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Educational Technology and the Digital Competencies of Teachers and Students

Technology is advancing at a rapid pace, bringing about changes in various aspects of human life. Education is no exception. In recent years, teachers and students have faced the challenge of developing digital competencies that enable them to use new technologies in pedagogically sound, effective, and critical ways in order to transform teaching and learning processes. Consequently, there is a growing emphasis on investigating and discussing the effects that technology has had on education, taking into account the different dimensions of the teaching and learning process, the possibilities and implications of its use in diverse educational contexts, knowledge construction, education and training, critical thinking, and the collaborative work associated with these competencies.

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Educational Technology and Digital Competencies of Teachers and Students

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Digital competence and transition to Secondary Education: a longitudinal students' study

Competencia digital y transición a Secundaria: estudio longitudinal del alumnado

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Abstract

Technology plays a key role in the educational transition from primary to secondary education. This longitudinal study analyses the development of students' digital competence during this period. To this end, a mixed methodological design was implemented in three phases: diagnosis and intervention in sixth grade of primary education (pre and post intervention application of a questionnaire to assess students' digital competence) and follow-up of students in their transition to secondary education (re-application of the digital competence questionnaire and an educational transition questionnaire, administered in the classroom using focus group dynamics). The results show that the difference between the stages of primary and secondary education lies in the cognitive function of the digital tools used. In primary education, their use is mainly linked to teacher-guided activities aimed at motivation, practice, and understanding of specific content. In secondary education, however, the focus shifts more towards learning management, including information search, use of virtual platforms and content production, moving from performing digital tasks to managing a digital learning environment. This transformation explains part of the perceived difficulty in adapting to the secondary stage and suggests the need for explicit work on digital competence during the transition between both stages. The conclusions suggest that digital literacy should be approached as a pedagogical progression, starting from guided to independent and critical use.

Keywords: digital skills, education, school, high school, digital competence, transition.

Resumen

La tecnología juega un papel clave en la transición educativa de primaria a secundaria. Este estudio longitudinal analiza la evolución de la competencia digital del alumnado en ese periodo. Para ello, se implementó un diseño metodológico mixto siguiendo tres fases: la primera y la segunda consistieron en el diagnóstico e intervención en 6.º de Primaria de unos talleres formativos con una aplicación pre y post de un cuestionario para evaluar la competencia digital de los estudiantes, la tercera se basó en el seguimiento del grupo participante en su transición al IES (Instituto de Educación Secundaria), aplicándose nuevamente el cuestionario de competencia digital y un cuestionario de transición educativa, administrados en el aula con dinámica de focus group. Las principales técnicas de análisis parten de un enfoque mixto, alternando instrumentos cuantitativos (cuestionario ECODIES) y cualitativos (cuestionario reflexivo). Los resultados muestran que la diferencia entre etapas se encuentra en la función cognitiva de las herramientas digitales utilizadas. En primaria, su uso se vincula principalmente con actividades guiadas por el docente y orientadas a la motivación y la comprensión de contenidos concretos. En secundaria, se orienta más a la gestión del aprendizaje incluyendo el uso de plataformas virtuales y pasando de ejecutar tareas digitales a gestionar un entorno digital de aprendizaje. Las conclusiones sugieren que la alfabetización digital debe plantearse como una progresión pedagógica, partiendo de un uso guiado a un aprendizaje autónomo y crítico.

Palabras clave: alfabetización digital, educación, escuela, instituto, competencia digital, transición.

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1. Introduction

In recent years, digital competence (DC) has established itself as one of the key competencies for lifelong learning and full participation in the knowledge society. In education, this competence is not limited to the instrumental use of technologies but it encompasses an integrated set of knowledge, skills, attitudes, and values necessary to use digital technologies critically and responsibly (Redecker, 2017).

During the transition from elementary to secondary school—specifically for students—the acquisition of adequate digital competence is particularly important, as the use of digital technologies is part of their daily lives from an early age. Research on students' digital competence has grown significantly over the past decade. However, cross-sectional studies predominate, offering a static view of digital competence levels at a given point (Godaert et al., 2022; Timotheou et al., 2022; Van Laar et al., 2017; Zakir et al., 2025; Zhao et al., 2025); hence the need to implement longitudinal designs that allow for an analysis of the actual evolution of this competency (Ma et al., 2025).

This gap is particularly relevant in the context of the transition from elementary to secondary school, a period marked by changing organizational, methodological, and technological demands, yet one that has been scarcely explored from a digital development perspective (Aesaert et al., 2014; Guitert et al., 2021; Hatlevik et al., 2015). In this regard, this research provides empirical evidence in a largely unexplored area by conducting a longitudinal analysis within the context of the transition between educational stages.

To contextualize the study, three closely linked conceptual axes are outlined below: students' digital competence from a multidimensional perspective; the gender dimension as a variable influencing the development of this competence; and, finally, the transition from elementary to secondary school as a process of transformation.

1.1 Students' Digital Competence

The expansion of digital environments both in and outside of school has established digital competence as part of the core knowledge that students must acquire during compulsory education

(Real Decreto 157/2022). In Europe, the Digital Competence Framework for Citizens (DigComp 2.2) has become a key benchmark for research, curriculum design, and assessment. This framework updates performance descriptors across the five areas of digital competence: Information and Data Literacy (Area 1), Communication and Collaboration (Area 2), Digital Content Creation (Area 3), Safety (Area 4), and Problem Solving (Area 5) (Vuorikari et al., 2022). In addition, it has recently begun to incorporate emerging phenomena, such as systems based on Artificial Intelligence (Bekiaridis and Attwell, 2024).

In the Spanish context, current legislation has developed its curriculum framework along these lines, establishing operational descriptors that clarify progression across educational stages (Ministerio de Educación y Formación Profesional, n.d.; INTEF, n.d.). In turn, the Reference Framework for Teachers' Digital Competence contextualizes DigCompEdu within the Spanish system, focusing on aspects such as digital well-being, which directly impacts students' learning environments (Ministerio de Educación y Formación Profesional, 2022). The PISA 2022 framework for ICT questionnaires provides indicators on students' technological practices and familiarity, enabling a connection between digital use, well-being, and academic performance, while offering an international perspective for analyzing transitions between educational stages (OECD, 2023). Godaert et al. (2022), among other methodological reviews, highlight an imbalance in students' digital competence levels, noting that areas related to safety and problem-solving appear to be less frequently addressed. Empirical evidence shows that familiarity with technology does not guarantee its competent or educational use, and therefore explicit training is required (Erwin and Mohammed, 2022; Hatlevik et al., 2015).

Although longitudinal research on students' digital competence in Spain remains limited, the available results suggest some relevant conclusions. At the institutional level, longitudinal school-wide assessments show a consolidation of leadership and pedagogical support (Fernández-Miravete, 2024). Analysis from the teachers' perspective adds important context, highlighting that following the experience of the COVID-19 lockdown, the educational use of technology has stabilized, establishing learning routines that directly benefit students (Pozo et al., 2024; Wohlfart and Wagner, 2024).

1.2 The Gender Dimension in Students' Digital Competence

Studies on digital competence have shown that, while gender differences can be identified, they do not follow a single pattern. International reports distinguish between skills, attitudes, and access conditions to understand how these gaps are formed and to avoid oversimplified interpretations (Reichert et al., 2023; UNESCO-UIS/UNEVOC, 2018). Liaw (2024) showed in a longitudinal study of students transitioning from elementary to secondary school that, although the average level of digital literacy was increasing, there were significant variations within each group and gender differences that did not recur across all cohorts. In their study, Bueno-Baquero et al. (2025) highlighted significant improvements and higher final performance among 6th-grade girls participating in DigComp-based training.

The PISA 2022 ICT questionnaires also reveal differences between girls and boys in technology use, digital self-efficacy, and associated well-being, which helps explain part of what happens when students transition to secondary school (OECD, 2023). Similarly, in Spain, Casillas-Martín et al. (2020) and Iglesias Rodríguez and Hernández Martín (2020) have identified gender differences favoring girls in both attitudes and performance, underscoring the importance of interventions that address digital citizenship, safety, and problem-solving from an early age.

Studies conducted in elementary school, such as Godaert et al. (2022), have found that the least addressed areas—safety and problem-solving—are those where gender differences are most likely to emerge upon entering secondary school, especially when learning opportunities are unequal. The study by Passaretta and Gil-Hernández (2022) further confirms that gender gaps are compounded by socioeconomic inequalities. Other studies also point to gaps based on gender and rurality, highlighting the importance of conducting longitudinal tracking of the transition (ACARA, 2023).

Finally, research on teachers' use of technology shows that the way a school organizes its digital work and the teacher training available directly influence the opportunities that girls and boys have to develop their digital competence (Wohlfart and Wagner, 2024).

1.3 Transition from Elementary School to Secondary School

The transition from elementary school to compulsory secondary education is a key stage in students' educational trajectories. It involves an adjustment to school dynamics, characterized by greater academic demands, an increase in the number of teachers, and new forms of assessment, all of which can affect students' motivation, performance, and well-being (Eccles and Roeser, 2011). This transition occurs in parallel with the onset of adolescence, a stage in which students experience a progressive search for autonomy, greater influence from their peer group, and the development of abstract thinking—factors that directly influence their relationship with learning (Galton and McLellan, 2018).

In the school setting, these organizational and personal changes affect how students learn with technology, placing new demands on information management and leading to a more intense digital presence in students' lives (Bueno-Baquero et al., 2025). It has been observed that socioeconomic differences in ICT literacy arise early and tend to widen during adolescence if opportunities for use and support are not comparable (Passaretta and Gil-Hernández, 2022). Along these lines, longitudinal studies focusing on teachers' acceptance of technology highlight the importance of promoting ongoing support and reliable infrastructure as prerequisites for enabling digitally rich practices in secondary school (Wohlfart and Wagner, 2024).

The Spanish curriculum envisions this transition as a progression, positioning digital competence as a cross-cutting theme to avoid abrupt jumps between educational stages and specifying the competencies students must have acquired by the end of elementary school to minimize access gaps during the transition to secondary school (Real Decreto 157/2022).

1.4 Objectives and Approach of the Study

Based on these principles, the study presented here addresses the identified needs. By analyzing students' perceptions of technology use during this transition, the study aims to examine their adaptation to secondary school through a longitudinal study organized into three phases:

First, during the first phase, a baseline assessment of students' digital competence (DC) was conducted in sixth grade using ECODIES, an instrument based on the DigComp framework and psychometrically validated for compulsory education (knowledge, skills, and attitudes), making it ideal for obtaining a baseline profile before any intervention (Casillas-Martín et al., 2020). This instrument provides reported validity and reliability, using online tasks in situations that closely resemble real-world use. Furthermore, the ECODIES-40 version offers a compact structure based on DigComp that preserves sensitivity by area and reduces measurement noise, which is advantageous for pre-post designs (García-Valcárcel et al., 2021).

The second phase introduces training workshops in sixth grade. This initiative aligns with the recommendations of European curricula and frameworks, moving from information and communication tasks toward safety and problem-solving, which are typically covered less extensively in elementary school and progress more slowly (Godaert et al., 2022; Vuorikari et al., 2022). A second assessment was also conducted during this phase, which allowed evaluating the educational impact in specific areas, revealing significant improvements in several areas of digital competence (Bueno-Baquero et al., 2025).

The results presented in this study correspond to the final phase of the research: the follow-up of students in the subsequent school year, during their first year of secondary school, thereby adding the longitudinal component that is often lacking in this field. The aim is to evaluate the retention and transfer of learning in the real-world context of secondary school—a period that, as indicated, the literature identifies as a critical window due to increased autonomy, methodological reorganization, and the potential widening of achievement gaps (OECD, 2023). Repeating the ECODIES assessment in the first year of secondary school—with an analysis limited to the subgroup that received training in the sixth grade of elementary school—allows us to estimate intraindividual trajectories. The inclusion of a transition questionnaire contextualizes the observed changes, in line with UNESCO's recommendations on integrating measures of practices and attitudes alongside performance assessment (Reichert et al., 2023).

The main objective of this study is to follow the cohort of 6th-grade students who participated

in the DigComp training program into the entry to secondary school to analyze their progress. The aim is to identify which factors might explain greater or lesser retention and transfer of the training received. The operational design—featuring a sample matched by anonymous codes and repeated measures across DigComp domains—allows analyzing intra-individual changes and changes by sub-competencies. Additionally, by contextualizing their transition experience as reported by the students, the study sought to identify the extent to which experiences during the transition might be related to their trajectories in digital competence.

2. Methodology

2.1 Methodological Design

The study was conducted using a mixed-methods approach, combining quantitative and qualitative techniques, with the aim of analyzing the evolution of students' digital competence and exploring their experiences during the transition. A longitudinal design was chosen for the quantitative phase and a descriptive-interpretive design for the qualitative phase, allowing for a more in-depth understanding of the phenomenon under study. Students' DC was assessed at two points in time: first, when they were in their final year of elementary school (2023–2024 school year), and second, one academic year later (2024–2025 school year), when they were enrolled in the first year of secondary school.

2.2 Participants

The sample for this study consists of 51 students from two schools in Albacete, Castilla-La Mancha, Spain, who could be fully tracked throughout the study period via anonymous pairing. To this end, the most common destination high schools were selected, allowing for the observation of performance in receiving environments that share organizational characteristics; this reduces contextual heterogeneity without compromising the ecological validity required by a study on the transition from elementary to secondary school (Fernández-Miravete, 2024; INTEF, n.d.). It should be noted that although the initial sample consisted of 148 students, after

the identification process, only those cases with both pre-test and post-test measurements (51) were analyzed. Of the selected sample, 16 voluntarily participated in the sixth-grade DC training, compared to 35 who did not. From an ethical and technical standpoint¹, anonymous cross-wave matching was performed using a code that respects confidentiality and enables longitudinal analysis without identifying individuals, in line with how online platforms and instruments are implemented to assess digital competence in compulsory education (Casillas-Martín et al., 2020). The analysis of these data was conducted using RStudio.

2.3 Techniques and Instruments

Data collection in this study was structured into two complementary phases. First, a quantitative phase was conducted, focused on measuring students' levels of DC. Second, a qualitative phase was incorporated to provide a deeper interpretation of the results obtained.

In the quantitative phase, the ECODIES questionnaire was used, a validated instrument proposed by Iglesias Rodríguez et al. (2023) designed to measure the level of digital competence among elementary school students. This questionnaire consists of 57 items distributed across six sections (Iglesias Rodríguez and Hernández Martín, 2020). These sections include Section 0, which collects sociodemographic information, and five additional sections corresponding to the areas of the DigComp framework. The items are rated on a 5-point Likert scale, where 1 corresponds to "strongly disagree" and 5 to "strongly agree."

In the qualitative phase, a questionnaire consisting of closed-ended and open-ended questions was used, inspired by other studies that advocate for educational research as a way to give students a voice by taking an interest in their firsthand experiences and ideas (Jiménez Andújar et al., 2025; Bueno-Baquero et al., 2025). The questionnaire consists of seven open-ended questions designed to facilitate the expression of students' opinions, perceptions, and experiences regarding the use of technology

during their transition to high school. To encourage student participation and foster a climate of trust, the session began with an introductory video related to the study. Subsequently, a guided discussion group was held using a structured presentation, which guided students in reflecting on the content and facilitated the exchange of ideas among participants, as well as the completion of the individual questionnaire.

2.4 Procedure

Data collection took place in a controlled and secure environment, ensuring consistent conditions for all participants. The anonymous coding system facilitated the matching of data collected at both time points without compromising the students' identities.

First, the DC questionnaire was administered online via the LimeSurvey platform, within a secure environment provided by the University of Castilla-La Mancha. To ensure data confidentiality, the dataset was anonymized by assigning a unique code to each participant, following the procedure described by Lippe et al. (2019). This code was randomly generated by the students and allowed for individual tracking across the different phases of the study.

On the other hand, the questionnaires for the qualitative phase were administered on paper and collected by the research team. Additionally, the session was audio-recorded for subsequent analysis. Both the remarks recorded during the session (focus group) and the open-ended responses from the questionnaire were transcribed in full. Subsequently, the collected data were organized and prepared for further analysis using ATLAS.ti, with the aim of gaining a comprehensive understanding of the phenomenon under study and ensuring compliance with the ethical principles of educational research. In this analysis, the coding addressed the five areas of digital competence outlined in this study.

3. Results

This section presents the study's results, organized into two complementary levels of analysis. First, we present the quantitative results obtained

¹ This research was conducted with the approval of the Social Research Ethics Committee at University of Castilla-La Mancha, under registration number CEIS-732398-P6K6.

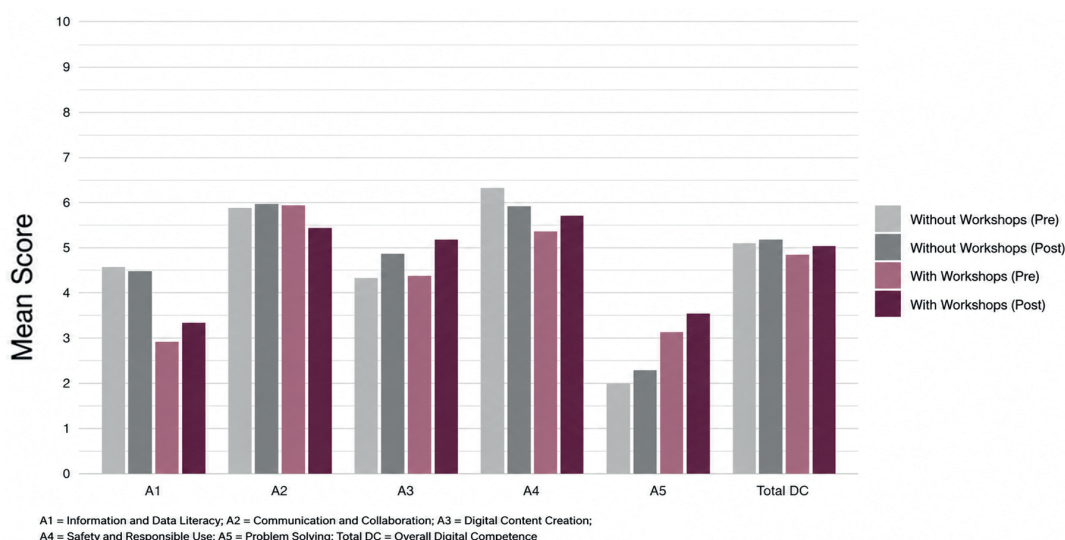
through the digital competence perception questionnaire administered at two time points (pre- and post-measurements), which allows us to observe the students' longitudinal progress and compare the impact of their participation in the training workshops. Next, we present the qualitative results derived from the open-ended questionnaire and the focus groups, which aimed to delve deeper into the students' experiences of transitioning to a new educational stage and to understand how they experience the use of digital tools during the transition from elementary to secondary school.

3.1 Level of Self-Perceived Digital Competence

To determine the students' levels of self-perception regarding digital competence in this study, a longitudinal analysis was conducted comparing the scores obtained during the 2023–2024 school year (pre-test, before the workshops were held at certain schools) and the 2024–2025 school year (post-test, in secondary schools), distinguishing between students who did not receive the specific training implemented and those who did participate in the aforementioned training workshops.

In the total sample analyzed in Figure 1, overall DC scores show a slight improvement in both groups. Although the differences are moderate, there is a general trend toward improvement over time.

Figure 1. *DC Analysis*



Regarding the analysis by gender, notable differences are observed. As seen in Table 1, in the group without workshops, female students improved their total score from 4.93 to 5.57, while male students' scores decreased from 5.13 to 4.58. By dimension, female students show notable increases in areas 1 and 3, while male students show declines in several dimensions, particularly in areas 1, 3, and 4—those related to information and data literacy, content creation, and safety.

It is worth noting that in the group that received training, the differences are even more pronounced.

Female students significantly increased their total score (from 4.52 to 6.00), with notable improvements in areas 3 (from 3.67 to 6.94) and 4 (from 5.31 to 7.14), corresponding to content creation and safety. In contrast, male students saw a decrease in their total score (from 4.96 to 4.21), with declines in areas 2, 3, and 4—those related to communication and collaboration, content creation, and safety—although they showed a notable increase in area 5 (from 2.92 to 5.00), problem-solving.

Table 1. *CD Analysis by Gender²*

Dimension	Gender	n	No workshops		n	With workshops	
			Pre	Post		Pre	Post
A1	Women's	18	4.63 (3.26)	5.19 (3.47)	7	2.86 (3.56)	4.29 (3.71)
A1	Male	16	4.17 (3.55)	3.54 (3.33)	8	2.92 (3.75)	2.92 (2.78)
A2	Female	18	5.78 (1.44)	6.22 (2.21)	7	5.57 (2.70)	6.29 (3.20)
A2	Male	16	5.88 (2.45)	5.50 (2.39)	8	6.00 (2.07)	4.62 (2.56)
A3	Women	18	4.05 (1.71)	5.63 (2.96)	7	3.67 (1.82)	6.94 (0.99)
A3	Male	16	4.38 (1.98)	3.93 (2.53)	8	5.00 (1.71)	3.75 (2.28)
A4	Female	18	6.27 (2.09)	6.27 (3.10)	7	5.31 (2.43)	7.14 (2.61)
A4	Male	16	6.25 (2.33)	5.27 (2.37)	8	5.18 (1.52)	4.29 (2.41)
A5	Female	18	1.30 (1.67)	2.04 (2.03)	7	2.86 (3.00)	1.90 (1.78)
A5	Male	16	2.71 (2.18)	2.50 (2.58)	8	2.92 (2.78)	5.00 (3.98)
Total DC	Women	18	4.93 (1.09)	5.57 (2.04)	7	4.52 (1.89)	6.00 (2.04)
Total DC	Male	16	5.13 (1.79)	4.58 (1.82)	8	4.96 (1.17)	4.21 (1.92)

Overall, the data from the quantitative analysis suggest a more consistent pattern of improvement among female students, especially when they participated in the training workshops, while male students show greater variability, including declines in some dimensions.

3.2 Students' Experiences During the Transition

The results of the qualitative analysis are presented below, organized according to the areas of digital competence considered in this study.

Regarding Area 1 (Information and Data Literacy), one of the most recurring themes in students' responses is the difficulty of finding reliable and appropriate information. Students are aware that searching for information online is not just about knowing how to use a search engine; they want to understand how to select sources and evaluate their validity, even mentioning copyright: "I'd like to get better at searching for things because I almost never

find what I'm looking for, and I'd also like to know if it's protected by copyright" (Student 1).

The need to develop effective search strategies seems to intensify in secondary school, where research projects and independent information searches increase. Students refer to the speed of access to information, openly acknowledging that they use artificial intelligence tools for this purpose: "Digital tools have made my transition to high school easier because searching for things isn't as stressful anymore; before, it used to take me 30 minutes to look up a word in a dictionary, and now, with ChatGPT, it takes 2 minutes" (Student 15).

The transition to high school also involves a shift in social relationships and academic communication channels, which are associated with Area 2 (Communication and Collaboration) of digital competence. Students acknowledge that digital interaction is part of their socialization and learning, highlighting the institutional digital environment used by schools in the region where the study was conducted—in this case, EducamosCLM—as the

² The sum of participants by gender does not exactly match the total sample size because two students did not report their gender and were excluded from this analysis.

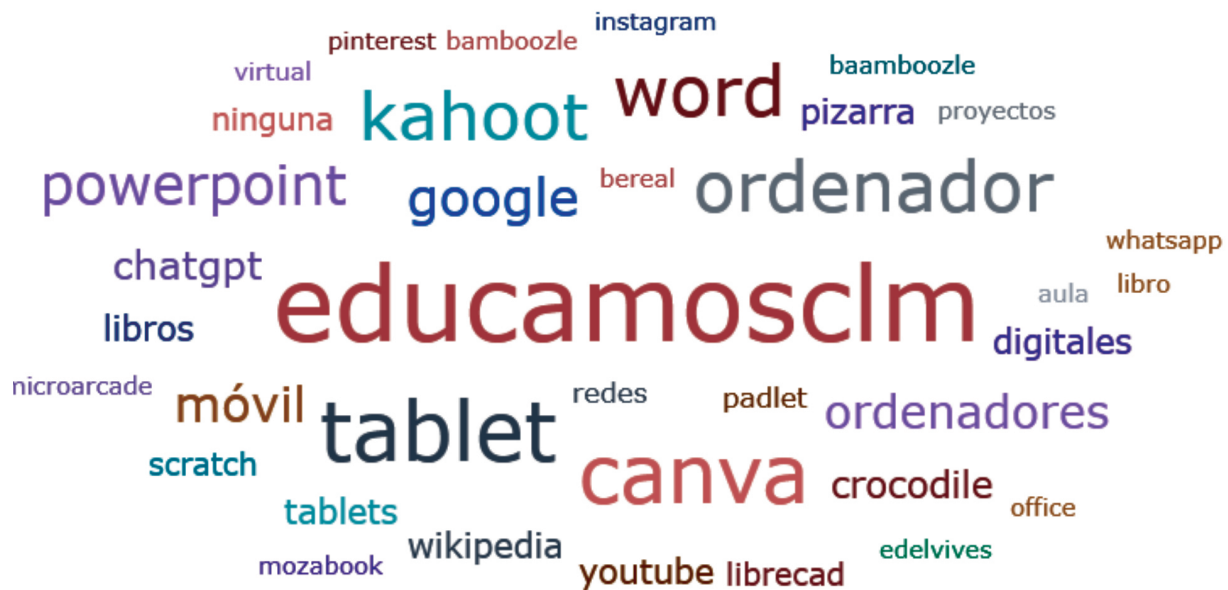
central communication platform, though they admit they need specific training: “Virtual classrooms are fine, but you have to learn how to use them” (focus group participant).

Regarding Area 3 (Digital Content Creation), it is worth noting that the production of digital projects increases during the secondary school years. This change represents a break from elementary school that students perceive as unfamiliar: “The transition to secondary school has been more difficult because I wasn’t as used to doing projects on

devices, but now I’m learning better” (Student 5). In this area, inequalities stemming from family background emerge, highlighting the critical need for training: “I have a really big problem. At home, if I have questions about digital tools, I can’t ask because nobody knows how to use things like Canva” (focus group participant).

Below (Figures 2 and 3) are two word clouds created from the students’ responses, which reveal significant differences in the use of digital tools between the elementary and secondary school levels.

Figure 2. *Digital tools students used in elementary school*



Note: Created by the author using Atlas.ti.

Since the size of each term reflects its frequency of occurrence, these representations not only show which tools are used but also the pedagogical role they play at each level.

On the one hand, in elementary school (Figure 2), there is a smaller variety of digital tools in use. Terms associated with specific devices predominate, notably words such as “tablet” or “cell phone,” as well as recreational digital tools such as Kahoot, YouTube, and Microarcade. Basic content-creation applications such as PowerPoint, Word, and Canva also feature prominently. This suggests that technology at this stage is integrated primarily as a teacher-mediated methodological resource. Students do not view technology as an autonomous learning environment, but rather as part of pre-designed activities.

On the other hand, in secondary school (Figure 3), a shift in the use of digital tools is evident. In general, the use of recreational tools seems less prominent, and terms linked to academic processes in specific subjects—such as LibreCAD or Crocodile—emerge, along with information-search tools like Google, Wikipedia, or ChatGPT. This transformation indicates that students no longer use applications on an *ad hoc* basis but rather interact with a continuous digital ecosystem where they can consult materials, submit assignments, review content, and resolve questions. Thus, the focus shifts from the device to the process. This reflects a higher level of autonomy in which students’ digital literacy involves making decisions such as selecting sources and interpreting information.

integrated as a more common part of the learning environment. However, the analysis by dimension suggests differences across areas. The most pronounced improvements in the group that received training are concentrated in Area 3 (Digital Content Creation) and Area 5 (Problem Solving). This evidence supports the literature indicating that digital competence does not develop automatically through exposure alone but requires explicit and structured instruction (Erwin and Mohammed, 2022). The analysis by gender is particularly relevant. On the one hand, female students show more consistent progress, especially when they have participated in the workshops. These results partially align with research at other educational levels, indicating that when structured training contexts are provided, gender gaps can be reduced (Liu et al., 2021). In contrast, male students exhibit greater variability and declines in some areas, which could be interpreted from different perspectives, such as differences in academic motivation or in how they interact with technology. Although students in the workshop group show a significant increase in Area 5 (Problem Solving), setbacks are observed in other dimensions, suggesting that the impact of the intervention is not uniform within this group. These results contrast with those of the study by Niño-Cortés et al. (2023), which indicate gender gaps favoring boys and highlight the need to develop training that promotes digital competence among girls.

Second, after analyzing students' transition experiences, it can be observed that they do not perceive secondary school as more difficult academically, but rather as more demanding in terms of digital autonomy. In general, the main needs identified relate to search strategies, the use of educational platforms, and the creation of academic digital content, requiring an ethical and responsible use of information, as well as structured training before the transition to high school. Although students mention artificial intelligence as a useful tool for searching for information, this does not guarantee their understanding of it or their ability to critically evaluate it.

Therefore, information literacy remains a key educational need. Regarding content creation, the results show that schools must serve as the primary setting for digital equity, since learning in this area cannot depend solely on the family environment but must be supported by formal education.

The results obtained show a developmental pattern consistent with the literature on information literacy, as students increase their instrumental mastery of technology as they progress through school, transforming the pedagogical significance of its use. This progression aligns with the European DigComp framework, which describes the development of information literacy as a gradual process moving from functional interaction to the critical and creative use of information (Ferrari, 2013). Regarding the differences observed between the two stages, it can be seen that in elementary school, digital competence develops primarily in structured contexts. Technology acts as a teaching facilitator and motivational tool (Urcid, 2023), but not as a system for organizing learning. It is at the secondary school level that programs linked to specific subjects emerge, suggesting a more profound digitization of the curriculum. In line with studies such as that by Godaert et al. (2022), technology evolves from a methodological tool into an academic requirement.

Given all this, digital literacy emerges as an essential element in this transition to a new stage, as well as a prerequisite for equal opportunities. The educational transition, therefore, should include systematic training in digital literacy during the final cycle of elementary school. We encourage future studies to develop and implement workshops aimed at improving students' digital literacy, such as the one developed in this study (Bueno-Baquero et al., 2025). As seen in this research, it is not merely a matter of learning to use digital tools, but of reducing academic uncertainty and supporting students during this pivotal moment.

It should be noted that this study must be interpreted with certain limitations in mind. Some of the data presented are partially based on students' perceptions, which introduces a subjective component linked to their own experiences; however, this has been accounted for in previous studies, such as De Pablos et al. (2016). Furthermore, due to the longitudinal nature of the study, the sample is limited and focuses on a specific educational context; therefore, school technology practices depend largely on the school's organizational culture, teacher training, and the availability of resources. Therefore, it would be appropriate to interpret the presented results while considering and avoiding overgeneralizations, as well as to expand the analysis to different schools

and socio-educational contexts to verify whether the identified trend holds true in different settings.

Looking ahead to future lines of research, it would be interesting to examine in greater detail the connection between digital competence and the process of adapting to the transition to secondary school. The findings suggest that some of the difficulties associated with the transition to secondary education may be related to students' insufficient preparation in terms of technological skills. Studying this issue using variables such as academic well-being, academic performance, or anxiety would provide valuable information for designing transition programs between educational stages, complemented by the role of teacher training in this process.

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Authorship Statement – CRediT Taxonomy

Authors	Contributions
Andrea Bueno-Baquero	Conceptualization, resources, formal analysis, writing.
Dr. María del Carmen Sánchez-Pérez	Conceptualization, methodology, supervision, writing
Dr. José Antonio González-Calero	Data curation, formal analysis, funding acquisition, project management, validation, writing.
Dr. Javier Del Olmo-Muñoz	Research, software, visualization, writing.

Statement on the Use of Artificial Intelligence

The authors DECLARE that, in the preparation of the article “*Digital Competence and the Transition to Secondary School: A Longitudinal Study of Students*,” the artificial intelligence tools Copilot and Perplexity were used to assist with the literature search.



DigCompOrg, the SELFIE tool, and digital maturity in educational institutions: a systematic review

DigCompOrg, la herramienta SELFIE y la madurez digital en las instituciones educativas: una revisión sistemática

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Abstract

The advancement of Information and Communication Technologies (ICT) in education has highlighted the importance of Teacher Digital Competence (TDC) and the adoption of institutional strategies for the effective integration of technologies in teaching and learning processes. Considering that investments in technologies do not always result in digital maturity, it becomes relevant to understand how educational institutions use diagnostic and planning tools to support this transformation. Thus, the objective of this article is to analyze the available empirical evidence (from 2020 to 2025) on the application of DigCompOrg and the SELFIE tool; the form, modalities, and educational levels in which they are implemented; as well as the main challenges and limitations reported in the studies. A Systematic Literature Review was conducted using the Scopus and Web of Science databases, resulting in a final sample of 20 articles. The results indicate that DigCompOrg and SELFIE have been used to diagnose institutional digital maturity, support the development of digital competencies of teachers and students, and subsidize planning and continuous improvement processes. The study observed a predominance of studies in primary and secondary education and the adoption of reduced versions of SELFIE for longitudinal monitoring. The discussion highlights that digital transformation depends on a favorable institutional ecosystem, articulating infrastructure, teacher training, and strategic management. It concludes that these tools contribute to strengthening digital maturity and to the formulation of training actions. As future work, it is recommended to expand investigations in contexts that are still little explored and to conduct longitudinal studies on the impacts of improvement processes.

Keywords: DigCompOrg, SELFIE, education, technology, competence, digitization.

Resumen

El avance de las Tecnologías de la Información y la Comunicación (TIC) en la educación ha puesto de relieve la importancia de la Competencia Digital Docente (CDD), y la adopción de estrategias institucionales para la integración efectiva de las tecnologías en los procesos de enseñanza y aprendizaje. Dado que las inversiones en tecnologías no siempre se traducen en madurez digital, resulta relevante comprender cómo las instituciones educativas utilizan herramientas de diagnóstico y planificación para apoyar esta transformación. Por lo tanto, el objetivo de este artículo es analizar la evidencia empírica disponible (de 2020 a 2025) sobre la aplicación de DigCompOrg y la herramienta SELFIE; la forma, las modalidades y los niveles educativos en los que se implementan; así como los principales retos y limitaciones reportados en los estudios. Se realizó una revisión sistemática de la literatura utilizando las bases de datos Scopus y Web of Science, lo que resultó en una muestra final de 20 artículos. Los resultados indican que DigCompOrg y SELFIE se han utilizado para diagnosticar la madurez digital institucional, apoyar el desarrollo de competencias digitales de docentes y estudiantes, y apoyar los procesos de planificación y mejora continua. La investigación observó un predominio de estudios en educación primaria y secundaria y la adopción de versiones reducidas de SELFIE para el seguimiento longitudinal. El análisis subraya que la transformación digital depende de un ecosistema institucional favorable que articule infraestructura, formación docente y gestión estratégica. Se concluye que estas herramientas contribuyen a fortalecer la madurez digital y a la formulación de acciones formativas. Como trabajo futuro, se recomienda ampliar las investigaciones a contextos aún poco explorados y realizar estudios longitudinales sobre el impacto de los procesos de mejora.

Palabras clave: DigCompOrg, SELFIE, educación, tecnología, competencia, digitalización.

1. Introduction

The transformative role of Information and Communication Technologies (ICT) in educational processes requires continuous professional development (Rzońca, 2024) and it demonstrates that the quality of teaching is intrinsically linked to Teachers' Digital Competence (TDC), which, according to López Bueno et al. (2023), plays an essential role in this process. Limited mastery of these competencies negatively impacts the educational use of technologies, which in turn affects students' holistic development; therefore, alongside the digitization of education, these competencies must be addressed in depth (Gaeta González, 2024; Bacus et al., 2022).

According to Santos, Nóbrega, and Benite (2026), in the context of contemporary educational debates, teacher training has taken on a central role in discussions about education due to social, political, and technological transformations that demand professionals prepared to work in increasingly diverse school settings. However, the development of Teachers' Digital Competence (TDCs) should not be understood solely as an individual effort but rather as the driving force behind the transformation of educational organizations.

In this context, the importance of digital competence (DC) stands out; it is recognized as one of the eight essential competencies for lifelong learning, in accordance with the Recommendation of the European Parliament and the Council of the European Union (2006), updated by the Council of the European Union (2018).

According to the Council of the European Union (2018, p. 9), digital competences “involve the safe, critical, and responsible use of digital technologies in learning, at work, and in participating in society.” This concept, applicable to both children and adults, remains highly relevant and has even guided more recent versions of reference frameworks adapted to today's digital reality (Tenberga and Daniela, 2024; Cosgrove and Cachia, 2025).

There is also TDC defined as:

Knowledge, skills, and attitudes related to technological, informational, and communicative aspects used in professional and educational contexts, incorporating sound pedagogical and didactic criteria for the effective integration of these elements into the teaching-learning process, with an aware-

ness of the implications for students' digital education. (C. Santos, 2023, p. 40)

Digital Competencies (DCs) have been gaining prominence in contemporary society, driven by international organizations and institutions that promote their development and highlight their importance for education and performance in contemporary society (Pedro et al., 2023; C. Santos et al., 2026).

With the aim of guiding educational policies and practices in the digital age, the European Union has developed a series of reference frameworks that define, describe, and support the development of digital competencies across different dimensions of education. The development of these frameworks, as well as action plans related to digital transformation, seeks to “support a sustainable and effective adaptation of education and training systems” (Cachia et al., 2024, p. 2) and responds to the need to build a common language capable of guiding educational policies and strategies in a context marked by significant linguistic, cultural, and institutional diversity.

In line with this, the Update to the Digital Education Action Plan (2021–2027) (Comisión Europea, 2020; Paz Díez-Arcón and Martín-Monje, 2024) defines the European strategy around two central priorities: one regarding the promotion of a highly effective digital education ecosystem, and the other regarding the development of the digital skills and competencies necessary for digital transformation.

Among the frameworks developed by the European Union, the Digital Competence Framework for Citizens (DigComp) stands out; it is aimed at understanding and developing citizens' digital competences, and its first edition was launched in 2013. Since then, new versions have been released over the years—in 2025, the fifth edition was launched: DigComp 3.0: European Framework for Digital Competences for Everyday Life, Employment, and Education (Cosgrove and Cachia, 2025).

Based on DigComp, more specific, education-oriented frameworks were developed, such as the Digital Competence Framework for Educators (DigCompEdu), which aims to develop teachers' digital competencies and consists of six areas: Professional Commitment, Digital Resources, Teaching and Learning, Assessment, Empowering Learners, and Facilitating Learners' Digital Competence (Redecker, 2017). DigCompOrg extends this scope to the insti-

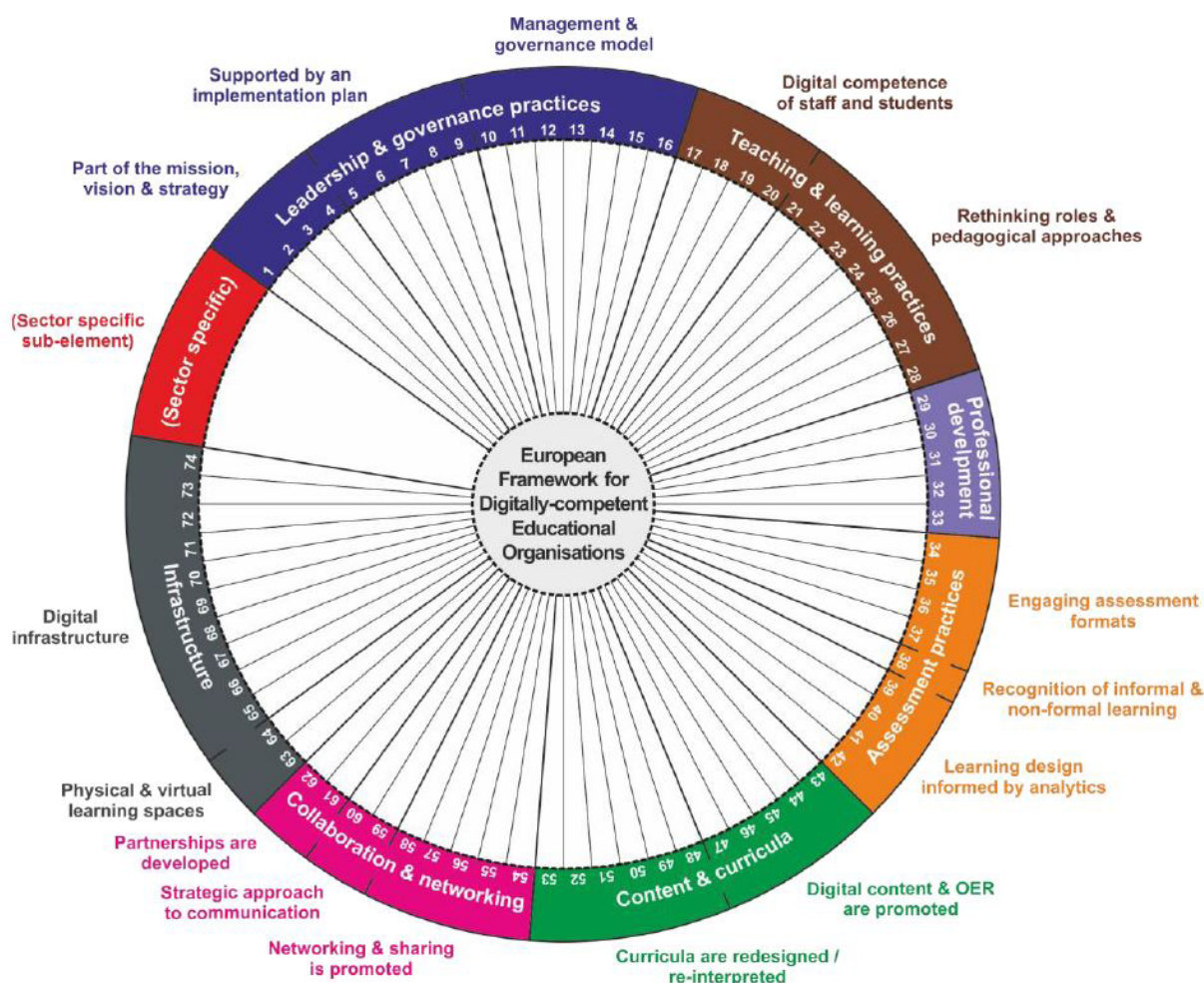
tutional level (Kampylis et al., 2015) and, as it is the focus of this article, will be discussed in greater detail in the following section.

1.1 DigCompOrg

DigCompOrg was developed by the European Commission's Joint Research Centre (JRC) in 2015 in response to the need to modernize education and training systems in Europe. Based on self-assessment and self-reflection by educational organizations, the framework's central purpose is to serve as a reference to support the systemic and effective integration of technologies into education (Kampylis et al., 2015). Thus, this framework was designed to

support the modernization and sustainable integration of digital learning technologies at various levels of education, including Early Childhood Education and Care, Primary / Basic Education (1st, 2nd, and 3rd Cycles), Secondary Education / High School, Vocational Education and Training / Technological Specialization Courses, and Higher Education. The creation of DigCompOrg involved a mixed-methods approach that included literature reviews, expert consultations, and in-depth analyses of existing self-assessment frameworks and tools in various countries. The framework's structure is presented in Figure 1.

Figure 1. Structure of DigCompOrg



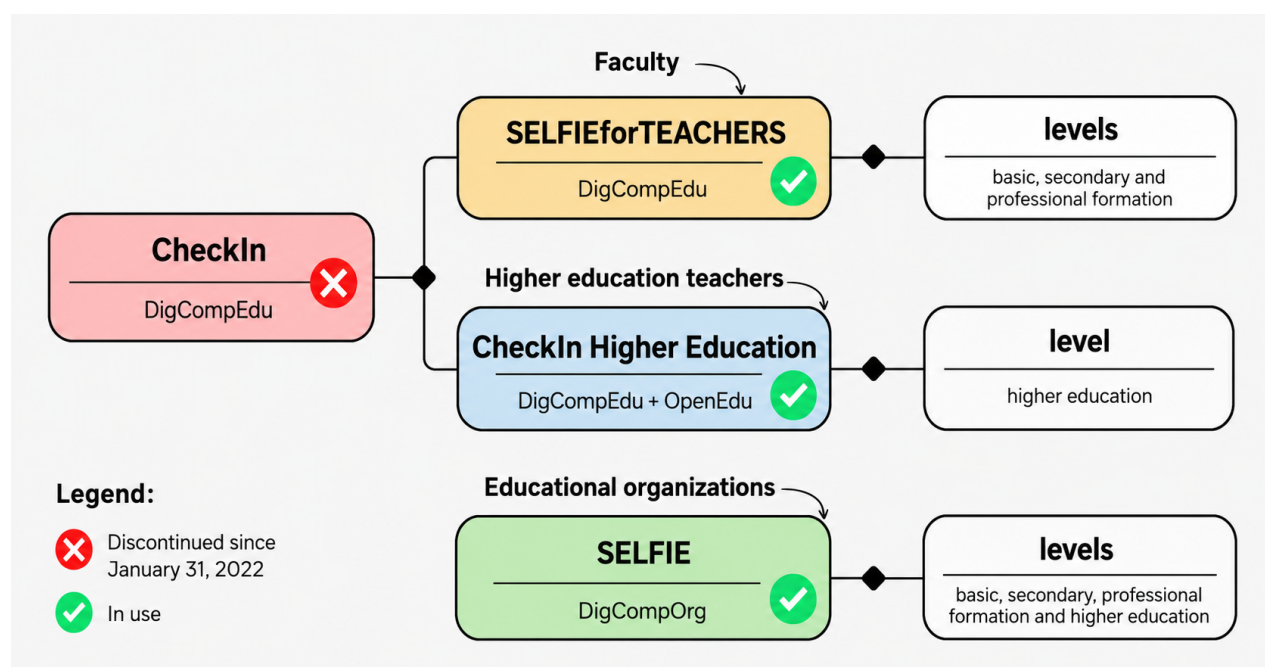
Note. Lopez-Gracia et al. (2022, p. 78), translated from Kampylis et al. (2015)

As shown in Figure 1, DigCompOrg is structured into seven thematic elements, 15 sub-elements, and 74 descriptors, with the option to include specific areas to adapt it to the reality of each institution (Kampylis et al., 2015). It functions as a comprehensive framework for assessing and strengthening the digital maturity of educational institutions, covering organizational, pedagogical, technological, and management dimensions.

1.2 Assessment Tools

Based on the digital competence frameworks for education developed by the European Union and presented above, several self-reflection tools have been created (Figure 2). They are designed to be accessible and inclusive, are available in multiple languages, and can be used free of charge online, allowing both individuals and educational institutions to assess their competencies and practices.

Figure 2. Self-reflection tools and frameworks



1.3 SELFIE

The SELFIE tool (Self-reflection on Effective Learning by Fostering Innovation through Educational Technologies), officially launched in 2018 and developed based on DigCompOrg, was designed to help educational institutions reflect on their own level of digitalization (Cachia et al., 2024; Fernández-Miravete and Prendes-Espinosa, 2022a). SELFIE is organized into three adapted questionnaires, featuring statements and questions that capture the perceptions of school leaders, teachers, and students on a progressive scale (from 1 to 5 points) to measure digital maturity.

In this way, it allows for an analysis of how digital technologies are utilized within educational institutions, with the aim of supporting them in inte-

grating digital tools into their teaching, learning, and assessment practices (Costa et al., 2021; Fernández-Miravete and Prendes-Espinosa, 2022b; European Commission, 2026). It is important to highlight the existence of a module specifically geared toward vocational education and training (VET) institutions and companies, called *SELFIE for Work-Based Learning*, which, in addition to the forms available for school leaders, teachers, and students in training, also offers a dedicated questionnaire for trainers (Herrero et al., 2024).

By providing an institutional assessment, SELFIE supports critical reflection and the planning of digital transformation strategies. However, as Bešić et al. (2025, p. 1192) point out, "Many schools lack a strategy to effectively integrate digital tech-

nologies into their teaching and learning,” which underscores the need to strengthen institutional processes for assessing the level of digitization and for formulating innovation strategies mediated by educational technologies.

In light of these considerations, and recognizing the importance of a holistic approach to integrating digital technologies into education—with an emphasis on developing digitally competent educational organizations—this study is based on two premises: first, that investment in digital technologies does not, on its own, translate into digital maturity; and second, that teachers’ digital competence (TDC) continues to receive limited attention. In this context, the article is structured around the following guiding question: How have DigCompOrg and the SELFIE tool been used in educational institutions to assess technology adoption and support the development of digital competencies among teachers and students at different levels of education, according to the literature published between 2020 and 2025?

Although the EU has promoted DigCompOrg and the SELFIE tool as important models and instruments for educational institutions to adopt, no systematic literature reviews (SLRs) were identified during the period under consideration that synthesize the scope of their practical use at different levels of education, or the barriers and facilitating factors associated with their implementation. Therefore, the objective of this SLR is to analyze the available empirical evidence (from 2020 to 2025) on the application of DigCompOrg and the SELFIE tool, the methodologies, modalities, and levels of education in which they are implemented, as well as the main challenges and limitations reported in the studies. To achieve the objective of this article, a systematic

literature review was conducted as described below in Section 2.

2. Methodology

The methodology was developed based on a systematic review, structured in accordance with the international recommendations for transparency and traceability set forth in PRISMA 2020 (Page et al., 2021). To ensure greater methodological consistency, data selection and extraction principles described in evidence synthesis manuals, such as the *JBIManual for Evidence Synthesis* (Aromataris et al., 2024), were also considered. This type of review was chosen because of the systematic nature of adopting a structured process capable of ensuring the reproducibility, transparency, and reliability of the evidence synthesis (Ferenhof and Fernandes, 2025).

It should be noted that the protocol for this systematic review was not registered in databases such as the International Prospective Register of Systematic Reviews (PROSPERO) or the Open Science Framework (OSF). Instead, the protocol was developed in advance by the authors during planning meetings and followed international guidelines for conducting systematic reviews. Likewise, the principles of the Systematic Search Flow (SSF) method proposed by Ferenhof and Fernandes (2025, p. 7) were followed to ensure the transparency and reproducibility of the process, which is structured into eight phases: “1. Strategy; 2. Database search; 3. Organization of reference lists; 4. Standardizing article selection; 5. Compiling the collection of articles; 6. Data consolidation; 7. Summary and reporting; 8. Writing.” The databases used were Scopus and Web of Science, accessed via institutional credentials, with the search strings described in Table 1.

Table 1. *Databases and search strings used in the RSL*

Databases		Scopus	Web of Science
Fields		Article Title, Abstract, Keywords	"Tema": Título, resumen, palabra clave plus y palabra clave autor
Search string		(TITLE-ABS-KEY (digcomporg OR "Digitally-Competent Educational Organizations" OR "Digitally Competent Educational" OR "Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies" OR (SELFIE AND ("education system" OR "school system" OR educational organization* OR educational organization* OR educational institution* OR university OR college OR "higher education" OR "primary school" OR "secondary school" OR "digital competence" OR tool)) AND NOT TITLE-ABS-KEY (picture OR postage OR photo OR image OR "social media"))	(TS= (digcomporg OR "Digitally-Competent Educational Organizations" OR "Digitally Competent Educational" OR "Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies" OR (SELFIE AND ("education system" OR "school system" OR educational organization* OR educational organization* OR educational institution* OR university OR college OR "higher education" OR "primary school" OR "secondary school" OR "digital competence" OR tool))) NOT TS= (picture OR postage OR photo OR image OR "social media"))

The search was conducted in both databases on February 2, 2026, and yielded a set of articles, the exact number of which will be presented in the results section. The Inclusion Criteria (IC) were applied directly within the platforms, and after

exporting and organizing the metadata in an Excel spreadsheet, the Exclusion Criteria (EC) defined in the review protocol and summarized in Table 2 were applied.

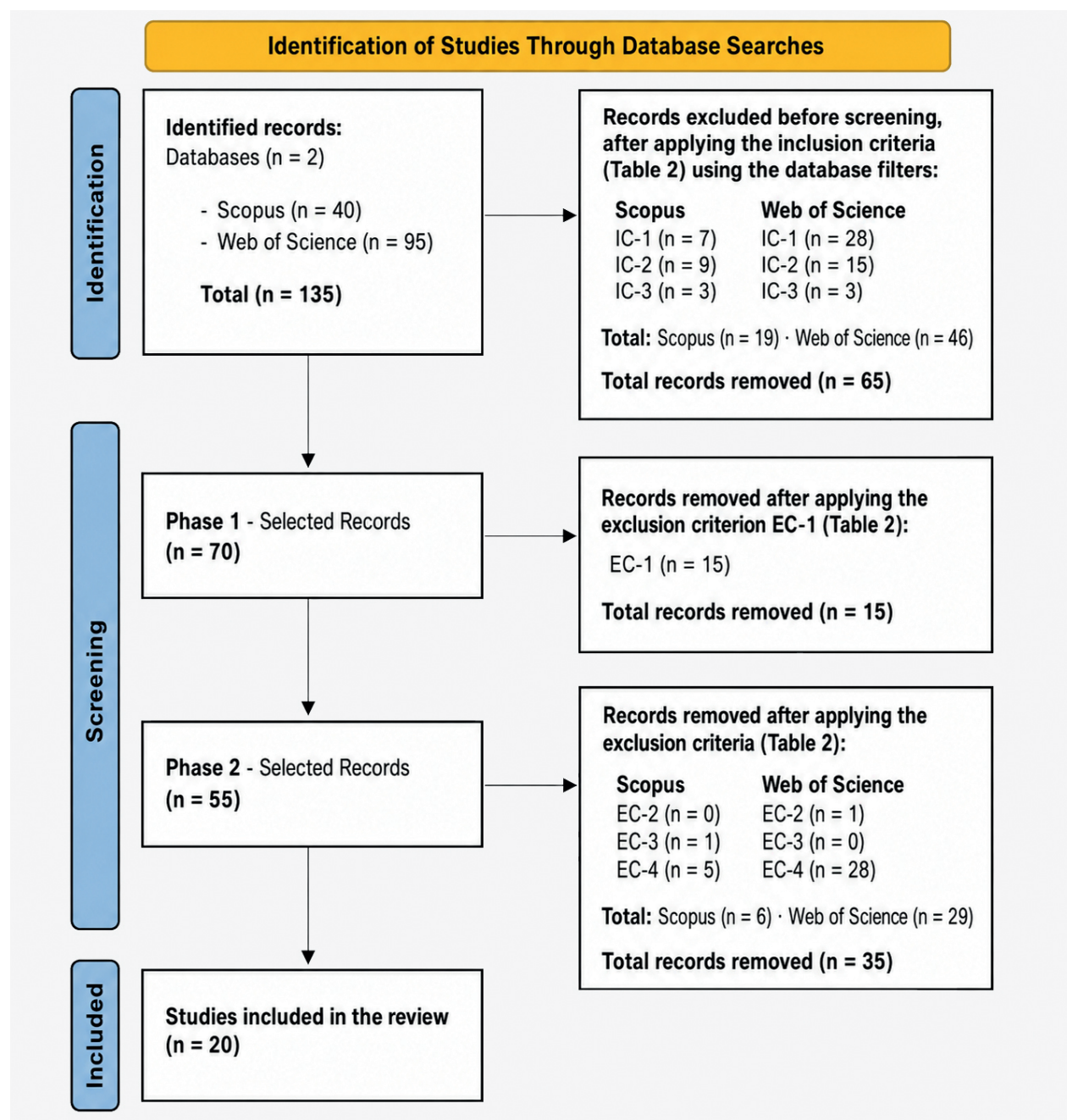
Table 2. *Inclusion and Exclusion Criteria*

Code	Inclusion Criteria	Code	Exclusion Criteria
CI-1	Publication period (2020–2025)	CE-1	Duplicate articles
CI-2	Publication type (article, peer-reviewed)	CE-2	Does not meet inclusion criteria (Re-submission)
CI-3	Language (Portuguese, English, or Spanish)	CE-3	No empirical dimension
		CE-4	Not related to the DigCompOrg and/or SELFIE application

The Excel spreadsheet designed for the selection and analysis process included essential information from each article, such as the educational level under study—categorized according to the United Nations Educational, Scientific and Cultural Organization (UNESCO) classification—as well as the specific manner in which the DigCompOrg framework and the SELFIE tool were utilized. In addition, detailed observations about each study were recorded to facilitate data interpretation. The file was shared among the researchers via Google Drive, ensuring traceability, standardization, and collaborative access throughout the process.

3. Results and Discussion

In the initial search of the Scopus and Web of Science databases, 40 and 95 publications were identified, respectively, for a total of 135. After applying the inclusion criteria, 70 articles were selected. Then, upon applying the exclusion criteria, 20 articles were identified for inclusion in this systematic review. The PRISMA flowchart, showing the sequential order of application of the inclusion and exclusion criteria, is presented in Figure 3.

Figure 3. PRISMA 2020 diagram applied to this systematic review

Note: Adapted from Page et al. (2021).

It should be noted that we chose to divide the screening stage into two phases, as shown in the diagram in Figure 3. In the first phase, exclusion criterion EC-1 was analyzed. In the second phase, the remaining articles were evaluated, and exclusion criteria EC-2, EC-3, and EC-4 were applied. Regarding exclusion criterion EC-2, which applies to articles

that did not meet the inclusion criteria, it was found that one article did not comply with inclusion criterion IC-3. This article appeared in the search results after the inclusion filters were applied, despite being written in a language other than Portuguese, English, or Spanish. The definitive list of articles included in this SLR is provided in Table 3.

Table 3. *Descriptive list of articles included in the final stage of the systematic review*

Código	Título	Autor(es) e ano de publicação
1	Data-driven decision making as a model to improve in primary education	Athanatou et al. (2023)
2	Digital technology use in inclusive schools in four European countries: Within-and between-school differences	Bešić et al. (2025)
3	Fostering the Digital Competence of Schools: Piloting SELFIE in the Italian Education Context	Bocconi et al. (2020)
4	Supporting the monitoring of the digital capacity of schools through optimal shortening of the SELFIE tool	Cachia et al. (2024)
5	Governing digital education in decentralised systems: translating supranational frameworks into regional policy practice	Castañeda et al. (2025a)
6	Educational empowerment and strategic guidance: A critical perspective on regional educational digital transformation	Castañeda et al. (2025b)
7	For to all those who have, will more be given? Evidence from the adoption of the SELFIE tool for the digital capacity of schools in Spain	Castaño-Muñoz et al. (2022)
8	Teacher collaboration and students' digital competence-evidence from the SELFIE tool	Castaño-Muñoz et al. (2023)
9	Capturing schools' digital capacity: Psychometric analyses of the SELFIE self-reflection tool	Costa et al. (2021)
10	Análisis del proceso de digitalización de um centro de Enseñanza Secundaria desde el modelo DigCompOrg	Fernández-Miravete and Prendes-Espinosa (2021a)
11	Evaluación de la competencia digital de un centro de enseñanza secundaria a partir del modelo digcomporg	Fernández-Miravete and Prendes-Espinosa (2021b)
12	Digitalization of Educational Organizations: Evaluation and Improvement Based on DigCompOrg Model	Fernández-Miravete and Prendes-Espinosa (2022a)
13	Evaluación del proceso de digitalización de un centro de enseñanza secundaria con la herramienta SELFIE	Fernández-Miravete and Prendes-Espinosa (2022b)
14	Improving the digital capacity of schools by using the SELFIE tool for collective reflection	Kampylis and Sala (2023)
15	Factores claves en la transformación digital de las organizaciones educativas	Lopez-Gracia et al. (2022)
16	Teachers' personal network analysis reveals two types of pioneers in educational digitalization: Formal and informal intermediaries at schools	Maya-Jariego et al. (2023)
17	Equivalences between SELFIE indicators and DigCompEdu framework based on Delphi technique	Munar-Garau et al. (2024)
18	Quality of school inclusion and digital technologies: A pilot study	Muscella et al. (2024)
19	¿Qué tipo de centros de FP tiene mayor capacidad digital? Un estudio de NCA y QCA	Pagaldai et al. (2025)
20	Promoting Students' Well-Being and Inclusion in Schools Through Digital Technologies: Perceptions of Students, Teachers, and School Leaders in Italy Expressed Through SELFIE Piloting Activities	Panesi et al. (2020)

Note: Alphabetical order based on the last name of the first author.

Table 3 presents the 20 studies included in this systematic review, which comprise the analyzed dataset.

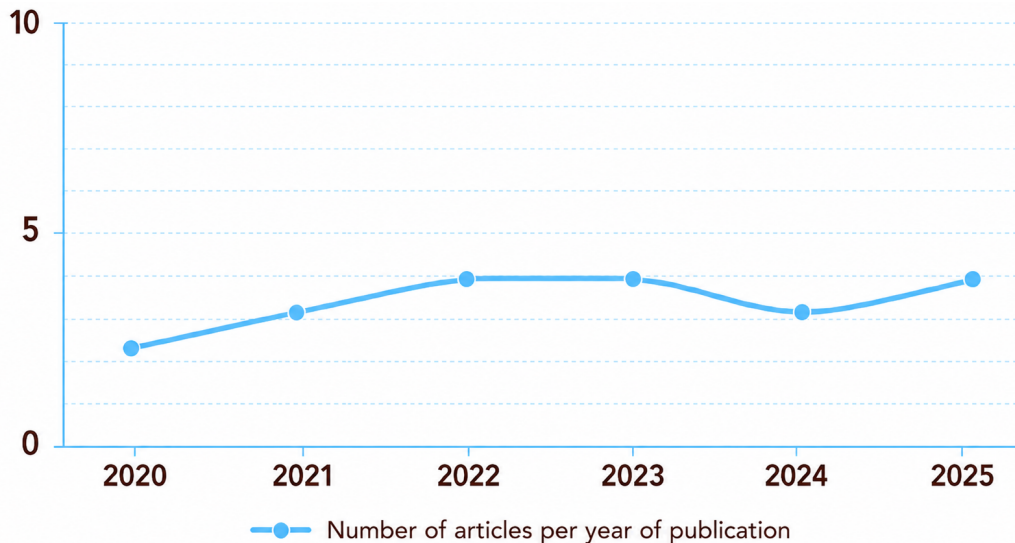
3.1 Bibliometric analysis

3.1.1 Annual Distribution

In terms of timing, the articles included in this systematic review show a balanced distribution throughout the analyzed period.

The years 2022, 2023, and 2025 saw the highest scientific output ($n=4$). In 2021 and 2024, there was a slight decline, with three articles published per year, while 2020 registered the lowest number ($n=2$), as detailed in Figure 4.

Figure 4. Annual distribution of articles



The temporal analysis presented in Figure 4 indicates a consistent pattern in publications, suggesting that scientific interest in the topic remained active throughout the entire period (2020–2025). Although 2020 recorded the lowest number ($n=2$), this finding may be associated with the time required for the academic community to become familiar with and adopt the tool following its launch in 2018, as well as the global pandemic experienced that year. Subsequent years demonstrated the consolidation of research, maintaining a steady output. Thus, the dataset indicates continuity in academic interest in the topic, with a balanced distribution that reflects the stability and relevance of the subject in the field of education.

3.1.2 Countries of Affiliation and Authors

To identify the most prominent authors in this SLR, an authorship analysis was conducted on the 20 selected articles, resulting in the identification of 40 authors. Among these, we highlight those who contributed to two or more articles; their institutional

affiliations were determined based on each author's most recent publication within the analyzed dataset. These data are presented in Table 4, organized first by the authors with the highest number of published articles and then in alphabetical order.

Regarding the authors' countries of affiliation, a significant geographical concentration within the European Union was observed. Spain stands out with 27 affiliated authors, followed by Italy with eight; together, they account for the largest proportion of the authors identified in this SLR (35 authors, or 87.5%). Spain's predominance is evident in the recurring participation of researchers from the JRC and an international network of universities, including those of Murcia, Seville, Cantabria, Jaume I, the Balearic Islands, Mondragón, and Lleida. Italy stands out primarily through the CNR-ITD, the University of Genoa, and the Free University of Bozen-Bolzano. Other affiliations appear more sporadically, with a total of five authors affiliated with institutions in Austria, Germany, Greece, Poland, and Portugal.

Table 4. *Authors with multiple publications*

Author	Affiliation	Article Code (Table 3)
María Paz Prendes-Espinosa	Universidad de Murcia (España)	1, 10, 11, 12, 13
Ángel David Fernández-Miravete	Universidad de Murcia (España)	10, 11, 12, 13
Panagiotis Kampylis	L'Istituto per le Tecnologie Didattiche, Consiglio Nazionale delle Ricerche CNR-ITD (Italia)	3, 8, 9, 14
Romina Cachia	Centro Común de Investigación, Comisión Europea (España)	4, 5, 6, 16
Cesar Herrero-Ramila	Centro Común de Investigación, Comisión Europea (España)	5, 6, 16
Jonatan Castaño-Muñoz	Centro Común de Investigación, Comisión Europea (España)	7, 8, 9
Ana Yara Postigo-Fuentes	Institut für Romanistik, Heinrich Heine Universität (Alemania)	5, 6
Artur Pokropek	Instituto de Filosofía y Sociología de la Academia Polaca de Ciencias (Polonia)	4, 7
Linda Castañeda	Universidad de Murcia (España)	5, 6
Nikoleta Giannoutsou	Centro Común de Investigación, Comisión Europea (España)	4, 16
Patrícia Costa	Centro Común de Investigación, Comisión Europea (España); Centro de Matemática Aplicada à Previsão e Decisão Económica (Portugal)	8, 9
Sabrina Panesi	L'Istituto per le Tecnologie Didattiche, Consiglio Nazionale delle Ricerche (CNR-ITD) (Italia)	3 y 20
Stefania Bocconi	L'Istituto per le Tecnologie Didattiche, Consiglio Nazionale delle Ricerche (CNR-ITD) (Italia)	3 y 20
Virginia Viñoles-Cosentino	Universitat Jaume I (España)	5 a 6

Among the authors with the highest number of published articles listed in Table 4, it was found that the scientific output analyzed is led by María Paz Prendes-Espinosa (five articles) and Fernández-Miravete (four articles), who collaborate on a series of longitudinal studies focused on the practical application of DigCompOrg in the Spanish context (Fernández-Miravete and Prendes-Espinosa, 2021a; 2021b; 2022a; 2022b). In addition, Prendes-Espinosa also contributed to the article on data-driven decision-making in Greece (Athanatou et al., 2023).

Another notable author is Panagiotis Kampylis (four articles), whose work ranges from piloting the SELFIE tool in Italy and analyzing teacher collaboration to conducting psychometric analyses related to institutional digital competence and utilizing the tool for collective reflection (Bocconi et al., 2020; Castaño-Muñoz et al., 2023; Costa et al., 2021; Kampylis and Sala, 2023). This author has also contributed to four publications focused on optimizing school instruments and networks, as well as on the

governance of digital education (Cachia et al., 2024; Castañeda et al., 2025a; Castañeda et al., 2025b; Maya-Jariego et al., 2023).

Next, Jonatan Castaño-Muñoz has published three articles dedicated to the psychometric validation of the SELFIE tool (Costa et al., 2021), the analysis of the impact of teacher collaboration using big data (Castaño-Muñoz et al., 2023), and the investigation of equity in technology adoption (Castaño-Muñoz et al., 2022). For his part, Cesar Herrero-Ramila is the author of three studies focusing primarily on the governance of digital education in decentralized systems and the dynamics of social networks in schools (Castañeda et al., 2025a; Castañeda et al., 2025b; Maya-Jariego et al., 2023).

Finally, several authors with two contributions stand out: Stefania Bocconi and Sabrina Panesi focus on the impact of technologies on social well-being—encompassing psychological, physical, cognitive, and social dimensions—as well as on student inclusion and the piloting of the SELFIE tool (Bocconi et al.,

2020; Panesi et al., 2020). Patrícia Costa works on psychometric validation, using statistical methods to verify the validity, accuracy, and reliability of the items in the tool's original questionnaire, while simultaneously addressing teacher collaboration (Castaño-Muñoz et al., 2023; Costa et al., 2021). Artur Pokropek contributes statistical analyses regarding institutional digital competence and equity issues in digitization (Cachia et al., 2024; Castaño-Muñoz et al., 2022). Joining them are Nikoleta Giannoutsou, who addresses the monitoring of digital capacity through the optimization of the SELFIE tool and the analysis of networks of innovative and pioneering teachers (Cachia et al., 2024; Maya-Jariego et al., 2023), and Ana Yara Postigo-Fuentes, Linda Castañeda, and Virginia Viñoles-Cosentino, who examine the governance of digital education in decentralized systems, focusing on the adoption of supranational frameworks in regional policies and leadership strategies for teacher empowerment (Castañeda et al., 2025a; Castañeda et al., 2025b).

Identifying these authors also made it possible to verify the predominance of two major research clusters on digitally competent educational organizations—particularly regarding DigCompOrg and the SELFIE tool—as well as the existence of established collaborative networks centered on this topic. Specifically, the following was confirmed:

- 1) Eight articles are linked to key institutions in education and technology research and development within the European context, specifically the European Commission's JRC and the CNR-ITD in Italy. Recurring authors in this cluster include Panagiotis Kampylis, Romina Cachia, Cesar Herrero-Ramila, Jonatan Castaño-Muñoz, Nikoleta Giannoutsou, Patrícia Costa, Sabrina Panesi,

and Stefania Bocconi. Among them, Kampylis stands out as one of the original co-creators of DigCompOrg, having contributed directly to the development of the framework.

- 2) Seven articles focus on the Spanish context, specifically originating from the University of Murcia, featuring research by Prendes-Espinosa and Fernández-Miravete. Castañeda is part of this core group and has established a direct collaborative network with authors from the first cluster, specifically Cachia and Herrero-Ramila, both of whom are affiliated with the JRC. This interconnection highlights a convergence in current research literature, bringing together the perspectives of the creators of key theoretical frameworks with research groups dedicated to their empirical application and the analysis of digital governance policies.

3.1.3 Levels of Application

To classify the educational levels examined in the articles, the International Standard Classification of Education (ISCED) was utilized, based on the following correspondence: Level 0 – Early Childhood Education; Level 1 – Primary Education (1st and 2nd cycles); Level 2 – Lower Secondary Education (3rd cycle); Level 3 – Upper Secondary Education; Level 4 – Post-secondary Non-tertiary Education; Level 5 – Short-cycle Tertiary Education; Level 6 – Bachelor's Degree or equivalent; Level 7 – Master's Degree or equivalent; and Level 8 – Doctoral Degree or equivalent (UNESCO, 2012). The scope matrix, which details the specific educational levels considered in the empirical dimension of each article in this SLR, is presented in Table 5.

Table 5. *Classification of Educational Levels*

Level of Education (ISCED UNESCO (2012))	Article codes (Table 3)																				Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Level 0																		•			1
Levels 1 and 2	•	•	•	•			•	•	•					•		•		•		•	11
Levels 3 and 4		•	•	•			•	•	•	•	•	•	•	•	•	•			•	•	15
Levels 5, 6, 7, and 8																					0

For the scope analysis, educational levels were categorized into four groups based on the ISCED classification: Level 0; Levels 1 and 2; Levels 3 and 4; and Levels 5, 6, 7, and 8. A clear predominance of research focused on compulsory schooling (Primary and Secondary Education) was observed.

Early Childhood Education was the subject of only one article, which was a specific pilot study, while Higher Education was not the subject of any empirical studies within this body of literature. Secondary education was the most frequently studied level, represented in 15 of the analyzed articles (75%), whereas Primary Education was represented in 11 (55%). A combined approach addressing both Primary and Secondary Education was adopted in eight of the articles.

It should be noted that for the articles coded 5, 6, and 17—unlike the others, which conducted assessments within school settings—the ISCED classification does not apply. In articles 5 and 6, the sample consisted of policy decision-makers, representatives of the Autonomous Communities, and

representatives of Spain's Ministry of Education and Vocational Training. Although the analyzed policies impact ISCED levels 1, 2, and 3, the focus of those studies remains on governance rather than school practice. In Article 17, the research consisted of content validation of the SELFIE indicators by university experts, without direct application to a specific school cycle.

3.1.4 Use of the SELFIE Tool

An analysis of the use of the SELFIE tool in the articles in this SLR identified two distinct modalities: full use, which corresponds to the application of the tool as originally conceived, including the predefined options for modifying fields to adapt it to institutional specificities, and adapted use, a scenario in which SELFIE is not applied directly but is instead used as a basis for developing a new assessment instrument, as well as for creating interviews and other research forms associated with a digitally competent institution. These patterns of use are summarized in Table 6.

Table 6. *Use of the SELFIE Tool*

SELFIE	Article codes (Table 2)																				Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Unabridged Version		•	•	•			•	•	•	•	•	•	•	•		•			•	•	14
Adapted Version	•			•							•				•			•			5

Table 6 shows that the full version of the SELFIE tool was used in 14 of the 20 articles, confirming its robustness for large-scale institutional assessments. At the same time, the tool demonstrates flexibility by being adapted in interviews to explore local perceptions in greater depth, or in hybrid approaches to psychometrically validate shorter versions based on the complete data.

It is worth noting that articles 4 and 11 were classified simultaneously as both full and adapted. In Article 4, data extracted from the SELFIE tool were analyzed, which in turn served as a comparative basis for the creation of two new instruments: the Midi-SELFIE, consisting of 16 items, and the Mini-SELFIE, with eight items, both of which serve as abbreviated alternatives for monitoring the development of digital competence (Cachia et al., 2024).

Article 11 employs a mixed-methods approach, applying quantitative techniques using the official version of the tool, as well as qualitative techniques within a focus group through a guide organized around open-ended questions based on the thematic areas that structure SELFIE (Fernández-Miravete and Prendes-Espinosa, 2021b).

Articles 5, 6, and 17 were not included in Table 6 because they focus on analyzing the design or governance of the SELFIE tool rather than its direct application to obtain data on when a given educational institution is considered digitally competent. Therefore, in these studies, SELFIE is addressed as the subject of study itself rather than as an instrument or method for data collection within an educational context.

3.2 Descriptive Thematic Synthesis

Based on the articles included in this RSL and to fulfill the objective of this research, this chapter presents a descriptive thematic synthesis of the main common themes addressed in the articles identified.

3.2.1 *Application Across Multiple Levels of Education*

The SELFIE tool was developed to be flexible and applicable across various educational contexts. The literature analyzed in this SLR confirms this broad utility, as several levels of implementation were identified. In the context of primary and secondary education, the tool has been validated in diverse educational settings, enabling comparisons between schools with varying levels of digital maturity (Bešić et al., 2025; Fernández-Miravete y Prendes-Espinosa, 2022b; Panesi et al., 2020). Furthermore, its application in vocational education stands out, with findings indicating that infrastructure is essential for successful digital implementation in schools. Likewise, to ensure the effective use of technology, digital competencies—among both students and teachers—remain crucial (Pagaldai et al., 2025). In an innovative approach, a pilot study in Italy adapted the SELFIE tool into a guided interview format to capture teachers' perceptions of technology use with young children in early childhood education (Muscella et al., 2024), thereby demonstrating the tool's applicability at this educational level as well.

3.2.2 *Collective Self-Reflection, Assessment, and Strategic Planning*

Given the goal of obtaining a 360-degree view of an educational institution's digital capacity, the SELFIE tool involves school leaders, teachers, and students in the assessment process (Bocconi et al., 2020; Costa et al., 2021). Collective self-reflection is considered a necessary approach for identifying convergences and divergences in the perceptions of these groups. Some articles present contrasting viewpoints, such as the divergence in students' perspectives, as they tend to be more positive about the use of technology for teaching and learning compared to teachers and school administrators (Kampylis and Sala, 2023). Similarly, school leaders tend to

hold a more optimistic view of their schools' digital potential than teachers do (Bešić et al., 2025).

To mitigate these differences and promote school improvement, the literature emphasizes the utilization of the SELFIE tool to support Data-Driven Decision-Making (DDDM). Athanatou et al. (2023) demonstrate how data extracted from the tool can be integrated into improvement cycles, enabling schools to translate self-assessment into strategic action plans. Furthermore, longitudinal studies have used the ADDIE instructional design model (Analyze, Design, Develop, Implement, and Evaluate) alongside the SELFIE tool to develop digital plans, enabling annual comparisons and adjustments to institutional strategies (Fernández-Miravete and Prendes-Espinosa, 2021a; 2021b). These reflection processes are viewed not merely as a bureaucratic exercise but as a means of empowerment that returns data to school stakeholders so they can act as agents of change (Cachia et al., 2024).

3.2.3 *SELFIE: Assessment, Over-Time Monitoring, and Flexibility of Use*

The articles analyzed reveal various ways in which the SELFIE tool is used, ranging from statistical assessments to dynamic governance processes. Its application for diagnostic and reflective purposes predominates, both across the board and on an *ad hoc* basis, aimed at identifying schools' level of digital maturity at a given point (Bešić et al., 2025; López-Gracia et al., 2022). However, the tool is also utilized longitudinally, focusing on monitoring progress over time. Such longitudinal studies have used the SELFIE tool to track progress in the digitization process and to assess areas with room for improvement, with the ultimate goal of adjusting pedagogical and organizational strategies (Fernández-Miravete and Prendes-Espinosa, 2022a).

Furthermore, the articles highlight the flexibility of the SELFIE tool, which allows schools to use it in its full version, adapted to institutional specificities, or to develop new instruments based on its conceptual framework. In response to the need for continuous monitoring of digital technology use in educational institutions, Cachia et al. (2024) developed and validated abbreviated instruments (Mini-SELFIE and Midi-SELFIE) derived from SELFIE.

Another way the SELFIE tool has been used is by adapting it to investigate specific topics, such as inclusion and school well-being (Panasi et al., 2020); additionally, in conjunction with DigCompEdu, it has been used to infer teacher competencies based on institutional data (Munar-Garau et al., 2024).

3.2.4 *Systemic Framework for Digital Transformation in Education*

The literature shows that the success of digital transformation is intrinsically linked to the adoption of a systemic approach, as suggested by DigCompOrg. This perspective holds that digitization cannot be limited to individual efforts or the mere acquisition of equipment; rather, it must be understood as an organizational endeavor that involves the institution's culture, policies, and infrastructure (Athanatou et al., 2023; Bešić et al., 2025; Castañeda et al., 2025b; Maya-Jariego et al., 2023). Institutional responsibility is, therefore, a necessary condition for promoting safe and effective changes, which requires a holistic vision that integrates pedagogical, technological, and organizational aspects (Fernández-Miravete and Prendes-Espinosa, 2022; López-Gracia et al., 2022).

In this context, leadership and governance emerge as key areas, given that administrators must act as agents driving the transformation process by providing resources and a strategic vision. Furthermore, in certain contexts, the lack of a clear digital strategy or insufficient specific knowledge regarding educational technology management hinders the effective implementation of digital plans (López-Gracia et al., 2022; Pagaldai et al., 2025).

3.2.5 *Challenges in Technology Integration and Training for Teachers' Digital Competence*

Despite advances in public policy, the digital infrastructure of educational institutions remains a significant obstacle to the effective integration of educational technologies. A qualitative analysis of the open-ended responses from the SELFIE tool across various European countries reveals that infrastructure still constitutes a central barrier perceived by the school community (Kampylis and Sala, 2023). Among the main challenges reported are the critical need for access to fast, efficient, and secure Wi-Fi networks, as well as the inadequacy or obsolescence of the access devices used by students

and teachers (Kampylis and Sala, 2023; López-Gracia et al., 2022). According to Pagaldai et al. (2025), a robust infrastructure is a necessary, though not sufficient, condition for success and must be accompanied by pedagogical competence.

The lack of technical support is also cited as a substantial operational obstacle. School leaders and teachers indicate that institutions do not always allocate sufficient time for maintenance and the prompt resolution of technical problems, which can lead to the abandonment of technology use in the classroom (Kampylis and Sala, 2023; López-Gracia et al., 2022). Likewise, teachers' lack of time constitutes another limiting factor for the integration of digital technologies into teaching practice. Many teachers report a heavy workload that restricts opportunities for exploration, resource creation, and experimentation with new digital methodologies in the classroom (Fernández-Miravete and Prendes-Espinosa, 2022b; Kampylis and Sala, 2023). Compounding this situation is the urgent need to establish institutional professional development initiatives—integrated into the regular workday—to mitigate the constraints that directly affect teachers' professional growth and, consequently, students' enriching learning experiences (López-Gracia et al., 2022; Maya-Jariego et al., 2023).

3.2.6 *Institutional and Policy Limitations in the Adoption of Educational Technologies*

A recurring methodological limitation in the literature concerns the inherent nature of the SELFIE tool, which is based on self-reflection questionnaires. The data collected represent the subjective perceptions of school leaders, teachers, and students, which may be influenced by social desirability bias or a lack of knowledge regarding the actual state of technology in the school, and do not necessarily reflect objective reality (Bešić et al., 2025; Fernández-Miravete and Prendes-Espinosa, 2022b; Panasi et al., 2020).

Despite this subjectivity, psychometric analyses have confirmed the construct validity and reliability of the SELFIE tool's items, considering it a robust instrument for identifying schools at different stages of digital transformation and for promoting internal debate (Cachia et al., 2024; Costa et al., 2021; Panasi et al., 2020).

However, as Castaño-Muñoz et al. (2022) point out, a critical challenge has been identified

from a public policy perspective: the Matthew Effect. According to these authors, this effect becomes evident when SELFIE adoption is voluntary and integrated into government incentive programs, as it tends to attract schools that already possess greater digital capacity, while schools facing greater difficulties often choose not to participate. Consequently, this poses the risk that public interventions may not be effectively designed to reach the most vulnerable institutions, thereby exacerbating existing digital inequalities.

4. Conclusions

In response to the guiding question and the proposed objective, the results demonstrate that DigCompOrg and the SELFIE tool have been utilized in educational institutions not only to assess digital maturity and the integration of digital technologies in education but also to support the development of digital competencies among both teachers and students. It is observed that this implementation occurs in coordination with institutional planning and training processes, allowing the assessments obtained to support the formulation of actions and strategies aimed at the digital transformation of schools.

The literature review (2020–2025) also indicates that the application of the SELFIE tool has been diversified and adapted to different contexts, being utilized in institutional improvement cycles integrated into instructional design models, such as ADDIE, as well as in DDDM processes. In terms of educational levels, studies are predominantly focused on primary and secondary education, with fewer investigations addressing vocational education and early childhood education.

Regarding usage patterns, the period analyzed was characterized by both psychometric validation and the increased flexibility of the instrument, notably through the development of short versions—Mini and Midi—suitable for longitudinal and large-scale monitoring without a significant loss of reliability. These advances indicate that school assessments should not be limited to one-time applications but should instead involve repeated administrations over time.

The SLR also highlighted critical challenges and limitations in the application of these tools, such as the Matthew Effect, wherein voluntary initiatives tend to attract institutions with greater digital maturity, potentially exacerbating existing inequalities if

mitigation measures are not implemented (Castaño-Muñoz et al., 2022). This highlights the need to critically analyze this effect, given that it remains underdiscussed in existing literature reviews. Furthermore, despite infrastructure advances, gaps persist in teachers' pedagogical competence, particularly regarding the use of technologies for assessment and feedback, alongside divergent perceptions between students and teachers regarding the utility of these technologies (Fernández-Miravete and Prendes-Espinoza, 2022; Panesi et al., 2020).

It is concluded that the study of institutional diagnostic models, such as DigCompOrg and SELFIE, is fundamental to the contemporary debate on educational technology, given that digital competence does not develop in isolation but rather within a supportive institutional ecosystem. In this regard, such instruments can help educational policies move beyond a vision focused exclusively on infrastructure, prioritizing instead continuous, strategic training initiatives that are integrated into institutional development. Thus, by assessing the digital maturity of educational institutions, a more consistent foundation is established for teachers to practice with greater methodological confidence, thereby fostering critical thinking among students and contributing to the consolidation of digital education.

Finally, the results of this study reinforce the importance of transparency and reproducibility in research, given that the studies presented in Table 3, the diagram in Figure 3, and the other data and references utilized allow for the verification and further exploration of the analyzes conducted. As a direction for future research, we suggest expanding investigations into less-explored contexts, such as early childhood education, vocational education, and higher education, as well as conducting longitudinal studies to track the long-term effects of diagnostic and improvement processes. Furthermore, we highlight the urgent need to explore strategies that help mitigate potential inequalities associated with the deployment of these tools.

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Authorship Statement – CRediT Taxonomy

Authors	Contributions
Danielle Santos	Conceptualization, research, methodology, formal analysis, writing—original draft.
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Statement on the Use of Artificial Intelligence

The authors state that, during the preparation of the article “*DigCompOrg, the SELFIE Tool, and Digital Maturity in Educational Institutions: A Systematic Review*,” they used NotebookLM exclusively as a support tool for specific language and writing tasks. It was not used to generate, fabricate, or modify research data, analyses, results, or conclusions, nor to create references or citations without independent verification of the original sources. All AI-assisted content was reviewed, edited, and validated by the authors, who assume full responsibility for the final version of the manuscript and the integrity of its content.



Generative artificial intelligence in university pedagogy. Systematic review

Inteligencia artificial generativa en la pedagogía universitaria. Revisión sistemática

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Abstract

The objective of this article is to analyze the scientific production on the use of generative artificial intelligence within the pedagogical practices of Latin American university professors. Regarding the methodology applied, a systematic literature review was conducted following the PRISMA 2020 protocol, with a mixed-methods approach and bibliometric elements. The Scopus, Web of Science, and SciELO databases were used for the search, considering publications generated between 2021 and 2025. An initial 2,197 records were obtained, from which 16 empirical articles were selected after applying inclusion and exclusion criteria related to scientific quality, thematic relevance, and geographic context. The results reveal three types of pedagogical practices where it is applied: instrumental use for materials design, didactic intervention aimed at developing critical thinking, and application in evaluation processes. Furthermore, ambivalent perceptions were identified among professors, who recognized benefits in work efficiency but also expressed concern about academic integrity and student autonomy. From an ethical standpoint, problems were identified related to authorship, algorithmic bias, and the widening of the digital divide. In conclusion, generative artificial intelligence can serve as a useful complementary resource in university teaching, but its integration requires more robust training and regulatory frameworks.

Keywords: higher education, teacher, educational innovation, artificial intelligence, information technology, critical thinking.

Resumen

El objetivo de este artículo es analizar la producción científica sobre el uso de la inteligencia artificial generativa dentro de la práctica pedagógica de los docentes universitarios hispanoamericanos. En cuanto a la metodología aplicada, se desarrolló una revisión sistemática de la literatura bajo lo definido en el protocolo PRISMA 2020, con un enfoque mixto y elementos de bibliometría. Para la búsqueda se utilizaron las bases de datos Scopus, Web of Science y SciELO, tomando en consideración las publicaciones generadas entre los años 2021 y 2025. Se obtuvieron 2197 registros iniciales, de donde se seleccionaron 16 artículos empíricos tras aplicar criterios de inclusión y exclusión relacionados con calidad científica, pertinencia temática, y contexto geográfico. Los resultados permiten evidenciar tres tipos de prácticas pedagógicas donde se aplica: uso instrumental para diseño de materiales, intervención didáctica orientada al desarrollo del pensamiento crítico, y aplicación en procesos evaluativos. Asimismo, se identificaron percepciones docentes ambivalentes, donde se reconocieron beneficios en la eficiencia laboral y preocupación por la integridad académica y la autonomía estudiantil. En lo ético, se identificaron problemáticas asociadas a autoría, sesgo algorítmico, y profundización de brechas digitales. En conclusión, la inteligencia artificial generativa logra actuar como un recurso complementario útil en la docencia universitaria, pero que para su integración requiere marcos formativos y regulatorios más sólidos.

Palabras clave: educación superior, docente, innovación educativa, inteligencia artificial, tecnología de la información, pensamiento crítico.

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1. Introduction

Artificial intelligence (AI) is neither a new concept nor a strictly contemporary phenomenon. Its origins trace back to 1930s Europe: while Spain was engulfed in a civil war, the rest of the continent was witnessing technological innovations in modern computing that would ultimately shape the digital age. However, its current iteration in the 2020s is indeed part of a wave of innovation characterized by an astonishing velocity of adoption. This rapid integration occurs against a backdrop of profound sociological and anthropological shifts that emerged from the COVID-19 pandemic and impacted various sectors (Nasser, 2024; Ordóñez Herrera, 2024).

Consequently, AI can be defined as the creation of conceptual models and programming strategies capable of replicating the cognitive processes of intelligent biological systems (Labañino Palmeiro et al., 2025). It focuses inherently on what humans do (rendering it anthropocentric) and on the rationality driving those actions (a logical approach). In this vein, the autonomy and learning capacity of AI highlight the critical need for human oversight to prevent the violation or infringement of individual rights (Sánchez Vásquez and Toro-Valencia, 2021).

Linearly aligned with this definition, AI possesses a robust scientific and technological component geared toward designing systems capable of executing activities and tasks that traditionally required human intelligence—such as reasoning, perception, decision-making, and learning (Chang Bautista and Chinchay Tapia, 2023). Among its primary characteristics is the capacity for dynamic interaction with its environment, enabling it to adjust its behavior based on experience while demonstrating continuous learning and autonomy, as noted by Contreras Contreras and Olaya Guerrero (2025). According to Fajardo Aguilar et al. (2023), this adaptive capacity, combined with its potential to analyze complex patterns and transform raw data into actionable knowledge, establishes AI as a pivotal tool for decision-making across diverse fields, ranging from organizational to educational contexts.

Within higher education, artificial intelligence facilitates the creation of dynamic, interactive learning environments that respond to the evolving needs and circumstances of new generations of students (Quinde-Moncerrate et al., 2025). As a result,

teaching and learning processes have undergone significant innovation. Nevertheless, by 2022, only fifteen countries had incorporated AI-related learning objectives into their national curricula, while just seven had developed formal teacher training programs in this area (UNESCO, 2025).

In the Latin American context, despite a shared language, there are marked differences regarding the integration of artificial intelligence into academic settings. Spain serves as a prominent example of advancement in this domain; its government has established regulations designed to ensure the effective integration and ethical use of these technologies in education while promoting collaborative mechanisms with technology-based enterprises to drive development and implementation (Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado, 2024).

In contrast, this process in Latin America has been characterized by substantial challenges and structural tensions. Although the educational benefits of artificial intelligence are widely acknowledged, the region continues to grapple with limitations in technology access, a lack of clear regulatory frameworks, and deficiencies in teacher training regarding the pedagogical application of algorithm- and AI-based tools (Acevedo Carrillo et al., 2026).

Compounding these difficulties is the significant challenge of evaluating the quality of student work—specifically, distinguishing between human-authored text and content generated by generative AI—since the quality of such outputs fluctuates drastically from “excellent” to “very poor” (Perdomo and González, 2025). This reality further underscores the urgent need for comprehensive faculty professional development regarding these tools, leaving open the debate on the relevance of consensus-based dialogues with students to define the parameters of AI use in the educational experience (Jardón Gallegos et al., 2024).

When focusing specifically on generative artificial intelligence (GAI)—i.e., AI capable of autonomously producing original visual, auditory, or textual content via machine learning models—it is evident that it has established itself as a high-impact tool in the university context. Among its key advantages is its capacity to personalize learning, which yields measurable improvements in student reten-

tion and academic performance indicators (Tostado Ramírez et al., 2025).

Thus, Rodríguez (2025) argues that generative AI is a subdiscipline of AI based on advanced models—primarily deep neural networks—that analyze information, extract complex patterns from large datasets, and generate new, coherent, and original outputs in various formats, such as audio, images, text, and code. According to Romani Pillpe et al. (2025), its “generative” nature is intrinsically linked to an adaptive logic that enables the creation of customized experiences. In educational settings, this allows designing resources, activities, and feedback tailored to each student’s specific needs, which optimizes teaching and learning mechanisms and transforms pedagogical interaction through new modes of technological mediation. However, its development introduces complex ethical challenges, particularly regarding authorship, originality, and the responsible use of generated knowledge. According to Sánchez et al. (2025), this underscores its status as a constantly evolving, disruptive technology.

Although academic interest in GAI and its application in higher education is growing exponentially, systematic documentation remains limited regarding how university faculty utilize it in daily teaching practices, as do empirical insights into their experiential perceptions. This gap makes it difficult to achieve a comprehensive understanding of the actual dynamics of incorporating generative artificial intelligence into the classroom, particularly in contexts characterized by structural challenges like those in Latin America. According to Silgado-Tuñón and López-Flores (2025), recent scholarly work addressing this issue relies on broad approaches (such as overall impacts, benefits, ethical considerations, or isolated applications) without achieving the analytical integration necessary to understand actual usage practices in specific educational contexts.

Vallejo Ballesteros et al. (2025) state that there is a critical shortage of empirical studies on this topic, particularly those employing experimental or longitudinal designs, which hinders the validity and generalizability of findings regarding its impact on instructional processes. This situation is further aggravated by the absence of clear institutional guidelines and regulatory frameworks, highlighting a regulatory vacuum and a lack of systematized

knowledge concerning its formal pedagogical implementation (Ricra Ruíz et al., 2025).

Consequently, this research aims to analyze the published scholarly literature on the use of artificial intelligence in the pedagogical practices of university faculty, guided by the following overarching question: How is generative artificial intelligence utilized in university teaching practices, and what perceptions, ethical implications, and contextual conditions emerge from its use? Specifically, this study seeks to answer the following sub-questions: In what types of pedagogical practices is it implemented? What are faculty members’ perceptions regarding its utility? And what distinct ethical implications arise from its integration?.

1.1 Generative Artificial Intelligence in Pedagogical Practice

In teaching practice, AI serves as a strategy for improving instructional management, primarily through the automation of assessment systems, which helps optimize time and increase objectivity. However, it is important to note that it is highly unlikely to completely replace the role of the teacher, which is inherently rich in human qualities and skills (Saltos Loayza et al., 2025). In this regard, according to the OECD (2026), generative artificial intelligence complements the instructional process without compromising teachers’ professional autonomy.

In higher education, according to Farinango et al. (2026), the contribution of generative artificial intelligence extends beyond merely automating assessment activities; it continuously reshapes the core dynamics of teaching practice, particularly regarding the co-creation of learning resources and experiences tailored to student characteristics. This shift promotes pedagogical approaches centered on active learning and student engagement. Likewise, these tools enable the rapid development of instructional materials, the generation of supplementary explanations, and the provision of prompt feedback, thereby diversifying the academic support mechanisms available during the learning process. In this vein, Betti Galasso (2026) notes that artificial intelligence can substantially alleviate the administrative burden associated with routine tasks during periods of high academic demand, allowing faculty to devote greater attention to fundamental aspects of their

work, such as critical reflection, student mentorship, and the contextualization of knowledge.

The strong impact of generative artificial intelligence in academia does not reside in the technology itself, but rather in how it is integrated into daily practices. In this regard, Rodríguez-Ruíz (2025) argues that these tools transform collaborative learning by facilitating the exchange of ideas and connecting students and professors more effectively. However, he emphasizes that their primary function is to scaffold instruction without supplanting the core responsibilities of educators. It is a delicate balance where innovation operates concurrently with new and significant academic challenges.

For this reason, García Gutiérrez et al. (2025) center their concerns on the originality of academic documents, the accountability of authorship, and the potential presence of cultural biases within generated content. In this context, responsibility does not fall exclusively on individual teachers or students but extends structurally beyond them, warranting formal institutional guidelines to promote the ethical and responsible use of these tools. Along these lines, Santillán-Aguirre et al. (2025) and Rodríguez Hernández (2023) emphasize that other dimensions also require rigorous oversight, such as the protection of personal data and user privacy. Compounding this issue is the quality and veracity of the information produced by these systems; González López (2026) points out that generated content can be inaccurate or contain critical omissions and algorithmic biases, necessitating constant, evaluative review by the educator.

Students' intellectual autonomy, creativity, and critical thinking skills could also be severely compromised by an overreliance on these tools. According to Camacho Marín (2025), the unregulated use of technology threatens to foster academic dependency, limiting students' capacity to construct knowledge independently. Similarly, persistent gaps in teacher training and a widespread lack of clear institutional policies continue to restrict effective and ethical pedagogical implementation (Corona Domínguez, 2025). Taken together, these challenges underscore the pressing need for a critical, regulated, and contextualized integration of GAI into contemporary education.

2. Methodology

Methodologically, this research employs a bibliographic design supported by a systematic literature review. This approach involves examining the available literature on the selected topic and determining which dimensions are most relevant to the study—specifically, the theoretical and conceptual aspects (Blanco Pena, 2024; Ramos-Galarza and García-Cruz, 2024). The methodology is primarily qualitative, based on the systematization of theoretical frameworks and prior empirical findings that are subsequently categorized to describe the phenomenon, complemented by quantitative elements focused on bibliometric data (Sandoval Forero, 2024). Furthermore, the study strictly adheres to the PRISMA 2020 protocol, which structures the analytical process across four sequential stages to ensure transparency and reproducibility: a) identification, b) screening, c) eligibility, and d) inclusion (Page et al., 2021).

2.1 Identification

The literature search was conducted in April 2026, utilizing three academic databases renowned for their broad visibility and extensive indexing coverage: a) Scopus, b) Web of Science (WoS)—specifically the Social Sciences Citation Index (SSCI), and c) the Scientific Electronic Library Online (SciELO). The search strategy was constructed using Boolean operators (AND, OR) and truncation symbols, and was applied across the title, abstract, and keywords fields (TITLE-ABS-KEY) to ensure the comprehensiveness and reproducibility of the retrieval process (see Table 1). This initial search strategy yielded a total of 2,197 documents: a) 1,437 in Scopus, b) 749 in Web of Science, and c) 11 in SciELO.

Table 1. *Search Equation*

	AND	AND	NOT
TITLE-ABS-KEY (("generative artificial intelligence" OR "generative AI" OR "GenAI" OR "large language model*" OR "LLM*" OR "ChatGPT" OR "GPT-3" OR "GPT-4" OR "AI-generated content"))	("university teacher*" OR "higher education teacher*" OR "faculty member*" OR "academic staff" OR "university professor*" OR "college instructor*" OR "lecturer*" OR "faculty")	("practice*" OR "teaching practice*" OR "pedagogical practice*" OR "use" OR "adoption" OR "integration" OR "perception*" OR "attitude*" OR "belief*" OR "experience*" OR "view*" OR "opinion*")	("school teacher*" OR "primary education" OR "secondary education")

2.2 Screening

Establishing rigorous inclusion and exclusion criteria was critical to ensuring the quality and relevance of the analyzed material. Specifically, priority was given to empirical studies focusing on university

professors' actual use and attitudes toward generative artificial intelligence. Thus, through a systematic selection protocol, we sought to ensure the methodological validity, rigorous quality, and strict thematic alignment of the selected texts (see Table 2).

Table 2. *Inclusion and Exclusion Criteria*

Criterion	Inclusion	Exclusion
Publication Period	2021–2025	Outside the established range
Subject area	Social Sciences	Fields other than the social sciences
Document type	Scientific articles	Books, book chapters, conference papers, theses, and other non-peer-reviewed works
Keywords	Generative artificial intelligence AND higher education	Studies that do not address both categories simultaneously
Language	Spanish, English	Other languages
Availability	Full text	No full text

The 2021–2025 timeframe was selected due to the highly recent nature of the topic and the pressing need to analyze the most current evidence available. As artificial intelligence is a rapidly expanding field, this specific period allows for the inclusion of research conducted during the phase of greatest growth and adoption of these technologies within the educational sector. The deliberate selection of studies from the social sciences stems from an interest in understanding the phenomenon from a pedagogical and educational perspective, thereby excluding works focused on more technical or engineering approaches that deviate from the core purpose of this research.

Furthermore, only peer-reviewed scientific articles were included to ensure that the analyzed

evidence had been validated through rigorous academic evaluation processes that attest to its quality. The keywords were carefully chosen to minimize the possibility of including documents unrelated to the object of study. Regarding language, only publications in Spanish and English were considered, as these languages account for a substantial proportion of the global scientific output on this topic, thereby facilitating access to research conducted across diverse geographic contexts.

Similarly, priority was given to documents available in full text, which allowed for a detailed review of the studies and thorough verification of the information. After applying these baseline criteria, 110 relevant records were identified. The subsequent removal of duplicates led to the exclusion of 11

repeated documents, leaving a total of 99 articles for the eligibility phase.

2.3 Eligibility

During this phase, the full text of the selected articles was rigorously evaluated. Additional specific criteria were applied at this stage, requiring that the documents be a) empirical studies and b) research conducted within Latin American countries. As a result of this closer inspection, 83 documents were excluded: six because they were theoretical papers

or literature reviews, and 77 because they did not correspond to the geographic context of interest.

2.4 Inclusion

Thus, 16 articles that met all the established criteria were included, constituting the final corpus to address the study's objective. The complete selection process is summarized in Figure 1, which illustrates the progressive reduction from the initial 2,197 records to the 16 included studies.

Figure 1. Flowchart of the systematic review

Identification	Records identified through a Scopus search: n=1,437	Records identified through a Web of Science search: n=749	Records identified from a SciELO search: n=11
	Total records identified through database searches: n=2,197		
Screening	Records screened by subject area, document type, keywords, language, availability, and publication period: n=110	Records excluded after applying criteria: n= 2077 Duplicate records: n = 11	
	Registros tras cribado y eliminación de duplicados: n=99		
Eligibility	Criteria: • Empirical research articles • Studies conducted in a Latin American country	Exclusion: • Theoretical and/or review articles: n=6 • Studies conducted outside of Latin America: n=77	
	Inclusion		
Records included for analysis and meeting the study's objective: n=16			

Thus, Figure 1 shows that out of the 2,197 documents initially identified, 110 met the inclusion criteria established for screening; however, 11 were duplicates across the reviewed databases, reducing the total to 99. Subsequently, during the eligibility phase, 83 papers were excluded based on the exclusion criteria, leaving a final total of 16 studies for inclusion.

3. Results

Table 3 lists the titles, authors, publication years, and source databases of the 16 selected scientific articles. In addition, a specific alphanumeric code is assigned to each article to facilitate its identification and analysis throughout the remainder of this document.

Table 3. *List of Selected Articles*

Code	Title	Source
Art1	Cabero-Almenara et al. (2025). "Faculty Knowledge of Generative Artificial Intelligence: A TPACK-Based Predictive Model for the Ethical Integration of Generative Artificial Intelligence in Higher Education."	Scopus
Art2	Cordero et al. (2025). "Integration of Generative Artificial Intelligence in Higher Education: Best Practices."	Scopus
Art3	Fontanelli et al. (2025). "Use and evaluation of generative artificial intelligence in the social sciences. Report on the experience of the academic community at FLACSO Mexico."	Scopus
Art4	Lucero-Baldevenites et al. (2025). "The Use of ChatGPT in Academic Activities by University Faculty."	SciELO
Art5	Macías Galeas et al. (2025). "Algorithms and Faculty Autonomy: Pedagogical Resistance to EdTech Standardization in the Era of Generative AI."	Scopus
Art6	Miras et al. (2025). "Application of a GPT model in the study of multimodal constellations."	SciELO
Art7	Muñoz Martínez et al. (2025). "Generative AI and Critical Thinking in Distance Higher Education: Challenges and Opportunities."	Web of Science
Art8	Nevárez Montes et al. (2025). "Faculty acceptance and use of generative artificial intelligence in their practice."	Scopus
Art9	Pereira-González et al. (2025). "Latent dimensions in the adoption of ChatGPT at the university: the CHASSIS model."	SciELO
Art10	Rivadeneira et al. (2025). "Exploring the role of ChatGPT in higher education institutions: Where does Latin America stand?"	Scopus
Art11	Ros-Arlanzón et al. (2025). "When AI models take the exam: Large language models vs. medical students on multiple-choice course exams."	Web of Science
Art12	Verano-Tacoronte et al. (2025). "Are university teachers ready for generative artificial intelligence? Unpacking faculty anxiety in the ChatGPT era."	Web of Science
Art13	Cambra-Fierro et al. (2024). "ChatGPT adoption and its influence on faculty well-being: An empirical study in higher education."	Web of Science
Art14	De la Puente et al. (2024). "Investigating the use of ChatGPT as a tool for enhancing critical thinking and argumentation skills in international relations debates among undergraduate students."	Web of Science
Art15	Mateus et al. (2024). "Communication educators facing the arrival of generative artificial intelligence: Exploration in Mexico, Peru, and Spain".	Scopus
Art16	Padilla Piernas et al. (2024). "Impact and Perspectives of Generative Artificial Intelligence in Higher Education: A Study on Faculty Perception and Adoption Using the AETGE/GATE Model."	Scopus

Table 3 shows that although the search period was set between 2021 and 2025, the documents that met all inclusion criteria were published exclusively between 2024 and 2025. Furthermore, even though these studies were conducted in Latin America, the language distribution of the publications is balanced: 50% of the selected articles are written in Spanish and

the remaining 50% in English. Conversely, Table 4 was created to identify the specific geographic context in which the selected studies were conducted. In this regard, it is important to note that this classification refers to the location of the study units considered within each paper and not to the country of origin of the journals in which the articles were published.

Table 4. *Geographic context in which the studies were conducted*

Country	Frequency absolute	Frequency Relative
Colombia	2	12,50 %
Ecuador	4	25,00 %
Spain	7	43,75 %
Mexico	2	12,50 %
Peru	1	6,25 %
Total	16	100 %

Note: Compiled by the author.

Table 4 shows that a large proportion of the articles (43.75%) stem from research conducted in Spain, followed by Ecuador (25.00%). These data underscore the critical need in Latin America to advance empirical research focused on the use of generative artificial intelligence by university faculty within their instructional practices. Such research

should be grounded in the specific economic, social, and cultural characteristics of the region to better understand these diverse realities. Furthermore, for the co-occurrence analysis of keywords, an overlay visualization generated via VOSviewer (v.1.6.20) is presented (see Figure 2).

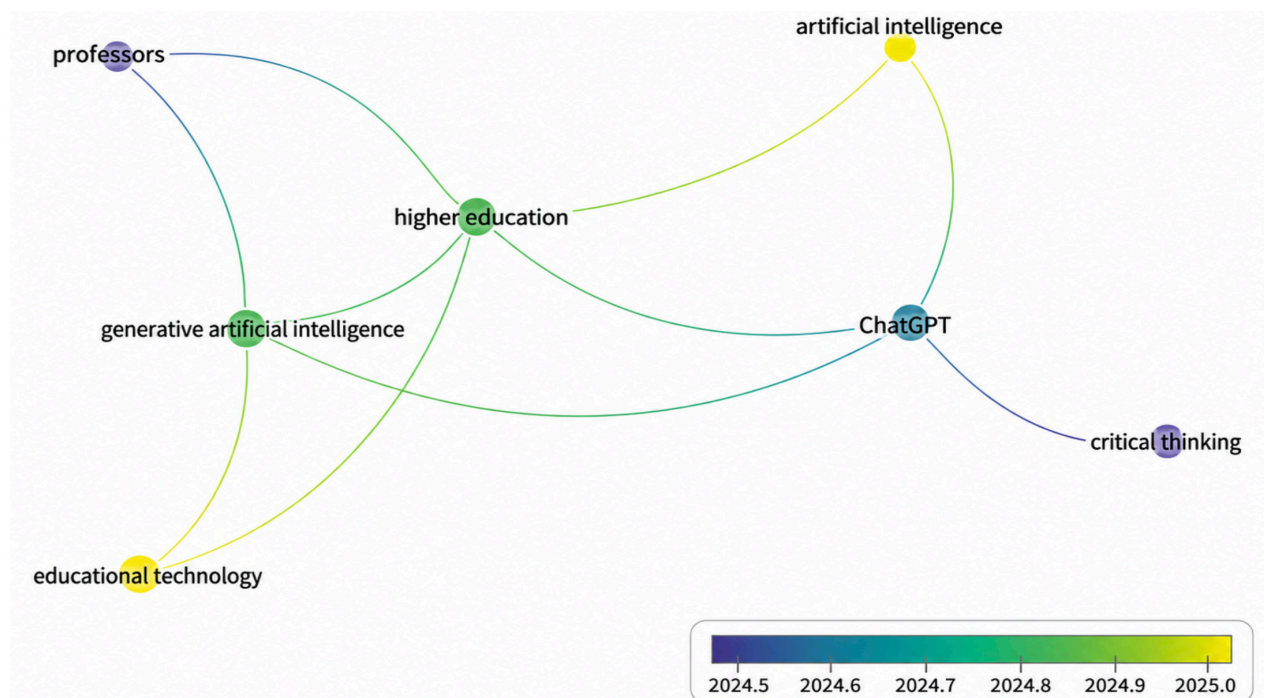
Figure 2. *Overlay of keyword occurrences*

Figure 2 can be interpreted from two distinct perspectives: the chronological timeline and the network structure. First, regarding the average publication years, it is observed that in early 2024 (represented by purple and blue nodes), “teachers,” “critical thinking,” and “ChatGPT” emerged as core

concepts in the initial academic debate. By late 2024 (green nodes), “generative artificial intelligence” and “higher education” shifted to the center of the figure, indicating that during this period, scholarly discussion became firmly concentrated on the university setting. By early 2025 (yellow nodes), “artificial inte-

lligence” and “educational technology” became prominent, suggesting a broader systemic integration of technology in the educational context.

Second, based on the connections and link weights illustrated in the network, “higher education” serves as the central axis, acting as a crucial bridge between “professors” (the operational dimension) and “ChatGPT” and “artificial intelligence” (the technological dimension). Crucially, the visualization reveals that “critical thinking” is exclusively connected to “ChatGPT.” This demonstrates that,

among the analyzed documents, higher-order cognitive skills are more closely linked to that specific application than to generative artificial intelligence as a broader category. Finally, through the mapping capabilities of VOSviewer (v.1.6.20), it was also possible to identify two primary thematic clusters; these have been designated as “Institutional Dimension and Pedagogical Praxis” and “Instrumental Dimension and Skill Development,” and are detailed comprehensively in Table 5.

Table 5. *Clusters generated from the keywords*

Cluster 1: Institutional Dimension and Pedagogical Praxis	Cluster 2: Instrumental Dimension and Skill Development
Higher education	ChatGPT
Generative Artificial Intelligence	Artificial intelligence
Professors	Critical thinking
Educational technology	

According to Table 5, Cluster 1 focuses on the structural framework, illustrating how higher education institutions and faculty members are integrating generative artificial intelligence as a new category within educational technology, with an emphasis on the role of the university professor in the face of systemic change. Conversely, Cluster 2 is grounded in the specific tool and its direct impact, representing a micro or applied perspective. Within this cluster, the analyzed literature demonstrates how the utilization of specific applications (such as ChatGPT) challenges or enhances higher-order cognitive processes, specifically critical thinking. This suggests that the broader debate over artificial intelligence in teaching practice is intrinsically linked to concerns regarding students’ intellectual autonomy.

3.1 *Types of pedagogical practices in which Latin American university professors use generative artificial intelligence*

According to the reviewed documents, these practices can be classified into three broad categories:

Instrumental and design-oriented practices: These are dominated by text production and the

creation of instructional materials, such as question banks, presentations, and rubrics. Within this category, generative artificial intelligence is used as an instructional design assistant to optimize workflows and reduce administrative burdens (Nevárez Montes and Elizondo García, 2025; Lucero-Baldevinites et al., 2025).

Didactic interventions: These focus on providing learning experiences through comparative analysis and dialogic debates, where artificial intelligence acts as an argumentative counterpart in complex disciplines such as International Relations. In these scenarios, students must validate, contrast, and critique the generated outputs, thereby fostering critical reflection (Cabero-Almenara et al., 2025; Macías Galeas and Betancourt Anangono, 2025).

Assessment-based applications: In this domain, artificial intelligence is employed to provide immediate formative feedback and to design adaptive assessments. Despite these pedagogical benefits, benchmarking studies in medicine demonstrate that AI frequently outperforms the average student on multiple-choice examinations, thereby necessitating a paradigm shift toward process-based assessments and authentic classroom performance evaluations

(Miras et al., 2025; Padilla Piernas and Martín García, 2024).

In comparison with research conducted in the United States and the United Kingdom, these studies conclude that generative artificial intelligence is often used as a virtual tutor, offering alternative explanations and academic guidance outside the traditional classroom setting (Nasr et al., 2025). Additionally, Qian (2025) argues that in those Anglo-Saxon contexts, it has been widely implemented as generative assistants that scaffold the resolution of complex or ill-structured problems, thereby actively supporting students' cognitive development.

3.2 *Perceptions of Hispanic American University Faculty Regarding the Use of Generative Artificial Intelligence*

The impact of generative AI on the educational environment strikes a delicate balance between optimism and concern. Studies such as those by Verano-Tacoronte et al. (2025) and Cambra-Fierro et al. (2024) demonstrate that although using technology to optimize time alleviates administrative pressure and improves faculty mood, an underlying apprehension persists. This primary cause for concern centers on academic integrity and the fear that students' higher-order intellectual skills may ultimately be weakened.

Likewise, educators perceive generative artificial intelligence as a tool possessing high syntactic capacity but low creative ambition and analytical depth. Consequently, it is not viewed as a replacement but rather as a creative ally that lacks situated experience and human ethical judgment, a dynamic that sometimes leads to a perception of "collaborative mediocrity" (Ros-Arlanzón et al., 2025; Mateus et al., 2024). Finally, although there is a strong behavioral intention to adopt this technology within academic contexts, self-perceived proficiency remains low. Faculty members frequently feel like "spectators" of a disruption they do not technically master, which underscores an urgent need for institutional algorithmic literacy initiatives (De la Puente et al., 2024; Cordero et al., 2025).

In this vein, when comparing these findings with studies conducted in China, a favorable perception is observed among university professors regarding the potential of generative artificial intelligence to scaffold academic writing and foreign

language acquisition (Cai and Yu, 2025). In contrast, research conducted within Moroccan higher education reveals a more cautious stance regarding the capacity of these technologies to provide sound pedagogical judgment and cultural contextualization within educational processes (Haroud and Saqri, 2025).

3.3 *Ethical Implications Identified by Latin American University Faculty Regarding the Use of Generative Artificial Intelligence*

Among the main ethical concerns is the complex issue of academic authorship. López-Vasco (2025) and Fontanelli et al. (2025) demonstrate that the current situation extends far beyond mere plagiarism detection; rather, it requires determining the precise threshold between human intellectual contribution and the content generated with the support of generative artificial intelligence. For this reason, several authors propose the implementation of transparency statements that require students to explicitly declare how and at which stages they have utilized these tools during the production of their academic work.

Similarly, according to Muñoz Martínez et al. (2025), substantial risks are associated with the quality and veracity of the information generated by these systems. This issue becomes particularly critical in developing countries, where artificial intelligence models are often trained on datasets that do not accurately reflect local social, cultural, or educational realities; consequently, there is a heightened risk of reproducing systemic biases or generating outputs that are disconnected from those specific circumstances. Compounding these epistemological challenges are the persistent and deep-seated differences in technology access across regions.

In the Americas, various empirical studies show that students do not possess equitable opportunities to leverage advanced artificial intelligence tools. For instance, individuals who can afford paid premium versions or who possess greater proficiency in engineering effective prompts tend to achieve superior academic outcomes, which translates into an unfair educational advantage. This reality underscores the immediate risk of exacerbating pre-existing socio-economic, educational, and technological inequalities (Rivadeneira et al., 2025; Pereira-González et al., 2025).

Upon examining studies conducted outside of Latin America, parallel vulnerabilities emerge. For example, in Ghana, research has identified significant implications related to technological dependency and its subsequent negative impact on students' interpersonal and social relationships (Amaniampong and Nantwi, 2026). Likewise, in Syria, severe ethical concerns have been raised regarding the privacy of the personal data input into generative artificial intelligence systems, as well as the biased use of these technologies to perpetuate cultural stereotypes that fail to represent the actual diversity of local communities (Kayyali, 2025).

4. Conclusions

The results demonstrate that generative artificial intelligence is becoming increasingly prevalent within university teaching practices across Latin America. Far from being perceived as a replacement for human educators, its application is primarily aimed at scaffolding activities related to the design of instructional materials, the development of teaching strategies, and the refinement of assessment processes. Thus, its incorporation is beginning to align with various dimensions of academic workflows and the core dynamics of teaching and learning within the higher education system. Among its main contributions is the potential to reduce the time spent on operational and administrative tasks, thereby allowing faculty to redirect their efforts toward higher-value activities such as student mentorship, guidance, and pedagogical mediation.

Furthermore, generative tools facilitate the personalization of learning experiences and expand the methodological options available for cultivating critical thinking skills. However, these benefits depend heavily on how these technologies are integrated into the educational process, as their effectiveness remains intrinsically linked to pedagogically planned implementation guided by clear academic criteria. The review also reveals that the relationship between educators and generative artificial intelligence is deeply ambivalent. Although there is widespread recognition of its utility in supporting academic tasks, profound concerns persist regarding academic integrity, the potentially detrimental effects of an overreliance on these tools, and student intellectual autonomy.

Similarly, serious apprehensions endure concerning the authorship of academic work, the presence of algorithmic biases in the generated content, the reliability and veracity of the information produced, and the socio-technical inequalities arising from uneven access to and proficiency with these technologies. Another critical dimension is the mismatch between faculty members' behavioral willingness to incorporate these tools and the actual level of technical knowledge required to utilize them critically and effectively. This situation underscores the pressing need to strengthen training programs that synthesize digital, ethical, and pedagogical competencies, while simultaneously consolidating formal institutional guidelines that enable the responsible integration of generative artificial intelligence in university settings. Additionally, this review serves to structure a field of study that is still in its nascent stages of development.

The systematization of the retrieved evidence allowed identifying common trends, research gaps, and thematic areas requiring further exploration, particularly those related to long-term pedagogical effects, the transformation of traditional assessment models, and the ethical implications surrounding the expansion of these technologies in higher education. Consequently, generative artificial intelligence offers significant possibilities for strengthening teaching and learning processes at the university level. However, its incorporation demands a critical perspective that continuously weighs both its contributions and its limitations, recognizing that the ultimate educational value of these tools depends far less on the technology itself than on the pedagogical decisions that guide its classroom deployment.

Finally, among the limitations of this study is a potential bias related to the geographic scope of the selected corpus, which focuses exclusively on studies conducted within Latin America; although this decision stems from a deliberate interest in regional contextualization, it inherently limits the generalizability of the findings. Additionally, restricting the selection to works available in the three selected databases, as well as the language constraints applied, may have omitted other relevant studies indexed in alternative sources or published in different languages. These limitations open the door for future research lines aimed at expanding and refining the global understanding of how to integrate generative artificial inte-

lligence effectively into the pedagogical practices of higher education institutions.

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Statement on the Use of Artificial Intelligence

The authors DECLARE that, in the preparation of the article “*Generative Artificial Intelligence in University Pedagogy: A Systematic Review*,” ChatGPT was used to design the Boolean search equation and to improve certain aspects of the writing.



Academic debate as a STEAM competences' learning strategy

El debate académico como estrategia de aprendizaje de competencias STEAM

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Abstract

The STEAM approach (Science, Technology, Engineering, Arts & Mathematics) has remained largely absent from fields such as educational sciences. However, its integration is essential, given its influence on the education of future generations and the high proportion of women in these fields. This study aims to contribute to this end by focusing on the training of future teachers through digital literacy and educommunication, using the methodology of academic debate. A qualitative methodology based on action research was employed, implemented in a teaching innovation project carried out across three university campuses, involving six lecturers and nine subjects. Data were collected through four focus groups with students and systematic observation by the lecturers. The analysis enabled the identification of learning outcomes, skills and dispositions among the students.

The results show a high level of student motivation, a significant improvement in communication skills, critical thinking, digital literacy, and approach to STEAM, as well as a positive assessment of debate as an active learning strategy. It is concluded that academic debate constitutes an effective and transferable methodology for the acquisition of STEAM skills in educational qualifications, with potential that remains underutilised in higher education and relevant implications for teacher training and pedagogical innovation.

Keywords: academic debate, pedagogical innovation, STEAM, digital literacy, teacher training, higher education.

Resumen

El enfoque STEAM (Science, Technology, Engineering, Arts & Mathematics) ha permanecido alejado de ámbitos como las ciencias de la educación. Sin embargo, resulta fundamental su incorporación, dada su influencia en la formación de futuras generaciones y su fuerte feminización. Este estudio pretende contribuir al desarrollo de la formación del profesorado mediante la alfabetización digital y la educomunicación, empleando para ello la metodología del debate académico. Se utilizó una metodología cualitativa basada en investigación-acción, implementada en un proyecto de innovación docente desarrollado en tres campus universitarios, con la participación de seis docentes y nueve materias. Los datos fueron recabados a través de cuatro grupos de discusión con estudiantes y observación sistemática por parte de los docentes. El análisis permitió identificar aprendizajes, competencias y predisposiciones en los estudiantes.

Los resultados evidencian un alto nivel de motivación del alumnado, una mejora significativa en habilidades comunicativas, pensamiento crítico, alfabetización digital y aproximación al ámbito STEAM, así como una valoración positiva del debate como estrategia de aprendizaje activo. Se concluye que el debate académico constituye una metodología eficaz y transferible para la adquisición de competencias STEAM en titulaciones educativas, con un potencial aún infrautilizado en la educación superior y con relevantes implicaciones para la formación docente y la innovación pedagógica.

Palabras clave: debate académico, innovación pedagógica, STEAM, alfabetización digital, formación docente, educación superior.

1. Introduction

The contemporary educational landscape poses a multitude of challenges for higher education in general and for initial teacher training in particular. Among these challenges is the pressing need to incorporate pedagogical approaches that foster the development of scientific, technological, communicative, and critical competencies within educational domains traditionally dissociated from the STEAM (Science, Technology, Engineering, Arts, and Mathematics) field.

Contrary to common public perceptions, the STEAM approach is not confined solely to disciplines associated with the experimental sciences; rather, it is highly relevant in fields such as education, where the competency-based training of future educators directly influences the quality, equity, and trajectory of educational systems.

At the beginning of the century, the European Commission's report on science education warned of a progressive decline in student interest in scientific disciplines—a persistent trend corroborated by subsequent studies, such as that of Ospina (2018). Nonetheless, the majority of research has focused on pre-university levels or specialized science degree programs, leaving initial teacher training and the specific methodologies used to introduce the STEAM framework to pre-service teachers comparatively understudied.

The progressive digitization of society has catalyzed the emergence of new processes, systems, challenges, and societal demands. Faced with this rapid transformation, higher education institutions must design and implement curricula that go beyond merely satisfying digital requirements, actively fostering a critical and reflective disposition toward technology. In this regard, university programs within the education sector bear an even greater societal responsibility, as they train the future educators who will directly shape the learning experiences and digital citizenship of forthcoming generations.

Media and digital literacy have become an essential requirement across all demographics, albeit necessitating contextual adaptations based on age, needs, and baseline knowledge. The COVID-19 pandemic marked a critical turning point in remote

work, exposing widespread systemic deficiencies in digital competencies (Salaverría et al., 2020) at the macro-social level, the meso level (educational institutions), and the micro-individual level. Crucially, these needs extended beyond basic functional digital literacy, revealing severe deficits in essential soft skills and critical thinking capabilities (Pérez, 2022).

Under these premises, the STEAM framework is intrinsically linked to the acquisition of key competencies—such as digital literacy, the critical analysis of information, complex problem-solving, applied creativity, and effective communication—all of which are foundational to the field of edu-communication. This interrelationship reinforces the interdisciplinary essence of the STEAM approach, successfully integrating technological, cognitive, and social dimensions into teaching and learning processes.

However, this theoretical consensus is not yet reflected in the empirical literature. There remains a scarcity of systematic studies that integrate media literacy, the STEAM framework, and active learning methodologies within initial teacher education. More specifically, very few empirical works explore academic debate as an intentional pedagogical strategy in teacher training programs. This gap is particularly notable given the documented potential of debate to foster structured argumentation, critical reflection, and cooperative learning—competencies that are highly relevant to professional teaching practice.

Grounded in these literature gaps, this study addresses the historically weak integration of STEAM competencies within initial teacher education when utilizing active and reflective methodologies. This issue is particularly pronounced in female-dominated degree programs, which have historically experienced greater distance from scientific and technological fields. Recognizing these systemic shortcomings, the investigation defines its core research problem around the insufficient integration of STEAM competencies through active, reflective pedagogical frameworks—specifically within female-dominated education majors traditionally alienated from scientific-technological domains. Within this structural framework, the main objective is to analyze the potential of academic debate as an innovative methodology for developing STEAM competencies in undergraduate education students. More

specifically, the study aims to examine the extent to which this interactive strategy contributes to the development of critical thinking, media and digital literacy, communication skills, and a critical, reflective approach to the STEAM field itself.

1.1 Challenges and Responses from Universities in the Current Context

This study is grounded in the premise that higher education, both in Spain and globally, is currently navigating a rapidly shifting landscape shaped by intensive social and technological transformations. This context necessitates a fundamental rethinking of university education; it is no longer merely a matter of transmitting specialized content, but rather of fostering the development of core competencies that enable students to critically interpret reality and thrive in highly dynamic environments.

Hernández-Serrano and Muñoz-Rodríguez (2020) highlight a pervasive lack of interest among secondary school students in science, technology, engineering, art, and mathematics (STEAM) disciplines, suggesting that a main explanatory factor is the persistence of traditional teaching methods characterized by teacher-centered, lecture-style dynamics. This finding is particularly critical for initial teacher education, as it underscores the urgent need to overhaul the pedagogical methodologies used at the university level if the goal is to transform future classroom practices.

This line of research demonstrates the suitability of employing innovative methodologies aligned with STEAM themes. Indeed, recent empirical experiences offer new instructional models with excellent results in disciplines such as mathematics (Ledezma et al., 2024).

The educational sector's interest in digital communication and the development of critical skills is not a recent phenomenon. In the late 1970s, the educommunication approach emerged under the aegis of UNESCO, recognizing media as active agents in the processes of content creation and perception. According to Aguaded et al. (2022), the main function of educommunication is to promote a more critical and active citizenry, thereby enabling democratic participation and independent thought. Along these lines, Van Dijck (2016) emphasizes the necessity of cultivating the habit of questioning

received information within the “culture of connectivity,” as well as recognizing the inherent lack of neutrality in mass media, social networks, and individual digital actors. Educommunication provides essential tools to understand and mitigate the risks of transmedia production by fostering reflection and self-critical thinking at both individual and collective levels (Kaplún, 2010). The implementation of this project links these analytical tools to the critical evaluation of diverse information sources, reflection on the responsible use of digital environments in the face of widespread disinformation, and the acquisition of competencies for the ethical consumption and production of information.

Precedents indicate that education provides democratic environments conducive to fostering a critical attitude and an awareness of the consequences of consuming digital services and information, as well as the systemic risks posed by the most harmful dimensions of disinformation and hate speech (Morales-Romo et al., 2023). This educommunicative potential is further highlighted by Coe and Yeung (2019), who focus on the cultural production of educational systems and their complex relationship with economic and cultural markets.

The intersection between educommunication and STEAM has been previously explored in works such as those by Mateo and Arroyo (2020) and Diego-Mantecón et al. (2021). However, the gaps identified in the literature highlight the importance of intensifying efforts aimed at integrating educommunication directly into STEAM learning processes. In this vein, we propose strengthening the implementation of active methodologies that foster the development of key competencies (Peña-Acuña, 2022; Marcos Salas et al., 2020), in alignment with the recommendations of international organizations such as the OECD (2023). Nevertheless, these proposals are not always explicitly linked to the STEAM framework or to media literacy, which curtails their overall educational impact. Integrating educommunication into STEAM learning allows students not only to master scientific content but also to critically analyze its media representations, societal applications, and ethical consequences.

1.2 Gender Gap and STEAM

There is a wealth of studies and empirical data confirming that women are significantly underrepresented in STEAM degree programs (Sáinz, 2017; Reinking and Martin, 2018). The motivations driving the choice of a specific college major are neither simple nor straightforward. Akosah-Twumasi et al. (2018) analyzed 30 studies on this topic and identified three clusters of key factors influencing this decision: intrinsic (personal characteristics, expectations), extrinsic (expected salary, prestige, job quality), and interpersonal (influences from family, peer groups, and educators). For their part, Rodríguez-Muñiz et al. (2019) focused on the interplay between intrinsic and extrinsic factors, emphasizing the greater relative influence of the former.

In stark contrast to the pronounced male dominance in STEAM disciplines (Tellhed et al., 2017), studies in education reveal a strong female dominance, which intensifies at lower educational levels. This phenomenon represents a form of horizontal segregation in education with far-reaching social impacts. This division not only shapes academic and professional trajectories but also directly affects how scientific knowledge is transmitted and legitimized within the educational system.

Consequently, there is a clear access gap for women in STEAM degree programs. Furthermore, various studies indicate that women who pursue STEAM careers face distinct obstacles, such as a lack of female role models, implicit gender biases, and persistent workplace inequalities (Botella et al., 2019), which collectively discourage other women from entering these fields. These dynamics reinforce the urgent need to intervene, beginning with initial teacher education, which serves as a strategic avenue for deconstructing stereotypes and fostering an inclusive scientific culture.

Another major contributing factor is the persistence of gender roles and stereotypes. According to Jackson et al. (2014), men are more likely to endorse stereotypes regarding women in STEAM fields, suggesting that these biased perceptions negatively impact women's education, labor market entry, career advancement, and job stability within these domains. Beyond strictly educational and occupational realms, gender gaps and educational differences remain a constant issue when examining other fac-

tors, such as digital environments. For instance, an analysis of YouTube channels dedicated to scientific content related to STEAM disciplines identified 391 channels, of which fewer than 10% were hosted by women (Amarasekara and Grant, 2019).

Importantly, this gap begins to materialize in the earliest stages of schooling, highlighting the necessity of addressing it starting in early childhood education, as argued in the systematic review by Briñez et al. (2025). This pattern persists through subsequent academic stages, although existing research has not reached a consensus on whether gender-based expectations and limitations in STEAM fields worsen as educational levels rise. While Grañeras et al. (2022) contend that the gap widens as students progress through the educational system, other researchers suggest that social factors and individual experiences can influence or shift this trend (Rivera et al., 2025; Baldeón et al., 2020).

The current state of the field therefore poses significant challenges for pre-service teachers, who can play a pivotal role in deconstructing gender biases and stereotypes associated with STEAM fields. In this context, the project presented here aligns with this objective by proposing an active methodology—academic debate—to introduce the STEAM approach to a highly feminized university population, thereby contributing both to competency development and to critical reflection on gender inequalities in the domain of scientific knowledge.

2. Methodology

The study was grounded in a qualitative and interpretive approach (Lüdke and André, 2017; Corbin and Strauss, 2008) aimed at facilitating an understanding of learning processes, the construction of meaning, and the predispositions of pre-service teachers. More specifically, an educational action-research design was adopted, directed at understanding socio-formative practices (Thiollent, 2025) and focused on academic debate. This design enabled systematic classroom observation, targeted pedagogical interventions, and joint interpretive analysis by both students and faculty.

Following the guidelines of similar studies conducted with pre-service teachers (Pascual-Arias and López-Pastor, 2024), strategies for the structured observation and systematic recording of debates

were applied to analyze the underlying processes of meaning-making.

The general objective of this initiative was to promote academic debate as an innovative methodology for acquiring STEAM competencies among undergraduate education students.

This general objective is broken down into the following specific objectives:

- To apply the STEAM approach to assess the application of knowledge in real-world contexts.
- To foster critical and analytical thinking within the STEAM domain.
- To develop essential competencies and transferable skills, such as collaboration, critical thinking, creativity, and problem-solving.
- To promote cooperative methodologies that facilitate the creation of an environment of reflection and critical engagement with scientific knowledge.
- To enhance media literacy and educommunication.
- To teach communication and conflict resolution strategies through information exchange and management.
- To provide training in the appropriate use of technology for information search and management.

These objectives were operationalized through specific activities carried out during the preparation, implementation, and evaluation of the debates, allowing for their observation and analysis using the qualitative techniques described. In this regard, several objectives manifested in observable dimensions, such as argumentative development, communicative interaction, information management, and active classroom participation.

The participants consisted of university education students enrolled in nine courses taught across three campuses, with voluntary participation in the focus groups (7–8 students per group). The participating courses spanned fields such as General Didactics, Sociology of Education, and Research Methods, providing an interdisciplinary framework consistent with the STEAM approach. The sample exhibited a significant overrepresentation of female

students, consistent with the structural feminization of these degree programs.

Data collection was conducted through the systematic observation of discussions, teaching diaries, rubric-based assessments, and four focus groups. These focus groups were guided by a semi-structured interview protocol focusing on student perceptions of learning, the debate methodology, and the competencies developed.

Data analysis was carried out through a process of thematic coding, combining deductive categories derived from the study's objectives (STEAM competencies, critical thinking, media literacy, and communication skills) with inductive categories emerging directly from the students' discourse.

To ensure qualitative rigor, criteria of credibility and analytical coherence were applied by triangulating sources (students and teachers), techniques (observation, assessment, and focus groups), and stages of the process. Furthermore, the research team's reflexivity and peer debriefing among instructors helped minimize interpretive biases.

The methodological procedure was structured into three interrelated phases: preliminary training, the implementation of the debates, and the collection of qualitative data.

2.1 Methodological Training

To ensure the project's proper implementation, the teaching team designed a preliminary training plan based on coordination meetings, with the goal of giving students the conceptual, technical, and attitudinal resources necessary to optimize both the research processes and the expected pedagogical outcomes.

Although academic debate was the central focus of the project, significant emphasis was placed on training, preparation, and reflective analysis processes.

In the initial phase, the teaching team designed and delivered preliminary methodological training focused on giving students key conceptual, argumentative, and communication tools. This training comprised:

1. Initial instructions: Students received structured guidance on how to approach their oral presentations, which helped them organize their arguments and identify effective rhetori-

cal strategies. Rather than focusing solely on the final outcome of the debates, the cornerstone of the project lies in these developmental and preparatory stages, during which numerous competencies and soft skills were honed.

2. Conceptualization and explanation of key argumentative elements: This included the identification, analysis, and application of empirical evidence, counter-objections, and logical fallacies.
3. Rules and criteria for the debate: A series of strict guidelines were provided to guarantee and enrich the processes of argumentation and counterargumentation while ensuring pedagogical objectives were met. Key guidelines included avoiding ethnocentrism, directly linking contributions to course objectives and content, promoting clarity of expression, fostering tolerance and mutual respect, practicing constructive criticism, ensuring linguistic precision, and actively avoiding prejudices or gender stereotypes.
4. Modes of reasoning: Various types of argumentation were introduced to diversify students' discursive strategies, specifically symptomatic, causal, analogical, and generalization-based reasoning.
5. Digital and educommunicative literacy: One specialized session per academic year was dedicated to training students in the selection and critical analysis of information, the identification of reliable sources, the ethical use of artificial intelligence tools, and skills related to digital knowledge management.

2.2 Intervention Procedure and Data Collection

In the second phase, academic debates were implemented as an active learning technique inte-

grated across the various subjects. Each class was organized into working groups that participated in public classroom debates on topics directly addressing the intersection of the STEAM framework and contemporary educational issues:

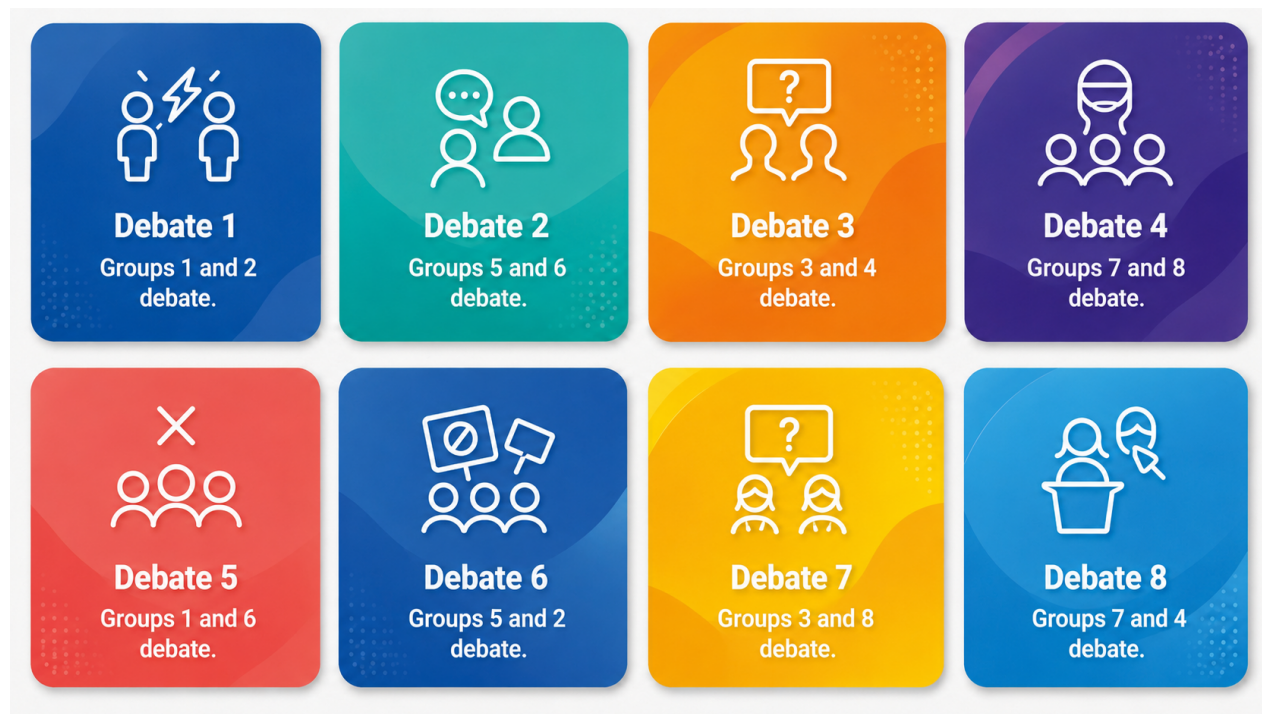
- Does technology contribute to human improvement?
- Quantitative versus qualitative techniques in social research.
- Science education in schools: an unresolved issue?
- Artificial intelligence: ally or enemy of teaching and knowledge?
- Merit, prestige, power, and compensation: Is the disparity among STEAM professions fair?
- The emergence of ICT in education: a revolution or simply a pedagogical improvement?
- The Feminization of Teaching and the Masculinization of STEAM: Pros and Cons.

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These topics were selected based on three rigorous criteria: their direct connection to STEAM competencies and contemporary educational challenges, their potential to spark intense debate and foster critical thinking, and their alignment with the curricular content of the respective subjects. The team agreed upon this thematic selection during the prior coordination sessions.

The institutional Moodle platform was utilized to announce the activities and manage participant registration for the debates.

The activity was structured as follows: each class was divided into eight working groups, with each group participating in two public debates held in the classroom. The specific distribution by groups is outlined below.

Figure 1. *Distribution of Work Groups and Debates*

Note: For example, Debate 1 will be conducted by Groups 1 and 2; Debate 2 by Groups 5 and 6; and so on.

The debates followed a standardized timeline, which encompassed the initial presentation of positions, a dynamic exchange of arguments, audience participation, conclusions, and an evaluation phase.

While the ultimate outcome comprised the eight debates held across the participating subjects and courses, the preparatory phase was deemed critical to achieving the study's core objectives. During this preparatory stage, a flipped learning methodology was employed, providing students with pre-class materials alongside ongoing guidance, feedback, and targeted tutoring sessions.

Data collection was carried out using multiple qualitative techniques to capture both the instructional processes and the participants' subjective perceptions. These techniques included:

- Systematic observation of the live debate sessions.
- Teaching diaries and evaluative records compiled through structured field journals, with observations systematized in accordance with established assessment criteria.
- Performance evaluations conducted using a consensus-built assessment rubric.

- Four focus groups consisting of 7–8 students, guided by a semi-structured interview protocol designed to evaluate the pedagogical methodology, perceived learning outcomes, developed competencies, and encountered difficulties.

2.3 Data Analysis and Assessment Tools

The data were analyzed using a thematic qualitative analysis approach, combining deductive categories derived directly from the study's objectives (STEAM competencies, critical thinking, media literacy, and communication skills) with inductive categories emerging from the students' discourse.

The collected data were processed through a sequence of open coding, axial categorization, and subsequent grouping into the dimensions of emergent analysis.

Methodological rigor was ensured through validation via data triangulation (Terán et al., 2022), which included:

- Triangulation of sources (integrating both student and teacher perspectives).

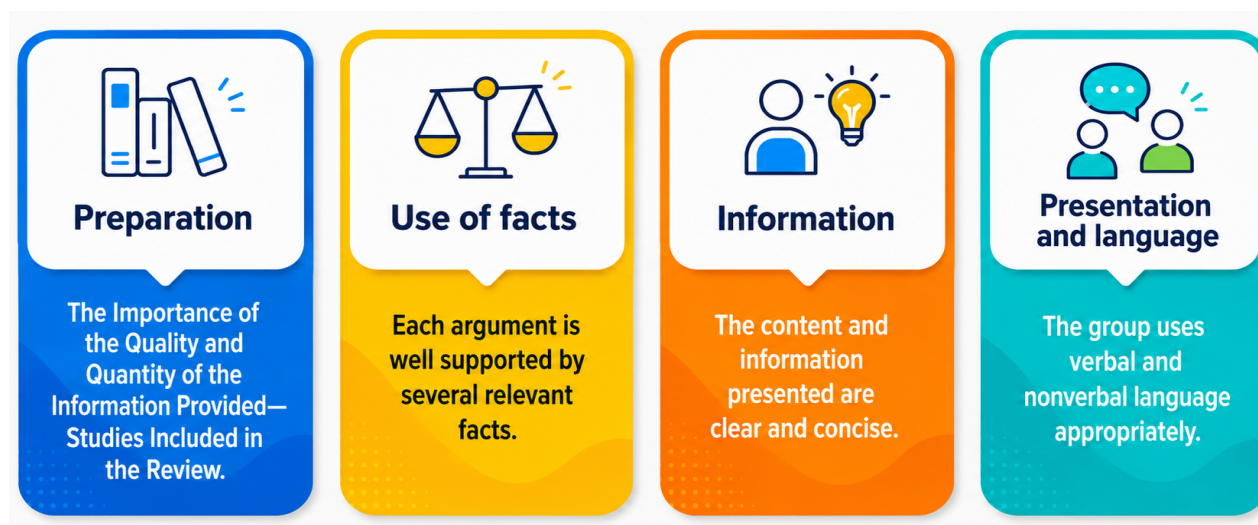
- Triangulation of techniques (combining systematic observation, rubric-based assessment, and focus groups).
- Cross-teacher comparison during the analysis and interpretation of the results.

Furthermore, the research team's active reflexivity allowed for the identification and minimization of potential interpretive biases, thereby reinforcing the transparency of the analytical process and the interpretive validity of the findings.

The performance assessment was implemented using a rubric developed through consensus among the participating faculty, adapted from the evaluation framework proposed by CEDEC (National Center for Curriculum Development). This instrument was designed to evaluate various dimensions related to the achievement of the project's objectives and the execution of the different tasks carried out.

Figure 2. Key elements of the evaluation rubric proyecto y las distintas tareas desarrolladas.

Figure 2. *Key Elements of the Assessment Rubric*



Note. Prepared by the authors based on the CEDEC rubric (scale: 4 = Excellent, 3 = Satisfactory, 2 = Needs Improvement, and 1 = Insufficient).

Likewise, the teachers' perceptions were incorporated as a specific unit of analysis, allowing for a comparison between the students' discourse and expert observation of the educational process, thereby reinforcing interpretive validity through triangulation.

3. Results

The results are presented based on a thematic analysis of the focus groups and teacher evaluations, organized into analytical categories consistent with the study's objectives and methodological design. Overall, the data reveal a highly positive assessment of academic debate as a STEAM learning strategy, alongside the identification of distinct benefits and limitations in its implementation. There is also evi-

dence of an emerging awareness of gender inequalities regarding access, development, and recognition within STEAM fields; however, this dimension appears less developed compared to other analytical categories, suggesting a critical need to explore it more deeply in future educational interventions.

3.1 Student Perceptions

3.1.1 *Relevance of the Topics and Connection to Teacher Education*

A primary analytical category relates to the evaluation of the debate topics. Students highlighted their connection to education studies, their practical applicability, and their relevance to everyday situa-

tions, all of which increased motivation and interest in the activity.

I think that, besides the fact that the debates are a lot of fun, the topics were really good. You could look up a ton of information, and it was interesting... You learn more about real life. [GD2]

At the end of the day, we're all sick of lectures... practical activities that deal with real-world issues... they interest you much more. [GD3]

These statements underscore the importance of linking STEAM learning to socially relevant issues that are closely tied to future teaching practice.

3.1.2 *Prior Conceptions and the Reframing of the STEAM Approach*

A second category relates to students' prior conceptions of the STEAM approach. The findings reveal an initially limited and stereotypical understanding, primarily associated with technical disciplines and perceived as unrelated to the teaching profession.

We're in the fourth year, and except for our Mathematics course... we've hardly talked about STEAM. [GD3]

I thought STEAM was only about Mathematics and Computer Science... I didn't know the Arts were included as well. [GD4]

However, participation in the discussions fostered a gradual reframing of the STEAM approach, leading students to recognize its relevance to education and its cross-curricular potential.

I enjoyed the discussion about scientific research in schools because I think it is important that we teach our future students to conduct research from an early age. [GD2]

3.1.2 *Prior Conceptions and Reinterpretation of the STEAM Approach*

A second analytical category refers to students' prior conceptions of the STEAM field. The results reveal limited and highly stereotypical initial

knowledge, related to technical disciplines and perceived as distant from educational practice.

We are in our fourth year [of university], and except for math class... we've hardly talked about STEAM at all. [GD3]

I thought STEAM was just about math and computer science... I didn't know the arts were included too. [GD4]

However, participation in the debates fostered a gradual reinterpretation of the STEAM approach, enabling students to recognize its profound relevance to education and its cross-curricular potential.

I liked the discussion on scientific research in school because I think it's important that we teach our future students to conduct research from a young age. [GD2]

3.1.3 *Assessment of Academic Debate as a Learning Methodology*

The third analytical category focuses on the evaluation of academic debate as a pedagogical methodology. Students identified multiple strengths, including enhanced communication skills, conflict resolution, information search and selection, the development of digital competencies, and the highly motivational nature of the activity.

At first I thought I was going to die... but in the second one I participated a lot. [GD3]

You learn a lot in a fun way... in some of the debates we laughed a lot. [GD4]

I'd say the debates are innovative for us. [GD2]

Likewise, the findings highlight the pedagogical value of activities that involve role-swapping and presenting opposing arguments—an exercise that actively fosters cognitive flexibility.

...they switched roles for five minutes... arguing exactly the opposite. [GD2]

3.1.4 *Perceived difficulties and limitations*

Alongside the benefits, a category related to the challenges of the process emerges. The main limitations identified are related to preparation time, the complexity of finding reliable information, and initial communication difficulties, particularly in early-stage courses.

At first we were a little shy... but by the third discussion, everyone wanted to speak. [GD2]

A lot of time is wasted looking for information because not all sources are reliable. [GD3]

I've found it hard to stop and think... but I also see that it's necessary. [GD1]

3.2 Teachers' Perceptions

The analysis of faculty perceptions corroborates the findings derived from student discourse, serving as a triangulation mechanism that imparts interpretive robustness to the study. Overall, the teaching faculty concurred in their highly favorable evaluation of academic debate as a pedagogical strategy, highlighting its close alignment with educational objectives and its efficacy within a competency-based higher education framework.

3.2.1 *Pedagogical Assessment of Debate and Contributions to Teacher Training*

Academic debate has established itself as an effective and powerful methodology in the training of pre-service teachers, as it promotes the active construction of meaningful learning experiences and the acquisition of core competencies essential for their future professional practice.

The versatility and applicability of this approach across diverse topics and academic subjects are particularly noteworthy. Furthermore, academic debate offers significant potential to integrate STEAM content with communicative and social dimensions, thereby fostering familiarity with scientific knowledge and facilitating its incorporation into degree programs traditionally alienated from this field.

3.2.2 *Competencies Developed and Student Progress*

The teaching team noted significant progress in the acquisition of cross-curricular competencies, highlighting critical and reflective thinking, oral communication, and collaborative teamwork. This acquisition occurred continuously throughout the entire project and persisted even after its completion, as these are competencies that can be easily applied and transferred throughout the entirety of students' university education.

Finally, although challenges associated with the extensive time investment required for preparing and executing the project were acknowledged, the pedagogical opportunity cost was considered highly worthwhile.

In short, the faculty involved in the project confirmed the methodological and pedagogical suitability of academic debate as a strategy for integrating STEAM into education degree programs, noting that the skills it fosters are profoundly cross-disciplinary and highly applicable to other subject areas.

4. Discussion and Conclusions

The obtained results suggest that academic debate is not merely another participatory technique, but rather a demanding pedagogical practice that fosters the simultaneous acquisition of diverse competencies. In this sense, the findings align with complex argumentative approaches wherein cognitive, emotional, and ethical dimensions overlap (Paul and Elder, 2003; Nussbaum, 2016; Maliandi, 2006). However, beyond this theoretical convergence, what remains particularly relevant is how these dimensions are activated within specific teacher-education contexts. These contexts are further shaped by disciplinary (Di Fabio, 2005) and intercultural (Yama, 2018) differences—factors that have been highly prominent in this study. One of the most thought-provoking aspects is the observed shift in how students interpret the STEAM approach. Far from viewing it as an alien or exclusively technical field, they are beginning to perceive it as an open domain connected to social and educational issues. This shift is by no means minor; it reinforces the notion that active methodologies facilitate content acquisition and reshape prior representations of knowledge.

This enables students to move beyond simplified or reductionist views, particularly in degree programs traditionally distant from science and technology. These findings align with previous research on the role of participatory practices in driving motivation and the construction of meaningful learning (Hernández-Serrano and Muñoz-Rodríguez, 2020).

Within the framework of the European Higher Education Area, these results reinforce the suitability of methodologies that shift the focus toward students as active agents of their own learning, in line with the spirit of the Bologna Process (Aránguiz et al., 2021). However, this shift does not occur automatically. The role of faculty emerges as a cornerstone, functioning not merely as transmitters of content, but as mediators capable of sustaining, guiding, and giving meaning to dynamics that, by their very nature, can be uncertain or demanding. Furthermore, the high proportion of female students in the analyzed degree programs introduces a sociological dimension that deserves specific attention. The results suggest that academic debate can serve as a space of mediation to challenge traditional associations between gender and scientific-technological knowledge. However, it is also observed that this critical examination does not always translate into profound or sustained transformations.

The project confirms that academic debate constitutes a highly relevant avenue for introducing the STEAM framework to students in education degree programs. This approach becomes particularly significant when classroom dynamics are centered on socially relevant issues closely tied to future professional practice. In these cases, there is a clear increase in student engagement, as well as an enhanced quality of learning processes, which are no longer perceived as abstract or disconnected from reality.

An analysis of the discourse—from both students and faculty—reveals that the project's debate-centered methodology fosters the acquisition of key cross-cutting competencies, such as critical thinking, oral communication, information management, reasoned argumentation, and problem-solving—all of which are central to the STEAM approach. A gradual gain in confidence, increased self-assurance when speaking in public, and the ability to respectfully express disagreement are other

vital socio-emotional aspects that emerged strongly throughout the analyzed experience.

From a sociological and pedagogical perspective, the findings highlight two particularly relevant dimensions: first, the importance of viewing students as active participants in their own learning process; and second, the relevance of addressing the gender gap in STEAM settings, given the historical overrepresentation of women in education majors. These results reinforce the premise that the STEAM approach should not be restricted to specific disciplinary fields but should instead be integrated transversally across teacher-training curricula.

Nonetheless, the analysis also identifies several limitations to consider. Among these are the high costs in terms of time and effort required to prepare the debates, the initial communication barriers experienced by some students, and the necessity of continuous faculty support to guarantee the quality of the educational process. These identified difficulties do not invalidate the methodology; rather, they highlight the critical importance of teacher monitoring and progressive structural planning, in line with prior research (Heise and Himes, 2010; Maclellan, 2008).

The experience described confirms that this approach can be successfully replicated in other educational contexts, disciplines, and academic levels, provided that the necessary adaptations are made based on the specific objectives pursued and student profiles.

Finally, the results open up promising avenues for future research, such as comparative analyses across different degree programs and genders, or the implementation and evaluation of debates in digital and hybrid learning environments.

In short, academic debate emerges as a pedagogical strategy with immense didactic and educational potential for introducing the STEAM framework, offering a robust space for critical reflection, the collective construction of knowledge, and the development of fundamental civic competencies vital to the knowledge society. This proposal aims to inspire other university faculty members interested in implementing innovative, critical, and socially engaged methodologies, thereby contributing to a higher education system that is more reflective and deeply connected to the challenges of contemporary society.

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Author Declaration – CRediT Taxonomy

Authors	Contributions
Dr. Noelia Morales-Romo	Conceptualization, data curation, funding acquisition, research, methodology, project management, resources, supervision, writing, validation.
Dr. Beatriz Morales-Romo	Data curation, research, methodology, resources, writing.
Dr. María José Hernández-Serrano	Conceptualization, formal analysis, resources.

Statement on the Use of Artificial Intelligence

The authors DECLARE that, in the preparation of the article “Academic Debate as a Strategy for Learning STEAM Competencies,” artificial intelligence was used to expand on ideas regarding the main points to be addressed.



Design and validation: CODES questionnaire on the teaching in higher education

Diseño y validación: Cuestionario CODES sobre oficio docente en la universidad

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Abstract

This study is part of a broader research project on university admission, retention, and virtualization in public universities. Its aim is to present the design and preliminary validation of the Questionnaire on the Teaching Profession in Higher Education (CODES), an instrument that operationalizes the teaching profession through three dimensions: pedagogical practices, organizational setting, and the use of digital technologies. CODES was developed as an online questionnaire using five-point Likert-type response scales and is currently in a preliminary stage of psychometric development. Content validity was assessed through expert judgment involving 15 specialists, and Aiken's V coefficient was calculated for each item, yielding values ranging from 0.96 to 1.00. The pilot study included the voluntary participation of 66 faculty members from 11 academic units at a public university in central Argentina. High levels of internal consistency were obtained, with a Cronbach's alpha of 0.87 and a McDonald's omega of 0.91 for the overall construct. The proposed dimensional structure was supported by a preliminary exploratory factor analysis (EFA), although confirmatory factor analyses have not yet been conducted. CODES constitutes a contextualized and relevant instrument for studying the teaching profession and is sensitive to transformations in teaching practices. Its preliminary psychometric properties support its use in future research and guide subsequent validation stages, including confirmatory factor analyses with larger samples.

Keywords: university teaching, questionnaire, higher education, Educational sciences, labor conditions, digital teaching skills.

Resumen

Este trabajo forma parte de una investigación más amplia sobre ingreso, permanencia y virtualización en la universidad pública. El objetivo es presentar el diseño y la validación preliminar del Cuestionario sobre Oficio Docente en Educación Superior (CODES), instrumento que operacionaliza el oficio docente en tres dimensiones: prácticas pedagógicas, ámbito organizacional y usos de tecnologías digitales. El CODES se elaboró como cuestionario en línea, con escalas Likert de cinco opciones de respuesta y se encuentra en etapa preliminar de desarrollo psicométrico. La validez de contenido se evaluó mediante juicio de 15 especialistas y se calculó el coeficiente V de Aiken por ítem, con valores entre 0,96 y 1,00. La prueba piloto contó con la participación voluntaria de 66 docentes de 11 unidades académicas de una universidad pública del centro de Argentina. Se obtuvieron valores elevados de consistencia interna, con un Alfa de Cronbach de 0,87 y un Omega de McDonald de 0,91 del constructo general. La estructura dimensional propuesta fue confirmada por análisis factorial exploratorio (AFE) preliminar, sin contar con análisis factoriales confirmatorios. El CODES constituye un instrumento contextualizado y pertinente para el estudio del oficio docente, sensible a las transformaciones en las prácticas en docencia. Sus propiedades psicométricas preliminares sustentan su aplicación en investigaciones futuras y orientan etapas posteriores de validación, entre ellas los análisis factoriales confirmatorios con muestras más amplias.

Palabras clave: docencia universitaria, cuestionario, educación superior, ciencias de la educación, condiciones de trabajo, competencias digitales docentes.

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1. Introduction

As part of a research project aimed at analyzing issues related to admission, retention, and virtualization in higher education, this study presents the design and content validation of the Questionnaire on Teaching Practice in Higher Education (*Cuestionario sobre la Práctica Docente en la Educación Superior*, CODES). This project is being conducted at a public university in central Argentina that has undergone a rapid process of virtualization—a shift that has intensified significantly since the onset of the COVID-19 pandemic. Within this context, the development of psychometric and educational instruments was examined, resulting in the definition of three theoretical dimensions to structure the CODES: pedagogical practices, the organizational environment, and the use of digital technologies.

The importance of developing specific instruments to study university instruction is closely linked to the pivotal role of faculty in institutional engagement and student academic trajectories, particularly during the first years of study (Coulon, 2019). Faculty teams are key actors in driving institutional improvements related to enrollment, retention, and graduation (Johnston, 2013; Santos Sharpe, 2020; Silva Laya, 2011; Sotelo, 2025). Given that university dropout rates are associated with multiple systemic factors (Tinto, 1993; Silva Laya, 2015; Vercellino, 2021), it is critical to advance research that examines the pedagogical and working conditions of teaching, while accounting for the structural transformations of higher education systems. Such research provides essential empirical evidence to inform policies aimed at democratizing access and retention in higher education (Pierella et al., 2020; Juarros et al., 2016).

The teaching profession has been conceptualized through several complementary theoretical lenses. Alliaud (2014) emphasized that educational quality is the product of the collective responsibility of the teaching profession. Dubet (2006) defined teaching as a complex process of subjectivation and socialization shaped by diverse and often competing demands. Meanwhile, Alliaud and Antelo (2009) highlighted its historical and professional nature, emphasizing the situated construction of knowledge rooted in practical experience. University teaching involves a dynamic relationship among faculty expertise, disciplinary content, and students, requiring a

deliberate and conscious stance regarding learning objectives and pedagogical processes (Maggio, 2022; Pierella et al., 2020). Grounded in these perspectives, the teaching profession was operationalized in this study through three distinct dimensions: pedagogical practices, the organizational context, and the use of digital technologies.

Concerning pedagogical practices, this dimension is grounded in a broad conception of university teaching as a set of intentional actions guided by educational objectives and mediated by interactions between faculty and students (Montes Pacheco et al., 2017). These practices encompass planning tasks, instructional strategies, assessment methodologies, and classroom interaction. Furthermore, these practices are frequently rooted in academic traditions that prioritize disciplinary mastery and favor lecture-based formats, within a systemic context where faculty members typically have limited formal pedagogical training, face excessive workloads, and experience a disconnect between their teaching and research duties (Borgobello et al., 2024).

The organizational context dimension captures the working conditions of university faculty. From a multidimensional perspective on labor, this dimension encompasses institutional, contractual, material, temporal, symbolic, and subjective aspects. In Argentina's public universities, the work of faculty teams takes place within a structurally precarious environment characterized by temporary contracts, part-time appointments, multiple job holdings (*moonlighting*), and unstable career paths, further compounded by insufficient salaries and an intensification of workloads that has worsened due to the transition to online teaching recently. Additionally, the subjective experiences of this precariousness manifest in processes of symbolic devaluation, loss of professional recognition, and feelings of job-related unease (Walker, 2024). Other critical factors within this dimension include the internal organization of academic departments, physical infrastructure, technical and pedagogical resources, and institutional teacher-training programs (Fernández-Lamarra and Pérez-Centeno, 2011; Pierella et al., 2020).

In a higher education landscape marked by the sustained incorporation of virtualization processes—which were heavily accelerated by the 2020 pandemic—the dimension of digital technology use becomes highly significant (Lovey and Borgobello,

2025). Due to the COVID-19 pandemic and the subsequent enforcement of Preventive and Mandatory Social Isolation (*Aislamiento Social, Preventivo y Obligatorio*, ASPO), digital technologies became the primary channel for interaction and continuity within educational communities (Copertari, 2020). It is worth noting that the use of virtual classrooms only became fully established among certain groups of teachers and students after the onset of this crisis (Borgobello et al., 2024). Regarding the adoption and integration of digital technologies by educators, several studies have revealed sharp inequalities linked to prior experience, personal attitudes, institutional resistance, and emotional responses (Roatta and Tedini, 2021; Silas and Vázquez, 2020). Furthermore, other research has highlighted issues of accessibility and disparities in access to devices, framing these as matters of educational rights (Borgobello et al., 2024; Guarnieri, 2018). The technical and pedagogical challenges posed by the sudden reliance on Moodle platforms underscored the vital importance of having robust institutional tools, promoting collaborative work, and strengthening teacher training before implementation. This includes recognizing both the platform's potential and its limitations from a democratic perspective of equitable access to knowledge (Lovey and Borgobello, 2025; Santos Sharpe, 2020).

In psychological and educational research, questionnaires are widely utilized as standard instruments for data collection and analysis (Hernández et al., 2008). Recently, several studies have focused on the design and validation of instruments in higher education, employing expert judgment and Aiken's V-coefficient to establish content validity. In the international arena, Álvarez-Álvarez et al. (2022) validated a questionnaire on classroom interaction in university teaching in Spain, while Palomares Ruiz et al. (2023) designed and validated an instrument assessing the "learning to learn" competency with participants from Spain, Mexico, and Chile. Similarly, in the Latin American context, Torres Roldán et al. (2024) presented the design and validation of a questionnaire to assess competency-based teaching performance in postgraduate courses. This body of research demonstrates the consolidation of rigorous content-validation procedures for instruments targeting university instruction, which serve as crucial preliminary stages of psychometric develop-

ment prior to confirmatory factor analysis. Despite these advances, many existing methodological tools tend to focus on isolated aspects of the teaching profession, such as pedagogical practices, isolated competencies, conceptions of learning, or the use of technology (Álvarez Rojo et al., 2009; García et al., 2014; Moreno-Murcia et al., 2015; Tuapanta Dacto et al., 2017). Consequently, they offer little integration across different dimensions and fail to connect these practices with the broader structural conditions and characteristics of university organizations (Borgobello et al., 2024). In this regard, the objective of this study is to present the design, content validation, and initial pilot application of the CODES as a contextualized tool for studying the teaching profession at public universities. The instrument is presented in its preliminary stage of psychometric development, before undergoing confirmatory factor analysis.

2. Methods

This study presents an instrumental research project (Hernández et al., 2008) focused on the design and validation of an *ad hoc*, semi-structured questionnaire: the CODES. The objectives guiding its design were: to identify the pedagogical practices and working conditions of faculty members at the institution; to understand academic needs and attitudes toward online modalities within the context under study; and to describe assessments and uses of digital technologies at a public university. The case university has an enrollment of more than 85,000 students and a faculty of 6,400 members, and is located in central-eastern Argentina.

The instrument was structured around three core dimensions that operationalize the construct of the teaching profession: (1) teaching practices; (2) organizational context (comprising institutional aspects, working conditions, workload, job security, resources, organization, and training); and (3) the adoption and use of digital technologies. Following the framework of Hernández et al. (2008), the design and administration process involved defining the core objectives, reviewing existing literature and instruments (Page et al., 2021; Furguerle et al., 2016), identifying the target variables (teaching practices, academic environment, and virtualization), developing the initial tool, consulting with subject-matter

specialists, conducting a pilot test with university instructors, and analyzing the criteria of reliability, validity, and objectivity. Data collection for the pilot test took place during the second quarter of 2023, with data curation and cleaning performed before conducting the descriptive statistical analysis (Ynoub, 2011).

Regarding the operational definition of the construct, the dimensions of the CODES present indicators associated with specific items, and their formulation was strictly guided by theoretical foundations (Table 1).

Table 1. Operational definition of the CODES: dimensions, indicators, and theoretical basis

Dimension	Indicators and items Associated	Theoretical Theoretical
Teaching Practices	Planning and organization of instruction (items 14D, 17B); teaching and assessment strategies (items 14E, 17H, 18); pedagogical interaction and rapport with students (items 14A, 14B, 14C, 14F, 14G, 14J); teacher performance, motivation, and professional development (items 14H, 15, 17A, 17C, 17D, 17E, 17F, 17G, 17I).	Montes Pacheco et al. (2017); Maggio (2022); Borgobello et al. (2024).
Organizational context	Contractual and workload conditions (items 4, 5, 12, 13); institutional infrastructure and resources (items 16A, 16C, 16D, 16K); recognition, communication, and institutional ties (items 14I, 14K, 16B, 16J, 16L).	Fernández-Lamarra and Pérez-Centeno (2011); Walker (2024); Pierella et al. (2020).
Uses of digital technologies	Availability of devices and basic digital skills (items 19, 25); educational uses of ICT and artificial intelligence (items 20A, 20C, 20D, 20E); communication mediated by digital technologies (items 21, 22, 23, 24).	Copertari (2020); Roatta and Tadini (2021); Guarnieri (2018); Lovey and Borgobello (2025).

Note: Prepared by the authors. Item numbering refers to Table 1.

The CODES was developed for online administration and consists of 66 items, predominantly closed-ended questions using five-point Likert scales (e.g., 1 = *Very poor* to 5 = *Excellent*). It incorporates a central, neutral option (3) to facilitate interpretation and mitigate respondent fatigue (Matas, 2018; Torres, 2022; Urcádiz and Monroy, 2022), alongside an optional open-ended question at the end of each section. Content validity was evaluated through expert judgment (Escobar-Pérez and Cuervo-Martínez, 2008), for which a second online Likert-scale questionnaire was developed to assess the relevance and wording of the CODES items. Researchers holding doctoral degrees, specializations, or specific expertise in psychodiagnostics and instrument design were invited to participate, resulting in a panel of 15 specialists.

For the pilot study, faculty members from various undergraduate programs at the host university were invited to participate, yielding 66 responses from 11 of the 12 academic departments; the programs in Education, Medicine, and Psychology were

excluded as they were designated for subsequent stages of the project. The participants' average age was 44 years, with an average of 15 years of teaching experience, and the majority were first-year faculty members holding full-time positions. For the descriptive analysis, response values were grouped into three categories: unsatisfactory or low-frequency ratings (scores 1 and 2); average or neutral responses (score 3); and satisfactory or high-frequency ratings (scores 4 and 5).

Reliability and validity statistical calculations were performed using R (v. 4.3.2) and RStudio (v. 2023.09.1). Measures of internal consistency included Cronbach's alpha and McDonald's omega. Content validity was assessed using Aiken's V (Robles, 2018; Escobar-Pérez and Cuervo-Martínez, 2008). Aiken's V coefficient was calculated using the formula $V = S / [n(c - 1)]$, where S is the sum of the differences between the score assigned by each panel member and the minimum value on the rating scale, n is the number of panel members, and c is the number of categories on that scale (Robles, 2018). Each of the

26 items in the evaluation questionnaire was rated by the expert panel across two independent criteria—conceptual relevance and clarity of wording—enabling the calculation of an Aiken's V value per item and per criterion (Table 2). Values greater than 0.70 were considered empirical evidence of adequate content validity (Escobar-Pérez and Cuervo-Martínez, 2008). A detailed interpretation of the exploratory factor analysis (EFA) was deliberately omitted from this article due to the size of the pilot sample ($n =$

66), which was limited relative to the total number of items (66 items). Although preliminary analyses were conducted to explore the internal structure of the questionnaire, EFA will be addressed in later stages of the research once the recommended sample size relative to the number of items is achieved. For the final version of the CODES (Table 1), minor wording adjustments were made to statements 7, 9, 10, 12, and 15, and additional response options were incorporated into questions 4, 11, 16, and 18.

Table 1. *Statements, questions, and items of the CODES*

Statements / Questions	Items / Scales
A. Informed Consent	
1. How old are you?	Numeric response
2. What gender do you identify as?	A_Female B_Male C_Non-binary D_I'd rather not say F_Other
3. In which of the following university degree programs do you teach?	A_Education B_Medicine C_Psychology
4. What is your teaching position at the UNR?	A_Second-level teaching assistant (student) B_First-level teaching assistant C_Lab instructor D_Assistant professor E_Associate professor F_Full professor G_Other
5. What is your teaching load?	A_Part-time B_Semi-full-time C_Full-time
6. How many full years of experience do you have in university teaching?	Numeric answer
7. In which department or academic discipline do you carry out your teaching duties?	Short answer
8. In which year of the degree program's curriculum is the course you teach offered?	A_1st B_2nd C_3rd D_4th F_5th G_6th
9. How many hours per week do you spend teaching this course?	Numerical answer
10. Approximately how many students began taking the course with you last year?	Numeric answer
11. Approximately how many students passed (made up their credits and/or advanced) at the end of the course last year with you?	Numerical answer
12. In addition to your teaching job, do you have any other paid jobs?	A_Yes B_No
13. If you have other paid jobs, what do you do?	Short answer (optional)

Statements / Questions	Items / Scales
14. In general, how do you feel about the following aspects?	A_ The support you provide to students in their learning and teaching processes B_ The guidance you provide to students regarding the institution and university life C_ The assistance you offer students in organizing and managing their study time D_ The planning and organization of your classes E_ Your academic standards and criteria for coursework and assessments F_ The respect shown toward students during assessment processes G_ The way you encourage and foster classroom dialogue H_ Your professional satisfaction and enjoyment when going to the university I_ Your institutional connections outside of class (e.g., with administrative and support staff) J_ Your communication and interaction with students K_ Your professional and working relationships with fellow faculty members
15. In general, how do you feel about the following aspects?	A_ In department meetings B_ During your office hours C_ In tutoring or supervision sessions
16. In general, beyond your specific subject area, based on your experience at the college, how would you rate the following aspects?	A_ The functioning of administrative offices and administrative tasks B_ Support and guidance provided by the faculty union C_ The physical infrastructure (e.g., furniture, classroom conditions, and acoustics) D_ Technological devices and resources (e.g., Wi-Fi, computers, projectors, and audio equipment) E_ Workload F_ Course scheduling options G_ Assessment and evaluation procedures H_ Communication between faculty and students I_ Communication and interaction among faculty members J_ Scholarship and funding programs for faculty K_ Non-academic services and activities offered by the university (e.g., dining halls, sports, recreation, and health centers) L_ Academic and teacher-training programs offered by the university (e.g., teaching workshops, seminars, courses, and conferences)
17. How would you rate yourself in relation to the following aspects?	A_ Your own teaching performance B_ The time you devote to class preparation C_ Your motivation to carry out teaching duties D_ Your participation in professional development opportunities offered by the university E_ Your participation in academic conferences and seminars F_ Your compliance with professional and work obligations related to your teaching position G_ Your subject-matter and disciplinary knowledge (specific to the subjects you teach) H_ Your teaching methodologies and approaches I_ Your pedagogical and instructional skills
18. What types of assessments do you assign to your students?	A_ Multiple-choice written exams B_ Written exams with open-ended prompts C_ Individual written assignments D_ Group written assignments E_ Individual oral assessments F_ Group oral assessments G_ Class participation H_ Synchronous virtual sessions (e.g., via video conference) I_ Asynchronous virtual assessments (e.g., forums or assignments on the virtual campus) J_ Other
19. Regarding your teaching work, to what extent do you agree with the following statements?	A_ I have appropriate devices for my teaching tasks (e.g., a computer) B_ I have general knowledge of using digital technologies (e.g., downloading and installing applications, creating and editing files, connecting audio and video) C_ I find it easy to use the virtual campus (UNR Communities) D_ I have good internet access for my academic activities E_ I have received specific training in the use of ICT in teaching
20. In relation to your teaching work, how often do you use the following resources?	A_ Teaching strategies using artificial intelligence (e.g., ChatGPT) B_ ICT for evaluating or assessing students C_ Digital learning resources you have designed yourself (e.g., slide presentations, videos, podcasts, audio files) D_ Digital learning resources designed by others E_ Shared documents for collaborative work with your students (e.g., Google Docs) F_ Shared documents for collaborative work with fellow faculty members in your department or division (e.g., Google Docs) G_ Synchronous online formats (video calls for classes, support, consultations, or tutoring) H_ The virtual campus (UNR Communities)
21. In relation to your teaching work, how often do you use UNR communities to communicate with...?	A_ Your students B_ Your fellow faculty members C_ The administrative offices or departments of your school or the university

Statements / Questions	Items / Scales
22. In relation to your teaching work, how often do you use email to communicate with...?	A_Your students B_Your teaching colleagues C_The administrative offices or departments of your college or the university
23. In relation to your teaching work, how often do you use social media (e.g., Facebook, Twitter/X, Instagram) to communicate with...?	A_Your students B_Your fellow faculty members C_The administrative offices or departments of your college or university
24. In relation to your teaching work, how often do you use mobile instant messaging (e.g., WhatsApp) to communicate with...?	A_Your students B_Your fellow faculty members C_The administrative offices or departments of your college or university
25. In general, how would you rate your skills in using ICTs in an educational setting?	Scale: Very poor – Excellent

Note: Developed in-house. Final version of CODES.

Ethical considerations are governed by the institutions that approved and funded the project, in compliance with Personal Data Protection Law No. 25,326 and the host university's resolutions on research ethics. The project is funded by CONICET, and the authors declare no conflicts of interest.

3. Results

Using the data obtained from the expert judgment (n=15), the validity of the instrument was calculated using Aiken's V, yielding results ranging from 0.96 to 1.00 for each item (Table 2).

Table 2. Content validity indices (Aiken's V) for conceptual relevance and clarity of wording of the 26 CODES statements (A–1 to 25)

Items	Aiken-Relevance (Mean)	Range	Aiken's V – Editorial (Average)	Rank
Item 1	1.00	1.00–1.00	1.00	1.00–1.00
Item A-5	0.99	0.98–1.00	1.00	0.99–1.00
Items 6–10	0.98	0.97–0.99	0.98	0.96–0.98
Items 11–15	0.98	0.98–0.98	0.98	0.98–0.98
Items 16–20	0.99	0.98–1.00	0.99	0.98–0.99
Items 21–25	1.00	1.00–1.00	0.99	0.99–1.00

Note: Author's own calculation. Aiken's V calculated based on expert judgment (n=15). Values greater than 0.70 indicate adequate content validity (Escobar-Pérez and Cuervo-Martínez, 2008).

Additionally, measures of internal consistency were calculated based on the 66 responses from the pilot test, yielding Cronbach's alpha values ranging from 0.79 to 0.87 and McDonald's omega values ranging from 0.83 to 0.91 (Table 3).

Table 3. Internal consistency values for the CODES dimensions

Construct	No. of items	Cronbach's alpha	McDonald's omega
General	66	0.87	0.91
Teaching Practices	29	0.81	0.90
Organizational Context	11	0.82	0.87
Virtualization	26	0.79	0.83

Note: Author's own calculations. α = Cronbach's alpha; ω = McDonald's omega. The values correspond to the pilot administration of the CODES (n = 66).

Descriptive analysis was performed on both quantitative and qualitative variables. The mean age of the participants was 44 years (SD = 11). Regarding gender identity, 71% (n = 47) identified as female, 27% (n = 18) as male, and 2% (n = 1) as non-binary. The average teaching experience was 15 years (SD = 10). In terms of academic ranks, 44% (n = 29) were Senior Teaching Assistants (*Heads of Practical Works*), 29% (n = 19) were Assistant Professors, 18% (n = 12) were Full Professors, 8% (n = 5) were Senior Lecturers, and 2% (n = 1) were Associate Professors. Regarding appointment types, 53% (n = 35) held full-time positions, 23% (n = 15) held mid-time positions, and 24% (n = 16) held part-time positions. Sixty-one percent (n = 40) taught courses in the first through third years of study, averaging five hours of face-to-face class time per week with students (SD = 3). Additionally, 73% (n = 48) held another paid job outside the institution.

In terms of the academic environment, several aspects were positively evaluated: respect shown toward students during assessments (99%, n = 65), professional enjoyment of attending the university (92%, n = 61), and a strong tendency to encourage dialogue in class (91%, n = 60). Most respondents reported feeling very good or excellent during office hours (86%, n = 57), department meetings (81%, n = 52), and tutorials or supervision sessions (76%, n = 50). In contrast, teaching fellowship programs (36%, n = 24), union support (29%, n = 19), and the institution's physical infrastructure and resources (26%, n = 17) were rated negatively, with the latter resource-related aspect being rated as "fair" by 46% (n = 30).

Regarding teaching practices, respondents rated their fulfillment of job duties (92%, n = 61), subject-matter knowledge (89%, n = 59), and motivation to carry out their teaching tasks (88%, n =

58) highly. Participation in professional training opportunities offered by the university was the only item that received predominantly negative assessments (15%, n = 10). Regarding assessment types, the most frequently utilized were written exams with open-ended prompts (67%, n = 44), group written assignments (62%, n = 41), and group oral exams (58%, n = 38). Conversely, multiple-choice exams (61%, n = 40), individual oral exams (38%, n = 25), and individual written assignments (33%, n = 22) were the least commonly used.

Regarding the availability and use of digital technologies, 86% (n = 57) of the respondents stated that they found the virtual campus (Moodle) easy to use. Eighty percent (n = 53) reported possessing general knowledge regarding the use of digital technologies, and 76% (n = 50) indicated that they had a home internet connection of sufficient quality for academic activities. Use of the virtual campus was frequent (82%, n = 54), as was the utilization of digital resources designed specifically for their courses (82%, n = 54) and shared documents for collaborative work with colleagues (70%, n = 46). Conversely, a high percentage of faculty did not utilize instructional strategies based on artificial intelligence (66%, n = 43), nor did they use collaborative documents shared with students (41%, n = 27) or digital technologies specifically for assessment purposes (39%, n = 25).

The virtual campus emerged as the most commonly used channel of communication with students (73%, n = 48), whereas email was the primary medium for communicating with administrative offices (86%, n = 57) and with fellow faculty members (76%, n = 50). Instant messaging was the most widespread communication channel among colleagues (88%, n = 58), but was used significantly less frequently with students (20%, n = 13) and adminis-

trative offices (36%, $n = 24$). Social media was rarely used across all domains, with between 77% ($n = 51$) and 80% ($n = 53$) of respondents indicating they used it rarely or never. Finally, 65% ($n = 43$) of the surveyed faculty expressed a positive self-assessment of their overall digital competencies.

It should be noted that these results correspond to an exploratory analysis conducted during a preliminary stage of the instrument's development, given the limited size of the pilot sample ($n = 66$) relative to the total number of items; therefore, they constitute initial indications rather than confirmatory evidence of the factor structure. The preliminary EFA identified three factors corresponding to the core dimensions of the teaching profession: pedagogical practices (PP), organizational context (OC), and virtualization (V). The most prominent factor loadings corresponded to PP (items 17A with 0.74; 14C with 0.68; and 14A with 0.65), OC (items 16C with 0.70; 16A with 0.67; and 16H with 0.58) and V (items 25A with 0.71; 19B with 0.66; and 20C with 0.59). Items with weak loadings (below 0.30) were also identified, such as PP 14H (0.23), 14I (0.26), and 15B (0.29), as well as several items from the V dimension (18A, 18B, 18C, 21A, 22A) which exhibited low loadings across all factors. In addition, cross-loadings were observed for items PP 14E (0.46 on PP and 0.47 on OC) and V 20B (0.49 on V and 0.37 on PP).

4. Discussion and Conclusions

The results of the CODES pilot test demonstrated the theoretical and empirical relevance of the dimensions selected to operationalize the teaching profession in higher education. The practice of teaching in higher education can be understood as a complex, historical, and situated practice shaped by contextual, occupational, and pedagogical factors, consistent with the arguments put forward by Dubet (2006), Alliaud and Antelo (2009), and Alliaud (2014). The interplay of these variables is pivotal for understanding the ways in which teaching and learning processes take shape within public universities. It is worth noting that this landscape has undergone structural transformations recently due to increasing virtualization and the rapid development of generative artificial intelligence, both of which have had profound repercussions on institutional enrollment

and student retention (Coulon, 2019; Johnston, 2013; Silva Laya, 2015; Tinto, 1993; Vercellino, 2021).

Concerning faculty performance, the persistence of traditional teaching practices was evident, reinforced by the centrality of disciplinary knowledge (Borgobello et al., 2024; Fernández Lamarra and Pérez Centeno, 2011). This trend was reflected in the predominant assessment methods—such as written assessments with open-ended questions and group projects—and in the limited incorporation of digital technologies or artificial intelligence tools into classroom instruction. These results can be interpreted as a disconnect between organizational discourses that promote innovative techno-pedagogical perspectives and their actual, effective implementation (Lovey and Borgobello, 2025). In this context, virtualization appears to function as a recontextualization of pre-existing educational formats rather than a profound redefinition of pedagogical concepts (Furguerle et al., 2016; Maggio, 2022).

Faculty participation in professional development opportunities takes on deeper meaning when viewed in relation to the systematic underfunding of public universities in Argentina. Consistent with Walker's (2024) argument, opportunities to access didactic and pedagogical training are severely constrained by working conditions characterized by excessive workloads, holding multiple jobs (*moonlighting*), and full-time employment commitments. Even when commitment and motivation toward professional development are evident, the situated construction of knowledge is heavily conditioned by structural and material factors that go far beyond individual choices (Alliaud and Antelo, 2009; Borgobello et al., 2024).

Previous research on the working conditions of university faculty in Argentina is highly consistent with the findings of this study. As mentioned earlier, the high number of faculty members holding multiple jobs and high teaching workloads reaffirm the situation of structural precariousness that characterizes university faculty (Walker, 2024). The data revealed the multidimensional and unequal nature of this precariousness. Positive evaluations were observed regarding the academic climate, respect for students, and a strong sense of organizational belonging. However, notable criticisms were raised regarding the infrastructure and physical resources available for carrying out teaching duties. The coe-

xistence of these faculty assessments can be interpreted as a complex experience of precariousness, which combines a high level of professional commitment with inadequate material conditions, ultimately resulting in limited opportunities for professional development.

In line with Walker (2024), the results allowed us to distinguish between “being in” a precarious situation—as expressed in job stability, resources, and teaching dedication—and “feeling” that precariousness, which relates to recognition, organizational support, and future career prospects for teachers. This echoes Dubet’s (2006) view of teaching as a process of subjectivation and socialization shaped by demands that can often be contradictory. The inclusion of the organizational environment dimension in the CODES was crucial for capturing these vital variables of the teaching profession that extend beyond individual pedagogical practices.

Regarding the use of digital technologies and in line with the literature reviewed (Lovey and Borgobello, 2025; Santos Sharpe, 2020; Sotelo, 2025), the results indicated a basic and uneven adoption of these tools, with the institutional virtual campus serving as the primary medium of communication between faculty and students. Despite this, the integration of more complex technologies and opportunities for innovation in assessment remain limited. Once again, the development of digital competencies among faculty is intrinsically linked to working conditions, university training programs, and the recognition of teaching and learning processes as the central dimension of the teaching profession (Maggio, 2022).

Moving beyond the instrumental uses of technologies and individual teaching skills requires institutional policies that promote a critical, reflective, and pedagogically situated integration (Guarnieri, 2018). In this sense, the techno-pedagogical uses identified by CODES can be interpreted as a situated expression by the teaching faculty regarding digital skills—understood as pedagogical, relational, and organizational knowledge emerging from specific institutional contexts.

The empirical evidence reinforced the idea of a close relationship between the teaching role and processes of student institutional affiliation. As argued by Tinto (1993) and Coulon (2019), college retention depends on academic experiences media-

ted by pedagogical practices, forms of assessment, interactions, and organizational conditions that go beyond individual student variables. In line with these perspectives, the three dimensions identified by the CODES could deepen our understanding of student phenomena that occur primarily during the first years of college and contribute to increased dropout rates (Silva Laya, 2015).

The pilot administration of the CODES and the analysis of the internal consistency of the responses provided preliminary evidence of the instrument’s content validity and contextual appropriateness. This study presented the design of the CODES alongside its preliminary validation and reliability. The scores obtained from expert review allowed for reflection on content validity in terms of both conceptual relevance and clarity of wording. Furthermore, the results of the pilot test confirm the relevance and empirical sensitivity of the proposed dimensions for capturing the complexity that characterizes the teaching profession at public universities. It should be noted that, although the preliminary results of the EFA were limited by the sample size, they provided initial evidence for construct validity and guided the revisions that led to the final version.

This exploratory study opens the door to further research using methodological designs with different characteristics and larger samples, which would enable the validation of the instrument for the situated analysis of the various dimensions that make up the teaching profession. In this regard, future research could focus on confirmatory factor analysis, on deepening the discussion regarding the structure emerging from the EFA, and on studying the relationship between the dimensions of the CODES and variables related to university admission, institutional affiliation, and student retention.

The instrument presented in this study is considered a valuable resource for data collection in research involving university faculty, contributing to reflection on the importance of public policies aimed at improving their working conditions. The study of the teaching profession holds strategic value for the design of policies aimed at democratizing equitable access to higher education, particularly in the context of the underfunding of Argentine public universities and deepening social inequalities.

Given the current situation of Latin American public universities—marked by structural changes

and the delegitimization of academic work—the CODES is proposed as a tool for critically analyzing organizational policies regarding teacher training, work organization, and the use of digital technologies, in relation to student admission and retention processes at the university. Recognizing the tensions between professional commitment, working conditions, and institutional demands is key to understanding the complexity of the teaching profession. This is essential for building a public university that is more inclusive and equitable, and capable of supporting diverse student trajectories in hostile contexts that threaten public education.

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Authorship Statement – CRediT Taxonomy

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Juan Pablo Lovey	Funding acquisition; conceptualization; data curation; formal analysis; research; methodology; validation; visualization; writing—original draft; and writing—revision and editing.
Dr. María Paula Pierella	Funding acquisition; conceptualization; methodology; and writing—review and editing
Dr. Ana Borgobello	Funding acquisition; conceptualization; methodology; and writing—review and editing.

Statement on the Use of Artificial Intelligence

The authors DECLARE that during the preparation of the article “*Design and Validation: CODES Questionnaire on Teaching at the University*,” an open-access artificial intelligence tool developed by the Universidad Iberoamericana in Mexico was used to promote the use of inclusive language and gender-sensitive writing. The tool is available at: <https://lenguaje-incluyente.ibero.mx/>

Miscellaneous Section (*Sección Miscelánea*)



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Didactic communication: a case study in two spanish universities

La comunicación didáctica: estudio de caso en dos universidades españolas

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Abstract

The integration of emotion, motivation, language, and thought into training processes in Higher Education is a key factor that fosters the comprehensive development of students. The main objective of this research work is to analyze didactic communication as a tool that influences the development of the cognitive, emotional, and professional capacities of university students, based on the experiences and perceptions of the teaching staff. A qualitative research methodology is employed through the biographical-narrative method, and the AQUAD 7 software program is used for data analysis. The results show that university professors consider didactic communication as a comprehensive training tool that promotes emotions and activates students' thinking in their educational process at the university. Furthermore, didactic communication is not limited to the mere transmission of information, but rather favors the comprehensive development of cognitive, emotional, and social capacities. This study concludes that university didactic communication must be integrated from an educational practice that stimulates the personal and affective dimensions of students to achieve quality learning in Higher Education. In this way, it is evidenced that didactic communication constitutes the tool par excellence for successful university interaction.

Keywords: communication, higher education, learning, life skills, didactic, educational practice.

Resumen

La integración de la emoción, la motivación, el lenguaje y el pensamiento en los procesos formativos en la Educación Superior es un factor clave que favorece la formación integral del estudiantado. Este trabajo de investigación tiene como objetivo principal analizar la comunicación didáctica como herramienta que influye en el desarrollo de las capacidades cognitivas, emocionales y profesionales del estudiantado universitario, a partir de las experiencias y percepciones del profesorado. Se emplea una metodología de investigación cualitativa a través del método biográfico-narrativo y, para el análisis de los datos, se utiliza el programa informático AQUAD 7. Los resultados muestran que los docentes universitarios consideran la comunicación didáctica como una herramienta de formación integral que promueve las emociones y activa el pensamiento de los estudiantes en su proceso formativo en la institución universitaria. Además, la comunicación didáctica no solo se limita a la mera transmisión de la información, sino que favorece el desarrollo integral de capacidades cognitivas, emocionales y sociales. Este estudio concluye que la comunicación didáctica universitaria ha de integrarse desde la práctica educativa que permita estimular las dimensiones personales y afectivas en el estudiantado para lograr un aprendizaje de calidad en la Educación Superior. De este modo, se evidencia que la comunicación didáctica constituye la herramienta por excelencia para la interacción universitaria de éxito.

Palabras clave: comunicación, enseñanza superior, aprendizaje, competencias para la vida, didáctica, práctica educativa.

1. Introduction

Communication is the primary tool that faculty members use in the classroom to interact with students (Santos et al., 2025) and achieve excellence and quality in learning (Shailja, 2022). Consequently, communication serves the professional development of university students and the comprehensive development of the cognitive, emotional, and social skills that will transform them into competent professionals, transcending the basic function of transmitting and disseminating information for storage and reproduction (Hendrie and Bastachini, 2020).

Drawing on various pedagogical and teaching approaches (Kusters et al., 2026), language theories, and neuroscientific findings (Hickok, 2014), professors' communicative practices can indeed become a transformative tool for students' thinking, emotions, and motivation (Yildirim, 2021). This potential enables learning processes to activate students' cognitive, personal, and emotional capacities, allowing them to develop the competencies required in their professional fields (Hernández, 2022). Didactic communication thus becomes the pathway through which higher education students learn to think, feel, act, and be (Delors, 1996; Herrera-Araya, 2023; Jurado and Bravo, 2020), preparing them to face the challenges of the professional world and 21st-century society.

Sociocultural theory (Vygotsky, 1978) emphasizes that language and thought are intimately linked. While communication in the classroom is traditionally associated with verbalizing ideas and knowledge, the mere verbalization of thoughts or existing knowledge does not guarantee the holistic development of university students. The instructor must deliberately use communication to stimulate critical, reflective, and creative thinking, thereby promoting meaningful learning that is highly applicable in real professional contexts, such as university learning environments (Estévez et al., 2021).

To achieve this, the process of didactic communication must adhere to two guiding principles of professional education. The first holds that university teaching must design learning experiences to develop comprehensive competencies: learning to think, act, and be. As Gerhard Bunk's (1994) competency-based approach points out, the goal is to communicate in the classroom to promote the

practical application of knowledge and prepare students for professional life. The second principle of a communicative nature is grounded in Habermas's (1981) theory of communicative action, which posits that language only becomes a meaningful act when it is comprehensible, true, honest, and functional, thereby enabling the co-construction of mutual understanding within the classroom.

In addition to these characteristics, didactic communication must be practical, strategic, and transformative (Wall and Hall, 2016), integrating cognitive and emotional dimensions that enable problem-solving in real-world professional practice.

In this regard, neuroscience has shown that positive emotion enhances neural activation and cognitive readiness for learning (Damasio, 2018; Luque and Lucas, 2020). Motivation, intrinsically linked to self-actualization and recognition (Maslow, 2016), is the driving force that encourages higher education students to actively engage with their education (De Lucas et al., 2025). An emotionally stimulating environment fosters not only understanding but also creativity, critical thinking, and problem-solving. Managing students' emotions during instructional communication, alongside fostering active participation and creating a positive classroom climate, enables meaningful and lasting learning. Therefore, the process of communicative interaction in the classroom must generate learning and curricular experiences (Nanclares and Tobón-Marulanda, 2021) that develop students' professional, cognitive, and personal skills.

On this same basis, the development of critical and creative thinking is essential in higher education. The former enables students to analyze, evaluate, and draw valid conclusions, while the latter fosters the generation of innovative, flexible, and detailed ideas (Swartz et al., 2016). Likewise, complex thinking, according to Edgar Morin (2009), and metacognition, according to John Flavell (1993), are indispensable competencies for students to understand the reality of their profession in a comprehensive manner and to reflect on their own learning to improve it (Cacheiro-González et al., 2020). Therefore, faculty communication in higher education must foster these skills within the classroom by using cognitive stimulation tools during the interactive teaching process, which facilitate self-reflection, self-assessment, and the transfer of knowledge to different contexts (Swartz et al., 2016).

In short, didactic communication in university teaching must go beyond the mere transmission of knowledge and become an instrument of holistic education (Koivuniemi et al., 2019). To be truly effective, it must integrate the cognitive, emotional, and motivational aspects of learning; promote critical, creative, and complex thinking, as well as metacognition; encourage students to learn to think and act professionally (Mora, 2020); and foster the personal and emotional skills that college students need to face the complex and dynamic challenges of their professional and personal lives. Only in this way can learning in higher education achieve excellence and quality.

The main objective of this study is to analyze didactic communication as a tool that influences the development of university students' cognitive, emotional, and professional skills, based on the experiences and perceptions of higher education faculty. Specifically, the following specific objectives are proposed: (1) to examine higher education faculty members' conceptions of didactic communication and its role in the teaching-learning process; (2) to describe the communication strategies they employ to promote student participation, comprehension, and critical thinking; (3) to analyze their perceptions regarding the relationship between instructional communication and the development of students' abilities (cognitive, emotional, social, and professional); (4) to identify the factors that facilitate or hinder effective instructional communication in the university context; and (5) to propose improvements for the development of teaching communication practices that contribute to the holistic development of students through the affective, motivational, and cognitive dimensions of learning.

2. Methodology

The methodological framework of this study is situated within the paradigm of qualitative research (Flick, 2004; Kelchtermans, 2014), which seeks to interpret teaching experiences related to instructional communication in higher education, viewing it as a pivotal element that promotes the holistic development of students in university classrooms. Specifically, a biographical-narrative approach (Bolívar and Domingo, 2019) is adopted as an educational qualitative research strategy to understand

how university faculty members perceive didactic communication as a cornerstone of students' comprehensive development (Huber et al., 2013).

2.1 Description of the Context and Participants

Based on a purposive, non-probabilistic sample, 48 faculty members working at two Spanish public universities participated in this study. Seventy-five percent are women ($n=36$), and 25% are men ($n=12$).

2.2 Instruments

To collect data, a semi-structured interview featuring both open-ended and pre-determined questions was utilized. Following a qualitative research approach, the interview analyzed the conceptions that teacher candidates hold regarding didactic communication as a tool for holistic education in the university setting, the benefits and challenges of its implementation in higher education classrooms, and alternative proposals that may be useful for its classroom application to promote professional development. The interview protocol was validated by a panel of three experts in Didactics and School Organization who are specialists in qualitative research methodology.

2.3 Procedure

The phases of this study unfolded as follows: in the first phase, university faculty members from two Spanish public universities were contacted. During this initial contact, they were informed of the study's objectives, presented with the contents of the semi-structured interview, and briefed on the ethical principles governing this research—specifically, voluntary participation, data anonymity, the voice recording of interviews for subsequent transcription, and the provision of an informed consent form for their review. In the second phase, a coding system was designed using a deductive approach to analyze the participants' responses using the AQUAD 7 software program (Huber and Gürtler, 2012).

3. Results

The final configuration of the coding system was organized into five overarching themes align-

ned with the study's specific objectives. To present the findings, tables were constructed to display the codes derived from the analysis of the 652 narrative sequences extracted from the participating teachers' accounts. These results are reported as absolute frequencies and percentages (% AF), representing the total number of occurrences identified for each code.

3.1 Theme 1. Didactic Communication as a Tool for Holistic Education in Higher Education

Table 1 contains the codes and subcodes related to Theme 1 of our study, which enabled the analysis of university faculty members' conceptions of didactic communication as a tool for holistic education in university settings. Based on the results obtained for code 1.1, "Knowledge Transmission"—

which achieved the highest percentage compared to the other codes within this theme (35.45%)—it is evident that higher education faculty conceive didactic communication not merely as a communicative act in which academic content is presented, but rather as an intentional communicative process wherein they translate, contextualize, and adapt knowledge according to the characteristics, needs, and level of understanding of the students:

In teaching, we must present the content—i.e., the theory—but with a purpose: we need to contextualize it and adapt it to their level and to practical reality in order to help them internalize it. (Participant 25)

You present the theory, but you adapt it to them. (Participant 35)

Table 1. *Didactic Communication as a Tool for Holistic Education in Higher Education*

Inferential codes	%FA
1.1 Knowledge transmission	35,45 %
1.2 Interaction and dialogue	27,27 %
1.3 Transformative teaching	19,10 %
1.4 Human and Emotional Bond	18,18 %
Total	100 %

Nota. Prepared by the author

Code 1.2, "Interaction and Dialogue," contains the findings through which a substantial portion of the participating teachers (27.27%) perceive didactic communication as a tool for communicative exchange established between teachers and students during the educational process, characterized by active participation, mutual respect, and the co-construction of knowledge:

It is the tool you routinely use to communicate with your students, and they respond because, through your dialogue, you engage them and help them construct the knowledge they need to learn alongside you. (Participant 11)

You communicate to interact with your students so that they can help one another and help you build the wisdom of their professional practice. (Participant 25)

In code 1.3, "Transformative Pedagogical Act," it is determined—albeit to a lesser extent (19.10%)—that, for higher education faculty, didactic communication also encompasses the set of communicative and didactic actions through which the instructor generates meaningful learning experiences that impact the personal, social, and professional development of university students:

It's all those things you do in class, like giving practical examples of real-life cases related to their profession or offering reflective criticism—those are also powerful forms of communication. (Participant 12)

A good part of your classes is devoted to influencing the development of their emotions and thinking—which must be cultivated for their profes-

sion—through examples, real-life cases, critiques... (Participant 42)

Finally, code 1.4, “Human and Emotional Connection” (with a frequency of 18.18%), indicates that, for the participants, instructional communication is closely related to the ability to establish empathetic connections, provide support, and foster an atmosphere of trust that enables holistic university learning:

You foster students’ holistic development through your empathy and the atmosphere of trust you create, which overcomes students’ fear of participating in the classroom. (Participant 15)

You must motivate them through what you communicate, sparking their enthusiasm with your humanity. (Participant 36)

3.2 *Theme 2. Communication strategies used by university faculty to promote students’ professional competencies*

Theme 2 presents the communication strategies that university faculty use to promote student participation, comprehension, and critical thinking. These are outlined in Table 2, with their corresponding code classifications.

Table 2. *University Faculty Members’ Communication Strategies for Holistic University Education*

Inferential codes	%FA
2.1 Verbal	47.54%
2.2 Nonverbal	27.86%
2.3 Technological resources	24.60%
Total	100%

As seen in code 2.1, “Verbal” (47.54%), the participating university faculty members state that they use verbal communication strategies in the classroom to facilitate understanding, encourage participation, and strengthen the teaching-learning process. Through tone of voice, clarity of speech, asking questions, and providing oral feedback, the instructor promotes interaction, critical thinking, and the collaborative construction of knowledge, thereby contributing to the students’ holistic development:

Teaching college students requires you to use verbal communication strategies as your primary resource—clear speech, good voice modulation, and engaging them in class. (Participant 17)

The important thing is for them to construct knowledge with you, so asking good questions and providing feedback are essential. (Participant 40)

Code 2.2, “Nonverbal” (27.86%), related to nonverbal communication strategies, encompasses narratives that emphasize the use of nonverbal communication strategies—understood as the set of gestures, postures, facial expressions, eye contact, and body movements—which, whether used consciously

or spontaneously, are vital for complementing, reinforcing, or nuancing the verbal message during the educational process:

Your gestures, postures, and expressions accompany the process and complement it. (Participant 08)

Your gestures, eye contact, and the way you move and walk around the classroom accompany all communication and lend a sense of closeness and credibility to the discussions taking place in the classroom. (Participant 41)

Finally, a smaller percentage (24.60%) indicated that, for the participants, technological resources constitute a strategic complement to instructional communication, as they facilitate the presentation of content, promote interaction, and encourage student participation (code 2.3, “Technological Resources”):

There are technological resources you rely on to present content and communicate ideas. (Participant 03)

Including web-based resources helps them learn and stimulates their thinking. (Participant 41)

3.3 *Theme 3. The skills that university faculty develop in their students using instructional communication in the classroom*

to describe the skills that higher education faculty develop in students as they facilitate the communicative process in the university classroom.

The results regarding Theme 3 of our study are presented in Table 3, which shows the codes used

Table 3. *Skills developed in students using didactic communication in the classroom*

Inferential codes	%FA
3.1 Emotional	40.62%
3.2 Cognitive	26.25%
3.3 Social	20.63%
3.4 Professional	12.50%

Under code 3.1, “Emotional” (40.62%), the participating professors describe how, in their teaching, they develop skills related to managing positive emotions to foster a healthy and collaborative environment, ensuring that learning is not only cognitive but also affective and social. Below are some illustrative examples for this code:

Through your communication, you help them manage their emotions so they can learn in a more affective way. (Participant 06)

You address their negative emotions so that they can become more positive, engage more with us, socialize more, and participate in the construction of knowledge. (Participant 34)

To a lesser extent, in code 3.2, “Cognitive” (26.25%), faculty also cultivate cognitive skills in higher education students by stimulating critical thinking, problem-solving, creativity, and autonomy in their learning and professional development:

When we communicate, we must get them to think critically, solve problems, and come up with solutions. (Participant 15)

Through the way you interact with them, you must help them learn how to learn using their minds and apply creativity to solve real-world problems. (Participant 28)

Social skills are also highlighted (code 3.3, “Social”; 20.63%) by the participants when they describe how, by fostering instructional communication among university students, they promote interpersonal

skills that enable students to interact, collaborate, and communicate effectively with their instructors and peers within the educational process:

When we conduct classes, we must get them to interact—to talk with us and with their peers—so they can develop social skills. (Participant 09)

What happens is that a dialogue is established among us, and we all collaborate to learn, which requires a social effort. (Participant 17)

Finally, code 3.4, “Professional,” indicates that faculty enhance students’ professional competencies by emphasizing the development of knowledge, skills, attitudes, and values that enable students to perform effectively, ethically, and responsibly in their future professional practice:

You must prepare them through real-world communication training so that they are aware of their responsibility in the profession for which they are preparing. (Participant 35)

Your communication must inspire them to be ethical and responsible. (Participant 46)

3.3 *Theme 4. Factors that facilitate or hinder effective instructional communication in the university educational context*

Table 4 presents the results obtained for the fourth theme, regarding the factors that facilitate or hinder effective instructional communication for the holistic education of students in the university educational context.

Table 4. *Factors that facilitate or hinder effective didactic communication for holistic education*

Inferential codes	%FA
4.1 Teaching experience	37.93%
4.2 Institutional context	24.83%
4.3 Group Characteristics	23.45%
4.4 Infrastructure and Resources	13.79%

Under the first code, “Pedagogical Experience” (code 4.1; 37.93%), the participating professors reveal that their training and experience related to their teaching and communication practices—including the knowledge, practices, and reflections they have developed through their professional work—is a key factor that shapes how they teach, communicate, and interact with their students:

Your experience as a university professor greatly shapes the way communication serves to provide a well-rounded education for your students because you draw on experiences in the classroom that are fundamental and stimulating. (Participant 15)

Your own solid foundation of knowledge, reflections, and experiences makes it easier for the communication process to be successful and for students to learn practically. (Participant 41)

Code 4.2, “Institutional Context” (less prominent at 24.83%), indicates that, for university faculty, an institutional environment that is enriching and fosters participation, innovation, and dialogue promotes reflective and humanized teaching practices, thereby contributing positively to the holistic development of students:

The institutional environment is good, flexible, and humanizing; this makes it easier for us to develop a more personal—and less authoritarian—style of communication. (Participant 33)

The institution fosters flexibility, which in turn allows you to be flexible in the classroom as well. (Participant 41)

Faculty members believe that the characteristics of the student group they lead in university classrooms can facilitate the communication process if they incorporate pedagogical strategies that allow them to address the diversity of students’ abili-

ties, motivations, and experiences; therefore, they must adapt their teaching methods and promote more active and participatory interaction (code 4.3, “Group Characteristics”; 23.45%):

It depends a lot on your group of students because you must adapt. (Participant 23)

The characteristics of the students in each group lead you to incorporate strategies to communicate better and reach everyone despite their differences. (Participant 23)

Finally, code 4.4, “Infrastructure and Resources” (13.79%), encompasses narratives regarding how physical spaces, material resources, environmental conditions, and available resources can facilitate or limit the development of the communicative and pedagogical process in the university educational context:

Having a good physical classroom, teaching resources, and accessible tools greatly improves your communication process when teaching students. (Participant 06)

Your classroom—I mean the physical space—with its furniture and resources, greatly influences how you communicate with students and facilitates the process. A rigid classroom is not the same as a flexible and innovative one. (Participant 10)

3.4 *Theme 5. Suggestions for improvement that contribute to teaching communication that promotes comprehensive professional development in higher education*

Table 5, associated with the fifth theme, lists the codes referring to improvement proposals that favor the development of teaching practices that promote comprehensive education among university students.

3.5 Theme 5. Improvement Proposals Contributing to Didactic Communication that Promotes Comprehensive Professional Education in Higher Education

that foster the development of teaching communication practices aimed at promoting comprehensive education among university students.

Table 5, associated with the fifth theme, presents the codes related to improvement proposals

Table 5. *Suggestions for improvement to develop teaching communication practices that support the holistic education of students*

Inferential codes	%FA
5.1 Dialogic communication	33.92%
5.2 Emotional communication	33.05%
5.3 Cognitive communication	21.73%
5.4 Teacher self-reflection	11.30%

Higher education faculty indicate that, to improve teaching communication in university classrooms, a more horizontal form of interaction must be established, based on mutual respect and the shared construction of knowledge between faculty and students, as interpreted by code 5.1, “Dialogic Communication” (33.05%):

Communication between the teacher and the students should be on equal footing, moving in the same direction; no one in that interaction is above anyone else—rather, we respect one another and build knowledge together. (Participant 17)

Communication must be horizontal. (Participant 39)

Furthermore, 33.05% of respondents emphasized that, to improve the teaching communication process and promote student learning in the university classroom, emotional communication on the part of faculty is necessary (code 5.2, “Emotional Communication”): the use, management, and transmission of emotions in the communication process between teachers and students, which influences motivation, classroom atmosphere, and meaningful learning:

Your communication must be emotional to improve communication in the classroom because your emotion sparks a desire to learn. (Participant 21)

Either you motivate through your speech, spreading emotions and enthusiasm, or no one will want to learn. (Participant 44)

Code 5.3, “Cognitive Communication” (21.73%), relates to findings in which teachers indicate that instructional communication should stimulate students’ cognition; to this end, it is advisable to engage in exchanges of information, ideas, and reasoning that promote understanding, critical analysis, and the construction of knowledge during the teaching-learning process:

Students must learn to think, and that’s the direction you need to steer your classroom communication in. (Participant 20)

They must understand everything that is said in the classroom; they need to know how to think—it depends on you as a communicator, too. (Participant 13)

The final code, 5.4, “Teacher Self-Reflection” (11.30%), includes narratives from teachers who state that, to improve communicative practices in university educational processes, they must analyze, reevaluate, and interpret their own pedagogical and communicative practices to improve their performance and respond more effectively to students’ needs:

It’s not just about resources; it’s also about awareness and self-reflection on whether we’re capable of seeing what we do well—or not—in the teaching and communication processes. (Participant 48)

We’re in a hurry with the things we have time for, but a teacher always needs to stop and think about

whether the communication process is effective or not. (Participant 33)

4. Discussion and Conclusions

Didactic communication is a vital tool that facilitates the education and learning of university students, empowering them throughout their professional development—an aspect we have thoroughly explored in this qualitative study. Through this research, we have advanced our proposed research objectives and organized the findings into five core themes that emerged from the compilation of interviews and the thematic analysis of the participants' voices.

Based on the contributions regarding the first theme, the participating university faculty agree that didactic communication is primarily a tool used to convey knowledge related to the professional practice for which university students are preparing. However, it is characterized by being utilized not only to present academic content but also to engage students actively in the process and to construct professional knowledge that meaningfully integrates into their cognitive frameworks (Herrera-Araya, 2023). As Sipman et al. (2021) point out, it constitutes a transformative pedagogical act in which the instructor, through the trust and human dimension they project in educational settings designed for learning, fosters student autonomy and social awareness (Martínez-Clares et al., 2024). This, in turn, encourages students to develop a critical attitude toward the specific issues of their professional field and a creative disposition for seeking and applying solutions. As Jurado et al. (2023) argue, didactic communication facilitates interpersonal communication (Trang and Hansen, 2021) and transforms the learning process into a successful educational experience.

Regarding the findings related to the second theme, faculty members identify verbal strategies as the most productive communicative approaches (Aguirre-Aguilar, 2020) for promoting the comprehensive and professional development of university students in the classroom. They recognize that the practical experiences and real-world examples incorporated into their discourse facilitate the assimilation of knowledge and bring students closer to the actual professional contexts for which they are training. As Swartz et al. (2016) point out, real-world scenarios and the cognitive challenges presented

to students during communicative processes at the university level awaken and activate the critical and reflective thinking that every professional needs (Pei et al., 2023) to respond to the demands of their environment. It is therefore necessary to design learning environments in higher education that enable universities to foster the comprehensive professional development of their student body (Morin, 2009).

Furthermore, it is evident that nonverbal communication strategies, as well as those linked to the integration of technological resources for learning—an aspect also highlighted by Toledo-Lara (2025)—serve as crucial complements that reinforce the didactic communicative relationship in the construction of professional university knowledge. In this regard, Hernández (2022) argues that these nonverbal expressions, when integrated into the teacher's pedagogical discourse through didactic communication, contribute significantly to the holistic education of students (Marin et al., 2025).

Regarding the third theme, the study reveals that effective didactic communication develops emotional, cognitive, social, and professional skills. Students in higher education must become competent professionals; consequently, the learning processes that take place in university classrooms must be transformed into communicative situations where students acquire and retain the foundational knowledge needed to understand the reality of their profession. Guided by university faculty, students must also learn to apply and put this knowledge into practice in real-world situations (Wall and Hall, 2016). Didactic communication, therefore, must engage emotional, cognitive, social, and professional dimensions simultaneously, fostering genuine interest and enthusiasm for learning. As Mora (2020) states in his studies on neuroeducation, regardless of the educational stage at which learning takes place, one must first feel the emotion to develop cognition.

Considering the findings from the fourth theme of this research, we determined that several factors could facilitate or hinder the development of didactic communication in higher education. These include the university instructor's classroom experience and the length of time they have been practicing and leading didactic-communicative processes (Demirdag, 2022), the heterogeneity of the student group, and the availability of quality teaching resources and materials. It is clear that, before engaging in

this communication process, prior preparation for the communicative act and a careful analysis of the educational setting are necessary.

In summary, we conclude that these factors—which can either facilitate or limit teachers’ communicative development—can be successfully mitigated. This is achieved by establishing a more horizontal form of communication, rich in positive emotions that inspire students’ motivation to learn and grow (Mentel et al., 2024), and by fostering continuous self-reflection on the teaching and communication strategies that have been applied and proven effective in promoting excellence and quality in university learning, as noted by Luque and Lucas (2020).

In short, instructional communication is a powerful tool that facilitates the holistic education and professional development of students in higher education. It is not merely a communicative act in which content is transmitted about the reality of the profession for which students are preparing; rather, it actively promotes their cognitive, emotional, social, and professional dimensions, ensuring the ultimate success of the university learning process.

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Author Declaration – CRediT Taxonomy	
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Statement on the Use of Artificial Intelligence	
The authors DECLARE that the preparation of the article “ <i>Didactic Communication: A Case Study at Two Spanish Universities</i> ” did not involve the use of artificial intelligence (AI).	



Co-teaching and inclusion: a qualitative review of the research literature

Codocencia e inclusión: una revisión cualitativa de la literatura científica

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Abstract

The present study examines co-teaching as a key methodological innovation for achieving inclusive education. This collaborative practice (encompassing co-planning, co-instruction, and co-assessment) is regarded as an effective approach to addressing classroom diversity and enhancing educational quality. Numerous empirical investigations have explored this topic, primarily from a qualitative standpoint, which makes an in-depth review of qualitative research on co-teaching conducted between 2020 and 2025 both timely and relevant. The PRISMA methodology was followed, and systematic searches were carried out in the Web of Science and Scopus databases. After applying inclusion and exclusion criteria, twelve studies from various countries were selected for analysis. Findings indicate that co-teaching fosters teacher collaboration, improves the efficiency of certain learning processes, promotes positive attitudes, and strengthens teachers' self-efficacy self-confidence. For students, it enhances participation, inclusion, and sense of belonging, particularly among those with special educational needs. It is concluded that co-teaching represents an effective pedagogical strategy for advancing inclusive education, provided that it is grounded in joint planning, role equity, and the availability of dedicated training and collaboration spaces for teachers.

Keywords: co-teaching, inclusion, students, qualitative analysis, literature, PRISMA.

Resumen

El presente trabajo analiza la codocencia como innovación metodológica esencial para el logro de una educación inclusiva. Esta práctica, basada en la colaboración docente a través de la coplanificación, coenseñanza y coevaluación, se considera una estrategia eficaz para atender la diversidad en las aulas y mejorar la calidad educativa. Numerosos estudios empíricos han abordado esta cuestión, principalmente desde una perspectiva cualitativa, por lo que una revisión en profundidad de los estudios empíricos cualitativos publicados sobre codocencia en el periodo comprendido entre 2020 y 2025 es procedente. Se siguió la metodología PRISMA y se efectuaron búsquedas en las bases de datos Web of Science y Scopus. Tras aplicar los criterios de inclusión y exclusión, se seleccionaron 12 estudios procedentes de distintos países. Los resultados muestran que la codocencia favorece la colaboración docente, la eficiencia de ciertos procesos de aprendizaje, la formación de actitudes positivas y el desarrollo de la autoeficacia docente. En el alumnado, se evidencia una mejora en la participación, la inclusión y el sentido de pertenencia, especialmente en quienes presentan necesidades educativas especiales. Se concluye que la codocencia constituye una estrategia pedagógica eficaz para promover la educación inclusiva, siempre que se base en la planificación conjunta, la equidad de roles y la existencia de formación y espacios de colaboración docente.

Palabras clave: codocencia, inclusión, estudiantes, análisis cualitativo, literatura, PRISMA.

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1. Introduction

To achieve the critical goal of inclusive education, there is a methodological innovation that most current authors consider fundamental: co-teaching (Barron et al., 2022; Castro-Zubizarreta et al., 2017; Iacono et al., 2023; Veteska et al., 2022).

Co-teaching should be understood as a form of teacher collaboration that extends beyond classroom activities to encompass the co-planning and co-assessment of teaching-learning processes (Barron and Friend, 2025; Fenty et al., 2012; Gardesten, 2023). The growing diversity in general education classrooms has led to co-teaching practices being established as an optimal way to address individual needs and to integrate the work of different professionals within the same setting, such as general education and special education teachers (Abellán-Rubio et al., 2021; Sundqvist et al., 2023; Weiss and Lloyd, 2002). Likewise, elementary and secondary schools have increased their utilization of co-teaching in recent years (Helding-Vembye et al., 2024; Wherfel et al., 2022), confirming that this form of teacher collaboration serves as an effective instructional strategy for meeting the needs of all students (Hang and Rabren, 2009; Subban et al., 2023). Consequently, its potential to promote collaborative educational practices and improve outcomes for both teachers and students has been widely demonstrated (Austin, 2001; Weinberg et al., 2020).

Some authors emphasize that co-teaching should not be understood merely as a methodological strategy, but rather as a transformation of the educational institution's culture, organizational structure, and policies. It requires rethinking how teaching responsibilities are distributed, as well as how instructional dynamics, roles, and pedagogical leadership are conceived (McTigue et al., 2023; Rönn-Liljenfeldt, 2024). Furthermore, co-teaching has evolved from an approach focused strictly on supporting students with greater needs within the regular classroom to a holistic paradigm, wherein teachers not only work together, students and teachers also collaborate to enhance learning for the entire group (Sharma, 2025).

A study by Kohler-Evans (2006) conclude that this practice exerts a positive impact on the performance of the entire group and improves the quality of education for the students. Other findings

reflecting the positive impact of co-teaching include improved social inclusion of students, particularly those with special educational needs (Bates et al., 2015; Strogilos et al., 2020, 2023; Szumski et al., 2025), increased participation among these students, a subsequent improvement in academic performance (Helding-Vembye et al., 2024; Walsh, 2011), and greater school satisfaction among the students (King-Sears et al., 2021).

In addition to the benefits yielded for students, numerous studies focus on the impact of co-teaching on the participating teachers. Inquiries such as those by Colson et al. (2021), Johnson et al. (2020), and Ricci et al. (2021) conclude that co-teaching increases teachers' sense of self-efficacy. For their part, Kolleck et al. (2021) highlight how relationships between co-teaching pairs grow closer and stronger.

However, empirical results are sometimes unclear. For example, Losinski et al. (2019) note in their review that, in many cases, the effectiveness of co-teaching is not examined in depth in comparison with alternative teaching methodologies, which may introduce bias. In fact, when Kursch and Veteška (2021) outline the advantages and disadvantages of co-teaching, they emphasize description rather than rigorous empirical comparison with other teaching methods, which prevents the definitive assertion that co-teaching is superior to alternative methodologies. Likewise, various studies highlight drawbacks associated with the practice of co-teaching, such as a lack of shared planning time or the extra effort involved in this approach, according to some teachers (Kursch and Veteška, 2021; Stark, 2015). However, these drawbacks are not inherent to co-teaching as an inclusive instructional practice but are instead related to contextual factors that influence the overall success of its implementation.

At this point, the need to determine the actual benefits of co-teaching for improving the implementation of inclusive education becomes clear. This issue must be addressed from a qualitative perspective, as the depth of the benefits across different domains and the variability of actors and indicators from distinct viewpoints warrant such an approach; a purely quantitative perspective cannot fully capture the complex underlying system operating at the intersection of inclusion and co-teaching.

With the aim of understanding the benefits of co-teaching for inclusive teaching cultures and

practices, this study proposes a systematic review to compile the main advances in this field based on qualitative empirical research.

2. Methodology

2.1 Search Strategy

To conduct this review, we followed the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Page et al., 2021), widely known as the PRISMA methodology. To select relevant studies, comprehensive searches were conducted in the Web of Science and Scopus databases, as they are currently recognized as the most comprehensive and widely recognized databases in the academic field (Sánchez-Cabrero, 2024). The search was executed using the following keyword combinations in both English and Spanish: co-teaching, team teaching, joint planning, benefits, advantages, evaluation, test, and measure. To optimize the identification of potential articles for inclusion in this review, a structured search strategy was developed, deploying a combination of Boolean operators adapted to the specific syntax requirements of each consulted database. The Search terms were formulated as follows, specifying the core topics of co-teaching, team-teaching, co-taught, or co-planning: (“co-teaching” OR “team-teaching” OR “co-taught” OR “co-planning”) AND (“benefits” OR “advantages”) AND (“qualitative”).

2.2 Study Selection Criteria

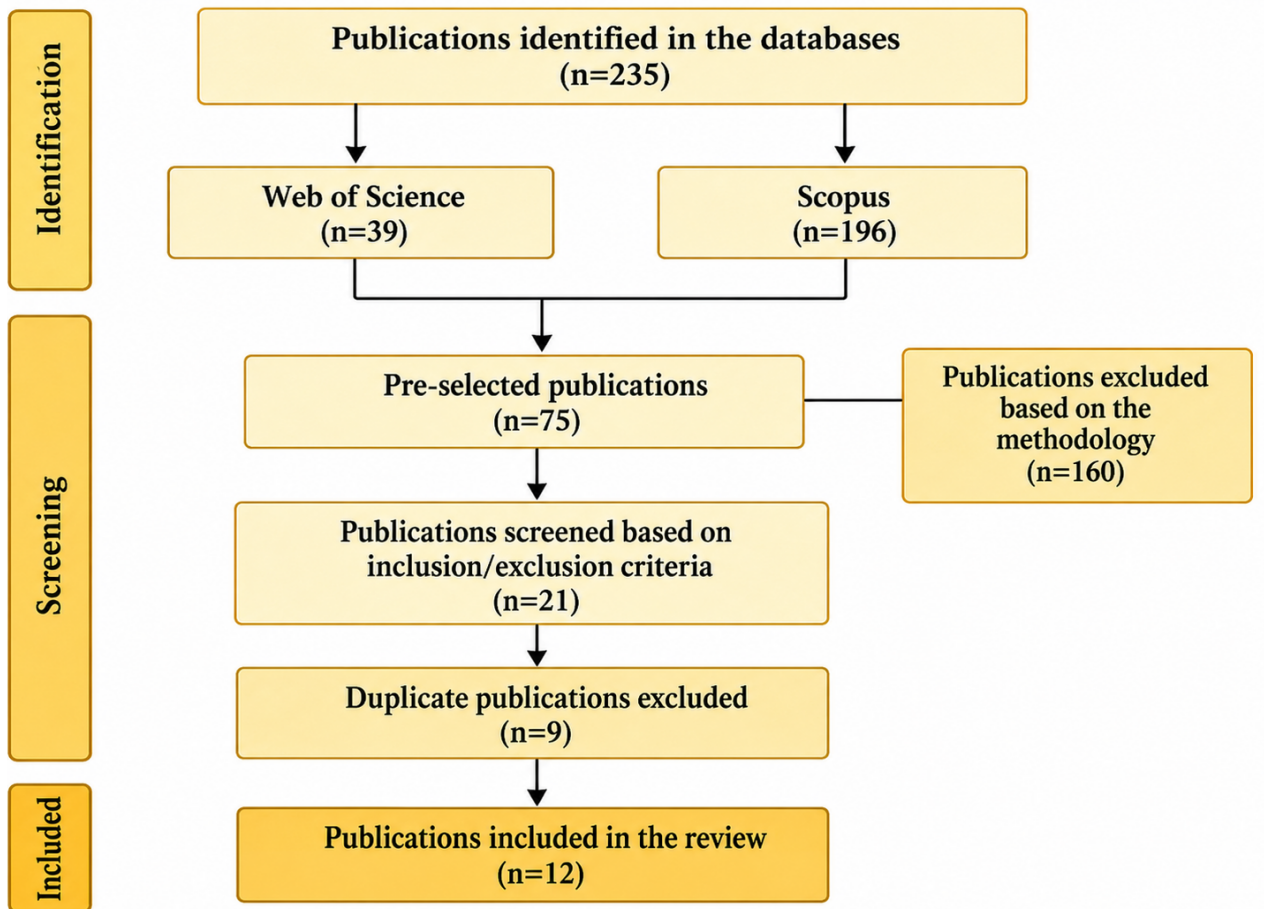
The following inclusion criteria were established for studies to be selected for this review: (a) they must have been published within the last 5 years (2020–2025), (b) they must be written in either Spanish or English, (c) they must employ a qualita-

tive methodology to evaluate the benefits of co-teaching, and (d) they must specifically analyze the subsequent benefits for student inclusion. Conversely, the following documents were excluded from the selection process: (a) those that did not consist of peer-reviewed scientific articles (such as book chapters, conference papers, and presentations), and (b) those whose methodology deviated from qualitative research specifically designed to evaluate the benefits of co-teaching.

2.3 Study Selection Process

The studies identified through the initial search were screened by reviewing their titles, abstracts, and methodologies against the established inclusion criteria. This process was carried out independently by four reviewers, who resolved any differences through consensus discussions or, when agreement could not be reached, by consulting external researchers. The database search in Web of Science yielded 39 results, 30 of which met the topical search criteria. Twenty-seven articles were pre-selected after a methodological review confirmed their qualitative nature, and nine studies that fully met all inclusion and exclusion criteria were ultimately included. Simultaneously, a total of 196 articles were retrieved from the Scopus database, from which 45 were initially pre-selected. After verifying the inclusion criteria, 12 articles were selected; however, nine of these were identified as duplicates and removed, resulting in three final inclusions from this source. Consequently, a final total of 12 articles met all inclusion criteria and were synthesized in this review. Figure 1 displays the flowchart illustrating the selection process, including the specific number of studies included and excluded during each phase of the systematic review.

Figure 1. Flowchart of studies included and excluded in the study selection process



2.4 Description of the included studies

Of the 12 selected studies, 10 were published in English. The geographic distribution of the countries where these investigations were conducted spans multiple continents. Specifically, three studies were carried out in the Americas, all of which took place within the United States. Of the eight studies

conducted in Europe, two were performed in Spain, two in Germany, two in Finland, and two in Norway. Finally, one study was conducted in Asia, specifically in Thailand.

3. Results

The table below provides a detailed description of the studies reviewed and their main results.

Table 1. *Studies Included in the Review*

Authors	Design	Sample	Measurement	Variables Included	Analysis of data
Forsman (2025)	A narrative study on the impact of co-teaching on students whose native language differs from the language of instruction at school.	Four teachers (three generalists and one support teacher). They co-teach with the same specialized language support professional.	Seven interviews based on two questions over the course of two academic years.	Benefits for students. Teacher professional development.	Based on the field data, "word images" were constructed that represented four narrative themes: daring to share, broadening experience, refining roles, and increasing well-being.
Gourvennec (2021)	Six case studies on the impact of teachers' beliefs in the classroom on the success of co-teaching.	Six teachers (students with varying levels of literacy).	Individual interviews centered on three general questions: The teaching of literacy and the roles of students and teachers; co-teaching and any other applicable guidelines based on the specific conditions of the <i>Two Teachers</i> program; and teachers' reactions to the class' reading development.	The consequences of teachers' beliefs (regarding students, teachers, activities, and context) toward students and toward themselves	Data collection through individual interviews and content analysis using an inductive categorical approach.
Gutiérrez-Moniño and Braña-Blanco (2024)	Action research on a shared teaching experience	Three teachers (1 AL, 1 PT, and a mentor) in a 2nd-grade elementary classroom with a student with special educational needs	29 observation journals written by the PT during all co-teaching sessions over the course of an academic year	Co-teaching strategies. Classroom life. Learning strategies of the student with SEN. Beliefs and relationships between the homeroom teacher and the PT.	Inductive and qualitative content analysis of the journals.
Jortveit and Kovač (2022)	Interviews with general and special education teachers about their successful collaborative practices.	Eight teachers from different educational levels (purposive sampling of teachers who had previously demonstrated effective collaboration between general and special education teachers).	Semi-structured interviews conducted in pairs (special education teacher alongside general education teacher), with interaction between them.	Nature of the collaboration. Knowledge exchange. Discussions about educational values. Examples of collaboration. Strategies for teacher consensus. Division of roles in collaboration.	Inductive content analysis, categorized into several phases of analysis.

Authors	Design	Sample	Measurement	Variables Included	Analysis of data
Jurkowski et al. (2020)	A qualitative study involving interviews with high school teachers regarding their perspectives on the implementation of co-teaching.	33 secondary school teachers (17 general education and 16 special education), from 25 schools.	<i>Ad hoc</i> , semi-structured individual interviews regarding their ideas about best practices in implementing co-teaching as well as their individual experiences with co-teaching.	Definition and organization of teacher collaboration. Goals and expectations of co-teaching. Conditions and resources for effective collaboration.	Collection of qualitative interviews and content analysis using a categorical system (deductive and inductive) tested on a sample and validated with external professionals.
López-Vélez and Galarraga (2024)	A qualitative study featuring interviews with teachers who engage in co-teaching regarding its impact on student inclusion.	41 teachers and 18 teaching assistants from different educational levels are involved in co-teaching experiences. They are from 20 schools offering early childhood education, elementary school, secondary school, and vocational training across eight autonomous communities.	<i>Ad hoc</i> , semi-structured individual interviews on the impact of co-teaching on students, particularly on learning, inclusion, and a sense of belonging (among both general students and those with special educational needs).	Learning outcomes. Inclusion and sense of belonging. Benefits for students.	Collection of qualitative interviews and content analysis using an inductive categorical approach, cross-referenced with the scientific literature.
Maghfiroh et al. (2025)	Qualitative research analyzing the benefits of co-teaching for professional development among both student teachers and school teachers.	Two English teachers and two student teachers at the school.	Data collected through observations, interviews, and documentation. The observations and interviews were conducted with student teachers and the lead teachers in the practicum program.	The benefits of the co-teaching model for teachers. The implementation was carried out during co-teaching. The benefits of co-teaching are for the professional development of both lead teachers and pre-service teachers.	Based on observations The analysis was based on observations and interviews. The process follows three phases: 1) data reduction, 2) data presentation, and 3) data verification. Two sources of information were used as a triangulation tool to ensure the reliability and validity of the data collected in the study.

Authors	Design	Sample	Measurement	Variables Included	Analysis of data
Muehlbacher et al. (2022)	An exploratory qualitative study using semi-structured in-depth interviews	The sample consisted of 30 teachers: twelve taught German, nine taught a first foreign language, and the remaining eight taught mathematics.	<i>Ad hoc</i> teacher journals after nine weeks of co-teaching	Internal regulation of emotions in specific situations. Internal regulation of negative emotions. Internal regulation of positive emotions. Inauthentic presentation (pretending, masking). Co-regulation of positive and negative emotions. Shared regulation of positive and negative emotions.	The interviews were coded using a refined coding scheme based on the concepts of internal emotional regulation (self-regulation), co-regulation, and shared regulation. Subsequently, a structured qualitative content analysis was conducted using MAXQDA.
Qualls et al. (2025)	A qualitative case study analyzing the relationship between what the literature says about co-teaching (a collaborative practice) and actual classroom practice (general education teachers teach while special education teachers provide support).	Two pairs of teachers who co-teach: one math teacher, one English language and literature teacher, and two special education teachers.	Data collected through observations and individual semi-structured interviews.	Factors influencing co-teaching and the results of the interaction between these factors. The essential elements for successful co-teaching.	Thematic analysis Categorical system Data triangulation
Rytivaara et al. (2023)	Post hoc qualitative study using interviews and teacher journals on student learning in the context of co-teaching after nine weeks	Five teams of co-teachers (two teachers per team)	<i>Ad hoc</i> interviews addressing three research questions.	Teachers' knowledge of their students. Focus of teachers' observations. Learning outcomes. Grade level. Students' prior knowledge. Number of co-taught lessons per week.	Collection of qualitative interviews and teacher journals addressing three research questions, with in-depth analysis triangulation by two researchers following nine weeks of co-teaching.

Authors	Design	Sample	Measurement	Variables Included	Analysis of data
Stelitano et al. (2020)	A qualitative case study conducted at two high schools. The study analyzes school organization with a focus on inclusion, devoting a significant portion to co-teaching.	All staff at the two schools were invited to participate at various levels over a two-year period (47 professionals in total): nine special education teachers, 15 general education teachers, ten members of the administrative team, nine guidance counselors, and four support staff.	Semi-structured interviews were conducted with the participants, along with additional interviews and classroom observations of nine key individuals (special education teachers who teach in general, natural classroom settings). Surveys of professional interaction networks were also conducted to explore routines and other informal interactions among teachers. Finally, school documents (schedules, teaching materials, photographs of classroom materials, etc.) were analyzed.	Counseling Model and Its Implementation. Co-teaching model and implementation. Impact of school designs on inclusion.	Data collection and analysis in three phases: formal design (transcript coding), practice (triangulation of interviews, observations, and network surveys), and implications for student support (analysis of observations and linking them to the rest of the data).
Weiss et al. (2020)	An exploratory qualitative study, conducted as a case study, of the three-element co-teaching model in a high school.	Six teachers (three general education teachers and three special education teachers). They form three teams/pairs of co-teachers at one school, specifically: pairs of general education and special education teachers in English, mathematics, and social sciences.	Classroom observations (71 in total), observer field notes, and joint semi-structured interviews with the participating teaching pairs.	Current practice (knowledge and standard practices). Implementation of the model (training in the model and changes in teaching practices). Factors related to implementation (classroom organization and student performance).	The study follows a multiple-case design with three co-teaching teams. The process consists of three phases: (1) observations and recordings of initial practice, (2) training and application of the three-element model with feedback from the researcher, and (3) joint planning of individualized supports for students with disabilities in inclusive classrooms.

Regarding the participants, all articles analyze teachers' perspectives. Only the study by Stelitano et al. (2020) included other educational professionals, such as members of the administrative team or guidance counselors.

Among the variables included regarding co-teaching practices and their relationship to educational inclusion, the following stand out: teachers' beliefs about students, teachers' attitudes toward co-teaching, benefits for teachers' professional development, and benefits for the learning and inclusion of students with special educational needs.

The resulting findings are presented below, grouped around the main themes addressed.

3.1 Co-teaching and Teachers' Attitudes

Several studies underscore the critical importance of teachers' perceptions and attitudes toward co-teaching. Gourvennec (2021) examined how teachers' beliefs regarding students, colleagues, pedagogical activities, resources, and the educational context influenced their practice, revealing that the interviewed educators held widely varying views on these dimensions. Co-teaching requires teachers to collaborate in a highly coordinated manner, sharing instructional approaches, classroom organization methods, activity prioritization, and student engagement strategies. Consequently, the effectiveness of co-teaching depends heavily on the teaching team's capacity to align their goals and strategies, leverage individual professional strengths, and constructively manage potential differences in their pedagogical perceptions and understanding.

For their part, Gutiérrez-Moniño and Braga-Blanco (2024) highlight the success of a co-teaching initiative carried out by two elementary school teachers—one a specialist in Therapeutic Pedagogy (TP) and the other a general classroom teacher—within an action-research framework, attributing its success to the collaborative efforts of both professionals. Although it was their first time working together, and despite initial anxieties regarding the pedagogical innovation involved in implementing co-teaching, their professional relationship was built on mutual trust, shared understanding, clearly defined roles, and the joint development and design of classroom materials and activities. As a result, stu-

dents' perceptions reflected equality and the absolute absence of a hierarchy between the two instructors.

3.2 Professional Development and Teacher Collaboration

Other studies explore how co-teaching influences professional growth and collaboration among teachers. Jortveit and Kovač (2022), for instance, assert that teachers who are open to aligning their practices and building more integrated professional identities possess greater resources to successfully develop co-teaching experiences. Furthermore, consistent with this perspective, Muehlbacher et al. (2022) address the impact of co-teaching on emotional regulation in their qualitative study, clearly observing a marked improvement in such regulation and in the management of negative emotions, which subsequently led to enhanced individual and team performance.

When relationships between co-teachers are characterized by reciprocity and knowledge transfer, these professionals perceive their colleagues as more trustworthy, which significantly strengthens collaboration. To this end, it appears essential to ensure optimal working conditions that facilitate productive instructional collaboration. Stelitano et al. (2020) analyze structural mechanisms to achieve this, such as ensuring the multi-year stability of co-teaching pairs by the administrative team and providing dedicated time for co-planning while allocating staff resources to cover those sessions. Implementing measures of this kind requires systemic changes that fundamentally alter school culture and organizational structures (López-Vélez and Galarraga, 2024).

The qualitative study by Rytivaara et al. (2023), meanwhile, concludes that teacher collaboration in developing students' knowledge yields a deeper and more rapid understanding of the students, thereby enabling teachers to adapt their instruction to students' individual needs sooner and more effectively.

In turn, Maghfiroh et al. (2025) conclude that co-teaching helps student teachers—namely, university students in initial teacher training—to more effectively integrate specific subject-matter knowledge while concurrently improving their skills in planning, classroom management, and conflict resolution. Thus, it can be concluded that co-teaching is

not only beneficial for experienced teachers but also provides significant support for novice educators.

In this regard, Jurkowski et al. (2020) point out that teaching collaboration should not be restricted solely to professionals within the school itself but rather requires multiprofessional cooperation both within the school environment and with external experts. This broader collaboration is essential for developing a shared understanding and a common sense of responsibility within the framework of inclusive education.

3.3 The Effectiveness of Co-Teaching for Student Learning and Inclusion

A key topic in recent research is the role of co-teaching in inclusive education. Studies corroborate the relationship between co-teaching and inclusion, finding that effective teacher collaboration is grounded in an instructional model aligned with the fundamental principles of inclusive education and the recognition of diversity (Jortveit and Kovač, 2022). Some studies directly assess the impact of co-teaching on student learning outcomes. Specifically, Forsman (2025) examines how co-teaching benefits students who speak a language other than the school's primary language of instruction. The research indicates that the simultaneous presence of two teachers in the classroom makes it possible to adapt instruction to different levels of language proficiency, providing both individualized support and opportunities for interaction among students.

Therefore, co-teaching increases access to the general curriculum by integrating students into the dynamics of the regular classroom and promoting more inclusive and participatory educational contexts with more personalized and effective attention. Regarding student attitudes, Rytivaara et al. (2023) observe that one of the main benefits co-teaching provides to students is a greater understanding of diversity within the classroom. Also from a qualitative perspective, López-Vélez and Galarraga (2024) demonstrate that, alongside students' learning outcomes, their sense of belonging is strengthened, which exerts a direct impact on their behavior, academic performance, interpersonal relationships, and overall well-being. Gutiérrez-Moniño and Braga-Blanco (2024) conclude that co-teaching promotes greater participation among students with special education

needs within their classroom, which in turn fosters positive attitudes toward these students among their peers and enhances a sense of belonging for the entire group.

4. Current State of Research on the Benefits of Co-Teaching in Inclusion

Studies focusing on the benefits of co-teaching confirm, in alignment with prior literature reviews (Barron and Friend, 2025; Fenty et al., 2012; Gardesten, 2023; Maldonado-Díaz and Núñez-Díaz, 2023; Van Mieghem et al., 2020), that this practice extends far beyond the mere simultaneous presence of multiple adults in the classroom. Instead, it demands advance planning, sustained collaboration among participating educators, and systemic transformations in the structural dynamics of the school (López-Vélez and Galarraga, 2024; Sundqvist et al., 2023; Toikka and Tarnanen, 2022; Wu, 2022).

Regarding co-teaching modalities, the findings of this study reveal substantial diversity, although the model pairing a general education teacher with a special education teacher appears to predominate, as documented in previous reviews (Abellán-Rubio et al., 2021; Helling-Vemby et al., 2024; Wherfel et al., 2022). Even within these configurations, there is a clear commitment to role parity (Barron and Friend, 2025; Chatzigeorgiadou and Barouta, 2022), which disrupts the traditional secondary or subordinate role to which support teachers have historically been relegated. However, for co-teaching to be successful and effectively meet student needs, general education teachers must display a genuine willingness to collaborate with support professionals during lesson planning stages (De la Fuente-González et al., 2025; Qualls et al., 2025).

The analysis of teachers' perceptions of co-teaching—encompassing its benefits, satisfaction, and overall effectiveness—constitutes a recurring theme in these inquiries (Dulfer et al., 2021; Gourvennec, 2025; Gutiérrez-Moniño and Braga-Blanco, 2024; Jurkowski et al., 2020; Rytivaara et al., 2023). This emphasizes the critical need to assess these perceptual variables when generating empirical evidence on the implementation of co-teaching frameworks.

Another factor widely considered in the co-teaching literature is teachers' attitudes toward utilizing this methodology as an inclusive practice.

Gutiérrez-Moniño and Braga-Blanco (2024) describe the longitudinal evolution of a co-teaching partnership over a school year, highlighting that collaborative efforts—ranging from the co-planning and co-design of sessions and materials to the co-assessment of classroom instructional practices—are vital to achieving a successful partnership. Crucially, the co-teaching relationship thrives when the special education specialist is not perceived exclusively as a subordinate assistant, a positioning that has traditionally hindered implementation (Barron and Friend, 2025; Chatzigeorgiadou and Barouta, 2022; Haglund and Boström, 2022; Paulsrud and Nilholm, 2023; Qualls et al., 2025). Concurrently, students' attitudes toward co-teaching practices also serve as a highly relevant quality indicator (de Boer and Kuijper, 2021; Sanchez-Cabrero and Pericacho-Gómez, 2022; Shogren et al., 2015; Wagner et al., 2023).

Regarding teaching practices, the evidence indicates that co-teaching directly enhances instructional quality by fostering greater sensitivity toward individual differences (Forsman, 2025), enabling personalized support, and facilitating targeted pedagogical adaptations. This underscores the necessity of integrating co-teaching training into the university curricula of pre-service teachers (Maghfiroh et al., 2025), a recommendation consistent with previous research (Duran et al., 2020). Delving deeper into shared teaching configurations, studies demonstrate that co-teaching becomes significantly more effective when professional roles are equitable and free of hierarchy—specifically when the special education teacher is not relegated to a secondary role relative to the general education instructor, reinforcing observations made in other studies (King-Sears et al., 2020).

Similarly, co-teachers identify distinct professional and personal benefits resulting from collaboration, including critical reflection on their own pedagogical practices, enhanced emotional self-regulation (Muehlbacher et al., 2022), a deeper and more rapid understanding of the students (Rytivaara et al., 2023), renewed passion for teaching, and opportunities for knowledge transfer with colleagues (Jortveit and Kovač, 2022). To maximize these benefits, it is essential for co-teachers to share congruent educational values, as co-teaching yields superior outcomes under these conditions. Furthermore, providing pre-service training alongside dedicated institutional time and spaces for joint collaboration

remains indispensable (Weiss et al., 2020). Similar professional benefits have been observed when co-teaching is applied within doctoral programs (Thielsch, 2021). Synthetically, the results demonstrate that co-teaching enhances teachers' sense of self-efficacy and solidifies professional relationships, thereby driving overall school quality (Kolleck et al., 2021; Ricci et al., 2021).

The broader effects and impact of co-teaching on student learning and inclusion represent another extensively analyzed domain within the existing literature (Buli-Holmberg and Jeyaprabahan, 2016). In this systematic review, qualitative studies, such as that by Rytivaara et al., (2023), report highly positive outcomes following the implementation of co-teaching methodologies, particularly regarding improvements in academic performance. In turn, research by López-Vélez and Galarraaga (2024) shifts the focus toward the holistic impact on students, examining not only learning outcomes but also the social inclusion and overall sense of belonging of the entire student body. Along these lines, the study by Gutiérrez-Moniño and Braga-Blanco (2024) demonstrates how this methodology fosters active participation among students with special educational support needs while cultivating positive attitudes toward diversity among their peers.

Collectively, the literature review indicates that co-teaching serves as an effective tool for promoting inclusive practices, enhancing student learning, and driving teachers' professional development (Figueroa-Céspedes and Fica, 2025). Extant studies agree that its success hinges upon joint planning, role equity, and shared educational values, supported by targeted training and genuine institutional opportunities for collaboration. In short, co-teaching emerges as a powerful pedagogical strategy that simultaneously strengthens educational quality, classroom inclusion, and students' sense of belonging.

Despite the valuable insights identified, this systematic review is subject to certain limitations. On the one hand, relevant or recent studies may have been inadvertently omitted if they were not indexed within the consulted databases or if they employed alternative terminology due to the current lack of conceptual standardization surrounding co-teaching. On the other hand, the high variability across the reviewed studies—both in terms of participant demographics and specific research topics—compli-

cates the extraction of entirely uniform and comparable results. Furthermore, while this review explicitly centers on students with specific educational support needs, the consideration of cross-cutting variables, such as cultural diversity or socioeconomic contexts, remains limited within the analyzed literature, thereby restricting the conceptual scope of the notion of inclusion adopted in the primary studies.

5. Conclusions: Current Trends in Research

The current relevance of inclusive education as a solution to contemporary educational challenges has spurred a multitude of studies on the benefits and possibilities of co-teaching, effectively breaking down traditional taboos surrounding the traditional “one teacher per classroom” model. However, this remains an emerging field of research that requires substantial further inquiry to lay a solid empirical foundation for future investigations.

Furthermore, this systematic review has demonstrated that this field of study is increasingly evolving toward intervention-based designs, reflecting a growing interest within the academic community. An increasing number of researchers are deploying co-teaching as a structured educational intervention to robustly establish its benefits and derive explicit guidelines for its execution. The objective is to comprehend the specific advantages of co-teaching within distinct subject areas, as well as its direct impact on teacher self-confidence and collaborative skills, while establishing optimal implementation frameworks based on recommended advance planning time, specialized training, and prior experience, among other factors. These conclusions are particularly relevant given the existing gaps in the literature, such as professional resistance among certain educators or the institutional limitations schools face when adopting co-teaching models.

The growing prominence of co-teaching within contemporary educational research, along with its vast—though as yet not fully quantified—potential, is expected to continue expanding and consolidating. Further empirical studies are fundamentally needed to quantitatively determine its specific advantages and limitations, thereby enabling the academic and professional community to more

effectively address the emerging challenges that society poses to modern education.

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Statement on the Use of Artificial Intelligence
The authors DECLARE that the preparation of the article “ <i>Co-teaching and Inclusion: A Qualitative Review of the Scientific Literature</i> ” did not involve the use of artificial intelligence (AI).



Gamification and collaborative learning in higher education students

Gamificación y aprendizaje colaborativo en estudiantes de educación superior

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Abstract

This study was conducted to determine whether gamification strategies influence student collaboration in a higher education course and to establish how these strategies affect students' collaborative learning. To achieve this, a blended learning course was designed for an official Mexican program using gamification strategies. A total of 128 students participated, divided into four large groups. They were administered the COLLES survey at the beginning and end of the course. Key informants were also interviewed to gain deeper insight into their perceptions of the course and the collaborative learning achieved. The results revealed that scores across all dimensions of the COLLES increased from the pretest to the post-test. Meanwhile, the interviews identified seven themes that align with the analyzed dimensions. To achieve these results, three key elements were identified: first, ensuring that the course design is appropriate; second, ensuring student commitment to teamwork; and third, the instructor's support for students to enable collaborative learning. Among the findings is that gamification strategies do have an impact on group work, particularly in terms of relevance and reflective thinking; furthermore, the three key elements mentioned above were essential for fostering collaborative learning.

Keywords: collaborative learning, gamification, instructional design, higher education, students, methodology.

Resumen

El presente estudio se realizó con los objetivos de comprobar si las estrategias de gamificación inciden en el trabajo colaborativo del estudiantado en un curso de educación superior y establecer de qué forma estas estrategias inciden en el aprendizaje colaborativo del estudiantado. Para lograr lo anterior, se diseñó un curso en modalidad blended learning de un programa oficial mexicano empleando estrategias de gamificación. Participaron 128 estudiantes divididos en cuatro grandes grupos. Se administró la encuesta COLLES al inicio y al final del curso. También se entrevistó a informantes clave para profundizar sobre sus percepciones sobre el curso y el aprendizaje colaborativo alcanzado. Los resultados revelaron que los puntajes de todas las dimensiones del COLLES aumentaron del pretest al postest. Por su parte, en las entrevistas se encontraron siete temas que coinciden con las dimensiones analizadas. Para lograr estos resultados se identificaron tres elementos clave: primero, verificar que el diseño del curso que es el adecuado, segundo que haya compromiso por parte del estudiantado para el trabajo en equipo y tercero, el apoyo del profesor hacia sus estudiantes que les permita lograr el aprendizaje colaborativo. Entre las conclusiones se encuentra que las estrategias de gamificación sí tienen incidencia en el trabajo grupal, principalmente en las dimensiones de relevancia y pensamiento reflexivo, además, que los tres elementos clave anteriormente mencionados fueron vitales para lograr el aprendizaje colaborativo.

Palabras clave: aprendizaje colaborativo, gamificación, diseño instruccional, educación superior, estudiantes, metodología.

1. Introduction

There is no doubt that technological advances have enabled the development of new ways of working; however, within the field of education, these advancements demand new dynamics, methodologies, and strategies that optimize and improve teaching and learning processes. Such approaches must center on the student as the key actor in their own education, driving a dynamic, personalized, and self-regulated process to develop core competencies such as critical thinking, problem-solving, creativity, and collaboration. To increase the effectiveness of these methodologies and ensure their long-term impact on students' personal and professional growth, they must be highly engaging (Aparicio-Gómez et al., 2024), yield high value for their development (Martínez et al., 2023), and remain meaningful over time (Shilling et al., 2023).

One of the active methodologies that effectively meets these requirements is gamification (Dewi et al., 2023; Malvasi and Recio-Moreno, 2022; Mendes et al., 2022). Its widespread popularity is based primarily on the integration of game and video game design elements into non-game contexts (Deterding et al., 2011). Although there is conceptual confusion among novice teachers and students who mistakenly equate gamification with simply playing a video game (Prieto-Andreu, 2024), it involves deploying the specific mechanics and dynamics that make games appealing. This allows educators to develop structured, dynamic activities that motivate students to solve academic tasks in innovative and collaborative ways (Li et al., 2026), thereby sparking students' interest in overcoming challenges to achieve higher levels of competence, while concurrently fostering academic commitment and success (Elsawah, 2025).

Another widely recognized methodology is collaborative learning, as it demands the sustained participation of students through a combination of shared effort and teamwork, with the goal of working together for the collective benefit of the group (Dewi and Wahyu, 2026). Its success hinges upon establishing clear, well-defined communication channels to achieve common goals (Du et al., 2025). Empirical studies on collaborative learning have robustly demonstrated its effectiveness across various educational levels (Suaco et al., 2023) and

instructional settings (Wang et al., 2024), yielding positive outcomes particularly within higher education (Karkoulin, 2025). In this context, it fosters meaningful learning experiences while strengthening the interpersonal and professional skills that are vital for students' future career development (Gómez et al., 2025).

1.1 Gamification and Collaborative Learning

The relevance of both gamification and collaborative learning within the teaching and learning process lies primarily in their capacity to enhance motivation, active participation, cooperation, and interaction among students, teachers, and between these two groups (Durán Chinchilla and Rosado Gómez, 2023). This outcome is driven by the fact that gamification inherently incorporates social elements that foster deep human interaction (Restrepo-Tamayo et al., 2025). Furthermore, empirical evidence underscores that both methodologies substantially improve students' academic performance (Alcívar Rivadeneira and Chancay Cedeño, 2023), contribute to the construction of meaningful new knowledge through self-directed learning pathways (Tupthong and Chatwattana, 2025), and enhance their complex problem-solving skills (Lee et al., 2023).

Other studies have demonstrated that gamification, when compared to alternative game-based methodologies, promotes collaborative learning with highly positive outcomes. For example, Qiao et al. (2024) and Amirthalingam et al. (2023) compared gamification mechanics with strategies from other pedagogical methodologies, identifying significant differences, most notably that gamification more effectively catalyzed collaboration and interpersonal communication. Regarding motivation within student work teams, inquiries such as those by Grabner-Hagen and Kingsley (2023) and Firdaus et al. (2023) consistently agree that gamification generates sufficient intrinsic motivation for students to sustain active collaboration with their peers. Other critical determinants for the success of gamification within collaborative learning frameworks depend on effective instructional design (Pérez-Aranda et al., 2024), structured internal team management and group accountability (Maraza et al., 2024), and the emotional well-being of the students (Tsang et al., 2024).

1.2 Problem Statement

While significant progress and successful outcomes have been documented regarding these methodologies—both of which are crucial in contemporary education—several challenges remain particularly relevant within higher education. These obstacles stem primarily from faculty members' lack of familiarity with how to systematically apply these methodologies to their instructional practice, as observed with gamification (Tafur-Méndez et al., 2023), or from a lack of designated time to execute collaborative activities, especially within virtual or online environments, as seen in collaborative learning frameworks (Burchart and Haake, 2024; Dijkstra et al., 2025).

Consequently, it is essential that both faculty members and higher education institutions actively develop these methodological approaches. From the students' perspective, traditional teaching methods fail to foster motivation to learn (Kumar, 2026), and a merely instrumental use of digital technology proves ineffective (Idoiaga et al., 2024); therefore, pedagogical strategies and methodologies tailored to the needs of current and future generations of students are urgently required.

This compelling need has motivated the development of this research which investigates the integration of both methodologies among higher education students within a virtual or hybrid environment. Specifically, this research examines a comprehensive instructional design for a university course that strategically incorporates gamification elements to actively foster and sustain collaborative learning.

1.3 Research Question and Objectives

Based on the premises, the following research question arose: How do gamification strategies

influence collaborative learning among higher education students? To address this question, two primary research objectives were established:

O1. To determine whether gamification strategies influence students' collaborative work within a higher education course.

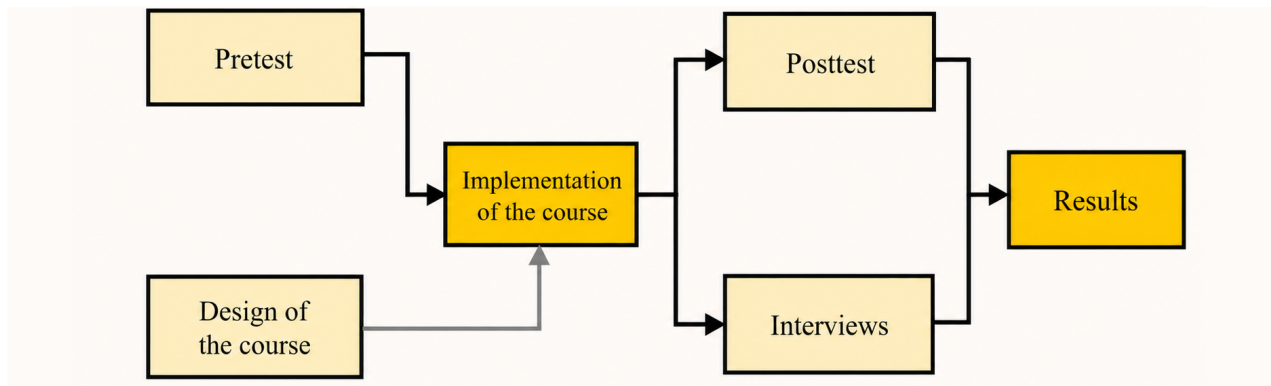
O2. To determine how gamification strategies influence students' collaborative learning within a higher education course.

2 Methodology

Based on the stated objectives, the study focused on examining the impact of gamification strategies on collaborative learning. Therefore, a mixed-methods design was selected to integrate both quantitative and qualitative techniques, strategies, and approaches to achieve a deep and robust understanding of the research problem. Specifically, a quasi-experimental study supported by a complementary qualitative analysis was chosen (Forni and Grande, 2020).

The intervention consisted of implementing a course that incorporated gamification strategies for university students. Upon enrollment and subsequent completion, these participants filled out a collaborative learning self-assessment survey administered before the course began (pre-test) and at its conclusion (post-test). Additionally, semi-structured interviews were conducted with the participants who demonstrated the highest levels of engagement during the process. These interviews complemented the quantitative survey results, providing deep qualitative insights into the phenomenon.

Figure 1 presents the structural framework followed for this research, illustrating the chronological steps of the process and the precise relationship between the methodologies deployed.

Figure 1. *Research Framework*

Note: Prepared by the authors.

2.1 Course Design

The course selected for this study was “Documentary Research,” which is embedded within an official higher education curriculum. It comprises a total duration of 104 hours, strategically divided between face-to-face sessions and distance learning—a configuration that Adukaite et al. (2017) classify as blended learning or b-learning. The course structure was organized into three core units, culminating in the mandatory submission of a group-based research project at the end of the term.

To develop the instructional design, a gamified Interactive Learning Event (ILE) (Kapp, 2012) was deployed, seamlessly integrating interactive dynamics, mechanics, and components (Werbach and Hunter, 2020). The ILE was engineered primarily to foster sustained participation and peer collaboration among students throughout the academic period. The overarching course strategy was operationalized through the PBL triad, which denotes the systematic use of Points, Badges, and Leaderboards. Werbach and Hunter (2020) consider these mechanics essential for effective gamification implementation; additionally, other contemporary mechanics, such as narrative arcs and structured rewards, were integrated into the design (Lang and Song, 2025).

The course’s narrative theme and contextual framework utilized elements of medieval fantasy to construct a more immersive and engaging educational environment. Consequently, several conventional academic terms and course components were modified and replaced with expressions aligned with this

thematic universe (Kapp, 2012); for instance, traditional “Assignments” were rebranded as “Missions,” “Assessments” were replaced by “Levels,” and standard “Grade Points” were converted into “Diamonds.” Meticulous attention was also dedicated to the design of instructional materials and the online learning management system, adopting a medieval aesthetic that complemented the visual, auditory, and contextual parameters established for the course.

The Missions were designed around a problem-solving approach that strictly required collaborative resolution. Furthermore, the completion of successive levels had to be demonstrated through concrete evidence of teamwork, documented either via a collective learning portfolio or within a team-based follow-up forum. Regarding the allocation of Diamonds, these were awarded based on the specific complexity of each Mission. To strike an optimal balance between the entertainment value inherent to video games and the formal academic responsibilities dictated by the regulations and standards applicable to Mexican educational programs, a conversion matrix linking Diamonds to formal numeric grades was developed, adhering to the criteria established by Kingsley and Grabner-Hagen (2018).

Given that this was a blended learning course designed around gamification strategies and a medieval narrative, the Classcraft platform was selected to enhance the student experience. This platform allowed participants to operate within an online ecosystem rich in visual and stylistic elements consistent with the theme, effectively eliciting the experiential feel of a video game. Additional gami-

fied design elements that did not interfere with the core academic curriculum—such as avatars, in-game currency, powers, health points, and pets—were included to create an immersive and motivating environment that enriched the innovative learning process (Sandoval and Lamb, 2023). The ILE was structured so that students were required to complete missions as a cohesive team to unlock subsequent levels, thereby fostering a robust sense of progression and collective achievement (Kapp, 2012; Werbach and Hunter, 2020).

2.2 Participants

A total of 128 university students enrolled at the host institution participated in the course. A non-probabilistic convenience sampling technique (Golzar et al., 2022) was utilized, as participation in the study was entirely voluntary. The participants were distributed into four distinct classroom groups: Group A (29 students), Group B (34 students), Group C (32 students), and Group D (33 students). Regarding the demographic profile of the sample, 82% of the participants were women, and the age range across the entire cohort was between 29 and 33 years. Within each respective group, participants were instructed to form self-selected work teams consisting of four to five members to execute the collaborative course activities.

2.3 Data Collection Instruments and Techniques

To collect quantitative data, the Constructivist On-Line Learning Environment Survey (COLLES; Taylor and Maor, 2000) was deployed to assess the constructivist learning environment and online collaborative learning dynamics (Sulisboro and Santyasa, 2018), thereby measuring the impact of gamification strategies on students' collaborative learning. This instrument is widely recognized for its robust validity and reliability in technology-mediated educational contexts, as demonstrated by the research of Azhari et al. (2020), Kumar et al. (2022), and Rivero (2018), which report Cronbach's alpha values ranging between 0.80 and 0.90, indicating high internal consistency.

The questionnaire comprises 24 items evenly distributed across six dimensions of collaborative

learning: Relevance, Reflective Thinking, Interactive Analysis, Instructor Support, Peer Support, and Interpretation, allowing for a comprehensive self-assessment of performance within a collaborative environment (Dougiamas and Taylor, 2014). Notably, these dimensions directly align with the research objectives, as they evaluate student participation, peer interaction, instructor perception, the significance of learning activities, and the overall value of the course content achieved through gamification strategies. The COLLES instrument was administered as a pre-test and post-test at the beginning and conclusion of the course during July–August 2024, utilizing Google Forms for digital distribution. To ensure ethical compliance, students were only required to respond to the construct items; no identifying information regarding the participants or their host institution was collected.

To gather qualitative data, individual semi-structured interviews were conducted using a protocol consisting of eight open-ended questions. This approach allowed for an in-depth exploration of the participants' experiences, the identification of the level of collaboration and commitment among team members, and the determination of whether the gamification strategies utilized were meaningful for intra-team collaborative learning. The interview protocol underwent a rigorous validation process by an expert panel comprising ten specialists in education, collaborative learning, and innovative instructional strategies, thereby ensuring qualitative validity and reliability (Schwartz and Lederman, 2008).

The sampling strategy for identifying the key informants (Moka et al., 2021) to be interviewed was based on purposive criteria, including their level of engagement with the team, willingness to collaborate, proactive participation during activities, time spent on the platform, character development within the gamified environment, and communication skills. The instructor selected participants who consistently fulfilled all established criteria. Ultimately, four key informants were chosen—one from each classroom group—and assigned pseudonyms to preserve their anonymity during the research process. The chosen pseudonyms were Jesús, Carlos, Mariana, and Carolina.

2.4 Data Processing

Responses from the COLLES instrument were systematically compiled into a structured database for statistical analysis. To evaluate changes over time, a comparison of means between the pre-test and post-test scores was conducted utilizing a paired-samples t-test across all six dimensions. Statistically significant differences were determined based on a threshold of $p < .05$ (Rubio-Hurtado and Berlanga-Silvente, 2012). Additionally, a non-parametric Kruskal-Wallis H test was deployed to compare means across the four independent classroom groups, evaluating both overarching scores and individual COLLES dimensions (van der Linden, 2022). Quantitative data analysis was operationalized using IBM SPSS Statistics version 22.

Concurrently, the qualitative interviews were audio-recorded and verbatim transcribed into text files. Utilizing these transcripts, an inductive coding process was performed following the grounded theory methodology established by Corbin and Strauss (2008). The emerging codes were iteratively grouped, mapped, and linked to generate cohesive

axial categories (Palacios, 2021), culminating in the selection of primary core categories that comprehensively explained the qualitative interview findings. ATLAS.ti version 25 software was utilized to facilitate the coding, grouping, and categorization of the qualitative data.

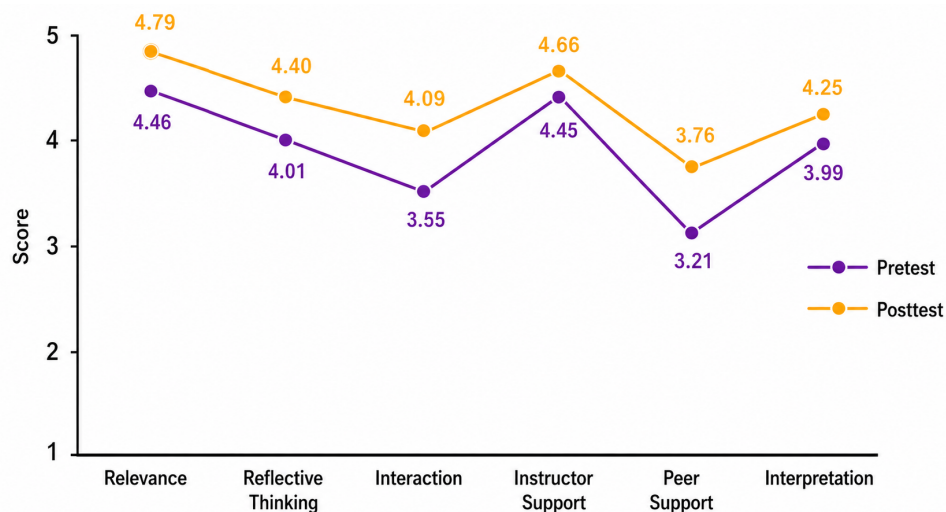
3. Results

Based on the procedures detailed in the methodological section, this section presents the primary findings derived from the analysis of both the quantitative and qualitative data.

3.1 Quantitative Data

A descriptive analysis revealed that the mean scores for all dimensions assessed by the COLLES instrument increased from the pre-test to the post-test. From the participants' perspective, this upward trend indicates an overall optimization of the constructivist learning environment resulting from the gamification intervention, as illustrated in Figure 2.

Figure 2. Means for the COLLES survey dimensions



Note: Created by the authors.

It is noteworthy that the Peer Support dimension demonstrated the most pronounced impact between the pre-test and post-test administrations, suggesting a high degree of meaningful collaboration within teams throughout the academic period.

Concurrently, the Instructor Support dimension yielded the highest absolute mean values (pre-test approx 4.45 and post-test approx 4.66), confirming that the instructor maintained consistent guidance and attentiveness toward the students during

the course. Furthermore, the Interactive Analysis dimension exhibited the greatest descriptive difference between the pre-test and post-test scores, indicating that the gamified intervention substan-

tially enhanced students' perception of the level of active participation and communication among participants.

Table 1. Pre-test and post-test analysis for each dimension

Dimension	Δ post-pre	ds pre-test	ds posttest	t	p	d
Relevance	.33203	0.489	0.328	5.949	.001	0.8
Reflective Thinking	.39258	0.652	0.539	5.255	.001	0.6
Interaction	.54883	0.942	0.960	4.338	.001	0.5
Tutor Support	.20898	0.606	0.445	2.963	.004	0.4
Support from Peers	.56055	1.034	1.053	4.372	.001	0.5
Interpretation	.25586	0.670	0.655	2.944	.004	0.3

Note: Δ = Mean, ds = Standard deviation, d = Effect size, where 0.2 is small, 0.5 is medium, and 0.8 is large.

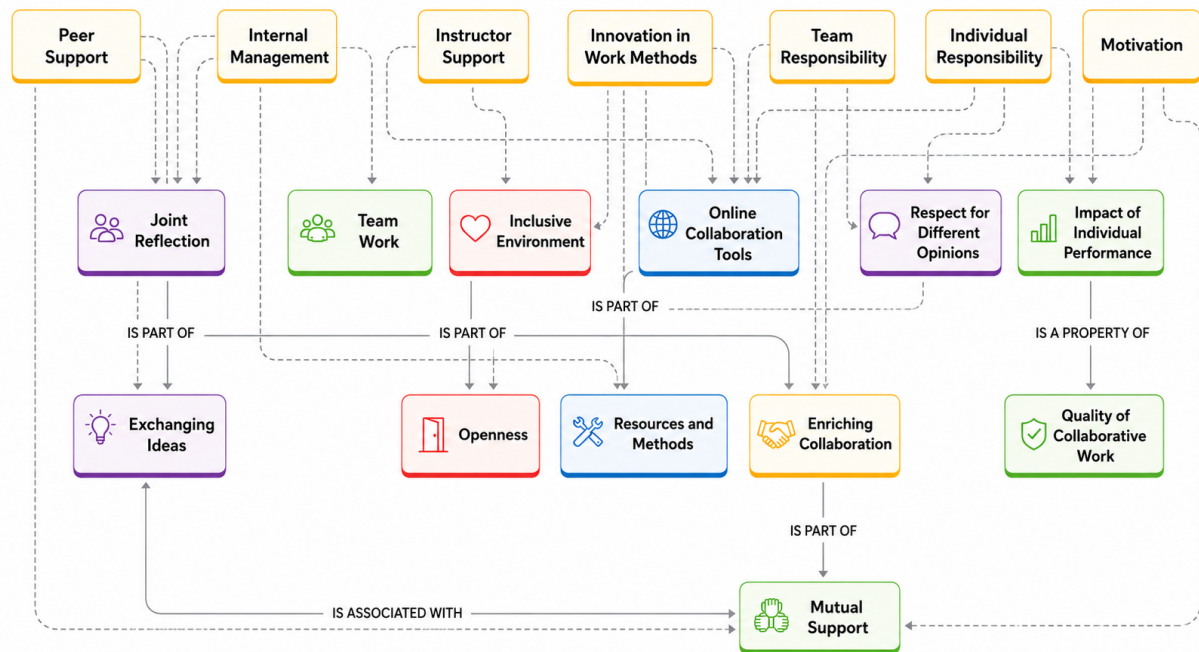
Author's own calculations.

It can be observed that all dimensions yielded a t-value greater than the critical threshold and a statistically significant value of $p < .05$, confirming definitive differences between the pre-test and post-test scores. In particular, the Relevance and Reflective Thinking dimensions exhibited the largest effect sizes; this outcome may be attributed to the fact that, during the pre-test, participants were unacquainted with how the instructional dynamics would unfold, whereas by the conclusion of the course, they were able to develop critical thinking and recognize the professional importance of the thematic areas. In the case of the Interactive Analysis and Peer Support dimensions, the observed effect sizes were moderate, suggesting that the gamification strategies exerted a meaningful impact on the teams' collaborative work dynamics. Finally, the smallest effect sizes were reported in the Instructor Support and Interpretation dimensions, indicating that the instructor's guidance and the communication processes among participants were perceived as highly important from the very beginning of the course and were subsequently reaffirmed at its conclusion.

When comparing the four independent classroom groups, the data revealed that the scores remained statistically homogeneous across most dimensions. However, within the Instructor Support dimension, Group B demonstrated significant differences compared to the other cohorts ($H = 15.126$, $p = .001$). Similarly, when scores were compared on the basis of gender, no statistically significant differences were detected between the groups.

3.2 Qualitative Data

The interviews conducted with the key informants provided deeper qualitative insights into the specific impacts of gamification strategies on their collaborative learning processes. The inductive coding process identified seven main categories that are interrelated through various conceptual dynamics (see Figure 3). These core categories comprise: Peer Support, Internal Management, Instructor Support, Innovation in Work Methods, Team Responsibility, Individual Responsibility, and Motivation.

Figure 3. Mapping of the categories and codes resulting from the interviews

Note: Prepared by the authors.

For each of these categories, the corresponding analysis was conducted, as presented below.

3.2.1 Peer Support

During the interviews, participants reported observing a high degree of peer support and collaboration both within their own teams and across different classroom groups, which actively enabled them to achieve common pedagogical objectives and goals. They also highlighted the role of constant communication, particularly during the execution of the gamified Missions within each team. Participants noted that this fluid dynamic allowed them to dynamically assume different roles throughout the course, providing them with the opportunity to engage in diverse and enriching learning experiences. Furthermore, the informants agreed that each team member contributed with distinct individual skills, which in turn fostered collaborative synergy and sound decision-making. Both Jesús and Carolina specifically mentioned that teamwork grounded in mutual respect, a balanced distribution of tasks, peer support, and the collective commitment of all members significantly strengthened communication channels both at the intra-team and inter-team levels.

3.2.2 Internal Management

In the interviews, participants agreed that both team leaders and members proactively took steps to organize themselves, improve coordination, and ensure the optimal functioning of the group. They highlighted the importance of shared responsibility and the active utilization of digital communication tools to execute their tasks. Additionally, it was noted that the capacity for internal conflict management and reaching consensus directly helped improve the quality of the assigned missions and projects. Both Carlos and Carolina explicitly stated that their teammates were highly motivated to collaborate, working together seamlessly via video conferences and face-to-face sessions through the specific instructional mechanisms employed by the professor.

3.2.3 Instructor Support

The interviewees rated the strategies employed by the instructor to foster teamwork as highly positive, highlighting how each member contributed autonomously while remaining under the instructor's continuous supervision. Another aspect they emphasized was the consistent collaborative approach, which, in

their opinion, proved to be significantly more engaging and less tedious than they had initially anticipated. They also noted that the gamification design represented a new pedagogical experience, viewing it positively due to the way it allowed them to tackle academic activities as a cohesive team. Both Jesús and Carlos agreed that the operational delivery of the course effectively incentivized collective efforts, highlighting how their participation was positively influenced by the instructor's proactive attitude as he guided them during the execution of the Missions. In this regard, Carlos commented:

What I liked was that the instructor kept an eye on everyone, asked if we had any questions, responded immediately after we submitted a question, and helped clarify what needed to be done.

3.2.4 *Innovation in the Teaching Method*

Another element the participants highlighted was the implementation of an innovative methodology such as gamification, as they collectively agreed that it transformed the traditional teaching paradigms they were accustomed to into a more engaging and stimulating experience. However, they concurrently noted that they were previously unaware that such methodologies existed or could be systematically deployed to enhance learning outcomes. In this regard, Mariana articulated this perspective through the following testimony:

I think it's great that we do something different in class, because it doesn't feel like I'm doing schoolwork, but rather playing a character. For example, I was a warrior, and to gain some power, I had to unlock the Missions together with the other teammates.

3.2.5 *Individual Responsibility*

Another theme that emerged from the interviews was how these innovative methodologies actively strengthened collaborative work while simultaneously emphasizing that individual accountability remains essential to achieving collective goals. Furthermore, participants noted that the personal differences, unique capabilities, and distinct skill sets of the team members significantly enriched

mutual collaboration and learning outcomes. They also acknowledged that, although the professional and personal obligations of certain members initially hindered the coordination of meetings and the timely completion of the Missions, a sustained individual commitment ultimately enabled them to deliver the tasks on time and in accordance with the established requirements. Carolina noted that the implementation of gamification strategies profoundly transformed the group's work dynamics. For her part, Mariana pointed out that while team members had to invest considerable effort into communication and intra-team collaboration, the final outcomes were highly satisfactory.

3.2.6 *Team Responsibility*

Building on the previous point, participants acknowledged that the collaborative activities embedded within the course systematically fostered mutual support, while the integration of gamification allowed them to explicitly recognize the ludic dimension of collaboration and learning. In the participants' estimation, although initial group work presented coordination challenges, they agreed that they ultimately achieved adequate synchronization. This success was driven by a collective commitment to the team, which was sustained through specific strategies proposed by the instructor, such as active listening and mutual respect for diverse ideas. Carlos articulated this experiential progression in the following comment:

My classmates and I reached agreements on teamwork because we noticed some shortcomings at the beginning of the course; so, we all talked it over and committed to working together to move the team forward and successfully complete the course.

3.2.7 *Motivation*

This was a recurring theme throughout the interviews, as participants consistently observed behavioral shifts when students successfully achieved both collective and individual goals. Specifically, they identified how the gamification strategies directly influenced collaborative learning dynamics, motivation, and overall attitude, noting that the systematic use of rewards proved both exciting and stimulating.

Furthermore, they perceived the missions and the broader Interactive Learning Event (ILE) as highly relevant to their professional training. The following testimony from Carolina reflects this perspective:

I did find motivation in the course because it was not routinary and made me curious about how I would achieve the goals with my team. I view the shift from the traditional focus on assignments and grades to games and leveling up as positive, as I believe it fostered interaction and motivation among classmates.

This feeling was reinforced by Carlos, who commented on his own attitude:

It changed my perception of the subject; I felt motivated by the competition and the chance to surpass myself and my classmates.

4. Discussion and Conclusions

4.1 Discussion

Based on the empirical analysis of the data, significant positive impacts of gamification strategies on collaborative learning were identified among higher education students within a blended learning environment. The most pronounced variations were observed in the COLLES survey results between the pre-test and post-test administrations, with inferential effect sizes indicating consistent, robust improvements following the instructional intervention. Furthermore, the qualitative interviews with key informants successfully triangulated, confirmed, and provided deeper insights into the underlying mechanisms driving these quantitative enhancements.

First, a paramount factor was the comprehensive structural design of the course, which systematically deployed well-defined gamification strategies while meticulously maintaining a pedagogical equilibrium with formal academic obligations. This rigorous design enabled students to clearly grasp the instructional nature of the course and its core professional purpose, a result reflected in the high baseline and final scores obtained in the Relevance dimension of the COLLES survey across both administrations. This finding aligns with the theoretical frameworks of Kapp (2012), Werbach and Hunter (2020), and Grabner-Hagen and Kingsley

(2023), who contend that a well-calibrated gamified environment triggers intrinsic psychological processes of motivation and sustained commitment toward overarching learning objectives.

Second, another critical factor that fostered a high level of collaborative learning was the participants' progressive commitment to engaging in the assigned tasks. Although the quantitative survey revealed moderate effect sizes in the Peer Support and Interactive Analysis dimensions, the qualitative testimonies of the key informants successfully illuminated these findings. The interviews demonstrated how fluid communication, shared responsibility, joint problem-solving, and alignment with collective objectives were progressively achieved. Nevertheless, these dynamics were not without friction, particularly regarding initial challenges in reaching consensus and managing task allocation within the teams, a phenomenon that converges with the observations of Parlier et al. (2022) and Ertan and Arkün (2022) concerning the complexities of uneven workload distribution in collaborative student frameworks.

Third, and fundamental to the operational success of the course, was the nature of the instructor's guidance. Both the quantitative and qualitative datasets heavily underscored the instructor's proactive engagement, continuous monitoring of the teams, and the academic trust placed in the students to execute their tasks autonomously. According to Campbell et al. (2024), specialized instructor support frequently exerts a more critical impact on shaping student perceptions than peer support within a technology-mediated learning environment. This is especially true in blended ecosystems, where the virtual component poses greater instructional management challenges than face-to-face interactions (Ingrisch-Rupp and Symeonidis, 2025). However, the statistically significant variation detected in Group B regarding the Instructor Support dimension highlights the necessity of examining confounding variables such as specialized teacher attitudes, the granular quality of formative feedback, and idiosyncratic group dynamics. Both Christopoulos and Mystakidis (2023) and Perez-Aranda et al. (2024) concur that these specific instructional elements directly mediate the efficacy of collaborative learning outcomes.

Finally, the convergence of the elements described above proved essential for driving the substantial effect sizes observed in the Relevance and

Reflective Thinking dimensions, which were also vividly mirrored in the qualitative narratives of the key informants. Consequently, the gamified intervention exerted a meaningful impact on cultivating an environment highly conducive to collaborative reflection, while simultaneously constructing more participatory and meaningful learning experiences—a outcome strongly supported by recent literature on innovative higher education methodologies (Amirthalingam et al., 2023; Guijarro-Romero et al., 2025; Qiao et al., 2025).

4.2 Conclusions

This study has empirically demonstrated that the systematic integration of gamification strategies actively influences group work dynamics and exerts a profoundly positive impact on collaborative learning among higher education students. This overarching finding is robustly substantiated by the statistical advancements observed between the pre-test and post-test scores across all dimensions of the COLLES instrument and is further validated by the rich qualitative narratives of the key informants, who emphasized substantial cognitive growth, particularly within the realms of reflective thinking and professional relevance.

The comprehensive analysis reveals that the factors vital to achieving meaningful collaborative learning are threefold. First, it requires an intentional course design that embeds a ludic instructional architecture specifically tailored to the discipline, academic level, and demographic profile of the students. Second, it hinges upon the students' internal accountability and active engagement in group activities, paired with a willingness to embrace collective reflection, mutual commitment, and autonomous conflict resolution. Lastly, the instructor remains an indispensable catalyst for securing these positive outcomes; therefore, the educator must maintain proactive involvement throughout the academic period, providing continuous formative feedback and scaffolding to operate effectively as a facilitator within the innovative learning ecosystem.

4.3 Recommendations for Future Work

Based on the scope and boundaries of this research, it is highly recommended that future stu-

dies incorporate additional assessment strategies to supplement the self-reported instruments used here. Specifically, the integration of maximum-performance tests is suggested to objectively evaluate students' concrete skills and cognitive capabilities within collaborative settings across both face-to-face and virtual environments. Likewise, deploying alternative validated instruments specifically calibrated for blended learning ecosystems would broaden the empirical understanding of these dynamics, as would examine the integration of artificial intelligence (AI) as a tool to scaffold or analyze collaborative processes. Furthermore, a key behavioral vector that warrants deeper longitudinal investigation is the complex construct of student motivation and its direct, mediated effects on collaborative learning outcomes. Finally, future research designs should scale the sample size to include a larger and more diverse cohort of participants; maintaining the same educational level while drawing from distinct institutional and socio-cultural contexts will enable cross-contextual validation and the identification of macro-level patterns that could not be detected in the present study due to the highly controlled nature of the course and the baseline homogeneity of the sample.

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Author Declaration – CRediT Taxonomy

Authors	Contributions
Dr. William Reyes-Cabrera	Conceptualization, methodology, data curation, software, writing.
Dr. Samia Imán-May	Formal analysis, research, validation, writing of the original draft.

Statement on the Use of Artificial Intelligence

The authors DECLARE that, in the preparation of the article “*Gamification and Collaborative Learning Among Higher Education Students*,” the AI tool from the ATLAS.TI program was used to code and analyze the interviews, generating the list of codes; this can be seen in the results section under subsection 3.2 on qualitative data.



Good practices in the organization of inclusive support in schools

Buenas prácticas en la organización de apoyos inclusivos en las escuelas

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Abstract

Inclusive support systems are a cornerstone of schools, capable of driving substantial and far-reaching changes in educational policies, cultures and practices. The overall aim of this study is to analyse good practices in the organisation of educational support systems that promote the inclusion of all pupils in mainstream primary school classrooms, based on the views of the educational community. This research is conducted using an inductive qualitative approach. A total of 329 professionals involved in the organisation of educational support systems across 25 primary schools participated in the study. Semi-structured interviews were used to gather the data. A qualitative content analysis was carried out using ATLAS.ti 25 software. The results show that the effective organisation of inclusive support systems requires clear planning that defines inclusion within the school, based on a comprehensive analysis of existing barriers. The need for mainstream and support staff to plan jointly, based on agreed improvement objectives, is highlighted. Furthermore, the practices proposed by the professionals include the creation of intervention protocols to address the identified barriers, co-teaching, curriculum prioritisation, flexible grouping and active methodologies, which are considered essential for optimising the organisation and functioning of educational support systems in the schools analysed.

Keywords: inclusive education, inclusive supports, primary education, educational innovation, co-teaching, active methodologies.

Resumen

Los sistemas de apoyo inclusivos son una pieza angular de las escuelas, capaces de impulsar transformaciones sustanciales y profundas en las políticas, culturas y prácticas educativas. El objetivo general de este estudio es analizar las buenas prácticas en la organización de los sistemas de apoyo educativo que favorecen la inclusión de todo el alumnado en las aulas ordinarias de educación primaria desde las voces de la comunidad educativa. Esta investigación se desarrolla bajo un enfoque cualitativo de carácter inductivo. Han participado 329 profesionales involucrados en la organización de los sistemas de apoyo educativo de 25 centros de Educación Primaria. Para la obtención de la información, se empleó la entrevista semiestructurada. Se siguió un proceso de análisis cualitativo de contenido a través del software ATLAS.ti 25. Los resultados evidencian que la organización efectiva de los sistemas de apoyo inclusivos requiere una planificación clara que defina la inclusión dentro del centro, fundamentada en un análisis integral de las barreras existentes. Se destaca la necesidad de que el profesorado generalista y el de apoyo programen de forma conjunta, basándose en objetivos de mejora consensuados. Además, las prácticas propuestas por los profesionales incluyen la creación de protocolos de intervención ante las barreras detectadas, co-enseñanza, la priorización curricular, los agrupamientos flexibles y las metodologías activas, consideradas esenciales para optimizar la organización y funcionamiento de los sistemas de apoyo educativo en los centros analizados.

Palabras clave: educación inclusiva, apoyos inclusivos, educación primaria, innovación educativa, co-enseñanza, metodologías activas.

1. Introduction

Inclusive education constitutes the driving force behind the systematic transformation of educational ecosystems toward teaching and learning paradigms that cultivate welcoming environments and optimize the holistic well-being of all learners (Arnaiz-Sánchez et al., 2024; Walton, 2025). Within Goal 4 of the 2030 Agenda, 117 United Nations member states pledged to promote the comprehensive educational reforms necessary to achieve inclusive education for all students (UNESCO, 2017). Undoubtedly, this structural process demands the identification and systematic removal of institutional and pedagogical barriers within schools that prevent students from fully attending, participating, and learning within regular, mainstream classrooms (Ainscow, 2021; UNESCO, 2023). In Spain and other European nations, specific measures and initiatives designed to address diversity have proliferated, aiming to respond effectively to students' distinct individual characteristics (Arnaiz-Sánchez et al., 2019). However, these targeted measures frequently culminate in the inadvertent segregation of students into isolated schools, classrooms, or parallel programs (De la Fuente-González and Rodríguez-Martín, 2026), as specialized environments are constructed for their implementation, thereby failing to uphold the core principles of equity and genuine inclusion (Norwich, 2023).

A salient example of this systemic challenge is found in Organic Law 3/2020 of December 29, which amends Organic Law 2/2006 of May 3 on Education (LOMLOE, 2020), which persists in classifying students with special educational needs as “those who require educational support distinct from that provided in regular education” (Art. 71.2). In the Region of Murcia, the specific context where this research was conducted, such needs—defined as being “associated with personal disabilities and requiring extensive, generalized support, thereby necessitating specific human and material resources”—stipulate that students are to be enrolled in specialized special education centers when their “needs cannot be met within the framework of diversity-addressing measures in mainstream schools” (Decree 359/2009 establishing and regulating the educational response to student diversity, 2009, Art. 26).

Within this paradigm, amidst the manifold challenges facing the sustainable inclusion of diverse students in mainstream classrooms, educational support systems are increasingly conceptualized as transformative levers within schools (De La Torre and Martín, 2024). These systems constitute a fundamental cornerstone of institutional planning, curriculum programming, and school organization, capable of coordinating all measures, strategies, and resources required to eliminate structural barriers to student participation and learning outcomes (De Boer and Kuijper, 2021; Wermke and Beck, 2025).

A school's support infrastructure functions as a learning community that actively fosters participation and democratic interaction within mainstream classrooms (Flecha et al., 2024; Redondo et al., 2025). This framework, combined with the strategic deployment of inclusive and flexible grouping strategies, promotes robust pedagogical approaches in regular classrooms that dynamically adapt instructional designs to students' unique needs and learning paces (Alvídrez and Elías, 2024; Orlandini and Panzavolta, 2025). From this perspective, the application of active methodologies, such as peer-tutoring or collaborative group work, empowers students to progressively gain autonomy without direct, continuous teacher intervention (Schmidt and Thygesen, 2024). As Keles et al. (2024) state, educational support is most beneficial for students' holistic development when it concurrently targets academic learning, socialization, and socio-emotional maturation; furthermore, empirical evidence demonstrates that creating inclusive projects and school coexistence plans fosters student engagement and a profound sense of community and belonging (Shahzad et al., 2025). Similarly, cross-institutional collaboration with families remains a critical variable in establishing successful inclusive coexistence initiatives at the institutional level (Cortés-González et al., 2025).

The empirical study conducted by Sanahuja et al. (2022) demonstrates that there is no singular, universally valid support model across all educational contexts, given that multiple ecological factors influence its efficacy. Consequently, each school must autonomously define its support strategies based on its specific localized context and shared ideological beliefs regarding the operational definition of educational inclusion. Rooted in this premise, Ketikidou and Saiti (2025) and Redondo-Sama et al.

(2025) highlight the vital importance of defining the concept of inclusion within the school ecosystem and establishing a clear institutional course of action grounded in values aligned with inclusive principles that are collectively shared by the entire educational community. To effectively define inclusion, Arnaiz-Sánchez et al. (2019) note that schools must undergo rigorous self-assessment processes designed to identify both the systemic barriers that hinder inclusion and the facilitating factors that accelerate it.

In this regard, García et al. (2025) propose three distinct operational phases in the analysis, definition, and implementation of an inclusive approach within schools: awareness-raising, planning and implementation, and systematic evaluation. In turn, Soldevila et al. (2025) advocate for establishing continuous dialogue and cross-functional coordination within the educational community during this transformation to cultivate a democratic school culture (Alcaraz et al., 2026) that integrates the voices of all stakeholders—especially students—since they frequently encounter the most acute institutional barriers, as argued by Messiou (2019). Consequently, incorporating students' voices to analyze their specific needs and pedagogical preferences significantly improves the classroom climate and fosters positive, collaborative work dynamic, thereby enabling the development of an authentic inclusive ethos and organizational culture (De Boer and Kuijper, 2021).

As mentioned by Abellán et al. (2021), an optimized support system originates with the construction of a collaborative professional community, given that professional collaboration lies at the very heart of inclusive initiatives. Based on this, general education teachers and specialized support educators must collaborate closely to operationalize inclusive practices in regular classrooms that successfully reach all learners (Lakkala et al., 2021; Margas, 2023). This paradigm shift requires the support to move away from focusing exclusively on students with acute learning difficulties, redirecting their expertise toward supporting the classroom teacher and the students as a unified whole through collaborative planning, co-design, and co-organization. This professional realignment needs a profound rethinking of the responsibilities and functions embedded within the support teacher's professional profile, driven by a shared pedagogical commitment that addresses the diverse needs of the students. As various con-

temporary studies reveal (Abellán et al., 2022; Rönn et al., 2024; Simón et al., 2024; Torralba et al., 2025), co-teaching paradigms promote greater inclusion within the peer group, as they eschew the delivery of isolated, differentiated activities for specific students in favor of fostering student autonomy, improving the broader school climate, and enhancing social interaction and group cohesion.

This transformative approach demands a comprehensive organizational change that successfully channels the necessary human and material resources directly into regular classrooms (Arostegui et al., 2023). It also needs a flexible, fluid approach to temporal and spatial management within support systems through collaborative work and structured planning, which in turn generates sustainable support policies and programs (Sanahuja et al., 2022). Furthermore, it is critical to emphasize that the support provided in schools must be continuously reviewed to critically reflect upon and evaluate the actions executed and the objectives achieved (Simón et al., 2024). Specifically, research by Tejeiro (2024) indicates that maintaining rigorous records of support interventions in schools allows for optimized organization, precise monitoring of student progress, the strategic reorganization of resources, and the seamless implementation of continuous improvements in educational processes.

Based on the theoretical and empirical foundations detailed above, the general objective of this study is to analyze best practices in the organization of educational support systems that promote the inclusion of all students within regular elementary school classrooms, as perceived by the educational community.

Two specific research objectives derive from this overarching goal:

To describe the organizational elements that promote the creation of inclusive support systems.

To propose evidence-based organizational strategies that ensure the development and sustainability of inclusive support systems.

2. Methodology

2.1 Research Design

Given the nature of the data, this study uses a qualitative research framework grounded in an inductive, interpretive research paradigm. This

methodological design aligns with the perspective of Flick (2018), who posits that qualitative inquiry seeks to comprehensively understand social meanings and underlying processes from the experiential viewpoint of the participants. Consequently, the interpretive paradigm is uniquely suited for analyzing complex educational phenomena, such as inclusive education, as it focuses specifically on the lived experiences, subjective perceptions, and nuanced meanings that educational actors attribute to their daily practices and idiosyncratic contexts.

2.2 Participants

A total of 329 stakeholders from the educational community across 25 schools in the Region of Murcia—comprising 12 mainstream primary schools and 13 special education schools—participated in this study, alongside representatives from nine regional Educational and Psychopedagogical Guidance Teams (see Table 1).

Table 1. *Sociodemographic data and percentages*

Educational Level	
Elementary	25 (100%)
Type of school	
Mainstream schools	12 (48%)
Special education schools	13 (52%)
Total	25 schools (100%)
Type of school	
Public	19 (76%)
State-subsidized	6 (24%)
Total	25 schools (100%)
Professional Profile	
Management Team	42 (12.8%)
Tenured Faculty	70 (21.3%)
Support Faculty	36 (10.9%)
Counselors	27 (8.2%)
Families	55 (16.7%)
Students	67 (20.4%)
Educational Support Staff	23 (7.0%)
Associations	9 (2.7%)
Total	329 participants (100%)

For sample selection, a non-probability purposive sampling procedure was deployed in strict accordance with the study's overarching research objectives. A formal, personalized invitation letter was dispatched to 27 eligible educational institutions, followed by direct telephonic contact from various members of the research team. Of the 27 initially targeted schools, two declined to participate, resulting in a final institutional sample of 25 schools.

The purposive selection of the sample was guided by three distinct inclusion criteria: (1) being a primary school located within the same geographical catchment area as the reference special education center; (2) operating a Specialized Open Classroom (*Aula Abierta Especializada*); and (3) having at least one student enrolled who, in accordance with Article 71.2 of Decree 359/2009, is officially classified as having extensive and generalized support needs that

necessitate specific human and material resources. Concurrently, deliberate efforts were made to recruit a participant cohort of professionals who, while operating at the same educational level, exhibited maximum variation in terms of professional profile, institutional ownership (public or private-subsidized), and geographic distribution.

2.3 Data Collection Techniques

For data collection, semi-structured individual interviews and group interviews were selected as the primary instruments, as they are widely recognized as ideal techniques for exploring in depth the complex perceptions and intersubjective meanings constructed by participants within their specific

educational contexts. These qualitative interviewing methods facilitate the elicitation of highly nuanced information regarding personal experiences, institutional values, and subjective interpretations associated with the socio-educational environment, thereby providing direct access to the participants' individual perspectives.

A total of 209 individual interviews were successfully conducted across the 25 participating schools (see Table 2). The interviews were administered face-to-face on-site, with each session lasting approximately 60 minutes. To ensure data fidelity, all sessions were audio-recorded with prior consent and subsequently processed using verbatim transcription protocols for systematic analysis.

Table 2. *Individual and group interviews conducted in the study*

Group	Individual interviews	Group interviews	Total participants interviewed
Management team	38	2	42
Full-time faculty	50	4	70
Support Faculty	28	2	36
Counselors	22	1	27
Families	55	0	55
Students	35	8	67
Educational Technician Assistant	18	1	23
Associations	9	0	9
Total	209	18	329

A semi-structured interview protocol (Appendix 1) was used, containing targeted questions operationalized across the core thematic dimensions of educational support systems. Representative items included: How is the educational support system strategically planned at your school? How is the operational structure of the educational support system organized? How do specialized support teachers and general education teachers coordinate their practices within the support system? List three priority actions regarding educational inclusion in mainstream classrooms for students who require highly personalized attention.

This protocol was validated through expert judgment involving four senior researchers from the institutional research team under a blinded peer

review mechanism. Once the constructive refinements were integrated, the final interview guide was formally validated by establishing a rigorous content equivalence and structural alignment between the overarching research objectives and the specific questions posed (Robles and Rojas, 2015).

2.4 Data Analysis Plan

To systematically process the corpus of collected data, we initially generated verbatim transcriptions of all individual and group interviews conducted during the data collection phase. Subsequently, these transcripts were organized and formatted into distinct text documents. Once this initial proces-

sing was completed, the entire textual material was imported into an active project within the computer-assisted qualitative data analysis software (CAQDAS) ATLAS.ti (version 25 for Windows), a tool that systematically facilitated the structured organization, coding, and multi-layered analysis of the qualitative data.

The analytical procedure was executed in strict accordance with the foundational principles of qualitative content analysis (Vives and Hamii, 2021). During the initial phase, the transcripts underwent rigorous, immersive reading to familiarize the research team with the narrative content and to derive a comprehensive, holistic understanding of the participants' discourses. Following this, a systematic open and axial coding process was performed (Strauss and Corbin, 1998), which allowed for the isolation of relevant units of meaning directly aligned with the study's research objectives. These emerging units were progressively aggregated into provisional open codes to organize the incoming raw data.

In the second phase, these initial codes were iteratively reviewed, compared, and refined through a continuous process of constant comparative analysis across the entire dataset. This analytical procedure enabled the clustering of conceptually related codes into broader, higher-order categories, culminating in the final categorical matrix deployed in this study. Consequently, the codebook was constructed through a purely inductive approach, ensuring that the thematic categories emerged directly from the experiential data rather than being forced into a pre-established or *a priori* theoretical framework.

To guarantee the internal consistency, reliability, and credibility of the analytical process, a rigorous strategy of investigator triangulation was

applied (Latorre et al., 2005). Three independent members of the research team separately reviewed the transcripts and executed the initial assignment of codes. Subsequently, formal calibration meetings were held to cross-examine the coding structures, discuss potential interpretive differences, and reach inter-coder consensus regarding the operational definitions of each emerging code and subcode. This collaborative verification process refined the categorical system and enhanced coding density and consistency across all analyzed text segments.

Furthermore, during the advanced interpretation phase, intricate semantic networks were constructed using ATLAS.ti to visually map the conceptual relationships, hierarchies, and linkages between categories, codes, subcodes, and their corresponding quotations. These semantic webs facilitated the identification of structural patterns, conceptual cross-currents, and recurring thematic elements embedded within the participants' discourses, thereby contributing to a deeper, more robust understanding of the organizational phenomena under analysis.

As a direct outcome of this systematic analytical workflow, 121 relevant, rich quotations were isolated, coded, and contextualized according to their thematic essence. This empirical evidence served as the qualitative foundation for formulating concrete, actionable proposals aimed at optimizing the structural organization of educational support systems and cultivating more inclusive practices within mainstream elementary schools.

The following section presents the comprehensive category and codebook operationalized during the data reduction, organization, and classification processes (Table 3).

Table 3. *Categories and codes used for the analysis of the information*

Category 1. Organizational elements for creating inclusive supports	
Codes	Subcodes
Code 1. Planning for inclusive support (Support_Plan)	(Support_Plan_Initial_Assessment) Initial assessment of students to identify classroom needs and characteristics
	(Support_Plan_Goal_Setting) Setting improvement goals for students based on the initial assessment
	(Support_Plan_Instructional_Planning) Classroom instructional planning based on each student's needs and improvement goals
	(Support_Plan_Goal_Review) Periodic review of progress toward improvement goals
Code 2. Management of Resources in inclusive support (Support_Management)	(Support_Management_Resource_Allocation) Allocation of school resources based on needs and improvement goals
	(Support_Management_Teacher_Organization) Organization of the teaching staff based on classroom needs and characteristics
	(Support_Management_Consensus_on_Roles) Consensus on the roles and tasks performed by the teaching staff
	(Support_Management_Curricular_Flexibility) Flexibility in spaces and schedules
Category 2. Organizational Proposals for Inclusive Support	
Codes	Subcodes
Code 3. Pedagogical strategies for organization of inclusive support (pedagogical strategies_support)	(Pedagogical_Strategies_Support_Protocol_Design) Designing flexible protocols for educational intervention
	(Pedagogical_Strategies_Support_Active_Methodologies) Application of active methodologies to organize support
	(Pedagogical_Strategies_Support_Curricular_Prioritization) Prioritizing competencies and content based on students' needs and goals
	(Teaching_Strategies_Support_Flexible_Groupings) Flexible groupings to organize inclusive support
Code 4. Coordination strategies for the organization of inclusive support (coordinationstrategies_support)	(Strategies_for_coordination_support_Co-teaching) Co-teaching by teachers in the classrooms where they provide support
	(Strategies_for_coordinating_support: Collaborative technologies) Use of collaborative technologies to coordinate support
	(Support_Coordination_Strategies_Volunteer_Participation) Participation of volunteers, such as family members or external agents, as support assistants

3. Results

The results are presented in accordance with the specific objectives formulated in the study.

3.1 Results for Specific Objective 1: Describe the organizational elements that promote the creation of inclusive supports

A total of 67 different quotations were isolated regarding the structural and organizational elements that actively promote inclusive support infrastruc-

tures. To address this specific research objective, the qualitative analysis was operationalized through two interconnected open codes: *Planning for Inclusive Support* and *Resource Management in Inclusive Support* (see Figure 1).

Regarding the first code, *Planning for Inclusive Support*, a significant portion of the participants emphasized (N= 15, 22.4 %) the importance of conducting a diagnostic baseline classroom assessment designed to systematically identify existing pedagogical barriers and environmental facilitators.

A thorough analysis of the challenges faced by classrooms is key to diagnosing the school's needs and addressing the exclusionary factors that hinder inclusion. (Counselor 10, Mainstream Primary School)

Other participants (N= 13, 19.4 %) noted that establishing targeted improvement goals for each individual classroom and student directly optimizes the organization of school-wide inclusive support systems. Furthermore, they argued that these formalized goals facilitate the collaborative measurement of academic objectives and the seamless adaptation of the curriculum to the unique needs and learning profiles of each student.

Planning is determined by a preliminary classroom analysis in which improvement goals (for both the classroom and the student) are established based on the students' needs, characteristics, and preferences. (Support Teacher 3, Mainstream Primary School)

Along these same lines, the informants consider collaborative classroom instructional design to be essential, provided it directly integrates the needs and characteristics of students who have undergone prior diagnostic evaluation. Concurrently, they highlighted the value of incorporating students' voices regarding their own interests and preferences—both in terms of pedagogical methodology and thematic content (N= 11, 16.4 %).

Tutors, together with support teachers, propose objectives for the classroom and its students based on their needs and characteristics, following an

initial analysis. We jointly assess these objectives and establish the most appropriate teaching-learning process to achieve them. (General Education Teacher 7, Mainstream Primary School)

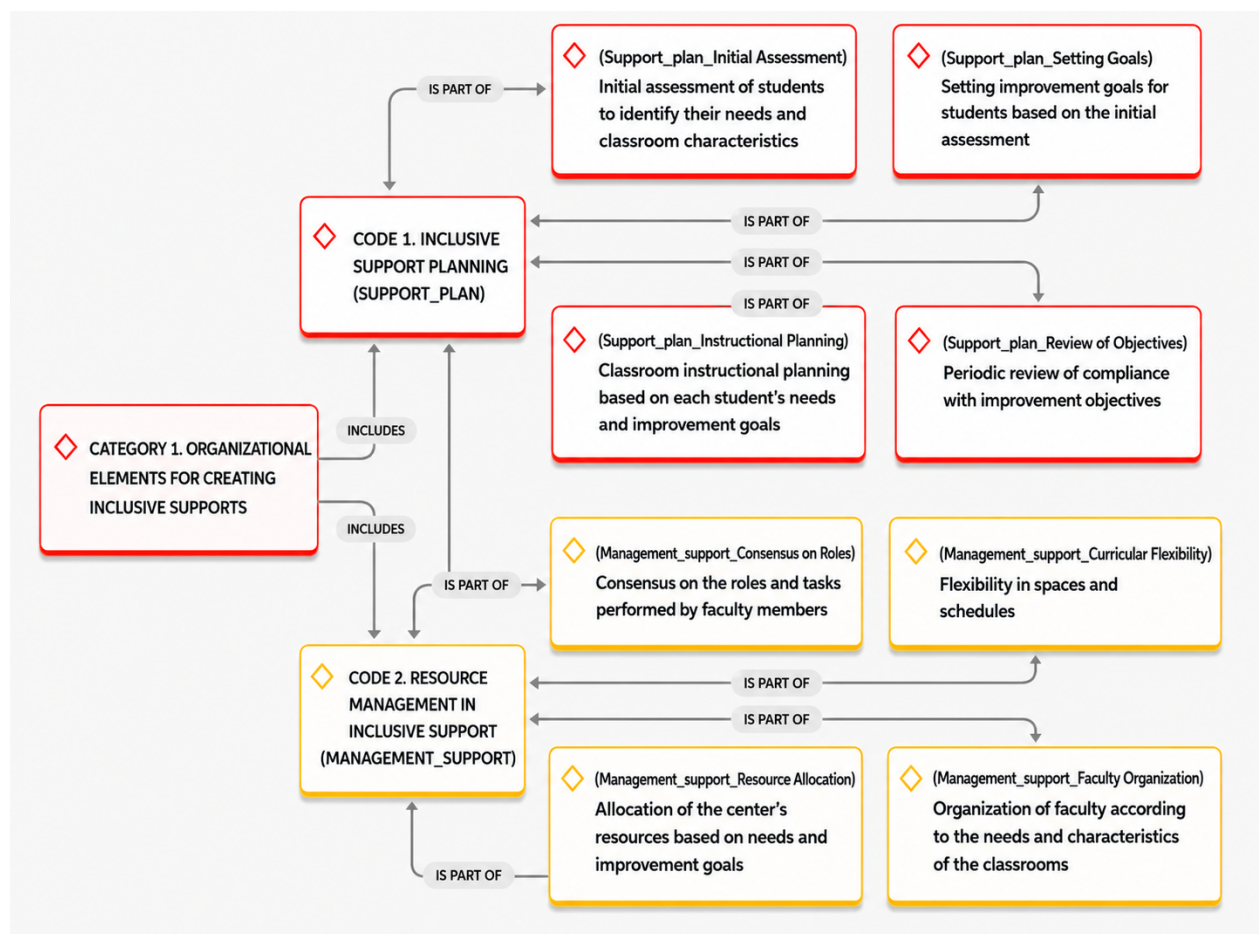
Similarly, a sub-cluster of data (N = 7; 10.4%) indicates that educational support must be continuously reviewed through structured monthly or quarterly formative assessments. These systematic evaluations allow the educational community to measure empirical progress, track longitudinal student development, and critically analyze the pedagogical procedures that have been deployed.

Support must be a dynamic process. It must be maintained throughout the school year and not left until the end of the year to evaluate the student, keeping in mind that there is constant progress and change. (Support Teacher 3, Mainstream Primary School)

Regarding the second code, *Resource Management in Inclusive Support*, multiple references emerged (N = 9; 13.4%) highlighting the necessity of strategically deploying organizational, human, and material resources in direct alignment with the specific needs, characteristics, and preferences of both the classrooms and individual students.

The management of school resources can be overseen by the administrative team. If school resources were organized based on students' needs, characteristics, and even their priorities, that would be wonderful. (General Education Teacher 9, Mainstream Primary School)

Figure 1. Semantic network of the first specific objective



Professionals also highlighted the strategic importance of allocating and structuring the teaching staff in direct alignment with the specific needs and characteristics of individual classrooms to optimize the efficacy of educational support systems (N = 6; 9.0%). Likewise, they mentioned that this staff organization should remain fundamentally flexible, considering the specific subject matters, thematic units, and pedagogical areas where each educator can best contribute their specialized expertise, thereby enriching collaborative instructional planning and maximizing the impact of educational responses.

The school should conduct an analysis of the human resources at its disposal to organize classrooms based on the professionals it employs. There may be a teacher specializing in autism or a professional who has worked at other schools using active methodologies, and all this knowledge is lost if we are unable to assess the strengths of each

of our professionals. (Counselor 4, Mainstream Primary School)

Furthermore, several references emerged (N = 4; 6.0%) regarding the pressing need to establish operational consensus and systematically delineate the specific roles, duties, and tasks of both general education teachers and specialized support educators within the school's overarching support architecture.

Support is effective when we clarify tasks so that each professional clearly understands the roles they must perform and takes responsibility for educational support. (Support Teacher 7, Mainstream Primary School)

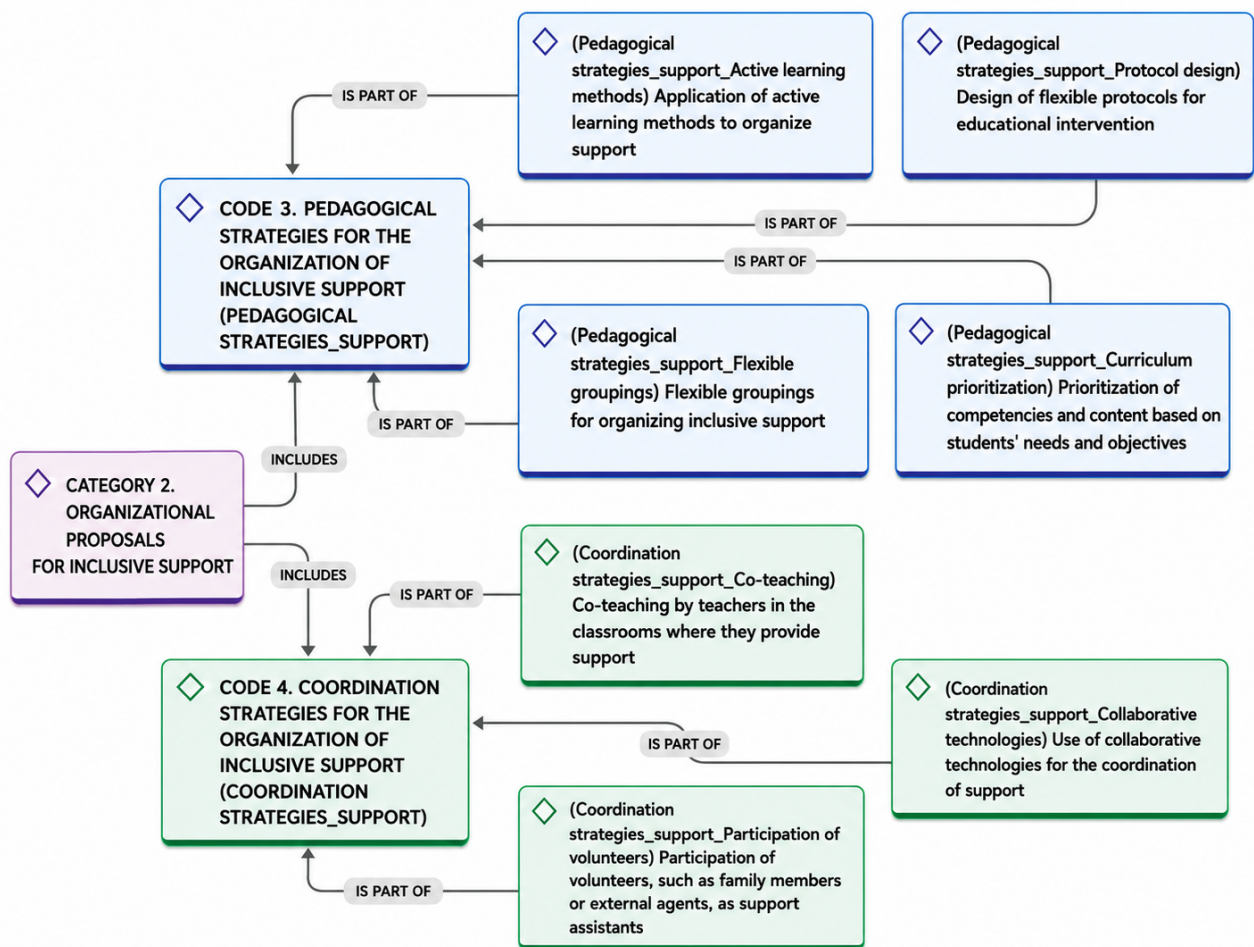
Finally, the participants emphasized the necessity of injecting flexibility into institutional spaces and scheduling frameworks to successfully attain the pedagogical objectives established for the classroom (N = 2; 3.0%).

The school's organization should not be rigid; spaces and schedules must be flexible, and the resources available to schools must be dynamic and adaptable. In this way, the school can be restructured according to classroom needs. (Counselor 11, Mainstream Primary School)

3.2 Results for Specific Objective 2: Establish organizational proposals that ensure the creation of inclusive supports

To address this objective, 54 quotes were identified and divided into two analysis codes: Pedagogical strategies for organizing inclusive support and Coordination strategies for organizing inclusive support (Figure 2).

Figure 2. Semantic network for the first specific objective



Within code 3, *Pedagogical Strategies for Organizing Inclusive Support*, various references (N = 12; 22.2%) highlighted the compelling need to design structured intervention protocols that facilitate highly contextualized adaptations tailored to the unique needs and characteristics of individual students.

Establishing action protocols with students enables the teaching team to respond to the diversity present in the classrooms. These protocols, as part of the Diversity Support Plan, become a collaborative school-wide initiative to provide an inclusive response to everyone. (Counselor 3, Mainstream Primary School)

Furthermore, numerous contributions (N = 10; 18.5%) underscored the deliberate use of active instructional methodologies as a primary pedagogical strategy for organizing and scaffolding inclusive support systems.

Active methodologies in support settings create inclusive spaces because they transform the dynamics of the regular classroom and personalize learning, adapting time and space to students' individual paces. A great example of this is learning through activity corners. (Support Teacher 7, Mainstream Primary School).

Additionally, several references (N = 8; 14.8%) emphasized the strategic prioritization of concrete skills and core competencies based on students' specific educational needs and individualized milestones. This strategy is systematically used as an organizational criterion within the pedagogical design of inclusive support infrastructures.

Curricular prioritization is agreed upon jointly by the various professionals. We take assessment reports into account and prioritize the improvement goals that are most urgent and meaningful for the student. (General Education Teacher 9, Mainstream Primary School).

Similarly, multiple responses (N = 7; 13.0%) pointed to the operational utility of establishing flexible grouping configurations based on students' differentiated proficiency levels across specific subject matters or localized learning scenarios.

In each subject, we group students based on their proficiency level. There are students who are at Level 1 in language arts (the highest level) but at Level 3 in math (the beginner level). Thus, these flexible groupings allow students to learn at their own pace and move up to the next level as their abilities improve. (Principal 8, Mainstream Primary School)

Regarding Code 4, *Coordination Strategies for Organizing Inclusive Support*, a substantial number of professionals articulated the pressing need to establish integrated co-teaching frameworks within the organization of support systems, wherein the general education classroom teacher works in close coordination with the specialized support professional (N = 6; 11.1%).

Co-teaching involves an equitable sharing of responsibilities. Regular and support teachers must jointly plan, schedule, and implement the teaching-learning processes. In regular classrooms, many students benefit from having two professionals in the classroom who are willing to organize an inclusive learning environment. (General Education Teacher 13, Mainstream Primary School).

Concurrently, several informants (N = 6; 11.1%) highlighted the integration of digital technologies as vital coordination mechanisms that assist educators in managing and aligning support measures. These technological platforms enable shared digital monitoring, collaborative instructional planning, and the continuous updating and formative review of individual student interventions.

Collaborative digital tools help us systematize information about each student. These platforms complement in-person meetings, and we use them to better coordinate support measures. (General Education Teacher 8, Mainstream Primary School).

Finally, to a lesser extent (N = 5; 9.3%), participants suggested the active involvement of community volunteers, such as family members or external stakeholders, to operate as instructional support assistants, thereby fostering closer, symbiotic ties between the school and its broader socio-cultural ecosystem.

At our school, we collaborate with the senior center, establishing a collaborative volunteer project. (General Education Teacher 11, Mainstream Primary School).

4. Discussion and Conclusions

This research has provided a deeper, more robust understanding of the multi-layered organizational factors that facilitate the sustainable development of inclusive support systems within mainstream elementary schools. Beyond merely identifying isolated practices, the empirical results demonstrate that genuine inclusion depends, to a large extent, on an institution's capacity to construct dynamic organizational structures capable of continuously analyzing their localized reality, coordinating shared educational responses, and organically adapting pedagogical actions to students' evolving needs. From this pers-

pective, educational support is no longer conceptualized as an array of specialized, segregated resources directed exclusively at specific students, but rather as systemic organizational mechanisms operating at the service of the entire educational community.

Regarding the first specific objective—to describe the organizational elements that promote the creation of inclusive support infrastructures—the findings strongly suggest that a comprehensive initial classroom assessment constitutes an indispensable prerequisite for developing effective inclusive practices. The participating professionals reached a clear consensus that the most critical organizational decisions cannot be formulated based solely on individualized clinical diagnostics; instead, they require a macro-level understanding of the social and instructional dynamics present within the classroom and the broader school ecosystem. This finding is particularly significant because it represents a profound paradigm shift away from deficit-centered models and toward ecological approaches focused on identifying institutional barriers and neutralizing them through contextual facilitators. In this regard, the data reinforce the theoretical arguments of Ainscow (2024), Arnaiz-Sánchez et al. (2019), and UNESCO (2023), who maintain that advancing educational inclusion needs a critical analysis of the structural conditions that generate exclusion within the educational settings themselves.

Likewise, the participants did not view this contextual assessment solely as a static, initial diagnostic phase, but rather as an ongoing, iterative process of formative observation and pedagogical adjustment. This insight is highly relevant because it underscores that the organization of inclusive supports cannot adhere to a rigid or permanent logic. Because students' developmental and academic needs evolve dynamically throughout the school year, intervention strategies must possess reciprocal fluidity. Educational inclusion is thus intrinsically linked to the institutional capacity to continually review internal practices and modify those structural conditions that limit students' presence, active participation, learning outcomes, and overall well-being (García et al., 2025; Redondo-Sama et al., 2025; Walton, 2025).

The study also reveals that shared goal-setting and collaborative instructional planning are fundamental mechanisms for dismantling traditional support structures historically anchored in the stu-

dent-deficit model. The findings suggest that teacher coordination must purposefully evolve into structured collaborative planning sessions that serve as democratic spaces for constructing shared professional meanings around inclusion (Alcaraz et al., 2026). This structural alignment enables general education teachers and specialized support educators to cultivate a common understanding of core educational milestones and the co-teaching strategies required to achieve them (De Boer and Kuijper, 2021; Lakkala et al., 2021; Margas, 2023; Wermke and Beck, 2025).

This issue takes on particular urgency when considering that many contemporary support systems continue to be organized around parallel, isolated initiatives that operate with loose conceptual coupling (Abellán et al., 2021). In contrast, the participants described institutional scenarios where collaborative planning successfully drives the fragmentation of professional responsibilities that has historically characterized specialized, segregating support models (Arostegui et al., 2023; De La Torre and Martín, 2024). Therefore, the results indicate that professional collaboration should not be treated merely as an optional working methodology, but rather as a non-negotiable structural condition necessary for transitioning toward highly inclusive forms of school organization.

Another highly relevant dimension identified in the analysis is the critical value attributed to the systematic monitoring and formative evaluation of support measures. The informants emphasized that the ultimate efficacy of any implemented measure depends on the institutional existence of formalized opportunities for joint review and critical reflection—a finding that strongly aligns with previous empirical literature (Abellán et al., 2022; Rönn et al., 2024; Simón et al., 2024; Tejeiro, 2024)—while adding a vital qualitative nuance. Rather than evaluating student progress in isolation, the participants heavily stressed the need to critically audit the teaching methodologies and organizational structures themselves. In this way, evaluation operates as a powerful vehicle for institutional learning and continuous optimization, reinforcing the concept that inclusion is an ongoing process of structural transformation within the school culture.

Furthermore, the results highlight the strategic importance of agile resource management. Although contemporary debates on inclusive edu-

cation typically focus on the numerical inadequacy of human and material resources, the qualitative discourses gathered in this study suggest that the strategic distribution, allocation, and coordination of these assets may be just as critical as their absolute quantity (Ainscow, 2024; García et al., 2025). The participants emphasized that systematically auditing professional strengths, flexibly assigning classroom responsibilities, and fostering cross-functional coordination among school leadership teams optimize available institutional resources and exponentially increase their direct impact on student learning (Ainscow, 2024; García et al., 2025).

This interpretation directly converges with recent research highlighting inclusive leadership as a catalyst for the development of authentic inclusive school cultures (De la Torre and Martín, 2024). However, the results suggest that leadership is not restricted to administrative or top-down managerial oversight. Rather, it plays a vital mediating role between the specific needs identified within the classroom context and the micro-organizational decisions adopted by the institution. Consequently, the capacity of school leadership teams to design flexible, collaborative professional networks emerges as a determining variable in the success of inclusive support systems.

The clear delineation of professional roles and responsibilities constitutes another major finding of this inquiry. The participants detailed how role ambiguity between specialized support educators and homeroom teachers frequently leads to a counterproductive duplication of efforts, acute coordination friction, and even counter-inclusive delegation practices that restrict the development of shared accountability for student learning. In this regard, while the results align with prior literature (Abellán et al., 2021; Lakkala et al., 2021), they further demonstrate that role definition only yields positive outcomes when embedded within a deeply rooted collaborative culture. A rigid, bureaucratic delineation of responsibilities threatens to reinforce historical dynamics of classroom segregation, whereas an operational clarification explicitly geared toward cooperation fosters professional shared responsibility and collective efficacy.

Similarly, spatiotemporal flexibility emerged as a mandatory condition for translating theoretical inclusive principles into everyday pedagogical practice. The participants noted that excessively rigid

school schedules and physical spatial arrangements severely constrain opportunities for authentic curricular adaptation and make it difficult to accommodate heterogeneous learning paces. This finding, strongly validated by previous research (Norwich, 2023; Schmidt and Thygesen, 2024; Torralba et al., 2025), highlights a pervasive structural tension within contemporary schools: the coexistence of progressive discourses favoring inclusion alongside rigid school organizational architectures that continue to enforce homogeneous, standardized teaching models. Consequently, the results indicate that achieving genuine inclusion requires systemic changes not only at the methodological level but fundamentally at the macro-structural level.

Regarding the second specific objective, the organizational proposals articulated by the participants help illuminate how these theoretical elements can be operationalized into concrete institutional practices. Among these strategies, the development of formalized, shared action protocols stands out. Far from being dismissed as mere bureaucratic instruments, the informants perceived these protocols as vital tools that promote institutional coherence, pedagogical alignment, and continuity in educational responses across different grade levels. This perception is particularly instructive, as it highlights the need to strategically combine classroom-level pedagogical flexibility with common, structured organizational frameworks that guide collective teacher actions (Arnaiz-Sánchez et al., 2024; García et al., 2025; UNESCO, 2023).

Furthermore, the heavy emphasis placed throughout the interviews on active methodologies, flexible grouping configurations, and deliberate curricular prioritization reflects a conceptualization of inclusion that is inextricably bound to student engagement and democratic participation (Alvídrez and Elías, 2024; Schmidt and Thygesen, 2024). The results suggest that these strategies are valued not merely for their psychometric potential to boost academic performance, but primarily for their capacity to construct shared learning opportunities and to safeguard the permanent presence and active socialization of all students within the daily life of the mainstream classroom (Keles et al., 2024; Shahzad et al., 2025; UNESCO, 2017). From this perspective, inclusion is re-defined as the transformation of everyday educational experiences for the collective whole, rather than the sporadic imple-

mentation of parallel, targeted measures for specific marginalized individuals (De la Fuente-González and Rodríguez-Martín, 2026).

Furthermore, professionals highlighted the urgent need to prioritize essential competencies and core thematic content based on students' immediate needs and individualized milestones, which allows for a highly personalized and scaffolded educational response (Lakkala et al., 2021; Margas, 2023). This approach promotes a more flexible organization of the curriculum designed to explicitly address classroom diversity. This architecture facilitates personalized attention that remains fully consistent with structural curricular flexibility and adaptive alignment with students' idiosyncratic learning paces (Arnaiz-Sánchez et al., 2021; Norwich, 2023; Pieri, 2020).

The practice of co-teaching deserves specialized analytical attention, as the participants identified it as one of the instructional mechanisms possessing the greatest transformative and inclusive potential. Although the international literature has extensively documented its general benefits (Arostegui et al., 2023; Sanahuja et al., 2022), the results of this study suggest that co-teaching fundamentally challenges and blurs the traditional, segregated boundaries between general education and specialized support. When both professionals equitably share the cognitive and operational workload of planning, direct classroom intervention, and formative assessment, the historical pattern of referring students out of the room gradually disappears, thereby strengthening an institutional ethos of collective responsibility for all learning processes.

Finally, the intentional expansion of institutional support networks through the structured integration of families, community volunteers, and external social agents reinforces an ecological, holistic vision of inclusive education. The qualitative narratives demonstrate that the educational response to student diversity cannot rest exclusively on the shoulders of classroom teachers; instead, it demands the mobilization of multiple community actors capable of enriching the students' opportunities for socialization, participation, and experiential learning. This finding strongly converges with the arguments of Flecha et al. (2024) and Cortés-González et al. (2025), who contend that building authentically inclusive schools requires strengthening the symbiotic relationships between the educational institution and its surrounding socio-cultural ecosystem.

Taken together, the empirical and qualitative insights derived from this study lead to the solid conclusion that inclusive support systems do not depend solely on the numerical availability of material assets or the mechanical application of specific methodologies; rather, they hinge upon an institution's capacity to cultivate organizational cultures rooted deeply in professional collaboration, curricular flexibility, and continuous structural reflection. The findings suggest that inclusion must be conceptualized as an ongoing institutional process of holistic transformation that simultaneously and non-linearly reshapes organizational frameworks, pedagogical practices, and professional relationships. Moving toward more inclusive support infrastructures inevitably involves radically re-evaluating how schools organize their human resources, distribute their professional responsibilities, and engineer educational responses capable of guaranteeing the democratic participation and learning of all students.

Consequently, further empirical research is urgently needed to track the longitudinal implementation and sustainability of these inclusive support systems across diverse educational landscapes. This study urges the international educational and scientific communities to conduct comprehensive, multi-method organizational audits of schools to systematically identify hidden systemic barriers and isolate enabling factors, with the ultimate objective of engineering highly adaptive, inclusive educational environments.

Finally, it is essential to acknowledge the inherent boundaries of this study. This research was contextually bounded by its focus on a specific geographic territory—the Region of Murcia (Spain)—and a specific targeted sample of educational stakeholders. For this reason, future research lines must scale up the participants and expand into diverse cross-cultural and international geographic contexts to facilitate macro-level verification and enhance the external validity of these organizational models.

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Author Declaration – CRediT Taxonomy

Authors	Contributions
Javier Abellán-Rubio	Conceptualization, methodology, research, data curation, formal analysis, visualization, writing—original draft, writing—revision and editing, resources.
Dra. Pilar Arnaiz-Sánchez	Conceptualization, methodology, research, project management, funding acquisition, supervision, validation, formal analysis, writing—revision and editing, resources.
Dr. Salvador Alcaraz	Methodology, research, data curation, validation, resources, formal analysis, writing—revision and editing, supervision.

Statement on the Use of Artificial Intelligence

The authors DECLARE that, in the preparation of the article “*Best Practices in Organizing Inclusive Supports in Schools*,” the ChatGPT tool (OpenAI) was used exclusively as an aid during the preliminary search and filtering of scientific literature. Its use was limited to the initial identification of search terms, keywords, and potential references related to the study's topic in major databases and academic platforms. However, the authors located, verified, selected, and critically reviewed the references ultimately included in the manuscript.



Linguistic psychopathology and Disney. An educational perspective for inclusion

Psicopatología lingüística y Disney. Una mirada educativa para la inclusión

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Abstract

The current educational landscape supports an inclusive treatment of the diversities present in society. Issues related to hearing and language disorders are highlighted, that Psychopathology offers a response. These situations are represented through the imagery of visual culture. The present work aims to analyze language pathologies in Disney classic films, from a socio-educational position and paradigm to raise awareness about an inclusive treatment of these diversities in classrooms. The methodology is qualitative and it is applied through the analysis of situations and discourses present in the cinematic plots. Results reveal pathologies such as Language Development Disorder (LDD) as applied to the character of Stitch, and Aphonia as applied to the character of Ariel, or the ignorance of the language recreated through feature films where members of the animal kingdom interact and coexist with humanity. Results are also drawn about situations through female figures linked to the triumvirate of classical princesses are relegated to oppression. Overall, conclusions are reached to a didactic use of Disney animated feature films to make visible and inclusively address issues related to linguistic diversity.

Keywords: psychopathology, audition and language, education, visual culture, otherness, feminism.

Resumen

El panorama educativo actual ampara un tratamiento inclusivo de las alteridades presentes en la sociedad. Se destacan las cuestiones vinculadas con los trastornos y dificultades de la audición y del lenguaje; respecto a las cuales la Psicopatología ofrece una respuesta. Estas situaciones se representan con el imaginario de la cultura visual. El presente trabajo tiene por objeto analizar las patologías lingüísticas en filmes de la colección clásicos de Disney, como muestra de estudio, desde un posicionamiento y paradigma socio-educativo para generar conciencia sobre un tratamiento inclusivo de estas diversidades en las aulas. La metodología es de tipo cualitativo y se aplica con el análisis de situaciones y discursos presentes en las tramas cinematográficas. Como resultados se ponen de manifiesto patologías como el Trastorno de Desarrollo del Lenguaje o TDL aplicado a la figura de Stitch y de la Afonía en la figura de Ariel, o el desconocimiento del idioma recreado a través de largometrajes en los que intervienen y cohabitan miembros del reino animal con la propia humanidad. También se extraen resultados sobre situaciones a través de las cuales las figuras femeninas vinculadas con el triunvirato de princesas clásicas quedan relegadas a la opresión. Con todo, se alcanzan conclusiones a través de las cuales se favorece un uso didáctico de largometrajes de animación Disney para visibilizar y atender de manera inclusiva a cuestiones vinculadas con diversidades de corte lingüístico.

Palabras clave: psicopatología, audición y lenguaje, educación, cultura visual, alteridad, feminismo.

1. Introduction and State of the Art

Child psychopathology (Janin, 2019), as an academic field of inquiry, is defined as the systematic analysis of atypical behaviors and psychological disturbances in minors, specifically regarding the description, empirical explanation, and taxonomy of such deviations from normative developmental milestones. Critically, for a given behavior to be classified as clinically atypical or abnormal, it must manifest with low statistical frequency and entail adverse functional consequences for the individual, their immediate environment, or both. Expanding upon this conceptualization, it is essential to revisit the fundamental terminology of pathology (Senra Varela, 1983) as a medical branch dedicated to etiology. Within the specialized domain of hearing and language—the main focus of this article—this analytical framework addresses functional and structural difficulties across its core linguistic dimensions and components: phonological, morphological, semantic, syntactic, and pragmatic.

The most authoritative reference manuals for the clinical classification of these pathologies remain the *DSM-5-TR* (American Psychiatric Association, 2022) and the *ICD-11* (World Health Organization, 2022). These diagnostic frameworks, when integrated with current national educational legislations regarding individualized, inclusive support for diversity, highlight two paramount nomenclature categories for organizing and addressing student characteristics:

- Specific Educational Support Needs (NEAE): Encompassing developmental delay, language and communication disorders, attention deficit disorders, lack of language proficiency, socio-vulnerable circumstances, late entry into the formal educational system, high intellectual abilities (giftedness), and Special Educational Needs.
- Special Educational Needs (SEN): Subcategorized into intellectual disabilities, hearing impairments, visual impairments, motor impairments, severe behavioral disorders, and Autism Spectrum Disorder (ASD).

Based on this established terminology and the contemporary paradigm of psychopathology promoted by the World Health Organization (WHO), as delineated by Sarráis (2016), there is an urgent need

to critically reflect upon the construct of normality, its operational definition, and how it is subjectively interpreted by the public. From an authentic inclusive perspective, consistent with the foundational principles that currently govern the international educational landscape, human diversity must be conceptualized as an inherent condition of existence. Everyone possesses a unique constellation of intrinsic characteristics, lived experiences, and idiosyncratic developmental trajectories that differentiate them from others. Consequently, diversity is no longer treated as a pathological exception to a standardized norm, but rather as a natural, healthy manifestation of the human condition.

The ideological and theoretical foundations of the inclusive approach can be seen as rooted in advances in the consolidation of human rights—known as the ethical perspective—and the social model of disability. Theoretical and legislative frameworks, as well as educational practices, have evolved from an approach centered on segregation to one centered on normalized and inclusive education—from special education needs to attention to diversity—with inclusive education constituting the final link as a means of reducing processes of social exclusion. (Dueñas Buey, 2010, p. 358)

Inclusive education is thus established as a core guiding principle of contemporary macro-educational systems and as an absolute ethical commitment to universal human rights. Within this framework, student diversity is acknowledged and celebrated as an epistemological source of richness. This paradigm shift mandates and encourages the transformation of traditional, exclusionary school practices into strategic opportunities to enrich the learning experiences of the entire student body (Echeita Sarrionandia, 2017).

Within this transformative framework, Universal Design for Learning (UDL) serves as an operational model for addressing classroom diversity (Alba Pastor, Sánchez Serrano, and Zubillaga del Río, 2014). Its core pillars—providing multiple means of representation, action and expression, and engagement—enable the strategic planning of instruction rooted in accessibility, giving rise to the concept of Universal Design for Accessible Learning (UDAL), as well as curriculum enrichment (Tobón Gaviria and Cuesta Palaciones, 2020). UDL actively

fosters student autonomy and cultivates meaningful learning by offering pluralistic, accessible pathways for both acquiring and producing knowledge (de la Fuente-González and Rodríguez-Martín, 2026).

Universal Design for Accessible Learning (UDAL) expands this pedagogical approach by systematically integrating the physical, digital, and communicational infrastructures of educational environments (Villaescusa Alejo, 2022; Núñez-Sotelo and López-Cruz, 2022). In this manner, the convergence of UDL and UDAL frameworks allows for the construction of educational institutions where difference functions as a structural principle of pedagogical organization rather than an exception to a rigid rule. This structural alignment effectively overcomes the mechanisms of educational exclusion examined in recent literature (Bravo-Villa and Mansilla-Sepúlveda, 2026). In fact, current institutional efforts are actively focused on updating this terminology; local autonomous territories, such as the Valencian Community in Spain, have pioneered the adoption of *UDL 3.0*, representing the most cutting-edge, refined version of this inclusive instructional construct.

To complement these pedagogical foundations, it is necessary to examine the concept of visual culture, understood as the complex matrix of static and moving images that, due to their pervasive everyday presence in the lives of contemporary consumers, exerts a significant semiotic impact (Martínez Luna, 2019). This engagement typically occurs at an unconscious level, bypassing critical reflection (Rueda Gascó and Alonso-Sanz, 2014). Modern citizens are continuously exposed to visual information embedded within urban spaces, residential areas, professional environments, and leisure spaces. Consequently, individuals passively receive semiotic messages and cultural discourses engineered by dominant power structures to disseminate specific ideological stances across society. These discourses are eventually internalized as personal ideals without any explicit questioning of their validity or underlying intent.

The subtle mechanics of visual culture have raised significant alarms within its dedicated field of study, emphasizing the need for citizens to become fully cognizant of the underlying intentions of image creators. This critical awareness begins with active, intentional engagement with the visuals presented to the individual. Beyond the mere decision of whether

to consume these images—which is heavily mediated by external exposure—the true pedagogical challenge lies in fostering active, critical, and reflective thinking regarding what a specific collective creates and disseminates based on targeted objectives that represent the ideals of only a single sector of society.

To conclude this theoretical overview, the ontological status of the image takes on specialized relevance (Parra Valencia, 2014). An image is inherently a fictional representation or a symbolic recreation of reality. It must always be critically understood as an iconographic copy of a scene, situation, or context, but never as the objective reality itself. When a person is immersed in reality, he/she utilizes a full array of sensory resources to perceive it holistically. Conversely, when reality is mediated through an iconographic figure, perception is restricted exclusively to the framed portion of that representation. This limitation highlights the subjectivity inherent in the concept of the image (Saavedra-Rey and Zabala, 2025), a characteristic that becomes increasingly critical in a contemporary society dominated by the mass production, digital editing, and algorithmic consumption of visual content, driven largely by the proliferation and socio-emotional impact of social media networks.

2. Methodology

2.1 Methodological Design

This study is theoretically grounded in perspectives rooted in both the socio-educational (Martínez-Rosales and Gross-Tur, 2024) and socio-critical (Díaz López and Pinto Loria, 2017) paradigms. The rationale for deploying these robust conceptual frameworks lies in the foundational aim of the inquiry and the critical interpretation of its results, given that both the research objectives and its ultimate structural implications are geared toward expanding the empirical body of knowledge and elevating critical awareness among school literacy professionals. Ultimately, this approach seeks to accommodate and deconstruct a complex social reality characterized by its deep connection to diversity and otherness through analytical processes rooted in a critical-reflective consciousness, thereby linking these insights directly to their primary operational environment: the school.

The socio-educational paradigm undergirding this research focuses on comprehensively understanding educational processes as phenomena inherently embedded within their social, cultural, and historical contexts. It operates on the recognition that education never occurs in an institutional vacuum but is systematically conditioned and mediated by social structures, power asymmetries, cultural norms, and macro-level public policies. From this interpretive stance, the study aims to decode how diverse educational actors construct meaning, interact, and negotiate within teaching-learning processes, thereby promoting a holistic, critical, and profoundly inclusive view of educational reality.

Concurrently, the socio-critical paradigm is characterized by its explicit commitment to social transformation and the democratic emancipation of citizens, which constitutes the ultimate trajectory of this approach. It seeks not merely to describe or understand empirical reality, but to aggressively question and transform it, particularly regarding structural, economic, and educational inequalities. Rooted in critical traditions such as Marxism, the critical theory of the Frankfurt School, and the pedagogical philosophy of Paulo Freire, this paradigm actively promotes the development of critical consciousness, democratic participation, and the empowerment of otherness. Engaging in research within this paradigm entails a rigorous ethical and political commitment to social justice and equity on the part of the investigators.

The overarching objective of this research is to analyze, from the disciplinary perspective of Auditory and Language Psychopathology, various specific educational support needs (NEAE) and special educational needs (SEN) related to linguistic diversity as depicted through characters in Disney animated films, while critically examining how these representations reflect the real-world barriers that students encounter within the Spanish educational system. To achieve this main objective, the study is operationalized through three specific secondary research objectives:

To review and adopt a critical feminist perspective to interpret the heteropatriarchal tropes deployed by the selected animation company regarding the portrayal of its earliest female protagonists and royal family members within the Disney universe.

To analyze the semiotic synergies between animated characters anthropomorphized as animals who are unable to communicate using the dominant linguistic code and those characters labeled as humans with whom they coexist, thereby highlighting the acute language barriers faced by newly arrived immigrant students in Spanish schools who are unfamiliar with the official or co-official languages of the host country.

To select and audit specific Disney characters who exhibit distinct hearing and language disorders to illuminate their clinical etiology based on narrative traits, while exploring actionable, inclusive classroom intervention strategies for diverse typologies (such as aphonia and Specific Language Disorder [SLD]).

The entirety of this research process is cross-sectionally informed by a critical feminist approach and perspective (Amorós and de Miguel, 2014). Utilizing the analytical parameters of this framework is considered essential to empower and re-center female Disney characters who, as documented in specialized literature (Aguado Peláez and Martínez García, 2015), have systematically been overshadowed, neutralized, and relegated to superficial or practically nonexistent narrative planes. The feminist paradigm in academic research originates from a structural critique of traditional epistemologies that render invisible, distort, or subordinate the lived experiences, knowledge systems, and unique voices of women and gender-dissident identities. Consequently, this approach does not merely include gender as a passive analytical category, but actively interrogates dominant power hierarchies, androcentric biases, and the presumed neutrality of traditional science, aligning with the epistemological principles of feminist theory delineated by Triviño and Vaquero (2020).

In this study, the methodological design is structured as a qualitative case study (Jiménez Chávez, 2012), as it isolates and evaluates a highly specific phenomenon—the representation of linguistic, auditory, and gender diversity in classic Disney cinematography—through a purposive corpus deliberately compiled for its capacity to exemplify and problematize these thematic axes. The case study architecture allows for a comprehensive, deep understanding of the research subject within its naturalized context. This methodological strategy is uniquely relevant when executing a critical and contextualized textual analysis, as it enables the research

team to seamlessly link narrative and visual elements to the broader social, ideological, and educational structures that underlie them.

2.3 Techniques and Instruments

The methodology deployed in this study is qualitative (Páramo Morales, 2015) and is systematically operationalized through the structural analysis of narrative situations and discourses embedded within the film plots. This qualitative methodological framework focuses on comprehensively understanding complex social and cultural phenomena by exploring lived experiences, subjective perceptions, shared meanings, and other socio-communal dynamics. Furthermore, it is epistemologically grounded in an interpretive and contextualized analysis of the core phenomena under inquiry.

Within the specialized domain of cinematic discourse analysis, this qualitative methodology facilitates a critical, multi-layered examination of both visual and linguistic semiotic systems (Etura Hernández, 2017). It meticulously deconstructs how latent meanings, dominant ideologies, and institutionalized social representations are actively engineered through narratives, iconographic images, symbolic motifs, and the formal aesthetic structures inherent to cinema. Consequently, it offers powerful interpretive tools to unravel the implicit messages embedded in audiovisual works and to evaluate their direct impact on the collective imagination. The qualitative techniques used are purposefully calibrated to align with the specificities of the case study architecture; regarding the analytical instruments, structured iconographic tables are deployed to categorize the animated characters across the targeted variables, while the core qualitative results are supported by strategically curated sequences of film stills arranged as photographic series.

2.4 Procedure

The operational procedure followed in this research was executed across several systematic

phases aligned with the rigorous requirements of the qualitative case study architecture:

- Phase 1. Preliminary theoretical review to operationally define the research variables and core analytical categories.
- Phase 2. Purposive selection of the film corpus based on strict theoretical criteria and thematic relevance to the variables under inquiry.
- Phase 3. Exhaustive, systematic, and repeated viewings of each selected feature film to ensure full familiarity with the narrative material.
- Phase 4. Structural segmentation of the audiovisual works to identify and isolate significant scenes, textual dialogues, and key character behaviors.
- Phase 5. Coding and multidimensional categorization of the isolated material in direct alignment with the feminist, socio-educational, and socio-critical dimensions.
- Phase 6. Contextualized pedagogical interpretation bridging the filmic findings with both the real-world school ecosystem and the clinical principles of speech and language psychopathology.
- Phase 7. Final discursive synthesis systematically integrating the narrative, symbolic, and analytical layers into actionable educational proposals.

This rigorous procedure effectively guarantees internal consistency among the qualitative methodological design, the established research objectives, and the deeply interpretive nature of the case study framework.

3. Results

Four empirical study variables were identified to analyze and critically discuss the semiotic synergies emerging between the clinical constructs of auditory and language psychopathology and the dynamics of Disney visual culture. This analytical framework is systematically synthesized and accompanied by supportive iconographic elements in Table 1.

Table 1. *Research Results*

Concealment of the female voice	<i>Snow White and the Seven Dwarfs</i> (Cottrell et al., 1937)	Snow White	
	<i>Cinderella</i> (Geronimi, Jackson, and Luske, 1950)	Cinderella	
	<i>Sleeping Beauty</i> (Clark et al., 1959)	Aurora	
Lack of knowledge of the language	<i>Dumbo</i> (Sharpsteen, 1941)	Dumbo's attitude toward the people who work at the circus	
	<i>Lady and the Tramp</i> (Geronimi, Jackson, and Luske, 1955)	Golfo and the Queen (and the rest of the dogs and cats) regarding the general public	
	<i>101 Dalmatians</i> (Geronimi, Luske, and Reitherman, 1961)	The Dalmatian family's attitude toward the people they live with	
	<i>The Aristocats</i> (Reitherman, 1970)	The Aristocats family regarding Madame Adelaide, Edgar, and Georges Hautecourt	
	<i>Tod and Toby</i> (Berman, Rich, and Stevens, 1981)	Tod and Toby (and Chief) in relation to Widow Tweed and Amos Slade	
Lack of knowledge of the language	<i>Oliver and His Gang</i> (Scribner, 1988)	Oliver and the pack of dogs in relation to Jennifer Foxworth, Fagin, Sykes, and Loui	
	<i>Brother Bear</i> (Blaise and Walker, 2003)	Bears in relation to Denahi	
	<i>Ruckus on the Ranch</i> (Finn and Sandford, 2004)	A herd of cows in relation to the ranch community	

Loss of Voice	<i>The Little Mermaid</i> (Clements and Musker, 1989)	Ariel	
Language Development Disorder–LDD	<i>Lilo & Stitch</i> (DeBlois and Sanders, 2002)	Stitch	

Note: elaborated by the author.

Setting aside the clinical aspects of pathology, the analysis—when viewed through a critical feminist lens and in explicit opposition to the sexist ideal characteristic of heteropatriarchal hegemony—focuses intently on the structural suppression and systematic erasure of the female voice. Within these early cinematic narratives, women are predominantly constructed as passive subjects for whom aesthetic appeal and Westernized standards of beauty represent the ultimate existential milestones to be achieved within their society; concurrently, their verbal interventions, intellectual contributions, and agency-driven discourses are systematically relegated to the realm of narrative nonexistence (Monleón, 2021). Consequently, the earliest Disney princesses, despite occupying the nominal status of protagonists within their respective feature films, exhibit the lowest frequencies of verbal and physical interaction across the plot lines. This restrictive pattern is clearly observed in the characters of Snow White in *Snow White and the Seven Dwarfs* (Cottrell et al., 1937), Cinderella in *Cinderella* (Geronimi, Jackson, and Luske, 1950), and Aurora in *Sleeping Beauty* (Clark et al., 1959).

Furthermore, feminist discourse within contemporary media research critically addresses the character of Ariel in *The Little Mermaid* (Clements and Musker, 1989). The protagonist of this feature film explicitly renounces her freedom of expression and bodily autonomy through the commodification of her speech, voluntarily depriving herself of her voice to transition into a human form and secure proximity to the prince—a narrative dynamic thoroughly corroborated by the empirical contributions of Aguado Peláez and Martínez García (2015). While this critical gender perspective is highlighted and taken into account, Ariel's total loss of vocal capacity

is simultaneously mapped onto the clinical psychopathological condition of aphonia. From this interdisciplinary intersection, actionable guidelines are derived for its diagnostic identification and inclusive pedagogical treatment within the mainstream classroom.

Concurrently, the psychopathological perspective identifies a compelling analogue for a potential Language Development Disorder (LDD) in the character of Stitch from the feature film *Lilo and Stitch* (DeBlois and Sanders, 2002). Experiment 626 is characterized as an extraterrestrial being endowed with superior cognitive intelligence; yet, in stark contrast to other alien entities within the same narrative universe, he encounters severe functional difficulties communicating through spoken language, despite demonstrating a persistent and strong desire for interaction. This specific profile mirrors an extremely common developmental language barrier encountered within early childhood and primary education classrooms globally (Guirado-Moreno et al., 2021).

The conceptual mapping of variables concludes with the examination of language proficiency as a manifestation of educational otherness—a defining demographic characteristic of contemporary classrooms throughout Spain (Boussif Dalouh, 2025). Structural sociological phenomena, such as transnational migration, geopolitical armed conflicts, and a highly globalized socioeconomic framework, have led to unprecedented levels of international mobility among school-aged populations. Consequently, there is a pronounced influx of newly arrived immigrant children into regions and educational institutions where they possess zero familiarity with the official and co-official languages of instruction. To operationalize this variable, the study evaluates films featuring animal characters who coexist with human

populations. This represents a classic Disney trope designed to infantilize the narrative plot while simultaneously generating strong external motivational engagement among its primary target audience (Digón, 2006). The structural common thread across these feature films is a cohort of animal characters who are fully capable of complex, intra-species verbal dialogue, yet remain structurally unable to make themselves understood by the human characters with whom they share their immediate environment. The purposive samples analyzed under this dimension comprise: *Dumbo* (Sharpsteen, 1941), *Lady and the Tramp* (Geronimi, Jackson, and Luske, 1955), *101 Dalmatians* (Geronimi, Luske, and Reitherman, 1961), *The Aristocats* (Reitherman, 1970), *The Fox and the Hound* (Berman, Rich, and Stevens, 1981), *Oliver and Company* (Scribner, 1988), *Brother Bear* (Blaise and Walker, 2003), and *Home on the Range* (Finn and Sandford, 2004).

4. Discussion and Conclusions

4.1 A Feminist Perspective on Classic Disney Narratives: The Suppression of the Female Voice

The specialized literature extensively documents the deeply entrenched sexist stance characteristic of the heteropatriarchal hegemony that the Disney studio reinforces and promotes through its animated feature films (Monleón, 2024). Through its sophisticated iconographic imagery, the production company actively contributes to the ideological consolidation of a male-dominated society that structu-

rally forces women to remain overshadowed, passive, and invisible. This deeply gendered discourse becomes empirically evident not so much through the direct portrayal of masculine authority, but rather through the restrictive and reductionist patterns governing how feminine identities are visually and narratively constructed.

This study specifically isolates the first three princesses from the studio's historical collection of classics to highlight, from a rigorous linguistic perspective, the profound lack of feminism embodied by these characters. This conclusion directly converges with the comparative textual analysis conducted by Monleón (2020) between the animated audiovisual products and the canonical literary sources from which they originate. An examination of Snow White in *Snow White and the Seven Dwarfs* (Cottrell et al., 1937), Cinderella in *Cinderella* (Geronimi, Jackson, and Luske, 1950), and Aurora in *Sleeping Beauty* (Clark et al., 1959) reveals that although these three female figures occupy the nominal status of protagonists within their respective plots, there is a striking scarcity of dialogue, spoken interventions, or meaningful contributions to conversations on their part. In fact, contemporary film criticism heavily underscores the case of Aurora, who remains somnolent for approximately half of her feature film's runtime—a narrative device that, to a lesser extent, also limits Snow White's agency. This narrative trope, while rooted in traditional folklore and literary history, functions as a powerful socio-cultural mechanism through which asymmetric power structures, historically dominated by men, perpetuate the systemic marginalization and silencing of the female voice.

Figure 1. *Silenced Disney Princesses*



Note. (From left to right): *Snow White and the Seven Dwarfs* (Cottrell et al., 1937), *Cinderella* (Geronimi et al., 1950), and *Sleeping Beauty* (Clark et al., 1959).

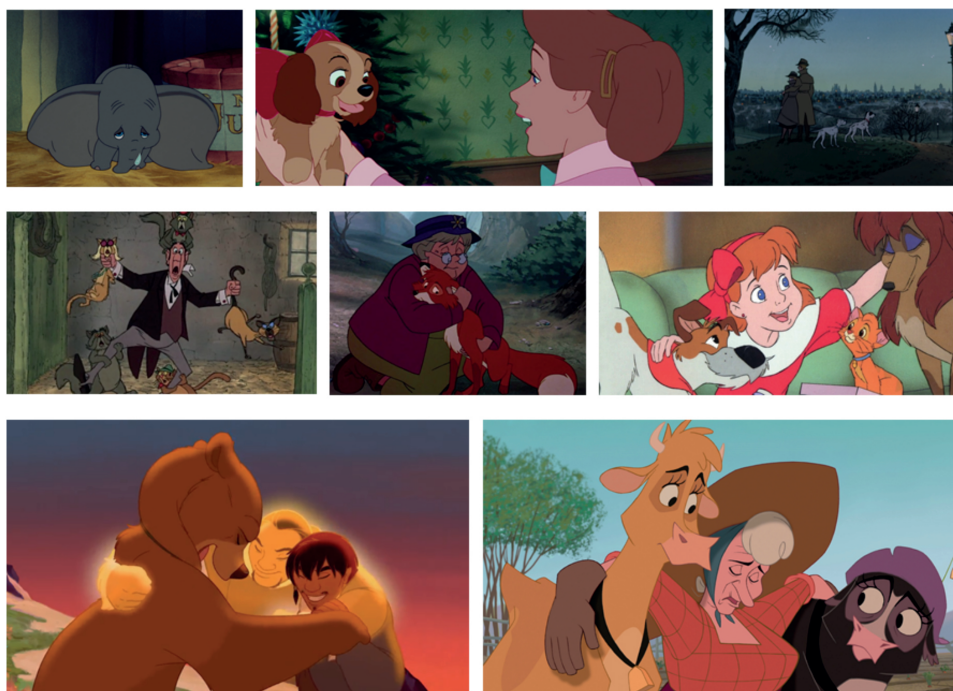
The three highlighted examples are particularly noteworthy in this regard; however, a highly significant structural detail observed across all of them is the absolute deficit of authentic verbal dialogue between these princesses and their princes. In fact, interpersonal communication between these characters is almost exclusively mediated through the paralinguistic musicality and emotional intonation of their shared love songs. These diegetic duets serve to ideologically justify and enhance the hegemonic tropes of romantic love championed by the Disney studio (Álvaro Andaluz and Hamodi Galán, 2021)—specifically validating sub-constructs such as unconditional devotion, instantaneous connection, and eternal fidelity as absolute socio-emotional standards.

4.2 Language Proficiency as a Special Educational Need: Disney Animated Characters

The linguistic phenomenon of language barriers is visually and narratively translated through

an infantilized pedagogical framing within feature films where members of the animal kingdom directly coexist with human populations. Across these plots, there is a pronounced deficit in bidirectional verbal communication between the two distinct groups, even though members of each species demonstrate full communicative competence when using linguistic codes shared with their own kind. Consequently, interpersonal understanding is achieved through alternative, multimodal channels of communication—specifically mediated through paralinguistic cues, emotional sensations, and visual perceptions—which underscores the plurality of semiotic resources available for interaction. A highly significant socio-educational dimension addressed through these specialized Disney character dynamics is the structural challenge of language unfamiliarity and linguistic exclusion encountered by newly arrived immigrant students who find themselves suddenly immersed in the Spanish educational ecosystem.

Figure 2. *Nonverbal communication between Disney animals and people*



Note. (from left to right and top to bottom): *Dumbo* (Sharpsteen, 1941), *Lady and the Tramp* (Geronimi, Jackson, and Luske, 1955), *101 Dalmatians* (Geronimi, Luske, and Reitherman, 1961), *The Aristocats* (Reitherman, 1970), *Tod and Toby* (Berman, Rich, and Stevens, 1981), *Oliver & Company* (Scribner, 1988), *Brother Bear* (Blaise and Walker, 2003), and *Home on the Range* (Finn and Sandford, 2004).

Lack of proficiency in the language of instruction is increasingly recognized as a specific, contextual form of diversity that directly impacts both cognitive learning processes and full, democratic participation in school life (Martínez, 2001). Far from being pathologized or framed as an individual deficit, this linguistic barrier is interpreted as a structural circumstance that demands inclusive, systemic educational responses. Indeed, the presence of students who have not yet acquired a command of the primary vehicle of instruction has become a defining feature of contemporary classrooms, particularly within educational ecosystems shaped by transnational mobility and macro-level cultural diversity (García Castaño et al., 2008).

Methodological guidelines for addressing this socio-educational reality are fundamentally anchored in the ethical principle that access to the core curriculum must never be contingent upon a student's prior mastery of the dominant language. Consequently, contemporary frameworks promote the immediate deployment of active methodologies that integrate specific linguistic scaffolding—such as multimodal visual aids, peer-assisted learning, and the strategic involvement of specialized diversity-support staff—ensuring that these measures are implemented directly within the natural ecology of the regular classroom without segregating the student. Concurrently, the strategic integration of plurilingualism and translanguaging frameworks is valued as a powerful pedagogical asset (Perlaza Torres et al., 2024), thereby recognizing and legitimizing students' native languages as core components of their cultural identity and as vital cognitive bridges for the acquisition of the new target language.

Finally, systematic inter-professional coordination (Fernández-Larragueta et al., 2014) is essen-

tial to establish sustained, institutional support plans that holistically address both the functional communicative demands and the socio-emotional dimensions of the student's transition, thereby actively preventing systemic isolation or alienation. In this way, the student's initial unfamiliarity with the language of instruction is pedagogically reframed as a catalyst to strengthen classroom group cohesion, dismantle ethnocentric biases, and broaden critical perspectives regarding teaching and learning within increasingly multicultural and globalized societies.

4.3 The Condition of Aphonia in the Case of Ariel from *The Little Mermaid*^{*} (Clements and Musker, 1989)

The human voice functions as the main narrative catalyst and driving force behind the entire plot architecture of *The Little Mermaid* (Clements and Musker, 1989). Within the story, Ariel is systematically distinguished from her sisters by virtue of her youth, overt rebelliousness, and exceptional musicality. Her voice serves as her defining ontological attribute and represents the sole auditory marker that the prince—whom she rescues from a catastrophic shipwreck and with whom she falls romantically in love—can remember. Exploiting this dynamic, Ursula, the sea witch, orchestrates a magical contract that grants Ariel a morphological transformation from her mermaid form into a human body in direct exchange for this specific trait—effectively demanding the corporeal commodification of her voice. Consequently, the thematic progression of the entire feature film structurally revolves around the trauma of vocal loss and the subsequent struggle for its reacquisition, a narrative that directly maps onto the clinical, psychopathological condition of aphonia.

Figure 3. Ariel's loss of voice as an example of aphonia



Note. *The Little Mermaid* (Clements and Musker, 1989).

Aphonia, operationalized as the total loss of vocal production (Berthier et al., 2011), constitutes a specific form of communicative diversity that may manifest as a temporary or prolonged condition depending on its underlying etiology and therapeutic intervention. Within the educational ecosystem, the voice functions as a fundamental semiotic resource for interpersonal communication, social interaction, and the fluid expression of learning outcomes (Hernández-Carrera, 2018); consequently, clinical aphonia introduces acute structural challenges both for the students who experience it and for the educators responsible for scaffolding their learning processes. Recognizing this condition as an authentic manifestation of diversity requires shifting the institutional focus away from individual physical limitations and toward the active design of pedagogical and communicative strategies that guarantee equitable participation across all school activities.

Actionable guidelines for addressing aphonia within the classroom environment focus extensively on the immediate provision of accessible, alternative communication channels (Almazán, 2009). Inclusive strategies for managing vocal loss include the systematic deployment of digital or handwritten text interfaces, the integration of pictograms, the utilization of natural gestures and basic sign language, and the application of assistive speech-synthesis technologies. Concurrently, it is equally critical to inject flexibility into institutional assessment methodologies, thereby ensuring that the successful demonstration of academic competencies does not depend exclusively on oral communication modes.

Furthermore, educators, peer groups, and families require structured guidance and targeted information to comprehensively understand this communicative reality, thereby actively mitigating the risk of overprotective dynamics or exclusionary attitudes. To achieve this, systematic collaboration with specialists in speech-language pathology, audiology, or phoniatrics is essential to engineer comprehensive support plans that holistically safeguard both the academic performance and the socio-emotional well-being of the affected students (Cifuentes Lardín and Martínez Ramón, 2018).

When linked to the broader phenomenon of linguistic erasure and viewed through the lens of

critical feminist theory, this narrative framework provides another stark illustration of how the Disney studio systematically marginalizes and overshadows feminine identity (Salzano, 2021). Deconstructing the specific historical context in which this film was produced remains key to understanding this ideological positioning. Ariel was engineered as the foundational figure of the studio's modern era of princesses—emerging after a stagnant period during the 1960s and 1970s where Disney maintained commercial relevance but lacked critical cultural impact—with whom the company aimed to project a modernized, progressive archetype of womanhood by characterizing her as autonomous, uncompromising, and rebellious. Through these specific traits, the studio sought to captivate an evolving audience that was increasingly aligned with contemporary feminist movements and shifting socio-political principles. However, exposing the underlying sexist ideology and the heteropatriarchal subversion of female autonomy that Disney ultimately reinforces, Ariel's narrative arc concludes with the explicit renunciation of her own identity and biological attributes to secure the affection of a man for whom she harbors a purely romanticized idealization—a physical attraction sparked by a superficial first glance, entirely devoid of emotional depth, shared experiences, or authentic communication.

4.4 The pathology of Language Development Disorder (LDD) in the case of Stitch from Lilo & Stitch (DeBlois and Sanders, 2002)

The psychopathological aspect of hearing and language disorders is exemplified by the character Stitch from *Lilo and Stitch* (DeBlois and Sanders, 2002). He is an alien genetically engineered by an unscrupulous scientist who seeks to control the universe. Stitch, or Experiment 626, is a highly intelligent creation that cannot be destroyed. However, his interactions reveal a significant difficulty in communicating with others through spoken language; he even struggles to understand the speech of others—whether they are aliens or humans. This allows us to link this character to the presence of a language barrier associated with SLD, or Specific Language Disorder.

Figure 4. Characteristics of LD, or Language Development Disorder, and the evolution of oral communication in *Stitch*



Note. *Lilo & Stitch* (DeBlois and Sanders, 2002).

Language Development Disorder (LDD) is characterized by persistent difficulties in language acquisition and use (Auza and Peñaloza Castillo, 2019). These difficulties affect both language comprehension and production, thereby having direct repercussions on core areas of academic and social development. In the school setting, LDD manifests as structural barriers to following instructions, participating in verbal interactions, or expressing knowledge appropriately.

Guidelines for intervention are based on the need to design accessible communicative environments (Bahamonde et al., 2021). Teachers implement key strategies such as using clear language, giving simple instructions, creating communications with pictograms, using social stories, and providing support from specialized staff for remediation, among others. Flexibility in forms of expression is encouraged by offering multimodal alternatives—oral, written, graphic, or digital—that allow students to demonstrate their learning. The integration of assistive communication technologies also becomes a key resource for expanding opportunities for participation (Igalada, 2021).

In conclusion, the diversities analyzed in this research—lack of language proficiency, aphonia, and Language Development Disorder (LDD)—require educational responses that combine specific supports with universal measures implemented directly by teachers in general education classrooms. It is essential to ensure students' active participation in school activities, avoiding segregation and fostering the creation of inclusive communities in which every child is recognized and valued as a full member of the group. In this way, difference is not viewed as a limitation. By emphasizing this value, inclusive education demands an ethical and professional

commitment to social justice. Addressing diversity through the UDL and UDAL approaches, along with specific strategies for individual cases, provides a solid pathway to ensuring that every person has equal opportunities to learn, participate, and develop fully as an integral part of society.

As a final consideration and direction for future research, it is deemed particularly valuable to enrich this study by replicating and/or expanding it through interviews with viewers of the feature film, family members of children with these diversities, and students who may—or may not—identify with the characters portrayed. In this way, the aim is to offer a more complete and comprehensive view of the phenomenon under analysis, incorporating new perspectives and fostering a broader understanding from a socio-educational and community-based standpoint.

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Author Declaration – CRediT Taxonomy

Authors	Contributions
Dr. Vicente Monleón	Research process (critical review of feature films, categorization and labeling of variables, analysis of results, and presentation of the research in an article).

Statement on the Use of Artificial Intelligence

The author DECLARES that the preparation of the article “*Linguistic Psychopathology and Disney: An Educational Perspective on Inclusion*” did not involve the use of artificial intelligence (AI).

Publication guidelines

(Normas editoriales)



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Publication Guidelines of «Alteridad»

1. General information

«Alteridad» is a bilingual scientific journal of the Salesian Polytechnic University of Ecuador (UPS), published since January 2006 uninterruptedly, on a semi-annual basis (January-July).

It is an arbitrated scientific journal, with peer-review system under the double-blind review, following the publication standards of the American Psychological Association (APA). This system ensures authors an objective, impartial and transparent review process, making it easier for authors to be included in reference international databases, repositories, and indexes.

«Alteridad» is indexed in the Web of Science's Emerging Sources Citation Index (ESCI), at the Scientific Electronic Library Online (SciELO), in the REDALYC Scientific Information System, in the directory and selective catalog of the Regional Online Information System for Scientific Journals of Latin America, the Caribbean, Spain and Portugal (Latindex), in the Directory of Open Access Journals (DOAJ), in the European Reference Index for the Humanities and Social Sciences (ERIHPLUS), on the Dialnet Portal. It is evaluated in the Information Matrix for Journal Analysis (MIAR), the Integrated Classification of Scientific Journals (CIRC), and the Qualis review system for CAPES journals. In addition, it is in repositories, libraries and specialized catalogs around the world.

The journal is published in two versions: electronic (e-ISSN: 1390-8642) and printed (ISSN: 1390-325X) in Spanish and English; each manuscript is identified with a Digital Object Identifier System (DOI). All articles published in «Alteridad» have the Creative Commons Attribution-Non-Commercial-Share Equal license (RoMEO blue journal).

2. Scope and policies

2.1 Topics, purpose and scope

«Alteridad» is a journal specialized in Education. Its purpose is to contribute to the socialization and debate of international scientific production in the field of Education and its inter and transdisciplinary topics such as Didactics, School Management, Edu-communication, Educational Technology, Social Pedagogy, among others. As a scope, the journal is aimed at researchers and the scientific community involved in education worldwide.

2.2 Contributions

The journal publishes articles written by national or international authors in accordance with the scientific quality criteria set forth in these guidelines. All manuscripts must be original, and must not have been published in any other journal or must not be in the arbitration or publication process in another journal. Empirical research results are published in Spanish, Portuguese or English, and studies and state-of-the-art are also allowed:

- a) **Research:** 5000 to 7500 words, including title, abstracts, descriptors, tables, and references. Assessment will be made of research results, methodological rigor, the relevance of the subject, the quality of scientific discussion, the variety, timeliness, and richness of bibliographic references (preferably publications indexed in JCR and Scopus). At least 35 references must be included.

- (b) **Studies and literature reviews**

- **Studies:** 5000 to 7500 words of text, including tables and references. The debate, the relevance of the topic, the originality of the contributions

and the bibliographical references (preferably of publications indexed in JCR and Scopus) will be especially valued. Expected 35 references minimum.

- Literature reviews: 6000 to 8500 words of text, including tables and references. An exhaustive review of the state of the art of a current research topic will be considered, with justified and selective references of approximately 70 works (preferably from publications indexed in JCR and Scopus).

2.3 Sections

The journal has a semi-annual periodicity (20 articles per year), published in January and July and has two sections of five articles each by number; the first referring to a **Monographic** topic prepared in advance and with thematic topic and the second, a section of **Miscellaneous**, composed of varied contributions related with educational topics.

3. Editorial process

3.1 Submission of manuscripts

Manuscripts must be submitted only and exclusively through the Open Journal System (OJS), in which all authors must register in advance, although only one will be responsible for the correspondence. No author may submit or review two manuscripts simultaneously, estimating a time of four consecutive numbers (2 years). An article may have a maximum of 3 authors, although if justified depending on the study, there may be up to 5.

«Alteridad» informs by email the reception of the manuscript submitted by the authors. The information related to the acceptance or rejection of the manuscript is sent by email and the platform; and in the case of acceptance, the author is also informed of the editing process.

The Guidelines for the Authors are on the website of the journal, in the Guidelines section, as well as the template for writing the paper (LaTeX/Overleaf or Word), the cover page and cover letter, the review protocol, the pre-submission list, the evaluation forms by the external reviewers and a guide for submitting the article through OJS. Before the

submission, it is strongly recommended that the manuscript be checked with the Pre-Check Protocol. Two files should be sent simultaneously:

- Cover page and cover letter** (use the official model), which must include:
 - **Cover page** (Title, Abstract and key words provided in the Manuscript).
 - **Full name of each of the authors**, organized in priority order; followed by the professional category, institution, email of each author, ORCID number and the RoR (Research Organization Registry) code of the affiliated institution. It is mandatory to indicate if the authors have a PhD academic degree (include Dr. before the name).
 - A **Cover letter** will also be included indicating that the manuscript is an original contribution, has not been sent or evaluated in another journal, with the signature of the authors, and acceptance (if applicable) of formal changes to the manuscript compliant with the rules and partial transfer of rights to the publisher.
- Fully anonymized **manuscript**, in accordance with the rules referred to in section 4.

3.2 Review process

Upon having received the document and in a maximum period of 30 days, the correspondence author shall receive a notification, indicating whether the manuscript is considered or dismissed for the arbitration process by the scientific reviewers. In case that the article has formal problems or does not address the educational subject or has a high similarity percentage to another document(s), the editorial board shall reject the paper without the option to send it back. Conversely, if it has superficial problems, it will be returned to the author for corrections before starting the evaluation process. The submission date of the article will be considered based on the final submission when the article is presented with the corrections.

The articles will be scientifically evaluated by an average of three experts of the topic. Reports will indicate the following recommendations: Accept the Submission, Publishable with Modifications, Sent the manuscript back for its Review, Not Publishable. The acceptance or rejection of the manuscript for

its publication will be decided from the analysis of external reports. In the case of dissenting results, it shall be forwarded to a new opinion, which shall be final. The protocol used by reviewers is public (researches; studies and state-of-the-art).

In general, once the external scientific reviews are taken into view, the criteria justifying the decision on the acceptance/rejection of the manuscript by the Editorial board are:

- Current and novelty.
- Relevance and significance: advancement of scientific knowledge.
- Originality.
- Reliability and scientific validity: proven methodological quality.
- Organization (logical coherence and formal presentation).
- External support and public/private funding.
- Co-authoring and internationalization degree of the proposal and the team.
- Presentation: good writing.

The timeline for the scientific evaluation of manuscripts after the previous estimation procedures by the Editorial Board is up to 100 days. As for the manuscripts sent for Calls for papers, their scientific review dates begin once the call finishes. Manuscripts that are positively evaluated and require modifications must be sent with the changes within the next 15 days.

3.3 Editing and publishing of the manuscript

The edition and layout processes of the accepted articles is performed by the Technical Board of the journal along with the Abya-Yala Editorial. «Alteridad» reserves the right to make style corrections and editorial changes if necessary to improve the manuscript. A proof of printing in PDF format will be sent to the authors for correcting typography and spelling, and its review and comments must be sent within three days. The Editorial provides authors a free professional translation of the final version of the manuscript into English (or Spanish, according to the original version), guaranteeing its international consultation and dissemination. Articles will be published on the journal's platform in both versions

(Spanish and English) and in the following formats: PDF, HTML, EPUB and XML-Jats.

4. Structure of the manuscripts

The manuscripts shall be submitted in typeface Arial 10, simple spacing, fully justified and without tabs or white space between paragraphs. Only large blocks (title, authors, abstracts, key words, credits, and captions) will be separated with white space. The page must be two centimeters in all its margins. Manuscripts must be submitted in Microsoft Word document (.doc or .docx), (https://alteridad.ups.edu.ec/pdf/alteridad/Microsoft_Word_Template.docx) o LaTeX/ Overleaf (.tex) (<https://www.overleaf.com/latex/templates/revista-alteridad-ecuador/svjcbgm-crrv>), requiring the file to be anonymized in File Properties to avoid the information related to the identification of the author/s.

4.1 Cover page

Title (Spanish and English): Concise but informative, in Spanish in the first line and in English in the second, consisting of as many significant terms as possible. The title is not only the responsibility of the authors, hence changes can be proposed by the Editorial Board. A maximum of 80 characters with space are accepted.

Abstract (Spanish and English): It must be concise and must follow this order: justification, objectives, methodology used (approach and scope), more relevant results, discussion, and main conclusions. It must be written impersonally "The present work analyzes...". In the case of the Abstract (in the other language), the use of automatic translators will not be accepted. It will be between 220/230 words.

Key words (Spanish and English): 6 keywords must be presented for each language, and must be directly related to the topic of the manuscript. The use of the keywords presented in UNESCO's Thesaurus is recommended (<http://bit.ly/2kIgn8I>). New terms would be accepted only in exceptional cases if they present a standardized scientific nature.

4.2 IMRDC Structure

For those works involving empirical research, the manuscripts will strictly respect the IMRDC

structure, with the headings of Economic Supports and Notes being optional. Literature Studies and Reviews may be more flexible under their headings, especially in Methodology, Results and Discussion. In all types of works, bibliographic references are mandatory.

1. **Introduction:** It should include the theoretical foundations and purpose of the study, using bibliographic citations, as well as the review of the most significant literature of the topic at the national and international level. The use of high-impact references (JCR and Scopus) will be positively valued.
2. **Methodology:** The approach and methodology used must be written in a way that the reader can easily understand the development of the research. It should contain the explanation on the approach (quantitative, qualitative or mixed) and the scope (exploratory, descriptive, correlational or explanatory). When appropriate, it shall describe the sample and the sampling form, and it must refer to the type of statistical analysis applied. If it is an original methodology, it is necessary to set out the reasons that have led to its use and describe the possible limitations.
3. **Results:** Efforts will be made to highlight the most relevant results and observations of the investigation, describing, without making judgments, the material and methods used for the analysis. The results will be presented in figures and/or tables according to the journal's standards (See section 4.4). They will appear in a logical sequence in the text, tables or figures, avoiding data redundancy.
4. **Discussion and conclusions:** It will summarize the most important findings, relating the observations with interesting studies, pointing to contributions and limitations, without resulting in data already commented in other sections. In addition, this section should include deductions and lines for future research.

4.3 Economic support and notes

Economic support (optional): Council Science Editors recommends that authors specify the source

of funding for the research. Works on the endorsement of competitive national and international projects will be considered a priority. In any case, for the scientific assessment of the manuscript, it must be anonymized with XXXX only for its initial evaluation, in order not to identify authors and research teams, which must be set out in the Cover Letter and subsequently in the final manuscript.

Notes: if necessary, notes will be at the end of the article (before references). They should be used to clarify terms or make marginal annotations. Note numbers are placed in superscript, both in the text and in the final note. Notes collecting simple bibliographic citations (without comments) are not allowed, as these should be in the references. If it contains a cite, the reference must also be found in the Bibliography section.

4.4 Bibliography

Bibliographical citations should be reviewed in the form of references to the text. Bibliography that is not cited should not be included in the text. Its number must be sufficient and necessary to contextualize the theoretical framework, methodology used and research results in an international research space: minimum 35 for empirical research manuscripts, and around 70 for literature studies and reviews.

They will be presented alphabetically by the author's first last name (adding the second one only in case the first one is very commonly used). The quote should be extracted from the original documents, preferably journals and to a lesser extent books. Given the significance of citation indexes and impact factor calculations, the use of references from indexed publications in JCR and/or Scopus and the correct citation following APA 7 norms is valued (<http://bit.ly/35FNGvN>).

It is mandatory that references with DOI (Digital Object Identifier System) be written in the References (can be obtained on <https://search.crossref.org/>). All journals and books without DOI must contain a link (in its online version, if applicable, and in a shorten version using Bitly: <https://bitly.com/>), and the websites must include the consultation date using the format provided.

Journal articles must be presented in English, with the exception of those in Spanish and English,

in which case they will be presented in both languages using square brackets.

Norms for the references

a) Periodic publications

- **Journal article (one author):** Ochoa, A. (2019). The type of participation promoted in schools is a constraint factor for inclusive education. [El tipo de participación que promueve la escuela, una limitante para la inclusión]. *Alteridad*, 14(2), 184-194. <https://doi.org/10.17163/alt.v14n2.2019.03>
- **Manuscript from a journal (until twenty authors):** Guarderas, P., Larrea, M., Cuvi, J., Vega, C., Reyes, C., Bichara, T., Ramírez, G., Paula, Ch., Pesantez, L., Íñiguez, A., Ullauri, K., Aguirre, A., Almeida, M., & Arteaga, E. (2018). Sexual harassment in Ecuadorian universities: content validation for instrument development. [Acoso sexual en las universidades ecuatorianas: validez de contenido de un instrumento de medición]. *Alteridad*, 13(2), 214-226. <https://doi.org/10.17163/alt.v13n2.2018.05>
- **Manuscript from a journal (without DOI):** López, L., & Ramírez-García, A. (2014). Medidas disciplinarias en los centros educativos: ¿Suficientes contra el acoso escolar? *Perfiles Educativos*, 36(145), 32-50. <https://bit.ly/37Xd5mw>

b) Books and chapters of books

- **Complete books:** Cuéllar, J.C., & Moncada-Paredes, M.C. (2014). *El peso de la deuda externa ecuatoriana*. Abya-Yala.
- **Chapter of books:** Padilla-Verdugo, J. (2014). La Historia de la Educación desde los enfoques del conocimiento. In E. Loyola (Ed.), *Ciencia, Tecnología y Sociedad (CTS). Miradas desde la Educación Superior en Ecuador* (pp. 107-128). Abya-Yala. <https://bit.ly/3etRnZH>

c) PhD or Master dissertations

- Llorent, M. (2019). *Las políticas educativas TIC en el plano autonómico: el caso de Andalucía* [Tesis doctoral, Universidad de Sevilla]. Depósito de Investigación Universidad de Sevilla. <https://bit.ly/3YRTRr5>

Guidelines for Headings, Tables and Figures

The headings of the article shall be numbered in Arabic, without full case of capital letters, no underscores, no bold ones. The numbering must be at most three levels: 1. / 1.1. / 1.1.1. A carriage return will be established at the end of each numbered heading.

Tables and figures must be presented in the text in Word or LaTeX located in the place selected by the authors. They shall be used only when necessary and suitable, and must be up to 6 between tables and figures (more only under extraordinary cases if justified). Both must be listed in Arabic and titled with the description of their content. If the source of the table or figure corresponds to another author, the authors must incorporate the source consulted below the table [for example, Source: Romero-Rodríguez (2016, p. 32)].

Tables must be elaborated in document, thus tables cut and pasted from other documents that cannot be edited in the diagramming process will not be accepted. The figures, in addition to being incorporated in the document, must be sent as supplementary material when submitting to «Alteridad» OJS, with a quality greater than 600 dpi, in TIFF, JPEG or PNG files.

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Each author shall submit a responsible statement of authorship and originality, as well as their ethical responsibilities.

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7. Promotion and dissemination of the published article

The authors commit to disseminate their published article as well as to the whole journal using the link of the website of «Alteridad» (<https://alteridad.ups.edu.ec/index.php/alteridad/>). In addition, they are encouraged to share their published article in academic networks (Academia.edu, ResearchGate, Mendeley, Kudos, ...), social networks (Twitter, Facebook, LinkedIn, ..., also publishing the DOI in these), institutional repositories, Google Scholar, ORCID, web or personal blog, among others. Authors are also encouraged to share the published article through email lists, research groups, and personal contacts.

«Alteridad» has a Metric Measurement System (PlumX) that allows verifying the compliance with this commitment. The impact of previous works will be considered for submitting future articles in «Alteridad».

Normas de publicación en «Alteridad»

1. Información general

«Alteridad» es una publicación científica bilingüe de la Universidad Politécnica Salesiana de Ecuador (UPS), editada desde enero de 2006 de forma ininterrumpida, con periodicidad fija semestral (enero-julio).

Es una revista científica arbitrada, que utiliza el sistema de evaluación externa por expertos (*peer-review*), bajo metodología de pares ciegos (*double-blind review*), conforme a las normas de publicación de la *American Psychological Association* (APA). El cumplimiento de este sistema permite garantizar a los autores un proceso de revisión objetivo, imparcial y transparente, lo que facilita a la publicación su inclusión en bases de datos, repositorios e indexaciones internacionales de referencia.

«Alteridad» se encuentra indexada en el *Emerging Sources Citation Index* (ESCI) de *Web of Science*, en la *Scientific Electronic Library Online* (SciELO), en el Sistema de Información Científica REDALYC, en el directorio y catálogo selectivo del Sistema Regional de Información en Línea para Revistas Científicas de América Latina, el Caribe, España y Portugal (Latindex), en el *Directory of Open Access Journals* (DOAJ), en el *European Reference Index for the Humanities and Social Sciences* (ERIHPLUS), en el Portal Dialnet; está evaluada en la Matriz de Información para el Análisis de Revistas (MIAR), en la Clasificación Integrada de Revistas Científicas (CIRC), y en el sistema Qualis de revisión de revistas de CAPES. Además, se encuentra en repositorios, bibliotecas y catálogos especializados de todo el mundo.

La revista se edita en doble versión: electrónica (e-ISSN: 1390-8642) e impresa (ISSN: 1390-325X) en español e inglés; siendo identificado cada trabajo con un *Digital Object Identifier System* (DOI). Todos los artículos publicados en «Alteridad» tienen licencia Creative Commons Reconocimiento-No-Comercial-Compartir igual (RoMEO blue journal).

2. Alcance y política

2.1 Temática, propósito y alcance

«Alteridad» es una revista especializada en Educación. Su propósito es contribuir a la socialización y debate de la producción científica internacional en el ámbito de la Educación y sus líneas inter y transdisciplinarias como Didáctica, Gestión de Centros Escolares, Educomunicación, Tecnología educativa, Pedagogía Social, entre otras. Como alcance, la revista está dirigida a investigadores y comunidad científica involucrada en el hecho educativo a nivel mundial.

2.2 Aportaciones

La revista publica artículos realizados por autores nacionales o extranjeros conforme a los criterios de calidad científica enunciados en esta normativa. Todos los trabajos deben ser originales, no haber sido publicados en ningún medio ni estar en proceso de arbitraje o publicación. Se editan preferentemente resultados de investigación empírica, redactados en español, portugués o inglés, siendo también admisibles estudios y selectas revisiones de la literatura (*state-of-the-art*):

- a) **Investigaciones:** 5000 a 7500 palabras de texto, incluyendo título, resúmenes, descriptores, tablas y referencias. Se valorarán especialmente los resultados de la investigación, el rigor metodológico, la relevancia de la temática, la calidad de la discusión científica, la variedad, actualidad y riqueza de las referencias bibliográficas (preferiblemente de publicaciones indexadas en JCR y Scopus). Se esperan mínimo 35 referencias.
- b) **Estudios y revisiones de la literatura**
 - **Estudios:** 5000 a 7500 palabras de texto, incluidas tablas y referencias. Se valorará

especialmente el debate generado, la relevancia de la temática, la originalidad de las aportaciones y riqueza de las referencias bibliográficas (preferiblemente de publicaciones indexadas en JCR y Scopus). Se esperan mínimo 35 referencias.

- **Revisiones de la literatura:** 6000 a 8500 palabras de texto, incluidas tablas y referencias. Se valorará la revisión exhaustiva del estado de la cuestión de un tema de investigación actual con referencias justificadas y selectivas de alrededor de 70 obras (preferiblemente de publicaciones indexadas en JCR y Scopus).

2.3 Secciones

La revista tiene periodicidad semestral (20 artículos por año), publicada en los meses de enero y julio y cuenta por número con dos secciones de cinco artículos cada una, la primera referida a un tema **Monográfico** preparado con antelación y con editores temáticos y la segunda, una sección de **Misceláneas**, compuesta por aportaciones variadas que traten temas educativos de forma prioritaria.

3. Proceso editorial

3.1 Envío de manuscritos

Los manuscritos deben ser enviados única y exclusivamente a través del *Open Journal System* (OJS), en el cual todos los autores deben darse de alta previamente, si bien uno solo de ellos será el responsable de correspondencia. Ningún autor podrá enviar o tener en revisión dos manuscritos de forma simultánea, estimándose una carencia de cuatro números consecutivos (2 años). Un artículo podrá tener como máximo 3 autores, aunque si se justifica en función del tamaño del estudio, podrán ser hasta 5.

«Alteridad» acusa recepción de los trabajos enviados por los autores e informa por email y mediante la plataforma del proceso de aceptación o rechazo; y en el caso de aceptación, del proceso de edición.

En el Portal oficial de la revista, en la sección Normativas, están las Normas para Authors,

las plantillas para la redacción de los manuscritos (LaTeX/ Overleaf o Word), la Portada y Carta de presentación, el Protocolo de chequeo previo al envío, los formularios de evaluación por parte de los revisores externos y una guía para el envío del artículo a través de OJS. Antes de su envío se recomienda encarecidamente que se compruebe el manuscrito con el Protocolo de chequeo previo. Deben remitirse simultáneamente dos archivos:

- a) **Portada y Carta de presentación (usar el modelo oficial)**, en la que aparecerán:
 - **Portada** (Título, Resumen y Descriptores previstos en el Manuscrito).
 - **Nombre y apellidos completos** de cada uno de los autores, organizados por orden de prelación; seguido por la categoría profesional, centro de trabajo, correo electrónico de cada autor, número de ORCID y código RoR (Research Organization Registry) de la Institución de afiliación. Es obligatorio indicar si se posee el grado académico de doctor (incluir Dr./Dra. antes del nombre).
 - Se incluirá además una **declaración (Cover letter)** de que el manuscrito se trata de una aportación original, no enviada ni en proceso de evaluación en otra revista, confirmación de las autorías firmantes, aceptación (si procede) de cambios formales en el manuscrito conforme a las normas y cesión parcial de derechos a la editorial.
 - Se incluirá la declaración de **uso de Inteligencia Artificial** y la contribución de los autores usando la **taxonomía CRediT**.
- b) **Manuscrito** totalmente anonimizado, conforme a las normas referidas en el epígrafe 4.

3.2 Proceso de revisión

En un plazo máximo de 30 días, a partir de la recepción del documento, el autor de correspondencia recibirá una notificación, indicando preliminarmente si se estima o desestima para el arbitraje por los revisores científicos. En el caso de que el artículo presente deficiencias formales, no trate el tema educativo o tenga un elevado porcentaje de similitud con otro(s) documento(s), el Consejo editorial desestimará el trabajo sin opción de vuelta. Por el contrario, si presenta carencias superficiales de forma, se devolverá al autor para su corrección antes de comenzar

del proceso de evaluación. La fecha de recepción del artículo no computará hasta la recepción correcta del mismo.

Los artículos serán evaluados científicamente por una media de tres expertos en el tema. Los informes indicarán las siguientes recomendaciones: Aceptar el envío, Publicable con modificaciones, Reenviar para revisión, No publicable. A partir del análisis de los informes externos, se decidirá la aceptación o rechazo de los artículos para su publicación. En el caso de resultados discrepantes se remitirá a un nuevo dictamen, el cual será definitivo. El protocolo utilizado por los revisores es público (Investigaciones; Estudios y revisiones de la literatura).

En general, una vez vistas las revisiones científicas externas, los criterios que justifican la decisión sobre la aceptación/rechazo de los trabajos por parte del Consejo Editor son los siguientes:

- Actualidad y novedad.
- Relevancia y significación: avance del conocimiento científico.
- Originalidad.
- Fiabilidad y validez científica: calidad metodológica contrastada.
- Organización (coherencia lógica y presentación formal).
- Apoyos externos y financiación pública/privada.
- Coautorías y grado de internacionalización de la propuesta y del equipo.
- Presentación: buena redacción.

El plazo de evaluación científica de manuscritos, superados los trámites previos de estimación por el Consejo Editor, es de 100 días como máximo; los remitidos para *Calls for papers*, sus fechas de revisión científica se inician al cierre de los mismos. Los trabajos que sean evaluados positivamente y requieran modificaciones, deberán ser reenviados con los cambios, dentro de los siguientes 15 días.

3.3 Edición y publicación del manuscrito

El proceso de corrección de estilo y maquetación de los artículos aceptados es realizado por el Consejo Técnico de la Revista en coordinación con la Editorial Abya-Yala. «Alteridad» se reserva el derecho de hacer corrección de estilo y cambios

editoriales que considere necesarios para mejorar el trabajo. A los autores de artículos se enviará una prueba de imprenta en formato PDF para su corrección únicamente de tipografía y ortografía, mismo que deberán reenviar en un máximo de tres días. La Editorial realizará, gratuitamente para los autores, la traducción profesional de la versión final del manuscrito al idioma inglés (o español, según la versión original), lo que garantizará su consulta y difusión internacional. Los artículos serán publicados en la plataforma de la revista en sus dos versiones idiomáticas (español e inglés) y en los siguientes formatos: PDF, HTML, EPUB y XML-Jats.

4. Estructura de los manuscritos

Los trabajos se presentarán en tipo de letra Arial 10, interlineado simple, justificado completo y sin tabuladores ni espacios en blanco entre párrafos. Solo se separarán con un espacio en blanco los grandes bloques (título, autores, resúmenes, descriptores, créditos y epígrafes). La página debe tener dos centímetros en todos sus márgenes. Los trabajos deben presentarse en formato de Microsoft Word (.doc o .docx) ([https://alteridad.ups.edu.ec/pdf/alteridad/Plantilla Microsoft Word.docx](https://alteridad.ups.edu.ec/pdf/alteridad/Plantilla%20Microsoft%20Word.docx)) o LaTeX/Overleaf (.tex) (<https://www.overleaf.com/latex/templates/revista-alteridad-ecuador/svvcjcbgmccrv>), siendo necesario que el archivo esté anonimizado en Propiedades de Archivo, de forma que no aparezca la identificación de autor/es.

4.1 Portada

Título (español) / Title (inglés): Conciso pero informativo, en castellano en primera línea y en inglés en segunda, conformado por el mayor número de términos significativos posibles. El título no solo es responsabilidad de los autores, pudiéndose proponer cambios por parte del Consejo Editorial. Se aceptan como máximo 80 caracteres con espacio.

Resumen (español) / Abstract (inglés): Se describirán de forma concisa y en este orden: justificación del tema, objetivos, metodología empleada (enfoque y alcance), resultados más relevantes, discusión y principales conclusiones. Ha de estar escrito de manera impersonal “El presente trabajo analiza...”. En el caso del *Abstract* no se admitirá el

empleo de traductores automáticos. Tendrá como extensión entre 220/230 palabras.

Descriptores (español) / Keywords (inglés): Se deben exponer 6 descriptores por cada versión idiomática relacionados directamente con el tema del trabajo. Será valorado positivamente el uso de las palabras claves expuestas en el Thesaurus de la UNESCO (<http://bit.ly/2kIgn8I>). Solo en casos excepcionales se aceptarán términos nuevos, siempre que tengan un carácter científico estandarizado.

4.2 Estructura IMRDC

Para aquellos trabajos que se traten de Investigaciones de carácter empírico, los manuscritos respetarán rigurosamente la estructura IMRDC, siendo opcionales los epígrafes de Apoyos y Notas. Los trabajos que se traten de Estudios y revisiones de la literatura podrán ser más flexibles en sus epígrafes, especialmente en Metodología, Resultados y Discusión. En todas las tipologías de trabajos son obligatorias las Referencias bibliográficas.

1. **Introducción:** Debe incluir los fundamentos teóricos y el propósito del estudio, utilizando citas bibliográficas, así como la revisión de la literatura o los trabajos relacionados más significativos del tema a nivel nacional e internacional. Se valorará positivamente el uso de referencias de alto impacto (JCR y Scopus).
2. **Metodología:** El enfoque, alcance y diseño metodológico deben ser redactados de forma que el lector pueda comprender con facilidad el desarrollo de la investigación. En su caso, describirá la muestra y la forma de muestreo, así como se hará referencia al tipo de análisis estadístico aplicado. Si se trata de una metodología original, es necesario exponer las razones que han conducido a su empleo y describir sus posibles limitaciones.
3. **Resultados:** Se procurará resaltar los resultados y las observaciones más relevantes de la investigación, describiéndose, sin hacer juicios de valor, el material y métodos empleados para el análisis. Los resultados se expondrán en figuras o/y tablas según las normas de la revista (Ver epígrafe 4.4). Aparecerán en una secuencia lógica en el texto, las tablas o figuras imprescindibles, evitando la redundancia de datos.

4. **Discusión y conclusiones:** Resumirá los hallazgos más importantes, relacionando las propias observaciones con estudios de interés, señalando aportaciones y limitaciones, sin redundar datos ya comentados en otros apartados. Asimismo, el apartado de discusión y conclusiones debe incluir las deducciones y líneas para futuras investigaciones.

4.3 Apoyos y Notas

Apoyos (opcionales): El *Council Science Editors* recomienda a los autor/es especificar la fuente de financiación de la investigación. Se considerarán prioritarios los trabajos con aval de proyectos competitivos nacionales e internacionales. En todo caso, para la valoración científica del manuscrito, este debe ir anonimizado con XXXX solo para su evaluación inicial, a fin de no identificar autores y equipos de investigación, que deben ser explicitados en la Carta de Presentación y posteriormente en el manuscrito final.

Las notas: En caso necesario, irán al final del artículo (antes de las referencias). Deben ser utilizadas para aclarar términos, hacer anotaciones marginales o indicar el posible uso de herramientas de Inteligencia Artificial. Los números de notas se colocan en superíndice, tanto en el texto como en la nota final. No se permiten notas que recojan citas bibliográficas simples (sin comentarios), pues éstas deben ir en las referencias. En caso de contener alguna cita, su referencia deberá encontrarse también en la sección de Referencias bibliográficas.

4.4 Referencias bibliográficas

Las citas bibliográficas deben reseñarse en forma de referencias al texto. No debe incluirse bibliografía no citada en el texto. Su número ha de ser suficiente y necesario para contextualizar el marco teórico, la metodología usada y los resultados de investigación en un espacio de investigación internacional: mínimo 35 para los manuscritos de investigaciones de carácter empírico, y alrededor de 70 para los estudios y revisiones de literatura.

Se presentarán alfabéticamente por el primer apellido del autor (agregando el segundo solo en caso de que el primero sea de uso muy común). Las citas deberán extraerse de los documentos originales

preferentemente revistas y en menor medida libros. Dada la trascendencia para los índices de citas y los cálculos de los factores de impacto, se valorarán positivamente el uso de referencias provenientes de publicaciones indexadas en JCR y/o Scopus y la correcta citación conforme a la Norma APA 7 (<http://bit.ly/35FNGvN>).

Es prescriptivo que todas las citas que cuenten con DOI (Digital Object Identifier System) estén reflejadas en las Referencias (pueden obtenerse en <https://search.crossref.org/>). Todas las revistas y libros que no tengan DOI deben aparecer con su link (en su versión on-line, en caso de que la tengan, acortada, mediante Bitly: <https://bitly.com/>), y de los sitios web además la fecha de consulta en el formato indicado.

Normas para las referencias

a) Publicaciones periódicas

- **Artículo de revista (un autor):** Ochoa, A. (2019). The type of participation promoted in schools is a constraint factor for inclusive education. *Alteridad*, 14(2), 184-194. <https://doi.org/10.17163/alt.v14n2.2019.03>
- **Artículo de revista (hasta veinte autores):** Guarderas, P., Larrea, M., Cuvi, J., Vega, C., Reyes, C., Bichara, T., Ramírez, G., Paula, Ch., Pesantez, L., Íñiguez, A., Ullauri, K., Aguirre, A., Almeida, M., & Arteaga, E. (2018). Acoso sexual en las universidades ecuatorianas: validez de contenido de un instrumento de medición. *Alteridad*, 13(2), 214-226. <https://doi.org/10.17163/alt.v13n2.2018.05>
- **Artículo de revista (sin DOI):** López, L., & Ramírez-García, A. (2014). Medidas disciplinarias en los centros educativos: ¿Suficientes contra el acoso escolar? *Perfiles Educativos*, 36(145), 32-50. <https://bit.ly/37Xd5mw>

b) Libros y capítulos de libro

- **Libros completos:** Cuéllar, J.C., & Moncada-Paredes, M.C. (2014). *El peso de la deuda externa ecuatoriana*. Abya-Yala.
- **Capítulos de libro:** Padilla-Verdugo, J. (2014). La Historia de la Educación desde los enfoques del conocimiento.

In E. Loyola (Ed.), *Ciencia, Tecnología y Sociedad (CTS). Miradas desde la Educación Superior en Ecuador* (pp. 107-128). Abya-Yala. <https://bit.ly/3etRnZH>

c) Tesis doctorales y de maestría

- Llorent, M. (2019). *Las políticas educativas TIC en el plano autonómico: el caso de Andalucía* [Tesis doctoral, Universidad de Sevilla]. Depósito de Investigación Universidad de Sevilla. <https://bit.ly/3YRTRr5>

d) Medios electrónicos

- Aunión, J. (2011, marzo 12). La pérdida de autoridad es un problema de toda la sociedad, no es específico del aula. *El País*. <https://bit.ly/2NlM9Dp>

Normas para epígrafes, tablas y figuras

Los epígrafes del cuerpo del artículo se numerarán en arábigo. Irán sin caja completa de mayúsculas, ni subrayados, ni negritas. La numeración ha de ser como máximo de tres niveles: 1. / 1.1. / 1.1.1. Al final de cada epígrafe numerado se establecerá un retorno de carro.

Las tablas y figuras deben presentarse incorporadas en el texto en Word o LaTeX ubicadas en el sitio en el que los autores consideren que deben estar. Se emplearán únicamente cuando sean necesarias e idóneas, debiendo limitarse su uso por cuestiones de espacios a seis entre tablas y figuras (salvo casos excepcionalmente justificados). Ambas deben ser enumeradas en arábigo y tituladas con la descripción de su contenido. Si la fuente de la tabla o figura no fuera de elaboración propia, los autores deberán incorporar al pie de la tabla o la figura la fuente de la que se extrae [por ejemplo, Source: Romero-Rodríguez (2016, p. 32)].

Las tablas deben estar elaboradas en el propio documento por lo que no se aceptarán tablas cortadas y pegadas de otros documentos que no puedan ser editados en el proceso de diagramación.

Para mantener la calidad de las figuras, en el caso de LaTeX/Overleaf, deben ser cargadas en la plantilla en formato original PDF, puesto que la conversión desde otros formatos puede disminuir la calidad de la figura. En el caso de Word, además de ser incorporadas en el documento, deberán ser enviadas como material complementario al momen-

to del envío en el OJS de «Alteridad», debiendo tener una calidad superior a 600 dpi, en archivos de tipo TIFF, JPEG o PNG.

5. Tasas y APC

«Alteridad» es una revista *Open Access*, incluida en el *Directory of Open Access Journals* (DOAJ) que oferta toda su producción de forma íntegra online en abierto para toda la comunidad científica. Asimismo, no establece ninguna tasa económica durante todo el proceso editorial para la publicación de los artículos, incluyendo la revisión científica, la maquetación y la traducción de los mismos. No existe ningún *publication fee*, ni *Article Processing Charge* (APC) vinculados con esta publicación, ni para autores ni para lectores. Asimismo, la revista tiene licencia *Creative-Commons* Reconocimiento-No-Comercial-Compartir igual (RoMEO blue journal), lo que permite libre acceso, descarga y archivo de los artículos publicados. Todos los gastos, insumos y financiamiento de «Alteridad» provienen de los aportes realizados por la Universidad Politécnica Salesiana.

6. Responsabilidades éticas

Cada autor/es presentará una declaración responsable de autoría y originalidad, así como sus responsabilidades éticas contraídas.

- **Originalidad:** Los trabajos deben ser originales y no deben estar siendo evaluados simultáneamente en otra publicación, siendo responsabilidad de los autores el cumplimiento de esta norma. Las opiniones expresadas en los artículos publicados son responsabilidad del autor/es. «Alteridad» emplea la herramienta antiplagio Turnitin® para garantizar la originalidad de los manuscritos.
- **Autoría:** En la lista de autores firmantes deben figurar únicamente aquellas personas que han contribuido intelectualmente al desarrollo del trabajo. Haber colaborado en la recolección de datos no es, por sí mismo, criterio suficiente de autoría. «Alteridad» declina cualquier responsabilidad sobre posibles conflictos derivados de la autoría de los trabajos que se publiquen. Además, para promover el reconocimiento de

la contribución de cada autor en las publicaciones de la Revista Alteridad, el autor y sus colaboradores deben indicar sus contribuciones respectivas en el proceso de investigación y consecución de resultados siguiendo la **taxonomía CRediT** (<https://bit.ly/4leqnPJ>).

- **Declaración de uso de Inteligencia Artificial:** La revista «Alteridad» exige un uso ético, responsable y transparente de las herramientas de Inteligencia Artificial (IA) en los procesos de investigación y de producción científica.
 - Transparencia editorial: Esta declaración informa el nivel de intervención de herramientas de IA en el artículo, asegurando claridad y transparencia en el proceso editorial.
 - Responsabilidad de los autores: La responsabilidad intelectual, ética y científica del contenido publicado corresponde exclusivamente a las personas autoras; considerando que una herramienta de IA no puede figurar como coautora del manuscrito.
 - Uso de IA: Si se emplea IA en cualquier etapa de la investigación, redacción, análisis o elaboración del manuscrito, las y los autores deberán indicarlo en la carta de presentación (cover letter), señalando la herramienta utilizada, el propósito para el que se usó y las secciones en las que fue aplicada.
 - Decisión editorial: No se establece un porcentaje fijo y universal para determinar el uso aceptable de IA, por lo que queda a discreción del equipo editorial la aceptación de la publicación que haya utilizado inteligencia artificial.
- **Transmisión de los derechos de autor:** se incluirá en la carta de presentación la cesión de derechos del trabajo para su publicación en «Alteridad». La Universidad Politécnica Salesiana (la editorial) conserva los derechos patrimoniales (copyright) de los artículos publicados; favorece y permite la reutilización de las mismas bajo la licencia de uso indicada en *ut supra*.

7. Promoción y difusión del artículo publicado

Para incrementar la lectura y el impacto de los artículos publicados en «Alteridad», los autores se comprometen a contribuir a la máxima difusión de

los mismos utilizando sus respectivos DOI y a participar activamente en las redes académicas y sociales de la Revista (<https://alteridad.ups.edu.ec/index.php/alteridad/>). Se les exhorta a compartir y archivar en las redes académicas (Academia.edu, ResearchGate, Mendeley, Kudos, ...), sociales (Twitter, Facebook, LinkedIn, ...), repositorios institucionales, Google Scholar, ORCID, web o blog personal; así como tam-

bién, a través de listas de correo electrónico, grupos de investigación o contactos personales.

«Alteridad» cuenta con sistemas de medición de métricas alternativas (PlumX) que permiten verificar el cumplimiento de este compromiso. Para la postulación de futuros artículos de autores de «Alteridad», se tendrá presente el impacto de los trabajos anteriores.