitive attribute, but should be understood as a complex competence, shaped by multiple personal, educational, and contextual factors. Likewise, Batey et al. (2009) and Furnham et al. (2008) emphasize that creativity develops through the interaction of diverse cognitive and environmental conditions rather than through a single individual characteristic. These perspectives support the assumption adopted in the present study that creativity development in higher education depends

not only on students' individual potential, but also on teaching practices, learning experiences, institutional environments, and opportunities for active participation. Consequently, this study examines creativity as an educational competence that can be promoted through pedagogical practices and university experiences rather than as an exclusively individual attribute.

Bosch and Casadevall (2017) state that the new educational university ecosystems require scientists with expertise in the broad areas of knowledge, willing to innovate and adapt to the changing circumstances of an unstable world; they postulate that creativity in university should provide new and robust ideas, innovation, adaptation to change, critical thinking, and social responsibility. Similarly, Barrow (2010) argues that creativity is strengthened when students formulate new questions, integrate knowledge from different disciplinary perspectives, and tolerate the coexistence of apparently contradictory ideas. This capacity to work across disciplinary boundaries and to explore alternative ways of understanding complex problems is particularly relevant in higher education, where creativity often emerges from dialogue, uncertainty, and the integration of diverse perspectives.

Similarly, on the side of Klimenko (2009), we have a series of capabilities that enhance creativity, closely related to it in the university. These are: learning to observe and infer, analyze and synthesize, encode and decode, classify and compare, formulate and verify hypotheses; question, imagine, think divergently; generate ideas and communicate them. Together, these capabilities provide a conceptual foundation for understanding creativity as a competence that can be intentionally developed through appropriate teaching practices and meaningful learning experiences.

In the same sense, Krumm et al. (2014) argue that creativity should be understood as a construct influenced by multiple cognitive, personal, and contextual factors. For their potential joint development, the student is led towards academic enculturation (Cabrales et al., 2022; Lea & Street, 2006), understood as the set of academic, social, and literacy practices through which students progressively become part of the university community. These experiences enable students to engage with disciplinary knowledge, participate in collaborative learning environments, and develop the creative competencies required to address complex academic and social challenges (Cabrales Salazar & Díaz Pérez, 2020).

Creativity, then is understood as an emergent property of the dynamic interaction between the individual and the educational, social, and cultural systems in which they participate (Ponce, 2002). From this perspective, academic enculturation provides opportunities for students to engage with diverse learning experiences that extend beyond the classroom. Consequently, the variety of sports, cultural, artistic, research, social, and intellectual activities offered by universities constitutes an educational environment that enriches students' learning experiences and contributes to creativity development.

Classroom Practices and Learning Styles

In Colombia, the Ministry of National Education (MEN, 2015) defines classroom practices as the set of actions and moments during classes that guide the teacher and are aimed at the conceptual construction and the strengthening of cognitive and social skills in students. In the same sense, Ferreyra & Rúa (2018) define them as conscious, concrete actions that are developed in the context of educational institutions and that involve situations of interaction with other people. For their part, Velásquez et al. (2020) state that, through such practices, the teachers reflect and reformulate the ways in which they teach, and have the opportunity to rethink their planning, methodologies and ways of evaluating, which turns classroom practices into continuous learning opportunities for the teachers.

21st century students, immersed in IT and familiar with multimodal languages (Cabrales et al., 2022; Clement, 2012; Clivaz et al., 2015), demand a diversification of resources and pedagogical practices in the classroom. Therefore, it is necessary for the university to concentrate on understanding and making visible the diverse learning styles of its students. In this way, the effective integration of IT will converge with the promotion of the essential competencies that the university, as a space for the generation of innovative knowledge, must promote: flexibility, adaptability, versatility and a marked innovative spirit.

Along these lines, Beghetto (2021), Zenasni & Besançon (2008) and Brauer et al. (2025) propose that creativity is favored when teachers design experiences of “structured uncertainty”, that is, learning situations with a certain degree of openness that invite to solve real problems without predetermined solutions. Such learning environments stimulate inquiry, experimentation,

and original thinking while maintaining alignment with curricular objectives. Consequently, structured uncertainty becomes a pedagogical strategy that encourages students to actively construct knowledge through exploration, reflection, and creative problem-solving.

On the other hand, a learning style can be associated with the different ways of perceiving, processing and organizing information at the moment of appropriating concepts and principles (Fleming & Baume, 2006). Learning styles refer to the preferred sensory modalities for processing information, and the ways students perceive, interact with, and respond to various learning environments (Cazau, 2004; Estrada, 2018; Freiberg et al., 2017). For the purposes of this research, the V.A.R.K. (visual, aural, read/write, and kinesthetic) learning styles (Fleming & Mills, 1992) were taken into account, as well as multimodal learning (Carrillo et al., 2015; Tkach et al., 2025), understood as that which resorts to processing information that converges in written language, sound, image formats and space.

Multimodal discourse is based on the conjunction in the same textual plane of sound, written language, space and image (Cassany, 2006; Kress & van Leeuwen, 2001). The expansion of digital technologies has intensified the use of these multimodal forms of communication in higher education, creating learning environments in which students interact simultaneously with multiple semiotic resources. In this way, they induce classroom practices that exercise visual, aural, read/write, and kinesthetic resources with diverse communicative codes that favor learning and creativity. Or in the words of Varela (2006), as students combine several styles, they form a classroom with similar characteristics, and each of them with a different dominant sensory representation system, so the teacher must incorporate strategies and methodologies that benefit all learning styles, from the moment of motivation to the evaluation of the knowledge learned.

Methodology

Research design

This study adopted a mixed-methods research design to examine the university teaching practices, learning styles, and educational experiences perceived by students and professors as fostering creativity in higher education. A convergent design was employed, in which quantitative

and qualitative data were collected during the same research period, analyzed independently, and subsequently integrated to obtain a more comprehensive understanding of the phenomenon under study. The quantitative phase captured undergraduate students' perceptions regarding teaching practices associated with creativity in higher education. The qualitative phase complemented these findings by incorporating the perspectives of university professors from three Colombian cities. Rather than establishing direct comparisons between the two participant groups, the interviews were intended to provide broader pedagogical interpretations of the practices identified in the student survey. The qualitative component explored university professor's perspectives on these findings, providing a deeper understanding of the pedagogical practices, contextual factors, and educational experiences that foster creativity in university settings. This phase sought to deepen the understanding of the pedagogical practices that foster creativity in higher education through the perspectives of university professors from different institutional contexts. The integration of both components strengthened the interpretation of the findings by combining the breadth of the survey results with the depth of the interview data.

Participants

The population consisted of students (male, female and other), in first and second semesters enrolled Social Sciences and Humanities programs from three universities in Colombia (Cohorts 2024-1 and 2): for a total of 834 students. The type of sampling used was probabilistic, stratified by university, with 94 % confidence and 5 % error.

Table 1

Demographic Characteristics of the Students Sample

Variable	Categories	Frequency (n)	Percentage (%)
Gender	Female	484	58
	Male	350	42
Age group (years)	16–20	526	63
	21–27	200	24
	28 or older	108	13
Total participants		834	100

The qualitative phase included eleven university professors selected through purposive sampling. The participants were recruited from universities located in Bogotá, Cali, and Cartagena to ensure diversity in institutional contexts, academic disciplines, and teaching experiences. Their professional experience ranged from eight to more than twenty years in higher education. Semi-structured interviews were conducted to explore their perspectives on teaching practices, learning environments, and pedagogical strategies that foster creativity among university students.

Table 2

Teacher Interview Data

ID	City	Age	University	Academic Background	Courses Taught
T01	Bogotá	44	University A	Social Sciences and Humanities	Research Methodology, Social Sciences
T02	Bogotá	37	University A	Education	Teacher Education, Pedagogy
T03	Bogotá	50	University A	Social Sciences	History and Social Sciences
T04	Bogotá	51	University A	Humanities	Humanities and General Education
T05	Cali	37	University B	Fashion Design	Fashion Design, Creative Projects
T06	Cali	32	University B	Communication and Literature	Communication, Literature, Academic Writing
T07	Cali	31	University B	Marketing and Advertising	Marketing, Advertising, Branding
T08	Cali	37	University B	Film and Advertising	Audiovisual Production, Advertising, Creative Communication
T09	Cartagena	51	University C	Philology and Linguistics	Discourse Analysis, Anthropology
T10	Cartagena	47	University C	Social Sciences and Humanities	Communication, Literature, Academic Writing
T11	Cartagena	41	University C	Social Sciences and Humanities	History and Social Sciences

Data collection instruments

Two complementary instruments were employed. The first was a structured questionnaire administered to undergraduate students, used under the self-report format. It consisted of closed-ended and multiple-response questions organized into six analytical dimensions: (1) Academic areas associated with creativity development, (2) Classroom practices that promote creativity (3) Other extracurricular activities that promote creativity at the university (4) Characteristics of

university professors who promote creativity (5) Learning styles that are most related to creativity. The analysis includes the results of the open-ended question in the questionnaire administered to students, referring to their proposals for strengthening creativity in higher education. The survey was sent to the students' e-mail addresses and was answered by 834 students.

The second instrument consisted of semi-structured interviews conducted with eleven university professors teaching social sciences or humanities. The interview protocol explored participants' teaching experiences, perceptions of creativity in higher education, learning styles, classroom practices, extracurricular initiatives, and recommendations for fostering creativity among university students. The inclusion criteria were: (a) having at least three years of university teaching experience, and (b) teaching in social sciences or humanities programs. The qualitative sample comprised eleven university professors at universities in Bogotá, Cali, and Cartagena. Participants represented diverse disciplinary backgrounds, including Education, Communication, Literature, Linguistics, Marketing, Advertising, Design, and related fields. Their ages ranged from 34 to 60 years, and their teaching experience ranged from 8 to more than 20 years. This diversity of academic backgrounds and professional trajectories enriched the qualitative analysis by incorporating multiple pedagogical perspectives on creativity in higher education.

Quantitative data analysis

Quantitative data were analyzed using descriptive statistical techniques to identify the frequency and distribution of students' responses regarding teaching practices, learning styles, academic areas, and extracurricular activities associated with creativity development in higher education.

Qualitative data analysis

Qualitative data were analyzed through a hybrid thematic analysis. Initially, a deductive coding process was conducted using the analytical dimensions established in the questionnaire and interview protocol. Subsequently, an inductive coding process identified emerging themes derived from the professors' narratives. The analysis focused on identifying recurring patterns, convergent

perspectives, and distinctive pedagogical experiences related to the development of creativity in the university. The coding process resulted in thematic categories that were later integrated with the quantitative findings. Both, the instrument and the interview script were structured around groups of questions that, in turn, determined the categories of analysis.

Categories of analysis

1. Academic areas associated with creativity development. The response options were drawn from the major fields of knowledge according to the classification established by the Colombian Ministry of Education (MEN, 2008), which serves as the basis for the accreditation or licensing of university programs.

2. Classroom practices that promote creativity. The response options for this question were derived from the literature review, specifically from Rhodes (1961) Four Ps Model (Person, Process, Product, and Press/Environment).

3. Other extracurricular activities that promote creativity at the university. The response options for this question reflect what the reviewed theoretical literature considers creative, as well as the well-being and community engagement opportunities that Colombian universities offer on their official websites.

4. Characteristics of university professors who promote creativity: This category explored students' perceptions of the personal and pedagogical characteristics that distinguish university professors who most effectively foster creativity in higher education. The response options were established from the theoretical framework and previous studies on creative teaching practices.

5. Learning styles that are most related to creativity. The response options for this question were also derived from the theoretical framework.

Triangulation

Methodological triangulation was achieved by integrating three complementary sources of evidence: (a) the quantitative results obtained from the student questionnaire, (b) the qualitative

responses to the questionnaire's open-ended question, and (c) the semi-structured interviews conducted with university professors. The integration of these data sources enabled the quantitative findings to be complemented with students' suggestions and professors' pedagogical perspectives, providing a broader understanding of the teaching practices and learning experiences that promote creativity in higher education. Additionally, source triangulation was achieved by contrasting the perspectives of university professors from Bogotá, Cali, and Cartagena, allowing the identification of recurring themes and convergent patterns across different educational contexts. Although the student survey was conducted with undergraduate students enrolled in Social Sciences and Humanities programs, the inclusion of professors from the same disciplinary fields in three Colombian cities enriched the qualitative understanding of the phenomenon across different institutional contexts.

Ethical considerations

The study was conducted in accordance with the ethical principles of scientific research. Both teachers and students were informed about the purpose of the study and provided their informed consent to participate. Confidentiality and anonymity of their responses were ensured. The research was reviewed and approved by the Ethics Committee of the public university that led the study.

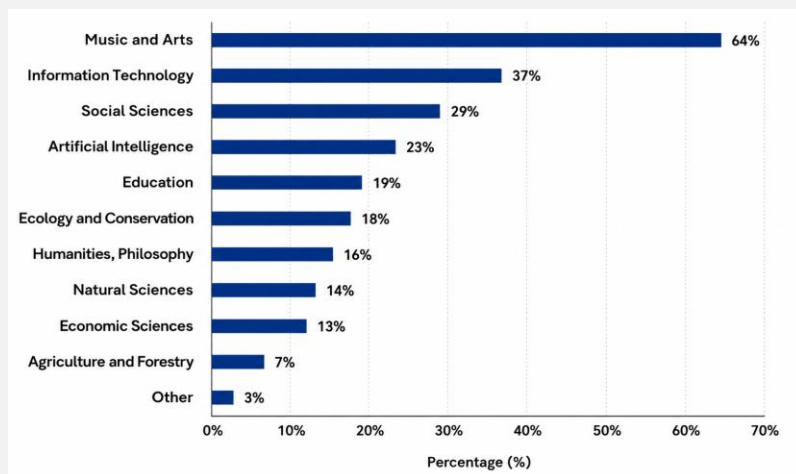
Results

The results are presented through a hybrid analytical approach that integrates quantitative findings from the student survey with qualitative evidence derived from the open-ended survey responses and semi-structured interviews with university professors. The analysis combines deductive categories established from the research instrument with inductively emerging themes identified during the qualitative coding process, allowing a comprehensive interpretation of the factors that contribute to creativity development in higher education.

Areas of knowledge that promote creativity

Figure 1

Academic areas associated with creativity development



Source. Own elaboration.

Figure 1, shows that students do not associate creativity equally across areas of knowledge. Music and the Arts were overwhelmingly perceived as the disciplines that most strongly promote creativity, followed by Information Technology and the Social Sciences. Artificial Intelligence also emerged as one of the areas most frequently associated with creativity, reflecting students' recognition of the growing influence of digital technologies on learning and innovation. By contrast, disciplines such as Agricultural and Forestry Sciences and other fields received considerably lower frequencies.

Students' open-ended responses provide a broader interpretation of these findings. Rather than restricting creativity to specific disciplines, many participants proposed interdisciplinary projects, collaboration among students from different academic programs, and learning experiences centered on authentic social problems. These responses suggest that students increasingly perceive creativity as a competence that develops through the integration of diverse forms of knowledge rather than within isolated disciplinary boundaries.

Professors' perspectives converged with these perceptions. Across the interviews conducted in Bogotá, Cali, and Cartagena, creativity was consistently described as a transversal competence that can be fostered in any area of knowledge through authentic problem-solving,

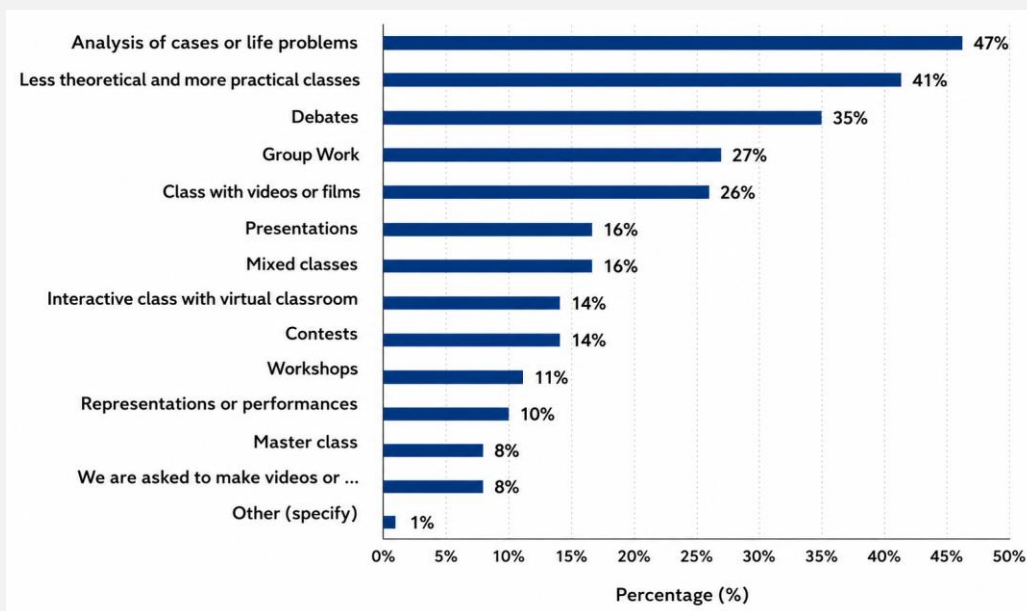
interdisciplinary dialogue, research, and active learning experiences, rather than being an intrinsic characteristic of particular disciplines.

Professors' perspectives complemented the quantitative findings by emphasizing that creativity should not be understood as an attribute exclusive to particular disciplines. Although the Humanities, the Arts, and communication-related subjects were frequently identified as favorable contexts for creativity development, the interviewees consistently argued that creative thinking can be fostered across all areas of knowledge through interdisciplinary learning, authentic problem-solving, research, and meaningful educational experiences. As one professor explained, “It is assumed that all subjects should develop that poetic competence... However, some disciplines, such as communicative arts, oral and written expression, or conflict resolution, tend to facilitate these processes” (T01¹).

Classroom practices that promote creativity

Figure 2

Classroom practices that promote creativity the most



Source. Own elaboration.

¹ Translated from the original Spanish by the authors.

Figure 2 shows that students predominantly associate creativity with active and experiential teaching practices rather than with traditional lecture-based instruction. The highest-rated practices were the analysis of real-life cases and problems, followed by less theoretical and more practical classes, debates, group work, and classes supported by videos or films. Activities based on workshops, performances, contests, and multimedia productions were also positively valued, although with lower frequencies. Overall, the findings indicate that students perceive creativity as developing through participatory learning environments that encourage inquiry, collaboration, and the application of knowledge to authentic contexts.

Students' open-ended responses reinforced these quantitative findings. Many participants proposed replacing predominantly theoretical classes with project-based learning, interdisciplinary challenges, simulations, field experiences, and opportunities to solve real social and professional problems. Likewise, they repeatedly highlighted collaborative work, experimentation, and the incorporation of digital technologies and multimedia resources as strategies that stimulate creativity and make learning more meaningful.

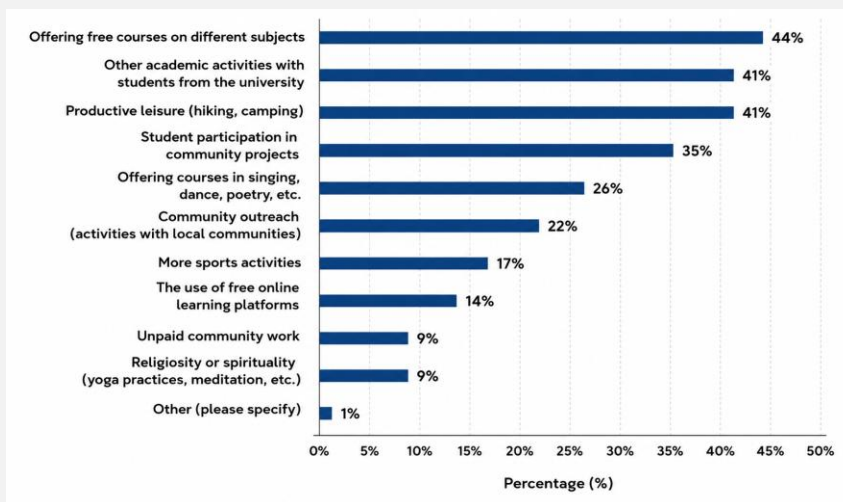
Professors' testimonies strongly converged with these perceptions. Across the three universities, interviewees consistently emphasized flexibility, personalization, the use of innovative educational resources, and the creation of learning environments that promote critical reflection and active student participation. Rather than relying on content transmission, they described pedagogical practices based on dialogue, authentic problem-solving, collaborative work, and experiential learning. As one professor explained, "I approach each class as a tertulia. We start by watching a short film, which sparks reflection and opens the session to a horizontal dialogue where creativity appears naturally" (T04, Bogotá, teacher of Oral and Written Expression; authors' translation from Spanish).

Taken together, the three sources of evidence reveal a consistent pattern: creativity is perceived as developing through active pedagogical experiences that challenge students to investigate, discuss, collaborate, and apply knowledge in authentic contexts. Rather than emphasizing specific instructional techniques, both students and professors highlighted learning environments characterized by participation, autonomy, and meaningful engagement as the conditions most conducive to creativity development in higher education

Extracurricular activities that should be carried out by the university to develop creativity

Figure 3

Other extracurricular activities that promote creativity at the university.



Source. Own elaboration.

Figure 3 shows that students perceive extracurricular activities as an important complement to classroom learning for creativity development. The highest-rated initiatives were offering free courses on different subjects, academic activities shared with students from other programs, and productive leisure activities, such as hiking and camping. Community engagement projects, artistic and cultural courses, and outreach activities also received high levels of support, whereas online learning platforms, unpaid community work, and spirituality-related activities were less frequently selected. These findings suggest that students particularly value extracurricular experiences that broaden their academic perspectives, promote interdisciplinary interaction, and connect learning with authentic social and cultural contexts.

Students' open-ended responses reinforced this tendency by proposing creative laboratories, interdisciplinary workshops, cultural events, entrepreneurship initiatives, community projects, and spaces where students from different academic programs could collaborate. Rather than viewing extracurricular activities as isolated events, participants conceived them as opportunities to strengthen creativity through experiential learning, interaction with diverse communities, and exposure to new forms of knowledge beyond the formal curriculum

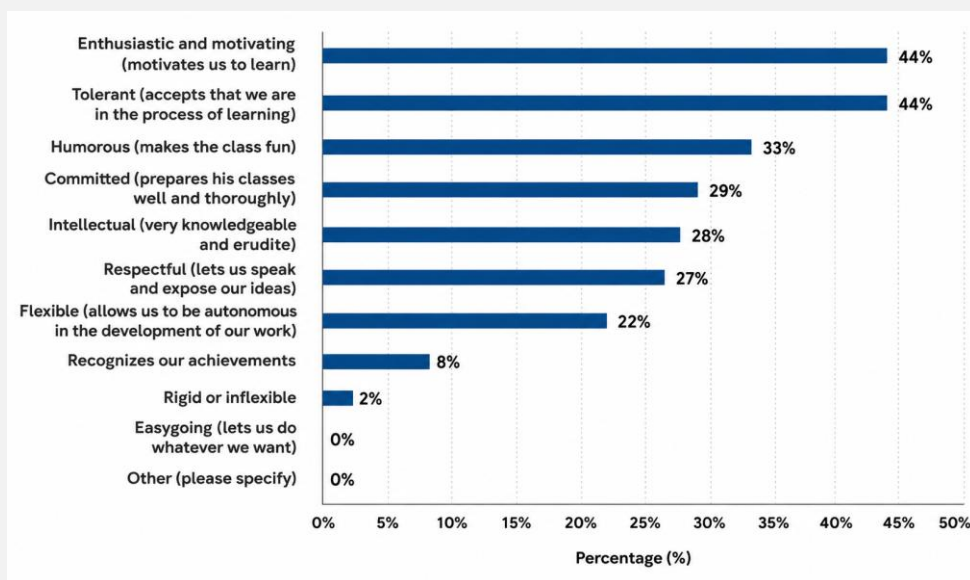
Professors' testimonies converged with these perceptions by emphasizing that creativity is also cultivated through learning experiences beyond the classroom. Across the interviews, they highlighted the importance of experiential learning, interdisciplinary workshops, research groups, hackathons, innovation contests, international collaborative projects, and community engagement initiatives as educational spaces where students can apply knowledge, collaborate with others, and address authentic social and professional challenges. As one professor explained, “Students learn more easily that which produces enjoyment and pleasure. I have sought methodologies based on experiential learning that allow spaces to build meaningful, experiential learning that awaken inspiration and creativity” (T03)

Characteristics of university professors who promote creativity

In this category, students were offered as a response choice a series of teacher profiles associated with their classroom practices. That is to say that the teacher who, through his practice encourages creativity, is the one who is tolerant, flexible, open to dialogue and broadens student participation in the class.

Figure 4

Type of teacher who most promotes creativity



Source. Own elaboration.

Figure 4 indicates that students associate creativity primarily with teachers' personal and pedagogical qualities rather than with their disciplinary expertise alone. The most highly valued characteristics were being enthusiastic and motivating, tolerant of students' learning processes, and humorous, followed by being committed, intellectually knowledgeable, respectful, and flexible. In contrast, rigid or inflexible teaching styles received minimal support, suggesting that students perceive creativity as flourishing in learning environments characterized by trust, openness, and positive interpersonal relationships.

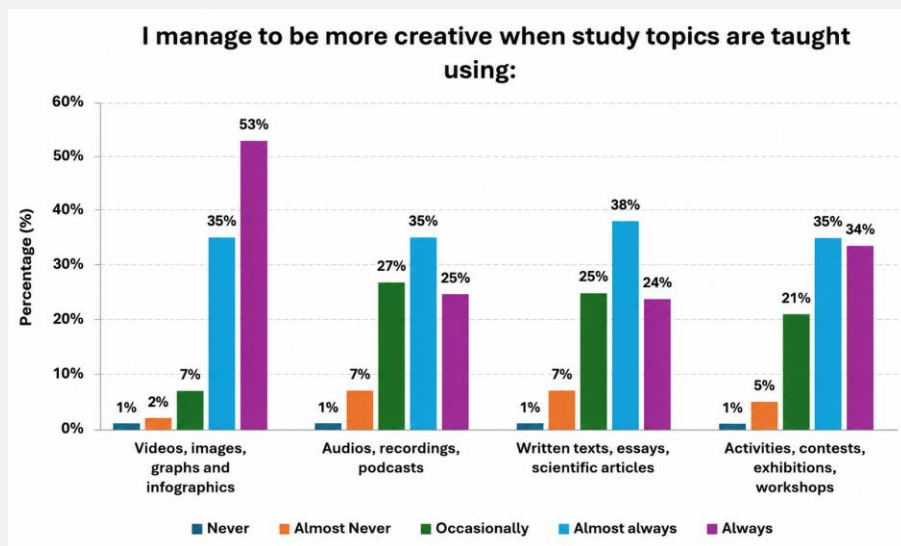
Students' open-ended responses reinforced these findings by emphasizing the importance of professors who encourage dialogue, recognize students' ideas, provide constructive feedback, respect diverse perspectives, and create opportunities for autonomous learning. Rather than demanding unrestricted freedom, participants valued teachers who guide the learning process while fostering confidence, curiosity, and active participation.

Professors' testimonies converged with these perceptions by describing the creative teacher as a facilitator who encourages students to construct knowledge from their own experiences rather than merely transmitting information. Across the interviews, they emphasized flexibility, respect for students' perspectives, and the creation of learning environments where questioning, experimentation, and autonomy are encouraged. As one professor explained, “A teacher who allows students to be themselves... one who allows students to think from their own worldview... I don't think a rigid teacher who delivers a traditional lecture enables the development of creativity” (T02).

Learning styles and creativity

Figure 5

Learning styles and creativity



Source. Own elaboration

Figure 5 shows that students associate creativity with the frequent use of diverse learning resources rather than with a single preferred learning style. Visual resources—including videos, images, graphs, and infographics—received the highest proportion of "always" responses, followed by activities such as workshops, exhibitions, and contests. Written materials (essays, scientific articles, and texts) and audio resources (podcasts and recordings) were also positively valued, particularly when used regularly. Overall, these findings suggest that creativity is enhanced when students are exposed to multimodal learning environments that combine different forms of communication and knowledge representation instead of relying on a single instructional format.

Students' open-ended responses complemented these findings by proposing greater use of audiovisual resources, digital technologies, simulations, collaborative projects, and creative formats for presenting knowledge. Rather than expressing a preference for one particular learning style, participants emphasized the importance of varied and interactive learning experiences capable of maintaining motivation and encouraging active participation throughout the learning process.

Professors' testimonies converged with these perceptions by emphasizing that learning resources should not be used in isolation but integrated to respond to the diversity of students' ways of learning. Several interviewees highlighted the importance of combining videos, images, texts, discussions, and digital media to stimulate creativity and sustain students' interest. As one professor explained, “In my writing classes, I never leave aside the other components, such as videos, audio, illustrations, and images, because they generate students' interest” (T08). Likewise, another professor described replacing traditional written assignments with multimedia productions: “Sometimes, instead of a written essay, I allow students to create a TikTok or a YouTube video (...) That, too, is creativity—communicating knowledge through multiple languages and platforms” (T10).

The convergence of the three sources of evidence suggests that creativity is not associated with a single learning style but with the intentional integration of multiple communicative modes and pedagogical resources. Both students and professors recognize that multimodal learning environments broaden opportunities for participation, strengthen engagement, and encourage more creative ways of constructing and communicating knowledge.

Discussion

The findings of this research allow that creativity in higher education should not be understood as an individual attribute associated with particular disciplines, but as a competence that emerges through the interaction between students, teachers, and the educational environment. In this sense, creativity develops in contexts where students are valued as active agents capable of transforming their reality through fresh and meaningful ideas. The integration of quantitative and qualitative evidence indicates that creativity is fostered in learning contexts characterized by active participation, meaningful experiences, and opportunities to engage with authentic problems. Although students predominantly associated creativity with Music and the Arts, the open-ended responses and professors' interviews revealed a broader conception in which creativity is viewed as a transversal competence that can be intentionally developed across different areas of knowledge through interdisciplinary learning and appropriate pedagogical practices. This convergence highlights one of the principal themes emerging from the hybrid analysis: creativity

is strengthened when disciplinary boundaries become opportunities for dialogue rather than limitations for learning.

The prominence of interdisciplinarity across students' and professors' perspectives constitutes one of the most consistent themes emerging from the hybrid analysis. Beyond students' preference for particular disciplines, both data sources emphasized the value of creating opportunities for interaction among different fields of knowledge through collaborative projects, authentic problem-solving, and shared learning experiences. This finding is consistent with Sawyer (2015), Moirano et al. (2020), and Griffith (2023), who argue that creativity is strengthened when disciplinary boundaries become permeable and students are encouraged to integrate diverse peers.

The preference expressed by both students and professors for active, contextualized, and experiential learning environments suggests that creativity is fostered when students are challenged to investigate, discuss, and solve authentic problems rather than reproduce previously acquired knowledge. This interpretation is consistent with Beghetto (2021), Zenasni and Besançon (2008), and Brauer et al. (2025), who argue that pedagogical environments characterized by *structured uncertainty* encourage students to explore multiple solutions and engage more actively in knowledge construction. Similarly, Elisondo (2023) highlights the educational value of creative and expressive practices that allow students to experiment with different forms of thinking and communication. From the hybrid analysis, authentic experiential learning emerged as another transversal theme, as students and professors consistently emphasized the importance of projects, real-world challenges, collaborative work, and experiential activities as conditions that stimulate creativity in higher education to address complex challenges. Rather than treating knowledge domains as isolated structures, interdisciplinarity promotes the construction of new connections that broaden students' creative potential.

The preference for real-life case studies and experiential learning reflects students' interest in educational experiences that connect academic knowledge with authentic social and professional contexts. Rather than rejecting theoretical knowledge, participants emphasized the importance of applying it through inquiry, collaboration, and problem-solving. This interpretation is consistent with Jeffrey (2006) and Sawyer (2015), who argue that creativity is strengthened in student-centered learning environments where exploration, dialogue, and participation are encouraged. Likewise, Echeverri Alvarez et al. (2025) and Márquez Moreira (2024) suggest that

contemporary higher education increasingly values pedagogical models in which students assume a more active role in constructing knowledge, while professors guide and facilitate the learning process through meaningful educational experiences.

Likewise, the findings suggest that extracurricular activities should be conceived not merely as complementary institutional services but as educational environments that extend creativity beyond the classroom. In this regard, the hybrid analysis revealed authentic experiential learning as one of the most consistent transversal themes across the three data sources. Both students and professors emphasized the importance of interdisciplinary artistic activities—such as theatre, music, and creative writing workshops—together with social and cultural initiatives that encourage collaboration, community engagement, and the exchange of diverse perspectives. Participants also highlighted programs focused on leadership, resilience, emotional well-being, and self-reflection, suggesting that creativity develops more effectively in university environments that promote meaningful experiences, inclusion, and opportunities for personal and professional growth rather than through isolated extracurricular events.

The teaching practices described by the professors—including dialogue-based classes, the use of digital resources, collaborative projects, gamified activities, and flexible forms of assessment—reflect a shift towards learning environments that encourage participation, exploration, and shared knowledge construction. In this regard, student agency emerged as another transversal theme of the hybrid analysis, as both students and professors consistently emphasized the importance of creating pedagogical spaces where learners can make decisions, express their own perspectives, experiment with different ways of solving problems, and actively construct knowledge. These findings are consistent with Csikszentmihalyi (1996), who argues that creativity is not solely an individual attribute but is facilitated by social and cultural environments that encourage interaction, exploration, and the free exchange of ideas.

One of the most frequently cited options is that of the teacher who makes the class fun; clearly, when it comes to creativity, the teacher who promotes humor and allows for relaxation through play opens up possibilities for their students' creativity. Huizinga (1995) reaffirms the communal and didactic nature of play, as students open themselves to collective contact with others, with the possibility of trying and failing, since it is, after all, a game. Playing promotes

freedom and creativity by allowing students to escape the confines of the classroom and enter the imaginary spaces they create.

Regarding learning, the findings suggest that creativity is strengthened when students engage with knowledge through multiple forms of representation rather than through a single instructional format. The preference for combining visual, audiovisual, textual, and interactive resources reflects a transformation in the ways university students construct and communicate knowledge. This interpretation is consistent with Broncano's (2004) notion of the coevolution of the human mind, according to which cognitive development is progressively shaped through interactions with increasingly diverse cultural and technological mediators. Rather than replacing traditional academic resources, the integration of multiple communicative modes expands students' opportunities to interpretation.

The findings related to multimodal learning suggest that creativity is enhanced when students engage with knowledge through multiple forms of representation rather than through a single mode of instruction. The frequent use of visual, audiovisual, textual, and interactive resources reflects the growing importance of multimodal communication in contemporary higher education and the need for teaching practices capable of integrating diverse semiotic resources into meaningful learning experiences. Rather than privileging one learning style over another, the results indicate that creativity is fostered when different communicative modes are intentionally combined to encourage participation, interpretation, and the construction of knowledge. This interpretation is consistent with the multimodal perspective proposed by Kress and van Leeuwen (2001) and Cassany (2006), which emphasizes that learning is enriched through the interaction of multiple symbolic systems and forms of representation, create, and share knowledge in meaningful ways

This interpretation is further supported by Clement (2012), who argues that the expansion of the digital communicative ecosystem—characterized by multimedia resources, new textual genres, and multiple forms of communication within the framework of the new literacies (Barton, 2001; Clement, 2012; Cabrales et al., 2022)—has transformed the ways in which knowledge is constructed, represented, and shared. The present findings reinforce this perspective by showing that creativity in higher education is increasingly associated with learning environments that

integrate diverse communicative modes, encourage students to express ideas through multiple formats, and promote active participation in knowledge construction.

From a practical perspective, these findings invite universities to rethink the role of professors as designers of learning environments that go beyond content transmission to intentionally cultivate creativity through meaningful educational experiences. The convergence of quantitative and qualitative evidence suggests that creativity is fostered when students participate in interdisciplinary learning, engage with authentic problems, exercise autonomy, and interact through multimodal forms of communication. Consequently, teacher education should strengthen pedagogical competencies that enable the design of flexible, collaborative, and inclusive learning environments capable of responding to the social, cultural, and technological challenges of contemporary higher education. More broadly, this study contributes empirical evidence showing that creativity is best understood not as an individual trait or discipline-specific capacity, but as a transversal educational competence that emerges from the dynamic interaction between students, teachers, and the university learning environment.

Conclusions

University creativity spaces should focus on the creation of future scenarios for humanity and the development of emotional and cognitive skills such as identifying, recognizing and defining problems, formulating alternatives, thinking critically, solving and evaluating results that promote the generation of ideas that become structured thinking and new knowledge products. This approach involves understanding creativity not only as an individual or innate capacity, but as a dynamic, socially and culturally situated competence, which is enhanced in collaborative learning contexts mediated by digital technologies.

The findings of this study indicate that creativity in higher education is best understood as a transversal educational competence that emerges through the interaction between students, teachers, and the university learning environment. Rather than being restricted to particular disciplines or individual abilities, creativity develops when universities promote interdisciplinary learning, authentic educational experiences, multimodal forms of communication, and pedagogical practices that encourage autonomy, collaboration, and critical reflection. These findings also

highlight the importance of extending creativity beyond the classroom through artistic, cultural, research, and community-based activities that enrich students' educational experiences. Consequently, universities are called upon to design more flexible curricula, diversify assessment strategies, and strengthen teacher education in order to create learning environments that intentionally foster creativity across all areas of knowledge.

From this perspective, creativity is conceived as a transversal competence that develops through the interaction of diverse disciplinary perspectives, meaningful learning experiences, and supportive pedagogical environments. Its strengthening requires university ecosystems that promote interdisciplinarity, authentic problem-solving, multimodal learning, and collaborative participation, while offering opportunities for engagement with the arts, research, community projects, and other real-world contexts. In this sense, the university moves beyond its traditional role as a transmitter of knowledge to become a space for exploration, dialogue, and knowledge co-construction, where creativity is intentionally cultivated through meaningful educational experiences.

The university should promote creativity through a systemic approach that considers the interaction between individuals, knowledge, and their educational and social contexts. i. Creative students, in addition to being highly motivated, possess certain innate capacities and use them together with the information of the area of knowledge in which they are immersed, and convert them into a new ability, from which they can transform reality with new processes or inventions in a context given to creation, acceptance of error and the possibility of giving opinions, dissenting and criticizing.

The findings also suggest that classroom practices should provide students with opportunities to transform disciplinary knowledge into meaningful and creative academic products through discussion, inquiry, collaboration, and the exploration of authentic problems. More than transmitting information, university teaching should create learning environments that encourage students to establish connections between knowledge, experience, and real-world contexts by integrating multiple forms of representation and participation. In this process, it is essential to recognize students' perceptions of the learning environment and to promote pedagogical relationships characterized by trust, flexibility, and constructive feedback, as these conditions encourage creativity more effectively than rigid or exclusively transmissive instructional models.

Faced with students who learn in a diverse manner and from more visual and auditory formats, it is suggested to implement didactic proposals based on multimodal textuality for the strengthening of creativity, with the objective of approaching the simultaneous incidence of multiple sensory stimuli: visual, auditory, written or kinesthetic, and multiple semiotic resources in the development of the cognitive skills required for the comprehension and production of innovative hypotheses.

Finally, the findings highlight the importance of fostering classroom climates characterized by trust, motivation, and intellectual challenge, where error is understood as a natural component of learning rather than as a source of punishment. Such environments encourage students to experiment, reflect, revise their ideas, and develop creative solutions through iterative learning processes. In this sense, creativity in higher education requires university ecosystems that promote authentic learning experiences, flexible assessment practices, methodological diversity, and meaningful opportunities for interdisciplinary collaboration. Transforming the classroom into a learning environment for exploration, innovation, and knowledge co-construction is essential for preparing creative, critical, and socially responsible professionals capable of responding to the complex challenges of contemporary society.

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