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RESEARCH

Differentiating factors in teaching practices, methodological innovation and the use of technologies in effective schools

Factores diferenciadores en prácticas docentes, innovación metodológica y uso de tecnologías en escuelas eficaces

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Abstract

Research on school effectiveness and improvement has consistently reported that methodological approaches, classroom practices and technological resources are important factors underlying the generation of added value and the development of sustainable improvements in schools. In this context, this study provides empirical, contextualised and comparative evidence concerning how teaching practices, teaching methodologies and the use of technologies are articulated in highly effective schools in northern and southern Spain. On the basis of a robust selection of high-performing schools, a process that was facilitated

by multilevel modelling statistical techniques, a qualitative study was conducted; this study included interviews and focus groups involving management teams and teachers from 32 schools in the Basque Country and 27 schools in Andalusia. A comparative study was also conducted on the basis of content analysis with the goal of identifying the most relevant teaching practices in terms of methodological innovation and technology integration that could be transferable across different contexts. The results of this research confirm that innovative methodologies and practices, as well as the technological resources that are used in the classroom, are important factors in the context of explaining the effectiveness of these schools. The results also indicate a widespread trend away from direct and expository approaches towards active and innovative methodologies such as cooperative learning, learning by doing, flexible and/or heterogeneous grouping, and project-based learning, the latter of which is the most widely recognised approach among highly effective schools. Furthermore, these results can improve the rigorous design and coordination of methodological practices, as well as the incorporation of self-assessment and coassessment strategies. Significant differences are observed across different contexts in terms of the innovations that are applied to specific fields such as languages or mathematics. Finally, the results of this research suggest that teacher training should be strengthened and that a culture of innovation assessment should be established to ensure the smooth functioning, effectiveness, and progression of these practices.

Keywords: school effectiveness, teaching methods, innovation, teaching practices, technology

Resumen

La investigación sobre eficacia y mejora escolar ha informado de manera consistente que el enfoque metodológico, las prácticas de aula y los recursos tecnológicos son factores importantes para generar valor añadido y desarrollar mejoras sostenibles en las escuelas. En este contexto, el presente trabajo aporta evidencia empírica, contextualizada y comparada sobre cómo se articulan las prácticas docentes, las metodologías de enseñanza y el uso de tecnologías en escuelas altamente eficaces del norte y sur de España. Partiendo de una sólida selección de escuelas de alto rendimiento mediante técnicas estadísticas de modelización multinivel, se desarrolló un estudio cualitativo que incluyó entrevistas y grupos de discusión con equipos directivos y profesorado de 32 escuelas del País Vasco y 27 de Andalucía. También se realizó un estudio comparativo, basado en el análisis del contenido, para identificar las prácticas docentes más relevantes en materia de innovación metodológica e integración de tecnologías que pudieran ser transferibles entre contextos. Los resultados de este trabajo confirman que las metodologías y prácticas innovadoras, así como los recursos tecnológicos utilizados en el aula constituyen factores importantes para explicar la eficacia de estas escuelas. Existe una tendencia generalizada a abandonar los enfoques directos y expositivos por metodologías activas e innovadoras como el aprendizaje cooperativo, el learning by doing, los agrupamientos flexibles y/o heterogéneos o

el Aprendizaje Basado en Proyectos, siendo esta última la más reconocida entre las escuelas de alta eficacia. Además, los resultados mejoran cuando las prácticas metodológicas se diseñan y coordinan con rigor y se incorporan estrategias de autoevaluación y coevaluación. Se observan grandes diferencias entre contextos en las innovaciones aplicadas a áreas específicas como las lenguas o las matemáticas. Finalmente, se recomienda potenciar la formación del profesorado y consolidar una cultura de evaluación de la innovación para garantizar el buen funcionamiento, eficacia y progresión de estas prácticas.

Palabras clave: eficacia escolar, metodología de enseñanza, innovación, práctica de enseñanza, tecnología

Introduction

The School Effectiveness and School Improvement movement, which is known internationally as School Effectiveness and School Improvement (SESI)—or Investigación sobre Eficacia Escolar (IEE) in the Spanish-speaking context—has been a key field in educational research since the late twentieth century. The aim of this field is to identify and analyse the factors that explain academic success with the goals of improving educational quality and reducing inequalities (Murillo, 2003). Its origins date back to the 1960s, specifically to the publication of the Coleman Report, whose findings increased the weight of socioeconomic conditions in educational achievement, thereby downplaying the influence of other variables that might be attributed to the school itself (López-González et al., 2021). These conclusions gave rise to substantial debate and prompted the development of numerous studies that aimed to demonstrate the existence of significant school-related factors in the context of achievement and to understand the conditions under which those factors emerge.

Early studies questioned the influence attributed to students' external characteristics by incorporating process variables into this field (Weber, 1971) and broadening the evidence base through consideration of large-scale samples. However, methodological consolidation was achieved with the introduction of multilevel models (Aitkin & Longford, 1986), which made it possible to represent the hierarchical structure of the data and to isolate more precisely the effects of variables that operate at different levels. One key contribution of these models was the estimation of value-added effects or residuals, which are understood as the difference between observed and expected performance once student characteristics and contextual factors had been included as controls (Martínez-Abad et al., 2017). Accordingly, the literature has conceptualised the effective

school as one that achieves levels of student development that are higher than those that would be expected in light of pupils' prior attainment and context.

Over time, this line of research has broadened its perspective on school improvement by adopting a more practice-oriented approach and incorporating qualitative methodologies to complement multilevel models (Chaparro & Gómez-Monarez, 2019; Etxeberria et al., 2017; Lizasoain-Hernández & Angulo, 2014). Many of these studies have focused on contextual factors and process variables at the student level, such as gender, the Index of Economic, Social and Cultural Status (ESCS), family support, or expectations (Gamazo et al., 2018; Hu et al., 2021). Other studies, which have been more closely aligned with the approach adopted in the present research, have shifted their focus towards the school and classroom levels with the aim of identifying relevant aspects of the teaching-learning process that can facilitate students' development, equity, and success (Azkarate-Morales et al., 2019; Azpillaga-Larrea et al., 2021). The evidence has suggested that educational and organisational processes, methodological approaches, and classroom practices play important roles in the process of generating value added and fostering sustainable improvement (Bartau-Rojas et al., 2017). In other words, the variation in outcomes observed in this context may be explained by what teachers do in the classroom and by the quality of their interactions with students. In light of the findings reported by Muijs et al. (2014) and the structure of the dynamic model proposed by Creemers and Kyriakides (2008), several teacher-related factors associated with effectiveness and academic success can be identified: effective management of learning time; the organisation and structuring of teaching on the basis of clear objectives and sequenced content; high-quality pedagogical interaction that is characterised by strategic questioning and meaningful dialogue; formative feedback that is embedded in continuous assessment cycles; the purposeful combination of individual work with small-group work; orderly classroom management and a relationally positive classroom climate; high expectations and academic standards; support that is tailored to students' levels of competence and learning pace; and professional development that is grounded in pedagogical coherence with the goal of ensuring methodological consistency.

Javornik and Klemenčič (2023) reviewed the evidence published between 2016 and 2022 concerning the factors associated with school success and effectiveness. Their findings indicated that teaching quality, understood in terms of teacher effectiveness, is an important predictor of academic achievement. They also highlighted successful prac-

tices such as the implementation of active methods, given the positive association between those practices and performance. In particular, the flipped classroom approach appears to be more effective at enhancing the engagement and improving the outcomes of low-achieving students. Wedel (2021) examined the interaction between the quantity and quality of instruction and reported that additional time is more effective when teachers invest such time in planned practices, including innovative practices or those that are oriented towards methodological renewal. Burgess et al. (2023) also considered the role of the allocation of instructional time and the quality with which such practices are implemented. These components had substantial and significant educational effects on outcomes in mathematics, language, and foreign language classes, albeit with various differences across subject areas. In mathematics, individual practice is associated with better outcomes, whereas in language and foreign language subjects, interaction and dialogue in groups are more conducive to achievement.

Overall, the evidence has indicated that school effectiveness depends largely on the quality of classroom processes, the implementation of innovative approaches (Gil-Hai & Somech, 2016), teachers' capacity to innovate (Al Shloul et al., 2024), and methodological and organisational coherence (Bartau-Rojas et al., 2017). Notably educational innovation is not equivalent to the occasional introduction of different practices but rather refers to an intentional and systematic process of change that focuses on improving the teaching-learning process and has pedagogical, organisational and/or assessment-related implications (Navarro-Asencio et al., 2017). From this perspective, several well-established methodologies, which have frequently been regarded as innovative, have gained prominence because of their potential to increase motivation and improve outcomes (Arega & Hunde, 2025). These methodologies include project and problem-based learning (PBL), the flipped classroom approach, cooperative learning, gamification, and—specifically in the field of mathematics—the open algorithm-based method (ABN), which has been associated with a deeper conceptual understanding of this subject (Canto-López et al., 2022). However, the effectiveness of such methodologies does not depend on their mere adoption but rather on the quality of their design and integration (Serdyukov, 2017). Accordingly, teachers' capacity to innovate is particularly important; this factor is understood as the teacher's ability to identify needs, design and coordinate implementation, and sustain changes that have impacts on learning (Al Shloul et al., 2024). The findings in this field are more consistent when a rigorous approach, effective coordination, organisational feasibility, and formative

assessments are available to guide progress (Egara & Mosimege, 2024; Safaruddin et al., 2020).

This interpretation does not exclude more direct or teacher-led approaches to instruction, which are often associated with traditional teaching, as these approaches may be highly effective depending on the context and the learning objectives at hand. Indeed, Chaparro and Gamazo (2020) reported that teacher-directed strategies that involve specific guidance and clear sequencing are associated with higher levels of achievement.

At the technological level, although digital tools can expand instructional opportunities, diversify activities, promote collaboration, and increase the flexibility of learning (Uerz et al., 2018), their use does not in itself imply innovation (Herodotou et al., 2019). In many cases, the incorporation of Information and Communication Technologies (ICT) is more instrumental than transformative (Sargent & Casey, 2020), and it may even lead to technocentric approaches if objectives, methodology, interaction, and assessment are not reconsidered (Serdyukov, 2017). For technology to contribute to methodological innovation, it must be integrated with pedagogical purposes and support genuine change (Sargent & Casey, 2020). In addition, outcomes depend on teacher training, teachers' pedagogical beliefs, and the organisational leadership that promotes and supports technology-based methodological change (Ye et al., 2022). It may therefore be argued that no universal solutions are available but rather only a set of interrelated factors whose effectiveness depends on how well they are aligned with the context of each school and classroom (Chaudhary & Singh, 2022).

This study seeks to expand our current knowledge of the process factors linked to school effectiveness, specifically in terms of teaching practices, methodological innovation, and the use of technologies in high-performing schools. On the basis of two projects that were implemented in the Autonomous Community of the Basque Country (CAPV) and the Autonomous Community of Andalusia (CAA), a comparative study is conducted across two territories that exhibit distinct socioeconomic profiles. The aim of this study is to analyse how these practices are enacted and to identify the conditions under which they are most effective, thereby providing comparative and contextualised evidence that can inform pedagogical decision-making and help assess the transferability of the findings across different contexts. The following research question is posed: Which methodological practices and uses of technology are associated, according to the informants consulted in this research, with high effectiveness in each context?

Method

This descriptive-comparative study is derived from two previous investigations pertaining to the school improvement and effectiveness movement that were conducted in CAPV and CAA with the aim of analysing the reality and performance of effective schools. The research method employed in this study integrates a mixed-methods approach that involves a series of three stages. In the first stage, which was quantitative, effective schools in both autonomous communities were identified on the basis of multilevel modelling techniques. In the second stage, which was qualitative, interviews and focus groups were conducted with leadership teams and teachers to gain an in-depth understanding of the characteristics and functioning of these institutions, specifically in terms of transferability. Finally, a comparative qualitative analysis was conducted to identify relevant similarities and differences in the teaching practices of effective schools across both contexts.

Census sample

This census study covered all public, private and/or state-subsidised schools in CAPV and CAA. The participants were Year 2 primary pupils from 2,521 schools in Andalusia and Year 4 primary and Year 10 secondary pupils from 733 schools in the Basque Country. The results of the diagnostic assessments, which had previously been conducted by the Department of Education of the Basque Government and the Andalusian Agency for Educational Evaluation, alongside the accompanying context questionnaires, were analysed to identify effective schools. These schools were selected on the basis of multilevel models that focused on two criteria: positive and very high average residuals in the contextualised cross-sectional study and either an upwards or a sustained trend in these residuals across five annual administrations to different cohorts in both autonomous communities. A total of 32 schools in CAPV and 27 schools in CAA were selected, all of which exhibited an upwards residual trend and results that were notably above the expected level in light of their specific contexts.

To obtain a deeper understanding of the practices of these schools, interviews were conducted with 59 members of school leadership teams who held roles as headteachers (74%), deputy headteachers (22%), or school secretaries (4%). In CAPV, all members of the interviewed leadership teams had more than six years of experience in their post, whereas in CAA, 60% of the interviewees exceeded this threshold. Teachers from

the schools also participated in focus groups; a total of 10 teacher discussion groups were conducted. The process was governed by the principles of voluntariness, confidentiality, and anonymity with respect to both the schools and the interviewees. Participants were informed of the purpose of this study and signed informed consent forms, and the selection of informants was based on availability.

Instruments

In the quantitative phase, the results of the diagnostic assessments conducted in CAPV and CAA were used in the fields of mathematical reasoning, linguistic communication and, in the case of CAPV, Basque language competence. Questionnaires that were attached to these diagnostic assessments were also used to collect relevant contextual information concerning students and their families.

In the qualitative phase, different interview guides were developed to structure semistructured interviews and focus groups with key informants from the educational staff. These interviews were designed to explore various areas of interest in depth, specifically with the aim of understanding educational practices and characterising good practices in high-performing schools. This comparative study involved an analysis of the interviews and focus groups that were conducted in each autonomous community, which focused on identifying patterns and differences in classroom practices, methodological innovation, and the use of technologies in high-performing schools.

Procedure

This study involved two preceding phases that focused on identifying highly effective schools and analysing their successful practices in depth. The main phase consisted of a comparative study rooted in content analysis and qualitative information concerning teaching practices, methodologies, and the use of technology in effective schools in both CAPV and CAA.

Quantitative phase

The selection of highly effective schools was performed independently in each autonomous community through a process that relied on region-specific data but followed a uniform and consistent procedure. This approach ensured that the stages and criteria were comparable. The process included preparing and cleaning the data, designing and validating the models, calculating average residuals, defining selection criteria, and

identifying schools. Hierarchical linear models were used to select the schools, in which context both a contextualised cross-sectional perspective and a longitudinal perspective were adopted. In the cross-sectional model, the hierarchical structure was preserved since the scores obtained by the students (level 1) were nested within the schools (level 2) that they attended. In the longitudinal model, level 1 corresponded to time, and level 2 corresponded to the school. The models were fitted and validated through the inclusion of strictly contextual factors. Among the level 1 covariates, the following were particularly noteworthy: sex, ESCS, expectations, reading engagement, immigrant status, and family involvement. Some variables differed across regions because the context questionnaires were designed by different institutions in each autonomous community. The level 1 regression equation represents the variability observed in the scores for the criterion variables, including both the structural (1) and probabilistic (2) components:

$$Y_{ij} = \beta_{0j} + \sum_{q=1}^Q \beta_{qj} X_{qij} + r_{ij} \quad (1)$$

$$r_{ij} \sim N(0, \sigma^2) \quad (2)$$

Y_{ij} indicates the score obtained by student i in school j in each subject area. β_{0j} represents the mean score of school j . β_{qj} indicates the linear effect of covariate X_q is associated with the student. X_{qij} denotes the score of student i in school j on covariate X_q . r_{ij} represents the residual for student i in school j .

The level 2 equation, in its structural (3) and probabilistic (4) components, describes the influence of the covariates associated with schools in each subject area. These elements were incorporated as fixed-effect covariates derived from level 1. They refer to student rates or averages across all the aspects under assessment, such as the school's mean ESCS, the proportion of repeating students, or the proportion of students of immigrant origin, among other factors.

$$\beta_{0j} = \gamma_{00} + \sum_{s=1}^S \gamma_{0s} W_{sj} + u_{0j} \quad (3)$$

$$u_{0j} \sim N(0, \tau_{00}) \quad (4)$$

β_{0j} represents the mean score in each school j . γ_{00} is the common effect across schools. γ_{0s} indicates the linear effect of covariate W_s on the schools' mean scores. W_{sj} denotes the score of school j on covariate W_s . u_{0j} represents the residual difference between schools.

After the models were validated, the residuals were calculated for each school. Finally, in CAPV and CAA, the schools that exhibited the highest

positive average residuals and the greatest growth in the longitudinal model were selected.

Qualitative phase

The modelling process identified contextual factors that were potentially associated with achievement, which guided the construction of the conceptual framework for the interviews. A total of 59 interviews were conducted (including 32 in CAPV and 27 in CAA), alongside focus groups that involved the leadership teams and teachers from the high value-added schools selected for this research. The following common protocol was followed: initial contact, informed consent, audio-recording of interviews, transcription, coding, categorisation with the assistance of NVivo and ATLAS.ti software, and content analysis. The initial categorisation developed for CAPV, which was described in detail by Lizasoain-Hernández and Angulo (2014), served as the basis for designing the category system that was subsequently applied in CAA. Following a content analysis and successive adjustments to the dimensions and categories, the reliability of the system used in each region was validated and cross-checked, and a high level of interresearcher agreement was achieved (α de Krippendorff = 0.8). Finally, nine dimensions were identified.

This paper presents the results concerning the methodological dimension, one of the nine dimensions included in the overall study. This dimension combines the perceptions and evaluations of representatives from effective schools regarding methodology and the use of technologies in the classroom. The analysis was conducted descriptively, and frequencies were used to estimate the weight of each category or subcategory by school. Numerical values were assigned to the subcategories: (0) absence, (1) presence, and (2) exceptional practice. The percentages presented in Table II reflect the proportion of schools that were rated 1 or 2. Given that these categories are not mutually exclusive, given that a school may achieve notable results in several categories simultaneously, category totals may exceed 100%.

Finally, a comparative qualitative study was conducted on the basis of the patterns identified in the content of the interviews conducted in each autonomous community. Accordingly, harmonisation through thematic equivalence was undertaken, which involved linking the specific codes obtained from CAPV and CAA through a correspondence table (Table III) in accordance with their content. This approach made it possible to detect both predominant methods and practices and the variations between the territories. These differences, which were analysed on the basis of a comparative framework, provide insights into practices that

could contribute, in a general sense, to efforts to improve students' academic achievement.

Results

Characteristics of the selected schools

The application of the statistical model led to the identification of 59 highly effective schools. Within the total sample, 54.2% corresponded to the schools selected in CAPV (32). As shown in Table I, the characteristics of these schools are diverse. They are evenly distributed between the primary (16) and secondary (16) stages, as well as between public (16) and state-subsidised (16) schools. No high value-added schools were identified among privately run schools. These schools also represent a variety of socioeconomic and cultural profiles, with schools at the medium level being the most prevalent (17), followed by those at the high (8) and low (7) levels. In contrast, in CAA, effective schools appear to be characterised predominantly by public school status (81.5%) and medium socioeconomic and cultural levels (81.5%). All the effective Andalusian schools analysed belonged to the primary stage.

TABLE I. Characteristics of the participating highly effective schools (CAPV-CAA)

	STAGE		SCHOOL TYPE			ESCS		
	Primary	Secondary	Public	State-subsidised	Private	High	Medium	Low
CAPV	16	16	16	16	0	8	17	7
CAA	27	0	22	1	4	3	22	2
TOTAL	59	16	38	17	4	11	39	9
Participating schools in the Basque Country							32	54.2%
Participating schools in Andalusia							27	45.8%

Source: Authors' own elaboration

A comparative analysis of effective methodological practices

School leadership teams and teachers in the schools that were identified as the most effective largely agreed (81%) that the methodologies and teaching resources implemented in classroom practice constitute important factors with respect to the high levels of performance achieved in these schools, taking into account students' individual and contextual

characteristics. However, the realities of schools in CAPV and CAA differ in terms of the teaching practices and methodologies that are employed in their day-to-day activities. These particularities were taken into consideration during the content analysis, thus allowing a contextualised approach to be adopted with respect to each region. On the basis of the analysis of the information obtained from the interviews, various categories and subcategories were identified within the methodological dimension. These categories are presented in Table II for each autonomous community.

TABLE II. Relevant categories within each methodological dimension (CAPV-CAA).

	CATEGORY	CODE	SUBCATEGORIES	%
CAPV	Innovations in specific subject areas	MET-IA	(1) Innovative methodology in languages	62.5
			(2) Innovative methodology in mathematics	37.5
			(3) Innovative cross-curricular methodology	19
	School-specific methodologies	MET-PR	(1) Traditional methodology	41
			(2) Group work	37.5
			(3) Other innovative methodologies	66
			(4) Key teaching staff	31.2
CAA	ICTs and teaching materials	MET-TM	(1) Use of ICTs	53
			(2) In-house materials	44
	Methodological approach	MET-ENF	(1) Traditional	18.5
			(2) Traditional with innovative elements	52
			(3) Innovative methodologies	48
	ICT in the classroom	MET-TIC	(1) Sufficient ICT resources	52
			(2) Frequent use of ICTs	78
			(3) Digital competence 0	0
			(4) Insufficient or obsolete resources	55.5
			(5) Positive appraisal for teaching	96.3
			(6) Negative appraisal for teaching	15

Source: Authors' own elaboration based on the category systems used in the CAPV and CAA projects

* The % represents the proportion of schools in which the subcategory was present (values 1 or 2)

** As the same school may achieve exceptional results simultaneously in several subcategories, totals may exceed 100%.

To facilitate comparison and transferability across contexts with similar coding systems (although such systems were derived in different manners), a process of harmonisation through thematic equivalence was implemented. Although each autonomous community retained its original codes, for the comparative analysis (Table III), these codes were grouped according to their semantic content with the aim of identifying similarities in the reported practices. Since the CAA system did not include specific subcategories for areas such as languages, mathematics, or cross-curricular domains, these factors were incorporated into the comparison on the basis of a content analysis of the generic categories MET-ENF (2) and (3) whenever the informants explicitly described practices pertaining to those areas.

TABLE III. Distribution of associated codes by thematic category.

THEMATIC CATEGORY	ASSOCIATED CODES	
Methodological approach	CAPV	CAA
Traditional	MET-PR (1)	MET-ENF (1)
Innovative	MET-PR (2); (3)	MET-ENF (2); (3)
Specific methodologies	CAPV	CAA
Innovations in language teaching	MET-IA (1)	MET-ENF (2); (3)
Innovations in mathematics teaching	MET-IA (2)	MET-ENF (2); (3)
Innovations in values education	MET-IA (3)	MET-ENF (2); (3)
Project-based learning	MET-PR (3)	MET-ENF (2); (3)
Groupings	MET-PR (2)	MET-ENF (2); (3)
Use of technologies	CAPV	CAA
Available resources	MET-TM (1); (2)	MET-TIC (1)
Frequency of use	MET-TM (1)	MET-TIC (2); (4)
Benefits and limitations	MET-TM (1)	MET-TIC (5); (6)

Source: Authors' own elaboration

Methodological approach employed in classroom practice

The *traditional methodological approach* is being progressively replaced in both regions by more active methodologies and models of pedagogical renewal. Nevertheless, these forms of direct and largely expository instruction continue to represent a strategic option for some schools. In CAPV, 41% of schools (13) retain this textbook-centred approach, whereas in CAA, the proportion is lower, accounting for slightly less than one-fifth of the total (5). In addition, most of the schools in CAPV that maintain this approach are state-subsidised religious schools (54%), whereas

in Andalusia, a majority are public schools (80%). These schools also tend to feature higher proportions of immigrant and repeating students than other schools do. In general, according to some teachers, the preference for these practices in certain contexts is explained by their effectiveness and by their ability to maintain a degree of control and structure in the classroom: *"The methodology we follow is the traditional one; we adhere to the group's behavioural guidelines and continue with the approach that has been in place at the school for many years"* [School-CAA_18639].

With respect to the *innovative methodological approach*, both regions share a clear orientation towards pedagogical renewal. Schools in these areas exhibit a commitment to the goal of modernising teaching through the incorporation of techniques that encourage more active student participation and promote more meaningful and contextualised learning across different subject areas. In CAPV, innovations are concentrated in areas such as languages (62.5%), mathematics (37.5%), and cross-curricular content (19%), as well as in the development of in-house materials (44%). The set of the most widespread practices includes those related to group work and different forms of grouping, such as cooperative learning, interactive groups, or flexible groups (37.5%), alongside competency-based methodology (25%) and project-based methodology (16%). Some schools in the Basque Country reported the use of less widely known but well-established methodologies, such as the Amara-Berri system, which recreates situations from everyday life to promote learning through interaction and play. Nevertheless, some teachers noted that innovation in teaching has not yet become widespread, largely because of the difficulties associated with assessment: *"We innovate a great deal in terms of methodologies, but if this is not accompanied by innovation in assessment, if we go on assessing in the same way as always, in the end, we fall back into the same routine. I think that there should be innovation in assessment, and that is where I still feel inexperienced; evaluation is what I find most difficult"* [Teaching staff-CAPV_30316].

Many effective schools in CAA also employ innovative methodologies (48%) or combine expository approaches with more current strategies, such as integrated tasks or cooperative learning (52%). Although these schools are not notably in light of their use of specific methodologies in areas such as languages or cross-curricular content, they have consolidated the application of distinctive approaches to the teaching of mathematics through the ABN. In addition, teachers reported the increasingly widespread use of creative techniques that are adapted to each class group, such as positive discipline, gamification, learning by doing, design thinking, or PBL. Teachers considered this diversity of practices to

be effective on the basis of the positive results obtained in this manner. However, unlike the results observed in some schools in CAPV, Andalusian schools with well-established methodological approaches reported adaptations in coordination and in the assessment system in line with these innovations: *“For us, methodological change is fundamental, and we believe that learning takes place through doing, through learning by doing (...) we have a highly cohesive and well-coordinated innovation team in the school, and they are the ones who work with the leadership team to shape the actions, needs, and evaluation associated with innovation”* [School-CAA_41002].

Specific methodologies

In the *teaching of languages*, neither the schools in CAPV nor those in CAA follow a single methodological approach. Teachers tend to employ a variety of different strategies to innovate. However, a stronger commitment to innovation in this area was evident in CAPV schools. More than half of these schools (62.5%) reported that they prioritise the development of linguistic competence, plurilingualism, reading habits, and oral comprehension and expression in Basque, Spanish, and English. These schools integrate project- and competency-based methodologies with specific initiatives such as literary discussions with families, paired reading, poetry marathons, book exchanges, or classroom visits by authors.

One of the most representative initiatives is the integrated language treatment approach (Tratamiento Integrado de Lenguas or TIL), which focuses on the development of language skills in a coordinated way within a trilingual context. Teachers reported significant improvements in English language competence as a result of the incorporation of native-speaker teachers and the organisation of exchanges with schools abroad: *“In languages, work is organised around a common idea: language learning develops communicative competences. Work is performed collaboratively and with qualified teachers. Students must engage in active learning, and for this reason, the methodology is based on the development of tasks and assignments. There is no textbook, and ICTs are used continuously. Students write, read, speak, present, and listen”* [School-CAPV_35068].

In CAA, the development of oral and written expression is generally approached through direct instructional methods that are in line with curricular prescriptions and standardised assessment criteria. Only 19% of the schools integrate languages transversally through project work or creative activities such as theatre, dialogic gatherings, or fantasy corners. It is worth highlighting specific initiatives, such as that employed by a

highly effective compensatory education school, which organises weekly activities focused on different competences and develops a cross-curricular project on story creation that has been recognised as a good educational practice: *“We run a storytelling programme for which we have just received a €3,000 award for innovation in good educational practices. Everything is organised globally across the school. For the stories, we have divided the school into four lands: the lands of dragons, pirates, goblins, and giants. Each class is a land (...) in written expression, we write stories. By the end of the school year, each pupil has produced a storybook”* [School-CAA_14022].

With respect to *innovations in mathematics teaching*, 37.5% of the schools in CAPV attributed the strong results they have achieved to the implementation of specific active, practical, and manipulative methods that are rooted in logical reasoning and problem-solving. The approaches that are used most frequently by Basque teachers include the *Pereda*, *Ostadar*, and *Txanela* methods (Ikastolas Foundation), although none is exception in this context. These practices are complemented by cooperative activities and the use of technologies. Participation in mathematics projects rooted in chess is also valued. Students likewise participate in mathematics events and reward-based assessments. Notably, approximately half of the schools that have introduced innovations in the field of mathematics have also done so in the field of languages.

The ABN is widely used in high value-added schools in CAA. Twenty percent of schools reported using this approach in a consolidated way in preprimary and primary education, and other schools are beginning to receive training to enable them to incorporate this practice in the future. Teachers noted that this approach enables students to develop mathematical reasoning flexibly and to understand numbers in a more intuitive and dynamic way: *“We always ran three ABN workshops because we teach mathematics through the ABN, and we train families in this methodology so that they can help the children”* [School-CAA_18028]. In other schools, experiences were more varied and involved combining direct instruction with inquiry-based methodologies, project work, or cooperative learning for problem solving. Although some innovative dynamics in mathematics are used in both contexts, schools in CAPV did not report the use of the ABN, which appears to function very positively in Andalusian schools. Similarly, the approaches developed in CAPV are neither used nor familiar in CAA schools.

Innovations in values education represent one of the least standardised areas, although a notable effort to innovate in this field in a cross-curricular manner is evident. Differences can also be observed in

the approaches used in this context: whereas in CAPV, innovation in values education tends to focus on projects that have been designed by teaching teams, which feature more consolidated methodologies, in CAA, greater importance is attached to participation in institutional plans or projects. Nineteen percent of state-subsidised schools in CAPV report innovation projects that are explicitly oriented towards values education, which thus have impacts on the reduction of disruptive behaviour and the improvement of social and civic competence. One example of this situation is a school that has implemented the *Pentacidad* method, which is focused on the comprehensive development of emotional and communicative competences: “*With this method, self-awareness, emotional regulation, and the ability to learn how to live together are developed*” [School-CAPV_36048]. Other schools have emphasised service learning, thereby structuring actions on the basis of social solidarity with a broader community impact. Schools also exhibit a tendency to plan values education as an explicit cross-curricular competence: in certain schools, values are selected through agreements with families, and one value is addressed each term through tutorial sessions and participatory assessments, in which students and families collaborate actively.

In CAA, approximately 37% of high-performing schools report innovations in values education on the basis of institutional programs. Participation in *Escuelas Espacios de Paz*, *Ecoescuelas*, or coeducation projects is widespread and provides a framework for efforts to promote shared responsibility, equality, and conflict resolution. Beyond these institutional projects, some schools address values education transversally through practices such as dialogic gatherings, learning communities, democratic participation, and positive discipline: “*For the past couple of years, we have been making a very strong commitment to positive discipline as a way of organising coexistence in the school, and it seems to be working*” [School-CAA_04008].

Project-based learning is used in both Basque and Andalusian schools, although it is more prevalent in the latter case (48%). In CAPV, 16% of the schools reported using this methodology systematically. Work is organised through *txokos* and globalised proposals that provide flexibility in terms of curriculum management. One common feature is that teachers assume responsibility for all students and mix pupils from different year groups, which requires a high degree of coordination. Teachers also identified high student motivation and the incorporation of self-assessment and peer-assessment strategies as the main effects of this methodology, although minimum-standard examinations are retained. While the results of this approach are positive, it is important to note that these

schools operate in contexts that are characterised by low rates of immigration and grade repetition, as well as conditions that facilitate the implementation of cooperative and globalising models.

In CAA, PBL is used in approximately half of schools and is particularly common in preprimary education. At this stage, so-called “pure” projects that are not linked to publishing houses are implemented, in which context teachers, families, and students jointly design activities on the basis of core themes of interest. In primary education, PBL is also widely used, but it tends to coexist with less active approaches in other areas as a result of the high turnover rates exhibited by teachers in public schools and the associated difficulties in ensuring continuity in project work: *“In preprimary, PBL had already been fully implemented, and in primary, it had been partially introduced, but new staff arrived without training, who did not know how to work in this way, and we had to return to initial levels of training in PBL”* [School-CAA_23060]. Nevertheless, some schools have developed far-reaching and highly motivating experiences by working with PBL for years on the basis of termly globalised projects or initiatives that are based on shared interests.

With respect to *grouping arrangements*, teachers and leadership teams in both autonomous communities associated improvements in coexistence and attainment with the implementation of group-work strategies such as cooperative learning, flexible and heterogeneous grouping, split classes, paired work, or interactive groups. These practices are present in approximately half of the highly effective schools in CAA (52%) and CAPV (37.5%). In this context, cooperative learning was identified as the most widespread and consolidated approach. In CAPV, some state-subsidised schools (12.5%) are notable in light of their pioneering character, such that they apply this methodology to core subjects. In Andalusia, state-subsidised schools (7.4%) are also notable for their use of cooperative learning as an essential foundation for project work.

Use of technologies

The *resources available* in highly effective schools in CAPV and CAA are generally adequate to support educational activity. In both contexts, such schools have access to basic devices such as interactive whiteboards, projectors, computers, and internet connections. In the Basque Country, 53.2% of schools reported that they possessed a complete infrastructure, including tablets, iPads, or Chromebooks. In Andalusia, most schools (52%) also have access to these resources, although some devices, such as tablets, are reported to be of limited usefulness: *“The tablets are not in very good condition, because they are already very old”*

[School-CAA_29043]. In addition, not all students have access to devices to support classroom work: *“The first set of mini laptops is already obsolete and broken down (...) they were insured during the first year, and after that, the school has to take responsibility. A school like this, with the budget it has for running costs, cannot afford to repair laptops”* [School-CAA_14057]. In these cases, initiatives aimed at expanding provisions in some CAA schools, such as loan networks managed by parent associations or the incorporation of students’ own devices in those schools where such devices are normally used, are particularly relevant.

In terms of the frequency of technological use, schools in both autonomous communities make regular use of these resources in their classes. In CAPV, more than half of the schools (53%) use such resources on a regular basis. Some schools even link them to innovative methodologies, in which context experiences in programming, robotics, or gamification are highlighted from the early stages of the educational process and supported by teacher training and institutional projects such as Eskola 2.0 or Sare Hezkuntza. In Andalusia, the use of such technologies is also widespread (78%), although it is more heterogeneous, more instrumental, and more closely tied to teacher autonomy. Some schools have chosen to implement full digitalisation at certain stages: *“A Year 6 class uses only and exclusively computers”* [School-CAA_18076]. Other schools limit the use of such technologies to one day per week with students’ personal devices: *“One day a week, students bring laptops or tablets to class”* [School-CAA_18088].

Beyond the level of classroom use, many teachers in both CAPV and CAA highlighted the *benefits* of technologies in terms of improving internal and external school communication. Some schools even noted that the absence of an internet connection would constitute a serious limitation, given that a large portion of the content and activities emphasised by such schools is recorded on platforms such as Classroom. Although the benefits of technologies were widely acknowledged (96%), teachers in both autonomous communities also highlighted certain limitations, such as the lack of specialised training, increased workload, and unequal resource provision, particularly in public schools.

Conclusions

The findings of this study are in line with the literature (Al Shloul et al., 2024; Azpillaga-Larrea et al., 2021; Burgess et al., 2023; Javornik & Klemenčič, 2023; Muijs et al., 2014; Wedel, 2021) given the finding that school effectiveness is associated, according to the informants, with the quality

and innovativeness of classroom processes, the coherence and continuity of methodological decisions, and the pedagogical use of technologies.

More than half of the schools included in the interviews identified the implementation of a variety of active, participatory, or innovative methodologies as a factor that supported their improvement trajectories, including cooperative learning, gamification, learning by doing, service-learning, and flexible and/or heterogeneous grouping. These practices are usually integrated through hybrid or combined approaches, and teachers maintained that this diversity of strategies helps encourage participation, promote more meaningful learning, and facilitate the adaptation of teaching to classroom diversity; all of these benefits have been identified in the literature as relevant to school effectiveness (Muijs et al., 2014). Technologies were also identified as a common resource, although some Basque schools described more advanced experiences with technological integration (Herodotou et al., 2019) through robotics, programming, or gamification.

The findings also revealed that some effective schools continue to use direct, structured, and textbook-centred instructional strategies. Informants described these practices as pedagogical decisions that are adapted to the context in which they operate and that focus on guaranteeing order and continuity and ensuring satisfactory outcomes (Chaparro & Gamazo, 2020). In CAPV, 41% of the schools referred to this type of approach, whereas 18.5% of the schools in CAA did so, a difference that may be linked to the timing of data collection and the development of the studies in each autonomous community (Lizasoain-Hernández & Angulo, 2014), given that the overall trend highlights the existence of processes of pedagogical renewal (Arega & Hunde, 2025).

Although no universal methodology directly linked to academic success was identified, PBL is notable in light of its widespread adoption in Andalusian schools (48%) and, to a lesser extent, in Basque schools (16%). Schools using this methodology reported a systematic, well-structured, and coherent implementation supported by qualified teachers. In addition, according to informants, outcomes and motivation improve when actions are designed and coordinated rigorously and incorporate self-assessment and peer-assessment strategies (Egara & Mosimege, 2024). Distinctive models, such as the Amara-Berri system implemented in Basque schools, are also notable; in particular, this system has produced very positive results in primary education because of its playful and functional character.

A key finding pertains to the role of innovations in specific areas of the curriculum. In CAPV, methodological innovation is particularly prom-

inent in the field of languages (62.5%), in which practices are aligned with the development of communicative competences, the consolidation of reading habits, the promotion of plurilingualism through the TIL approach in Basque, Spanish, and English, and the use of PBL in this area. In addition, schools that innovate in the field of languages also do so in the field of mathematics (37.5%), including by using distinctive, manipulative, and reasoning-oriented approaches such as *Pereda*, *Ostadar*, and *Txanela*. In CAA schools, the most stable, recognisable, and successful focus of innovation is evident in mathematics, as the implementation of the ABN was identified in 20% of preprimary and primary schools. Some schools even train students' families and newly appointed teachers in this methodology. These patterns suggest the existence of practices that have the potential to be transferred across different contexts. In CAA, it would be advisable to strengthen innovation in languages and foreign languages through the implementation of practices that have proven to be effective in CAPV, such as the TIL, literary discussions with families, or paired reading. CAPV, in turn, could benefit in the field of mathematics innovation from the experience with the ABN that has been accumulated in Andalusian schools, provided that the adoption of this approach is accompanied by specific training and coherent implementation throughout the whole school (Canto-López et al., 2022).

Another relevant conclusion is that although informants associate strong outcomes with methodological approaches and classroom innovations, they also emphasise the fact that the most salient point is not which methodology is adopted but rather how that methodology is implemented, sustained, and evaluated (Azpillaga-Larrea et al., 2021; Etxebarria et al., 2017). The literature has already highlighted the need for a culture of assessment that can guide methodological design, regulate progress, and ensure the internal consistency of innovation (Creemers & Kyriakides, 2008; Muijs et al., 2014). Consequently, decision-making aimed at school improvement should be directed towards the following goals: (1) strengthening teacher training in new approaches; (2) institutionalising coordination and leadership to ensure methodological continuity and coherence; (3) prioritising the implementation of evidence-based methodologies in line with assessments; and (4) planning technological integration on the basis of learning objectives while simultaneously ensuring provision, maintenance, and digital competence.

This study presents certain limitations regarding the comparison and the transferability of practices, which result from the use in this research of secondary data that are not fully equivalent in terms of stages or competences. The findings of this study should therefore be interpreted as

a contextual contrast and a form of transfer conditioned by feasibility in each setting. Similarly, as this study is based on perceptions, the results are not derived from direct observations or causal inferences but rather identify the practices that teachers associate with improvement trajectories. Future research should examine the methodologies identified in this context, their outcomes, and the assessment processes associated with those practices in greater depth while also generating evidence regarding transferability across broader contexts and high-performing settings in the context of standardised assessments with the goal of identifying which approaches work, why they do so, and under what conditions they do so.

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Epistemic Autonomy in the Age of Generative Artificial Intelligence: Foundations for a Reverse Scaffolding Model

Autonomía epistémica frente a la inteligencia artificial generativa: bases para un modelo de andamiaje inverso

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Summary

The integration of generative artificial intelligence (GAI) into higher education has reshaped how knowledge is accessed, processed, and produced by introducing forms of algorithmic mediation capable of generating complete academic outputs before students have developed an independent conceptual understanding of the underlying material. Although these tools can streamline tasks and broaden access to information, their use raises important questions about the preservation of intellectual agency and students' ability to justify, evaluate, and produce knowledge independently. This article examines how epistemic autonomy may be transformed by the use of GAI as a form of cognitive scaffolding in higher education. Using a qualitative, theoretical-analytical approach grounded in a critical narrative review and integrative conceptual analysis, the study brings together contributions from sociocultural psychology, cognitive load theory, metacognition, virtue epistemology, and research on the educational integration of GAI. The analysis suggests that algorithmic mediation alters key features of traditional scaffolding by reversing the sequence between understanding and production, reducing desirable difficulties, and weakening the gradual withdrawal of external support. The article's original contribution lies in connecting the concepts of cognitive debt and reverse scaffolding to explain, respectively, the processes of procedural substitution that erode epistemic agency and the metacognitive operations through which students evaluate, revise, and redirect AI-generated outputs. On this basis, the article argues that the formative effects

of GAI depend less on its technical capabilities than on the pedagogical conditions governing its use. Its effective integration therefore requires process traceability, prior independent cognitive effort, the gradual withdrawal of support, critical AI literacy among educators, and institutional frameworks designed to preserve self-regulation, reflective evaluation, and the independent construction of knowledge.

Keywords: autonomous learning, cognition, critical thinking, digital competencies, learning assessment.

Resumen

La incorporación de la inteligencia artificial generativa en la educación superior ha reconfigurado las formas de acceso, procesamiento y producción del conocimiento al introducir una mediación algorítmica capaz de anticipar productos académicos completos antes de que el estudiantado desarrolle una comprensión conceptual autónoma. Aunque estas herramientas pueden agilizar tareas y ampliar el acceso a la información, su integración plantea interrogantes sobre la conservación de la agencia intelectual y la capacidad del alumnado para justificar, evaluar y producir conocimiento por cuenta propia. El presente artículo analiza la transformación de la autonomía epistémica asociada al uso de inteligencia artificial generativa como andamiaje cognitivo en la educación superior. Mediante una investigación cualitativa de carácter teórico-analítico, sustentada en una revisión narrativa crítica y en un análisis conceptual integrador, se articulan aportes de la psicología sociocultural, la teoría de la carga cognitiva, la metacognición, la epistemología de la virtud y la literatura sobre integración educativa de estas tecnologías. El análisis muestra que la mediación algorítmica altera propiedades centrales del andamiaje clásico al invertir la secuencia entre comprensión y producción, reducir dificultades deseables y debilitar la retirada progresiva del apoyo externo. La contribución original radica en vincular las categorías de deuda cognitiva y andamiaje inverso para explicar, respectivamente, los procesos de sustitución procedimental que erosionan la agencia epistémica y las operaciones metacognitivas mediante las cuales el estudiantado evalúa, corrige y reorienta los productos generados. A partir de esta articulación, se sostiene que los efectos formativos de la inteligencia artificial generativa dependen menos de sus capacidades técnicas que de la arquitectura pedagógica que regula su incorporación. En consecuencia, su integración requiere trazabilidad del proceso, esfuerzo autónomo previo, retirada gradual del soporte, alfabetización crítica del profesorado y marcos institucionales capaces de preservar la autorregulación, la evaluación reflexiva y la construcción autónoma del conocimiento.

Palabras clave: aprendizaje autónomo, cognición, competencias digitales, evaluación del aprendizaje, pensamiento crítico.

I. Introduction

The integration of generative artificial intelligence (GAI) into higher education has changed how academic knowledge is accessed, processed, and produced. Recent estimates indicate that GAI use reaches 95% among university students in the United Kingdom (Stephenson & Armstrong, 2026, p. 4), while in different Global South contexts, reported rates range from 42% for regular use (Shoukat et al., 2026, p. 4) to 84% for daily use (Rababah et al., 2026, p. 243). These figures suggest that algorithmic mediation has become part of the higher education environment and warrant closer examination of its implications for epistemic autonomy.

Viewed through the lenses of learning psychology and instructional design, this transformation of the educational environment raises several important questions. On the one hand, the literature reports gains in efficiency and information management (Salhab, 2026, p. 14). On the other, it points to potential effects on critical thinking and self-regulation (Kosmyrna et al., 2025, p. 146). From a sociocultural perspective, learning occurs within the Zone of Proximal Development through forms of mediation that promote development (Vygotsky, 1978, p. 86). Scaffolding, in turn, assumes that comprehension precedes independent production and that external support is gradually withdrawn (Wood et al., 1976, p. 98). Cognitive load theory further suggests that excessive automation may reduce the germane cognitive load required for schema construction (Sweller et al., 1998, p. 259) and diminish the desirable difficulties that support long-term memory consolidation (Bjork & Bjork, 2011, p. 58).

Empirical research, however, has produced mixed findings. Some neurocognitive and experimental studies report reductions of up to 55% in the functional connectivity of semantic networks (Kosmyrna et al., 2025, p. 147) and decreases of up to 16 percentage points in long-term knowledge retention (Barcaui, 2025, p. 7). Other studies show that students can develop critical verification strategies (Isaeva et al., 2026, p. 6) and preserve authorial agency when reviewing AI-generated outputs (Alyasin & Shah, 2026, p. 8). Despite these findings, a theoretical gap remains. Most studies treat GAI as an exposure variable without specifying the pedagogical conditions that determine when algorithmic mediation leads to procedural substitution and when it supports formative learning (Xu et al., 2026, p. 21).

This theoretical gap has direct implications for the regulation and educational integration of GAI. In many education systems, the absence of clear operational guidelines has shifted much of the regulatory responsibility to higher education institutions (Vidal et al., 2023, p. 265). Without

explicit pedagogical criteria, it becomes difficult to guide the use of these technologies in ways that preserve students' epistemic autonomy and prevent forms of cognitive dependence (Varghese, 2025, p. 309). This lack of guidance also constrains the development of policies grounded in pedagogically sound integration rather than approaches based solely on prohibition or uncritical adoption (UNESCO, 2024, p. 30).

To address this theoretical problem, the present study adopts an interpretive paradigm and a qualitative, theoretical-analytical approach. It is based on documentary research with an explanatory and integrative scope, supported by a critical narrative review and conceptual analysis. Drawing on neurocognitive evidence, empirical studies, and theoretical contributions on epistemic autonomy, the study examines the characteristics of algorithmic mediation and their implications for higher education learning.

Within this methodological framework, the article aims to analyze how the use of GAI as a form of cognitive scaffolding may transform the epistemic autonomy of higher education students. More specifically, it seeks to provide an interpretive framework for understanding the relationship among algorithmic mediation, learning, and intellectual autonomy.

To accomplish this objective, the argument unfolds in four interconnected stages. It begins by examining the reconfiguration of cognitive scaffolding in GAI-mediated environments. It then analyzes the mechanisms involved in the development of cognitive debt and introduces reverse scaffolding as a model for understanding the recovery of epistemic agency. The article concludes by examining the curricular, instructional, and institutional conditions that shape the pedagogical use of GAI.

2. Methodology

The objective of this study was to analyze how the use of generative artificial intelligence as a form of cognitive scaffolding may transform the epistemic autonomy of higher education students. Consistent with this objective, the study adopted an interpretive-critical paradigm aimed at understanding the reconfiguration of cognitive, metacognitive, and pedagogical processes and evaluating their implications for students' epistemic agency.

The study used a qualitative approach because the analysis centered on the theoretical interpretation of concepts, mechanisms, and explanatory relationships identified in the specialized literature. Rather than statistically measuring the phenomenon, the research sought to understand its foundations, dynamics, and educational implications by integrating convergent conceptual perspectives.

Given its purpose and the nature of the sources examined, the study was theoretical, analytical, and documentary in nature. It sought to integrate conceptual frameworks and prior evidence in order to explain how epistemic autonomy may be transformed in contexts involving the use of generative artificial intelligence and to propose the reverse scaffolding model as a theoretical contribution.

The study employed a critical narrative review design combined with integrative conceptual analysis. Its methodological structure included the thematic selection of specialized literature, the identification and integration of analytical categories, the comparison of explanatory mechanisms, the development of an interpretive synthesis, and the formulation of pedagogical conditions for the formative use of GAI.

Data collection relied on documentary review and qualitative content analysis of academic sources. Together, these techniques enabled the identification of concepts, arguments, findings, and theoretical relationships related to epistemic autonomy, cognitive scaffolding, cognitive debt, and reverse scaffolding.

The instruments used to collect and organize the information consisted of a bibliographic record matrix and a categorical analysis matrix. The first was used to systematize source identification and relevance data, while the second facilitated the classification of concepts, mechanisms, evidence, explanatory relationships, and contributions associated with the study's central categories.

3. Reconfiguring Cognitive Scaffolding with GAI

Understanding scaffolding as a pedagogical concept requires tracing its origins to sociocultural and developmental psychology. The original formulation of the Zone of Proximal Development established that properly organized learning precedes development and drives it by activating internal processes of maturation that would otherwise remain inaccessible without social mediation (Vygotsky, 1978, p. 90). An individual's cognitive capacity is determined not only by what they can accomplish independently but also by what they can achieve with guidance or in collaboration with more capable peers. The distance between these two levels defines the space in which instruction performs its formative function.

In the pedagogical application of this principle, scaffolding was conceptualized as the selective control exercised by an expert over those elements of a task that exceed the learner's initial capacity (Wood et al., 1976, p. 90). This support does not function as a passive model for imitation but as a dynamic form of regulation that stabilizes the learning

environment and manages the amount of information presented to the learner. Effective scaffolding assumes that understanding a solution precedes producing it. The learner must therefore recognize the relationship between means and ends before benefiting from knowledge of results (Wood et al., 1976, p. 90). Scaffolding may include reducing degrees of freedom, maintaining direction, highlighting critical features, and managing frustration. Its normative trajectory involves the gradual withdrawal of support as the learner internalizes the relevant competence.

The introduction of GAI into higher education substantially alters the assumptions of this traditional model. First, algorithmic mediation reverses the temporal relationship between comprehension and production: the system can generate a complete, coherent, and formally polished response before the student has conceptually processed the problem. Unlike a human tutor, who can calibrate intervention on the basis of a learner's observable hypotheses and performance, a language model does not possess an explicit model of the cognitive state of the learner being scaffolded. It operates through probabilistic prediction of textual sequences and generates responses whose fluency does not necessarily reflect the user's level of understanding (Hamamra et al., 2026, p. 2). This asymmetry represents a qualitative departure from traditional scaffolding.

In addition to altering the temporal sequence, GAI reconfigures the distribution of cognitive load within pedagogical interaction. Cognitive load theory holds that working memory has a highly limited capacity to process interacting elements simultaneously. Instructional design should therefore minimize extraneous load while optimizing the resources devoted to schema construction (Sweller et al., 1998, p. 252). GAI can reduce extraneous load by simplifying information navigation and automating search processes, potentially allowing more attentional resources to be directed toward deeper conceptual understanding (Nuryanis et al., 2026, p. 1071). At the same time, however, it may also reduce germane cognitive load—that is, the productive mental effort devoted to consciously constructing and refining schemas. When the system solves a problem in full, it may deprive students of the cognitive difficulty that supports encoding and memory consolidation.

The persistence of algorithmic support also challenges the principle of fading in instructional scaffolding. Commercial GAI systems often provide relatively stable and continuous support without mechanisms that dynamically reduce assistance as learners progress (Tenisheva & Litvinova, 2025, p. 37). It has been proposed that GAI could function as a form of permanent scaffolding, allowing students to engage in higher-order

thinking tasks without first mastering lower-level procedural skills and thereby altering the sequential logic traditionally associated with Bloom's taxonomy (Sidorkin, 2026, p. 2). Under this hypothesis, support does not disappear; instead, learning shifts away from procedural execution and toward conceptual work and the strategic use of the technology. This proposal, however, remains empirically underexamined and coexists with evidence pointing in the opposite direction.

The concept of cognitive offloading provides a complementary framework for clarifying the scope of these transformations. Originally defined as the use of physical actions or external tools to alter the processing demands of a task and reduce cognitive effort (Risko & Gilbert, 2016, p. 676), cognitive offloading has historically involved bounded functions such as information storage, calculation, and reminders. GAI introduces a qualitative shift by externalizing functions that were previously carried out primarily through internal cognitive processing, including synthesis, interpretation, and the organization of arguments (Mir et al., 2026, p. 32). This shift changes the boundary between augmentation, in which the technology expands capacity while preserving agency, and substitution, in which the system takes over phases of intellectual effort that may be necessary for cognitive development.

Closely related to this outsourcing of cognitive processing, the technical opacity of language models introduces an additional challenge. Unlike conventional pedagogical tools, whose underlying mechanisms are generally more accessible to educators and learners, generative models operate with limited traceability and provide little access to the reasoning process underlying their outputs (Varghese, 2025, p. 314). This opacity makes it difficult to reconstruct the evidentiary basis of generated responses and may lead users to evaluate them primarily through surface-level features such as fluency, coherence, and academic tone. Research has documented that students may trust AI-generated content on the basis of these characteristics even when the output contains inaccuracies, bias, or fabricated information (Hamamra et al., 2026, p. 3).

Taken together, these changes in cognitive scaffolding help explain how GAI alters the conditions of pedagogical mediation. They do not, however, fully account for the consequences these transformations may have for students' cognitive functioning. It is therefore necessary to examine the mechanisms through which repeated delegation of intellectual processing can erode epistemic autonomy. The following section develops this analysis through the concept of cognitive debt.

4. Mechanisms Underlying Cognitive Debt

The previous section established that algorithmic mediation alters the structure of traditional scaffolding without producing any single pre-determined effect. This section examines the conditions under which the absence of explicit pedagogical design gives rise to procedural substitution that erodes students' epistemic autonomy. The analysis focuses on mechanisms of cognitive degradation and leaves corrective interventions for a later section.

The concept of cognitive debt provides the analytical starting point for understanding this process of degradation. It refers to a cumulative condition in which the systematic delegation of reflective processes to automated systems reduces immediate cognitive effort while generating long-term costs. These costs include the erosion of critical thinking, increased vulnerability to manipulation, and diminished autonomous creativity (Kosmyna et al., 2025, p. 151). Cognitive debt should not be equated with distraction or inefficient use of time. Rather, it describes a deterioration in an individual's ability to regulate reasoning processes and justify beliefs. In virtue epistemology, this capacity is referred to as epistemic autonomy (Varghese, 2025, p. 309).

A primary mechanism underlying this cumulative condition is the removal of desirable difficulties. Research on learning has shown that certain forms of friction during encoding strengthen long-term memory traces even though they may slow immediate performance. These include retrieval practice, spacing, and independent response generation (Bjork & Bjork, 2011, p. 57). GAI tends to operate in the opposite direction. By providing immediate, complete responses, it reduces the need to retrieve information, formulate tentative hypotheses, or sustain attention in the face of conceptual ambiguity. Experimental evidence supports this pattern. In a randomized controlled trial, students assisted by ChatGPT scored 16% lower on retention than students in the traditional learning group 45 days later. The effect persisted after controlling for time spent on the task (Barcaui, 2025, p. 7). The deficit therefore appears to result not only from reduced study time but also from the type of cognitive processing involved.

Converging evidence comes from research on functional brain connectivity. Electroencephalographic recordings show that language-model users exhibit reductions of up to 55% in the magnitude of low-frequency semantic and monitoring networks compared with participants working without digital tools. Participants who used search engines showed intermediate levels of connectivity (Kosmyna et al., 2025, p. 146). This

gradient suggests that cortical activation decreases as external assistance increases, with GAI associated with the lowest level of activation. The implications for episodic-memory encoding are significant. Reduced theta and alpha oscillations in frontal and temporal regions are consistent with shallower encoding processes and less integration of content into long-term memory networks (Kosmyna et al., 2025, p. 147).

A second central mechanism of cognitive debt is the illusion of competence that accompanies this reduction in deep processing. GAI-generated responses are often syntactically fluent, internally coherent, and authoritative in tone. From a metacognitive perspective, students may mistake this readability for evidence of their own understanding. This effect can inhibit self-assessment and conceal conceptual gaps (Mir et al., 2026, p. 37). Empirical findings support this concern. In a longitudinal study, 83% of language-model users were unable to quote passages from their own texts during the first session, and none produced a semantically accurate quotation (Kosmyna et al., 2025, p. 147). Participants had produced essays that received positive ratings from algorithmic evaluators, yet they lacked a robust internal representation of the content. This pattern has been described as borrowed competence. The coherence of AI-generated text functions as external scaffolding that can conceal the absence of consolidated memory representations (Barcaui, 2025, p. 10).

Beyond this metacognitive distortion, cognitive degradation also affects authorial agency and the perception of authorship. When the algorithm assumes responsibility for planning, structuring, and revision, processes of internal evaluation and error monitoring in anterior frontal regions are attenuated. As a result, individuals may experience a weaker sense of authorship over their own discourse (Kosmyna et al., 2025, p. 148). A qualitative study involving university faculty and students identified texts that were syntactically correct but conceptually thin. When asked about their own writing, students were unable to unpack, justify, or explain the logical and grammatical structures generated by the model (Hamamra et al., 2026, p. 10).

At the behavioral level, prereflective use of GAI further reinforces this erosion of agency. In one sample of learners of English as a foreign language, 61% reported using GAI before attempting to solve the task independently. The algorithmic prompt thus displaced the learner's initial heuristic effort (Rababah et al., 2026, p. 243). Frequency of use negatively predicted both self-regulation and reliance on self-correction, with a regression coefficient of $b = -0.46$, $p < 0.001$ (Rababah et al., 2026, p. 244). Similarly, a structural equation model showed that overall AI use was associated with higher perceived productivity ($\beta = 0.6\text{--}0.7$), whereas

more specific forms of dependence were associated with lower actual autonomy ($\beta = -0.5$, $p < 0.05$). The literature has described this divergence as the paradox of dependence (Shoukat et al., 2026, p. 6).

This paradox is further reflected in the gap between performance and competence at the meta-analytic level. The effect of AI measured through observable behavior ($g = 0.751$) is approximately twice as large as the effect measured through self-report ($g = 0.369$). The system can coordinate students' external behavior without producing a corresponding change in metacognitive awareness (Xu et al., 2026, p. 21). The concept of simulated self-regulation captures this phenomenon. Students may display complex strategic behaviors while algorithmic support is present, yet those behaviors disappear once the support is removed. Regulation therefore resides in the system rather than in the learner (Xu et al., 2026, p. 18). Activity logs support this pattern: planning and monitoring behaviors triggered by fixed prompts decline immediately when those scaffolds are removed from the interface (Xu et al., 2026, p. 17).

Within this instructional framework, temporal sequencing plays a decisive role in the development of cognitive debt. The neurocognitive effects of GAI vary depending on when it is introduced in the learning sequence. When algorithmic support is provided only after an initial period of independent effort, as in a Brain-to-LLM sequence, executive-control and episodic-memory networks are reactivated. By contrast, immediate exposure to the model, as in an LLM-to-Brain sequence, appears to hinder the development of consolidation networks. After AI support was removed during the crossover session, 78% of participants who had begun with the model were unable to recall any element of their writing, compared with 11% of those who had initially worked without tools (Kosmyna et al., 2025, p. 150). These findings suggest that early dependence encourages shallow encoding whose effects persist even after support is withdrawn.

A further qualitative consequence of procedural substitution is the homogenization of textual output. Language models can reduce semantic variation across texts because of the probabilistic regularities embedded in their training data. In doing so, they may constrain the diversity of students' ideas (Kosmyna et al., 2025, p. 151). Faculty report recurring stylistic patterns, repeated structures, and predictable vocabulary in AI-mediated essays. By contrast, algorithmic evaluators may fail to detect this convergence and still assign high scores for quality and originality (Kosmyna et al., 2025, p. 148). This divergence between human and algorithmic evaluation can reinforce cognitive debt by providing positive performance signals that mask a declining capacity for independent production.

Taken together, these mechanisms help explain how unmediated interaction with GAI can contribute to the progressive erosion of epistemic autonomy. This diagnosis, however, does not exhaust the analysis of the relationship between students and the technology, because the same tool can be embedded in very different learning dynamics depending on the form of interaction it supports. If cognitive debt arises from the uncritical delegation of reasoning, the next question is how this relationship can be redirected toward active, reflective evaluation of AI-generated output. The following section develops this possibility through the concept of reverse scaffolding.

5. Metacognitive Processes in Reverse Scaffolding

The previous section showed that, in the absence of explicit pedagogical design, procedural substitution can erode epistemic autonomy. This section examines the internal processes through which students can move from passive consumers of text to dialectical curators through what is termed reverse scaffolding. The analysis focuses exclusively on the cognitive and logical processes involved in interaction with GAI, leaving curricular design and institutional conditions aside.

The analytical starting point is the reversal of the asymmetry inherent in traditional scaffolding. In the original model, the expert has mastery of the task and regulates the learner's performance so that the learner can internalize its underlying structure. The tutor manages complexity and gradually withdraws support as the learner gains competence (Wood et al., 1976, p. 96). In interactions with GAI, this sequence is reversed. The system can generate a complete and formally polished output, yet that output remains opaque and prone to error. The user has limited control over how it is produced. Students must therefore assume higher-order scaffolding functions in relation to the generated output. These functions include detecting errors, strategically reformulating prompts, and engaging in reasoned curation of the text.

At the cognitive level, this redistribution of functions rests on the distinction between comprehension and production. The classical model holds that the ability to evaluate a solution precedes the ability to generate the steps required to produce it (Wood et al., 1976, p. 94). Under reverse scaffolding, the algorithm produces without understanding. Faced with a finished output, students must evaluate its validity, relevance, and logical coherence. Exercising this judgment requires prior knowledge and a metacognitive disposition that enables students to act as evaluators rather than passive recipients.

Contrary to concerns about generalized passivity, empirical evidence suggests that this evaluative stance can be developed under certain conditions. In a study of academic writing involving explicit scaffolding, students rejected both the homogenization of their prose and the artificial tone of some AI-generated passages. They responded by manually revising the output to preserve their own voices (Alyasin & Shah, 2026, p. 8). Resistance to homogenization represents an initial form of reverse scaffolding: the generated product is not accepted as final but is instead subjected to the student's own aesthetic and argumentative criteria. Authorial agency is preserved through an evaluative competence that enables students to distinguish among algorithmic suggestions, revise them, or reject them altogether (Alyasin & Shah, 2026, p. 5).

A key component of this evaluative competence is critical epistemic reflection, defined as the systematic examination of generative outputs in order to detect hallucinations, identify biases, and compare algorithmic reasoning with scientific evidence (Brasler & Kryś, 2026, p. 3). This process changes the student's relationship to the system. GAI ceases to function as an authority and instead becomes an object of analysis. In this way, both AI literacy and epistemic judgment can be strengthened (Brasler & Kryś, 2026, p. 3). The pedagogical value lies in the structured evaluation of AI-generated output rather than in its automatic production.

To operationalize this structured evaluation, reverse scaffolding can be divided into three cognitive operations. The first is identifying critical features, a function assigned to the tutor in the classical model. This involves detecting discrepancies between the generated output and the expected result (Wood et al., 1976, p. 98). In the context of GAI, it includes identifying hallucinations, factual errors, and logical inconsistencies. The second operation is maintaining direction. This involves reformulating prompts to mitigate bias and steer the interaction toward learning objectives. The third is reasoned curation, which involves revising the text, incorporating primary sources, justifying decisions, and checking the output for consistency with the theoretical frameworks used in the course.

Within interaction design, the use of reverse prompting gives concrete form to this final curatorial operation. Rather than providing a finished answer, the chatbot poses guiding, clarifying, or reflective questions that require users to evaluate their own reasoning (Chang et al., 2023, p. 8). The interaction therefore shifts from a one-way exchange to a dialogic process: the system asks questions, and the student must justify responses. This procedure reactivates metacognitive monitoring processes that may be weakened by procedural substitution. Judgments of learning, understood as internal assessments of one's own learning process, are

strengthened when the chatbot poses evaluative questions rather than simply supplying complete answers (Chang et al., 2023, p. 4).

Beyond the dynamics of guided dialogue, the concept of epistemic friction broadens the analysis of interaction. Deliberately introducing counterarguments, logical tensions, and divergent perspectives can disrupt automatic acceptance and promote reflective evaluation (Varghese, 2025, p. 321). From this perspective, hallucinations, biases, and tendencies toward homogenization are not merely technical shortcomings. Under appropriate pedagogical conditions, they may also serve as triggers for the cognitive conflict associated with deeper understanding.

Despite the potential of this reflective friction, reverse scaffolding does not presuppose a fully developed capacity for evaluation. Self-regulated learning ($\beta = 0.330$) and prior conceptual understanding ($\beta = 0.147$) predict the value of algorithmic scaffolding. The tool amplifies existing capabilities but does not compensate for their absence (Nuryanis et al., 2026, p. 1069). The model therefore requires a minimum threshold of prior expertise. Without established conceptual schemas, students lack the criteria needed to assess the relevance of AI-generated output. Self-efficacy in AI use explains 36.4% of the variance in perceived critical-thinking development. Confidence in one's ability to use the technology influences whether GAI is perceived as a support for thinking or as a constraint (Alghamdi, 2025, p. 8).

In addition to the demands placed on individual expertise, disciplinary specificity introduces another important condition. The effectiveness of algorithmic scaffolding depends on the forms of knowledge characteristic of each discipline. It tends to be more reliable in structured tasks in the natural sciences and less reliable in the open-ended inquiry, ambiguous synthesis, and dialectical reasoning characteristic of the social sciences (Xu et al., 2026, p. 20). In STEM fields, creativity is often associated with convergent thinking and procedural optimization. In the humanities and social sciences, by contrast, it more often requires tolerance for ambiguity and the reinterpretation of meaning (Alghamdi, 2025, p. 3). Reverse scaffolding must therefore be adapted to the epistemic demands of each field.

Taken together, reverse scaffolding describes the metacognitive operations through which students assume an evaluative role in relation to GAI-generated output and reclaim an active role in knowledge construction. However, these capacities do not emerge spontaneously, nor do they depend solely on the learner's individual competencies. Their development requires pedagogical conditions that structure interaction with the technology, guide the learning sequence, and support the con-

solidation of epistemic autonomy. The following section examines the curricular, instructional, and institutional conditions required to make this formative form of mediation possible.

6. Pedagogical Conditions for Cognitive Scaffolding with GAI

The previous sections established that cognitive debt arises from unmediated procedural substitution and that reverse scaffolding allows students to reclaim epistemic agency. Building on these two concepts, this section examines the curricular, instructional, and institutional conditions needed to move from restrictive to formative uses of GAI. The analysis is organized around three dimensions: assessment design, the gradual fading of support, and faculty competence together with institutional governance.

Within the first dimension, the primary concern is assessment design. The evidence indicates that assessments based on static written products are vulnerable to algorithmic substitution. The focus must therefore shift from the final product to the process (Jha & Atif, 2025, p. 69). One way to implement this shift is through assessment based on reflective traceability. This approach involves documenting and evaluating the development of the work, the rationale behind students' decisions, and their reflection on AI-generated drafts. Japanese guidelines provide one useful reference point. For ungraded tasks, they require students to verify sources and document the tool and prompts used (Vidal et al., 2023, p. 270). Such documentation and discussion formalize reflection and foster a dialogic, rather than merely transactional, relationship with AI (McPhee & Jerowsky, 2025, p. 6).

To operationalize reflective traceability, process-oriented strategies may include staged drafts, AI-use statements, and verification routines. These practices make students' reasoning visible and support responsible use of the technology (Isaeva et al., 2026, p. 10). In one study involving graduate students, a mandatory AI-use declaration was associated with improvements after nine weeks: 32% of students increased their digital literacy, while 29% reported greater confidence in using technology with integrity (Jha & Atif, 2025, p. 62). These findings suggest that reflective traceability not only documents the learning process but may also shape it.

Beyond this restructuring of assessment, the second dimension concerns the gradual fading of support. The principle of *fading* refers to the progressive withdrawal of external assistance as learners internalize the relevant competence (Wood et al., 1976, p. 96). In GAI-supported

environments, instructional design should gradually reduce the functions delegated to the system. It should also introduce moments of productive difficulty that return part of the cognitive effort to the student. Evidence on the timing of AI use supports this principle. When GAI is introduced only after an initial period of independent effort, executive-control and episodic-memory networks are reactivated. By contrast, early exposure may hinder consolidation (Kosmyna et al., 2025, p. 149). GAI use should therefore be delayed until students have engaged in sufficient independent cognitive work.

This principle of gradual withdrawal does not imply banning the tool at first and allowing it later. Rather, it calls for alternating phases of independent production and AI-assisted work and integrating both into the course structure. One Australian model proposes five stages: initial instruction, validation and refinement, student-centered review, metacognitive reflection, and peer exchange. This sequence is aligned with levels of Bloom's taxonomy (Jha & Atif, 2025, p. 62). In this way, instructional design shifts student activity away from surface-level generation and toward analysis and evaluation (Jha & Atif, 2025, p. 64).

The third dimension, closely connected to these instructional considerations, concerns faculty competence and institutional governance. The sustainable adoption of GAI depends less on the technical capabilities of the platforms themselves than on educators' pedagogical preparation (Brasler & Krysz, 2026, p. 7). Faculty members are increasingly taking on monitoring responsibilities, such as verifying citations, interpreting ambiguous cases, and addressing potential misconduct. These responsibilities consume time that could otherwise be devoted to teaching and may undermine trust between instructors and students (Jha & Atif, 2025, p. 68). One alternative is a model of distributed responsibility in which academic integrity education is shared among faculty, instructional designers, academic advisors, and library staff (Jha & Atif, 2025, p. 68).

For this shared responsibility to be effective, institutional governance must move away from top-down, vague, or overly restrictive policies and toward adaptive frameworks. Teaching teams need sufficient discretion to contextualize institutional rules, while also receiving clear institutional support. The use of GAI in education and research should not be imposed from the top down or driven by commercial narratives. Instead, policies should be co-designed with faculty, students, and researchers (UNESCO, 2024, p. 30). The OECD has noted that half of the jurisdictions analyzed delegate regulation to individual institutions without providing clear operational guidance. Universities must address this gap by exercising both autonomy and responsibility (Vidal et al., 2023, p. 266).

Within this adaptive governance framework, recommendations discouraging the use of GAI for grading or providing feedback represent an important boundary for its educational integration (Vidal et al., 2023, p. 273). This limitation is intended to preserve the human dimension of formative assessment, understood as a process of interpreting evidence and supporting learning. Assessment requires professional judgment, contextual knowledge, an understanding of each student's learning trajectory, and attention to the cognitive, motivational, and affective factors that shape performance. Within this framework, GAI may assist with information analysis, support the preparation of preliminary observations, or facilitate certain follow-up tasks. However, it cannot replace the pedagogical judgment required to interpret the educational significance of evidence and guide learning in context-sensitive ways.

Critical AI literacy among educators serves as a connecting element across all three dimensions. Without faculty capable of designing tasks that make reasoning visible, gradually withdrawing support, and addressing ethical challenges, the conditions described above cannot be effectively implemented. Research has identified a cycle of passive consumption associated with insufficient professional development and a lack of cross-professional support for critical engagement with GAI (McPhee & Jerowsky, 2025, p. 6). Breaking this cycle requires professional development that extends beyond technical proficiency. Such programs should include ethical reasoning, bias analysis, and the ability to exercise context-sensitive judgment (Jha & Atif, 2025, p. 59).

Taken together, these pedagogical conditions show that the formative potential of GAI depends less on its technical capabilities than on how assessment, instructional design, faculty preparation, and institutional governance shape its integration into learning. Together, these elements form a framework for mediation that directs student interaction with GAI toward reflection, self-regulation, and knowledge construction rather than the replacement of reasoning with automated responses.

7. Conclusions

The integration of GAI into higher education involves more than the adoption of a new tool; it entails a transformation of the foundations of cognitive scaffolding and epistemic autonomy. Interaction with language models alters the conventional sequence of learning by allowing production to precede conceptual understanding. As a result, algorithmic mediation does not function in the same way as a human tutor. Instead, it creates an environment characterized by fluency and opacity, requiring

a reconsideration of how cognitive load, authorial agency, and self-regulation are distributed in university learning.

To understand the scope of this transformation, the theoretical framework draws on two explanatory concepts: cognitive debt and reverse scaffolding. Reducing desirable difficulties may foster an illusion of competence and a form of simulated self-regulation in which the fluency of AI-generated text masks the absence of well-developed conceptual frameworks and limits deep encoding processes. Reverse scaffolding, by contrast, redefines pedagogical interaction by shifting responsibility for evaluating and regulating AI-generated output to the student. Identifying biases, verifying evidence, and deliberately introducing epistemic friction thus become central components of the learning process.

Given this tension between cognitive degradation and reflective evaluation, the pedagogical implications point to a shift from product-centered to process-oriented assessment, with emphasis on the traceability of students' decisions and their capacity for reflection. These findings also support the design of instructional sequences in which technology is introduced only after an initial period of independent effort, thereby preserving opportunities for cognitive elaboration. At the institutional level, the integration of GAI requires governance frameworks that combine shared responsibility, clear guidelines for use, and faculty development in critical AI literacy.

Within these institutional and pedagogical conditions, future research should examine the longitudinal effects of algorithmic mediation on cognitive development and conceptual retention. Research should also investigate how the effects of reverse scaffolding vary across disciplines characterized by different forms of knowledge production and assess the effectiveness of process-traceability-based assessment models across educational contexts.

Because this study is theoretical in nature, it constitutes a conceptual contribution whose claims require empirical validation. The proposed pedagogical conditions should be tested through research designs capable of assessing their effects on objective indicators of epistemic autonomy, including delayed retention under unassisted conditions, the quality of reasoned justification, and the transfer of self-regulatory competencies. Moreover, the disciplinary variation documented in the literature suggests that these conditions may differ according to the forms of knowledge characteristic of each academic field, making validation within specific disciplinary contexts necessary.

The impact of GAI on epistemic autonomy depends less on the technology itself than on the pedagogical conditions governing its use. The challenge for higher education is to ensure that the automation of certain

tasks does not diminish opportunities to develop critical thinking and the capacity to justify one's own knowledge claims. In this context, the university's role is to integrate GAI into teaching practices that preserve the centrality of reasoning, critical evaluation, and the autonomous construction of knowledge.

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The regulatory framework of the transition from primary to secondary education in Spain

La regulación de la transición de educación primaria a secundaria en España

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Abstract

Despite being one of the most decisive stages in a student's trajectory, the academic literature on the transition from primary to secondary education remains limited, and its regulatory dimension is largely unexplored: no previous studies address the regulatory framework of this process in Spain. This study offers an overview of that framework within the Spanish Autonomous Communities. Through a systematic document-based analysis, it examines the regulations in force in all Spanish Autonomous Communities and cities during 2024-2025: regional curricula for both stages, regulations on school organization and functioning, start-of-year instructions, specific transition legislation and institutional educational websites. The results reveal a general absence of specific regulations and procedures, which could translate into disparities in guarantees for students depending on their region of residence. Only one region has regulations exclusively devoted to the transition; nevertheless, territorial experiences that have developed regulations and programmes to smooth this passage are identified and described. These findings underscore the need for a more coherent and consistent regulatory approach at the national level, ensuring more equal conditions

of support and coordination between stages regardless of territory, and laying the groundwork for educational policy recommendations in this area.

Keywords: school transition, educational legislation, primary education, secondary education, regional inequalities.

Resumen

Pese a ser uno de los procesos más decisivos de la trayectoria educativa, la literatura sobre la transición de primaria a secundaria es escasa y su dimensión normativa está prácticamente ausente como objeto de estudio: no existen estudios previos sobre la realidad legislativa que regula este proceso en España. Este trabajo ofrece una panorámica de dicha regulación en el contexto autonómico español. Mediante un estudio documental sistemático se analiza de forma comparada la normativa vigente en todas las comunidades y ciudades autónomas durante el curso 2024/2025: currículos autonómicos de ambas etapas, normativa de organización y funcionamiento de los centros, instrucciones de inicio de curso, disposiciones específicas de transición y portales educativos institucionales. Los resultados evidencian una ausencia generalizada de normas y procedimientos específicos, así como una disparidad de criterios entre territorios que podría traducirse en diferencias en las garantías para el alumnado según su comunidad de residencia. Únicamente un territorio dispone de una norma dedicada en exclusiva a la transición; no obstante, se identifican y describen experiencias que han avanzado en normativas y programas para facilitar este paso. Estos hallazgos evidencian la necesidad de un enfoque normativo más coherente y homogéneo a nivel estatal, que garantice condiciones equivalentes de acompañamiento y coordinación entre etapas con independencia del territorio y sienta las bases para recomendaciones de política educativa.

Palabras Clave: transición educación primaria-secundaria primer ciclo, legislación educativa, educación primaria, educación secundaria, desigualdades regionales.

Introduction

The transition between primary education and compulsory secondary education (in Spanish, ESO) represents a particularly sensitive moment in students' school trajectories, where pedagogical, organizational, and emotional factors converge and may affect their academic performance and well-being. International research has examined the factors that influence success or failure at this stage (Ávila Francés et al., 2022; Bharara, 2020; Beatson et al., 2023; Cabrera Chamorro et al., 2025; Jindal-Snape et al., 2021; Monarca et al., 2012) highlighting its potential to result in declines in academic performance (Galton et al., 2000; Harris & Nowland,

2021; Symonds & Galton, 2014), episodes of disengagement, and even early school dropout (López Gil et al., 2022), particularly in vulnerable contexts (Azorín, 2019; Gómez Vera et al., 2021; Monarca, 2013). However, few studies have examined the regulatory framework as an explanatory variable (Bagnall et al., 2026; Jindal-Snape et al., 2020; Spernes, 2020).

The organisational, methodological and personal changes that this transition entails call for a theoretical perspective attentive to its comprehensive nature. It involves far more than an administrative step between educational stages.

One of the most relevant approaches stresses the need to ensure pedagogical continuity. Transitioning between educational stages tends to disrupt teaching and learning dynamics, classroom structures, and relationships with teachers, which may negatively affect students' academic performance and emotional adjustment (Galton et al., 2000). Monarca (2013) conceptualizes transition as a process of support in which regulations should facilitate curricular and methodological articulation between stages, thereby preventing disorienting discontinuities.

Coordination between schools is another key element. A lack of communication and joint planning undermines educational coherence (Martínez & Pinya, 2015). Ávila Francés et al. (2024) and Ruiz de la Peña & Palencia (2024) note that the absence of a shared institutional culture results in rules imposed without dialogue, disconnected pedagogical practices, and insufficient preparation of students for their new environment. Regulations should, therefore, promote collaborative spaces involving teachers, school leadership teams, and guidance and counselling services.

Another fundamental dimension concerns attention to diversity and support for vulnerable groups. The transition does not affect all students equally and should therefore be addressed through an inclusive approach. Sebastián Fabuel (2015) argues that regulations should incorporate specific measures for students with special educational needs, emotional difficulties, or complex family circumstances, adapting to their individual learning rhythms and educational trajectories rather than applying a uniform strategy.

Finally, a key perspective links the transition to European frameworks of inclusive and participatory education. Grounded in a rights-based approach consistent with the United Nations Convention on the Rights of the Child, this perspective recognizes students as active agents in their own educational experiences. Their participation in planning and evaluating the transition process fosters a sense of belonging and personal autonomy (Jiménez Andújar et al., 2025). Educational authorities should

therefore establish mechanisms that enable students' voices to be considered, particularly in relation to guidance processes and decisions concerning their educational pathways (Ávila Francés et al., 2022).

From a theoretical standpoint, there is thus a clear need for regulatory frameworks that ensure pedagogical continuity, promote institutional coordination, guarantee attention to diversity and recognise student participation as central pillars of the transition process.

Research on this issue remains limited, and a comprehensive comparative overview of the Spanish regulatory framework has yet to be provided (Ruiz de la Peña & Palencia, 2024). Regulatory foundations are, however, essential. The degree of regulation, its legal status, and the procedural detail it contains are key elements of concern for teachers, students, families, and educational authorities. A nationwide perspective on Spain also makes it possible to examine uneven regulatory development, which may contribute to territorial inequalities. Assessing whether current regulations provide an adequate response to the challenge of transition constitutes the research gap that this study addresses, starting from a brief overview of the Spanish education system.

The regulation of the transition in the Spanish context

Spain is territorially organised into seventeen Autonomous Communities and two Autonomous Cities (Ceuta and Melilla). This decentralised model, established by the 1978 Constitution, defines education as a shared competence: the central government is responsible for enacting basic legislation, while the Autonomous Communities are entrusted with its development and the implementation and administration of the education system. Within this framework, compulsory schooling is structured into two stages: Primary Education (ages 6-12) and Compulsory Secondary Education -ESO- (ages 12-16) (Eurydice Spain-REDIE, 2026). Owing to this distribution of competences, the regulation of the transition varies considerably across Autonomous Communities.

From the perspective of the evolution of national legislation, the General Organic Law on the General Organisation of the Educational System (LOGSE, 1990) established basic education as comprising two distinct stages: primary education and ESO. Teaching is carried out by different professional bodies -primary school teachers and secondary teaching staff-, whose initial training pathways differ substantially. Furthermore, within the public sector, the two stages are generally delivered in separate institutions: primary schools and high schools. Thus, in the 2023-2024 academic year, of the 10,300 state-funded schools providing primary education, only 616 (6%) also offered ESO (Ministry of Education,

Vocational Training and Sports, 2024). Consequently, the overwhelming majority of students in public education are required to change schools at the end of primary education, making the transition a structural feature of the Spanish education system.

The LOGSE referred to transition only in very general terms, stating that “the education system shall be organised into levels, stages, cycles and grades in such a way as to ensure the progression between them and, where appropriate, within each of them” (Art. 2). An implicit concern with discontinuity can also be identified in the Fourth Transitional Provision, which stipulated that “during the first ten years of the implementation of this law, vacancies in the first cycle of compulsory secondary education shall continue to be open to civil servants of the primary teaching corps who meet the specialisation requirements to be established”.

The Organic Law on Education (LOE, 2006) gave greater prominence to transition. The issue was already mentioned in the preamble, which anticipated a number of measures later developed in the legal text and affecting both educational stages. In Primary Education, schools were required to prepare an individualised progress report at the end of the stage (Art. 20.5). In Secondary Education, the law limited the maximum number of subjects and introduced mechanisms to reduce both the number of subjects and the number of teachers assigned to the same group of students (Arts. 24.6, 22.5 and 26.3). These measures included the organisation of subjects into broader curricular areas and the possibility for teachers to teach more than one subject to the same class group. The number of subjects and teachers in the first years of secondary education was thus implicitly identified as a factor that may hinder transition. Finally, the law required educational authorities to establish “appropriate coordination mechanisms” to ensure educational continuity (Art. 20.5).

The LOMLOE (Organic Law 3/2020 of 29 December, amending Organic Law 2/2006 of 3 May on Education), retained the measures introduced by the LOE with only minor modifications. The provision concerning transition, now contained in paragraph 4, remained unchanged, except for the final sentence, which added that “educational authorities shall likewise establish the appropriate coordination mechanisms between primary education schools and compulsory secondary education schools” (Art. 20). This amendment explicitly recognised that, where transition involves a change of school, coordination should take place between primary and secondary institutions. In addition, the maximum number of subjects in the first and second years of ESO was reduced to no more than one above the number taught in the final cycle of primary education, compared with two under the LOE.

At the regulatory level, the curriculum decrees for primary and secondary reflect these provisions. Both include a seven-paragraph article entitled “School Autonomy”, whose wording is almost identical. Paragraph 7 states that “educational authorities and schools shall implement mechanisms to foster coordination between the different educational stages”, a provision that clearly refers to the transition from primary to secondary education.

Taken together, the LOMLOE establishes broad principles regarding educational continuity, attention to diversity and coordination between educational stages. However, responsibility for their implementation rests with the Autonomous Communities, resulting in heterogeneous regulation of the planning, implementation, and evaluation of transition processes.

The aim of this study is therefore to provide an exploratory and comparative analysis of the regulations (or absence of regulations), governing the transition from primary to secondary education across the Spanish Autonomous Communities, and to identify regulatory models that may help inform educational policy and practice.

Methodology

The study adopted a qualitative, documentary research design (Bowen, 2009; Rapley, 2014; Valles, 1999) to examine the legal and administrative provisions that regulate the transition from primary education to ESO.

Sample

The study covers Spain’s seventeen Autonomous Communities and the two Autonomous Cities of Ceuta and Melilla. By examining the entire population rather than a partial sample, the research provides a comprehensive and comparative overview of the regulatory frameworks affecting transition processes. This approach is particularly appropriate in educational policy research, where territorial differences play a decisive role (Grek & Ozga, 2010; Verger et al., 2019).

The units of analysis were the legal and administrative regulations that structure this transition. This made it possible to identify the regulatory frameworks in each territory and to provide a comparative overview of the existing regulatory diversity. Since legal texts are not merely legal instruments but also devices that frame practices and define the scope of action available to schools and teaching staff (Ball, 2017; Dale, 2005), their analysis is essential for understanding how a process with significant pedagogical and social implications is managed.

Table I. Documents analysed per Autonomous Community

Autonomous Community	Specific transition regulation	Primary and ESO curriculum	Start-of-year instructions	Specific regulation on organisation and operation	Other regulations	Total
Andalusia	-	2	-	2	-	4
Aragon	-	2	2	1	-	5
Canary Islands	-	2	1	1	2	6
Cantabria	-	2	2	1	-	5
Castile-La Mancha	-	2	1	2	2	7
Castile and Leon	-	2	1	-	-	3
Catalonia	-	1	-	2	1	4
Madrid Autonomous Community	-	2	1	-	-	3
Chartered Community of Navarre	-	2	1	-	-	3
Valencian Community	1	2	2	2	-	7
Extremadura	-	2	1	-	1	4
Galicia	-	3	1	-	-	4
Balearic Islands	-	2	1	1	-	4
La Rioja	-	2	2	-	-	4
Basque Country	-	1	2	-	-	3
Principality of Asturias	-	2	1	-	-	3
Region of Murcia	-	2	2	-	-	4
Ceuta and Melilla	-	2	1	-	-	3
Total	1	35	22	12	6	76

Source: own elaboration

The documents were identified through a purposive search for provisions with regulatory relevance to the transition process. Initially, official gazettes and institutional education websites from five Autonomous Communities were systematically reviewed, and three officials from the Regional Department of Education in the researchers' Autonomous Community were interviewed, in order to identify the regulations currently in force. Across all Spanish Autonomous Communities, the documents selected for analysis included: the regional curricula for both educational stages, regulations governing school organisation and operation, start-of-year instructions for the 2024/2025 academic year, and any specific provisions relating to the transition process.

Not all Autonomous Communities have specific regulations governing school organisation and operation, and only one, the Valencian Community, has adopted a regulation specifically devoted to transition. Table I presents the documents analysed in each Autonomous Community, amounting to a total of 76 documents.

Instruments

To identify, locate, and systematise the information, three research instruments were developed. First, a systematic search protocol was designed and applied to all selected regulations.

The descriptors were defined on the basis of an exploratory review of the literature on educational transition and cross-stage coordination, together with a preliminary examination of regional regulations. Following recommendations for qualitative document analysis (Bowen, 2009; Cellard, 2012), the recurrent terms selected (Hanewald, 2013) were: “transition”, “progression”, “continuity” and “coordination”. As an inclusion criterion, only references explicitly linked to the transition from primary to secondary education within the context of the regulation were considered. References to other organisational processes or areas unrelated to the study focus were excluded

Second, a data-recording template was designed to ensure consistent and standardised collection and record of regulatory information for each Autonomous Community. It included the following categories: type of regulation, responsible bodies, measures provided for, coordination mechanisms, stakeholders involved, and monitoring or evaluation procedures. This instrument ensured comparability across territories, in line with common strategies in qualitative educational policy research (Bowen, 2009; Rodríguez-Martínez, 2024).

Third, a database was created to integrate the information gathered through the recording templates for all Autonomous Communities and

Autonomous Cities. This facilitated the classification and comparative analysis of the data, the development of a typology of levels of regulation, the compilation of a catalogue of measures, and the identification of common patterns and territorial specificities, following the principles of comparative document analysis (Cellard, 2012; Yanow, 2007).

Procedure

The study was conducted in four phases. The first involved selecting, locating and organising the regulations from each Autonomous Community, following the procedure described above.

The second phase consisted of a systematic search for the selected descriptors, in accordance with the established protocol, to identify regulatory provisions related to transition processes.

During the third phase, a two-stage recording process was carried out. First information was organized using the templates developed for each Autonomous Community and City, which enabled the identification of preliminary patterns. Then, the database was used to filter the information analysed. This material was then used to develop a catalogue of regional measures, grouping the information into common dimensions and providing the basis for the subsequent analysis.

The fourth phase involved cross-case comparison and qualitative content analysis. This made possible to establish a typology of Autonomous Communities according to three levels of regulatory development (low, intermediate and high) and to identify common patterns, innovative practices and regulatory gaps.

Results

The degree of detail with which the Autonomous Communities regulate this transition varies considerably (Table II). Those displaying the lowest level of regulation, approximately half of the total, merely reiterate the provisions established in national legislation, referring to the need to establish “coordination mechanisms between the schools of both educational stages,” without further specification. At the opposite end, only three Autonomous Communities provide detailed regulations specifying such mechanisms, their responsible actors, implementation timeline, and evaluation procedures. Communities classified at an intermediate level regulate some of these aspects; they do not merely reproduce State legislation, yet they fail to develop it fully.

Table II. Levels of transition regulation, characteristics, and distribution of Autonomous Communities into the mentioned levels

Level of regulation	Characteristics	Autonomous Communities
High	Regulate coordination mechanisms and/ or transition measures, transition teams, scheduling, and evaluation of transition plans	Andalusia Valencian Community Region of Murcia
Intermediate	Regulate some, but not all, of the above mechanisms and provisions	Canary Islands Cantabria Catalonia Castile-La Mancha La Rioja
Low	Practically limited to reproducing State legislation	Aragon Castile and León Madrid Autonomous Community Chartered Community of Navarre Extremadura Galicia Balearic Islands Basque Country Principality of Asturias

Source: own elaboration

In Autonomous Communities with a higher level of regulation, transition is organised through a “specific plan or programme”, developed by each high school in coordination with its feeder primary schools. All of them define, with varying degrees of precision, the essential elements of such plans (Table III).

Table III. Elements defined in transition plans in highly regulated Autonomous Communities

Elements regulated in transition plans
1. Areas of coordination or measures
2. Team composition and functions
3. Scheduling
4. Evaluation

Source: own elaboration

So, they specify the minimum areas of coordination or measures to be developed; the composition, functions and responsibilities of the teams responsible for their implementation, including the professionals involved; the scheduling, establishing phases and deadlines; and the mechanisms for evaluation, ensuring systematic monitoring of the process.

Each of these elements is analysed below, with particular emphasis on the Autonomous Communities displaying the highest level of regulation.

Areas of coordination or measures

Two regulatory models can be identified: a more general one (Andalusia), which defines the areas or elements that must be subject to coordination between primary and secondary schools, and a more specific one (Valencian Community and the Region of Murcia), which lists and describes the minimum measures to be adopted.

The areas of coordination set out in Andalusia (Table IV) include communication and information exchange between the schools involved; curriculum coordination; joint planning of tutorial action and diversity-attention measures; welcoming families through information about the educational stage their children are entering; and welcoming students, aimed at providing relevant information about the new stage and fostering their integration into the receiving school, while preventing situations of maladjustment, isolation or low academic performance.

Table IV. Areas of coordination defined in Andalusia

Area of coordination	Brief description
Communication and information	Channels for information exchange between schools
Curriculum coordination	Alignment of content and teaching methods
Tutorial action and attention to diversity	Joint measures to address student diversity
Welcoming families	Information about the new educational stage
Welcoming students	Strategies for integration and problem prevention

Source: own elaboration

As shown in Table V, the Valencian Community establishes a set of general actions grouped into three areas. Organisational actions include planning inter-school coordination throughout the academic year, fostering convergence between the school cultures of both educational stages, shared and joint use of information, identification of human and material resources, methodological convergence, and implementation of programmes on autonomy, personal initiative and learning-to-learn competences. Actions aimed at families and students include guidance and training activities, as well as the promotion of their involvement through cooperation with school leadership teams and parent associations. Those involving the educational administration include the training and guidance of teaching staff, the provision of human and material resources, and supervision and advisory support from educational inspectorates.

Table V. General actions in the Valencian Community

Organisational actions	Actions with families and students	Educational administration
Planning of coordination processes throughout the academic year	Guidance and training for families	Guidance and training for teaching teams
Convergence of primary and ESO school cultures	Promotion of family-school cooperation	Provision of human and material resources
Exchange and joint use of information		Supervision and advice from the educational inspectorates
Identification of required resources		
Methodological convergence		
Programmes to foster autonomy and learning-to-learn skills		

Source: own elaboration

In the Region of Murcia, the Transition Plan comprises twenty-one actions (Table VI) grouped into two categories: prevention and intervention. Preventive actions include grouping subjects into learning areas in the first two years of ESO, the flexible organisation of subjects to address student diversity, the alignment of behavioural and coexistence rules between schools, a detailed analysis of the Inter-Stage Transition Report, preventive measures implemented through the Tutorial Action Plan, participation in educational innovation programmes, family welcoming plans and specific recommendations for families, individual meetings with the families of students with specific educational support needs (ACNEAE), visits by Year 6 students to their assigned high schools, joint projects and activities between schools, a student volunteering programme, and methodological coordination.

Intervention actions include the establishment of a Vertical Coordination Team with a composition defined by regulation, the coordination and monitoring of the Plan in each school, communication to feeder primary school of students' final assessment results in Year 1 ESO, the annual review of Tutorial Action, school coexistence and diversity-attention plans, collaboration between the guidance department and external services, monitoring and follow up of Year 1 ESO students by their former primary school, the promotion of teachers' participation in educational support reinforcement programmes, and the establishment of partnerships with external organisations, associations or services.

Table VI. Actions of the Transition Plan in the Region of Murcia

Prevention actions	Intervention actions
Grouping of subjects into learning areas in Years 1 and 2 of ESO	Establishment of the Vertical Coordination Team
Flexible subject organisation to address student diversity	Coordination of the Transition Plan in each school
Harmonisation of behavioural rules across stages	Communication of Year 1 ESO results to primary schools
Analysis of the Inter-Stage Transition Report	Annual review of tutorial action, coexistence and diversity plans
Preventive measures through the Tutorial Action Plan	Collaboration with external services and organisations
Participation in educational innovation programmes	Monitoring and follow up of students by their former primary school (CEIP)
Development of the Family Welcome Plan	Promotion of teacher participation in educational support and reinforcement programmes
Specific recommendations for families	Establishment of partnerships with organisations and associations
Individual meetings with families of ACNEAE students	
Visits of Year 6 pupils to high schools (IES)	
Joint activities between schools	
"Convive TEAM" student volunteering programme	
Methodological coordination between schools	

Source: own elaboration

The Andalusian model is more flexible, defining a general framework for action while leaving the details of its implementation to each school. The Valencian Community represents an intermediate position, providing guidelines and categories of action without detailed planning requirements. The Region of Murcia adopts a rigid and exhaustive approach, ensuring uniformity across schools, at the expense of local adaptation. The level of regulation therefore shapes the balance between uniformity and school autonomy.

Team composition and roles involved

In the Autonomous Communities with a high level of regulation, the legislation establishes specific transition teams composed of staff from both educational stages, receiving a different name across regions. Their composition is summarised in Table VII.

Several roles are common to the teams in all three Autonomous Communities: Year 6 Primary tutors; primary and secondary counsellors; Heads of Department for Spanish Language, Mathematics and Foreign Language; and Heads of Studies. Important differences nevertheless exist. The Valencian Community broadly resembles the Andalusian model but additionally includes the ESO Coordination (not envisaged in either Andalusia or Murcia) as well as Year 1 ESO tutors. It also allows the participation of Year 5 Primary and Year 2 ESO tutors, together with a representative of the parent association from each school. It is noteworthy that, in Andalusia, the participation of Year 1 ESO tutors is not mandatory, which may limit the role of first-year of secondary education tutoring.

Table VII. Members of transition teams in the Autonomous Communities with higher levels of regulation

	Andalusia	Valencian Community	Region of Murcia
Designation	Transition Team	Transition Team	Vertical Coordination Team
Common roles	Primary Year 6 tutors Primary school counsellors Representatives of the Secondary school (IES) guidance department Heads of the Spanish Language, Mathematics and Foreign Language Departments Heads of Studies		
Other team members set out in the regulations	Third-cycle Primary Education Coordinators (Years 5–6) Special Education (Therapeutic Pedagogy) support teachers, Primary and Secondary Speech and language specialist support teachers, Primary and Secondary, where applicable	ESO Coordination Year 1 ESO tutors (Year 7) Year 5 Primary tutors (optional) Year 2 ESO tutors (Year 8) (optional) A representative of each school parents' association (optional)	Year 1 ESO tutors (Year 7)

Source: own elaboration

Responsibility for coordinating the transition lies with the Head of Studies in most of the Autonomous Communities analysed. There are, however, some exceptions. In Catalonia and the Balearic Islands this responsibility is assigned to the school principal; in Castile-La Mancha, it falls to the Pedagogical Coordination Committee; and in the Basque Country, it is entrusted to the ESO Coordination.

Timing

The scheduling and frequency of meetings and other actions related to the transition process are not uniform across Spain. Each Autonomous Community adopts its own criteria, and in some cases, regulations provide no temporal guidelines at all. Table VIII summarises the timelines and frequencies established in available regional regulations.

Table VIII. Timelines and frequency of transition activities established in regional regulations

Autonomous Community	Deadlines or frequency established
Andalusia	Second term of Year 6 Primary and first term of Year 1 ESO (Year 7)
Aragon	No specific regulation established
Canary Islands	Meetings held on a termly basis
Cantabria	First term and end of the academic year
Castile-La Mancha	At least one meeting
Castile and León	No specific regulation established
Catalonia	Communication mechanisms must be in place "before the beginning of the academic year"
Madrid Autonomous Community	No specific regulation established
Chartered Community of Navarre	No specific regulation established
Valencian Community	Before the school year begins; at least one meeting during the third term between Year 6 and Year 1 ESO (Year 7) tutors; students visit to the IES during the final term; the transition plan must be drawn up before 15th May preceding implementation
Extremadura	No specific regulation established
Galicia	No specific regulation established
Balearic Islands	No specific regulation established
La Rioja	Coordination meetings at the beginning and end of the school year to exchange information
Basque Country	No specific regulation established

Autonomous Community	Deadlines or frequency established
Principality of Asturias	No specific regulation established
Region of Murcia	Different timelines depending on the activity: throughout the school year (actions 1, 2, 3, 5, 6, 10, 11, 12, 13, 14, 15, 18 and 21); during the third term of the preceding school year (actions 2, 7, 9 and 17); during the first term (actions 4 and 19); during second term (actions 19 and 20); and during the third term (actions 8, 16, 19 and 20)
Ceuta and Melilla	No specific regulation established

Source: own elaboration

Evaluation

Evaluation of the transition processes is only addressed in the Autonomous Communities with the higher level of regulation. In the Valencian Community, evaluation criteria are established; and in the Region of Murcia, specific indicators are defined. In Andalusia, the evaluation of the transition process is not expressly regulated, although it is implicitly addressed through the analysis of the results of the initial assessment and the first-term assessment of Year 7 (1 ESO).

The Valencian Community establishes the following evaluation criteria:

- 1) Degree of progress observed in students' adaptation.
- 2) Assessment of classroom climate and coexistence.
- 3) Students' curricular competences and learning outcomes as evidenced through assessment processes.
- 4) Evaluation conducted by the teachers of the transition teams.

The Region of Murcia establishes evaluation indicators (using Yes/No as the value for each indicator) as follows:

- 1) Visits by all feeders CEIP (primary schools) to their assigned IES have been carried out.
- 2) Agreements have been reached to harmonise methodological criteria and school coexistence rules.
- 3) Individual interviews have been conducted with all families of ACNEAE students.
- 4) At least one inter-school activity or project has been implemented.
- 5) Associated schools have taken part in the Innovation Community programme.
- 6) Family participation in the welcome plan exceeds 75%.
- 7) More than 75% of schools participate in the Educational Reinforcement Programme.

- 8) Tutorial action, coexistence and diversity-attention plans have been updated.
- 9) All schools involved take part in the *Convive* TEAM project.
- 10) At least three meetings of the Vertical Coordination Team have been held.
- 11) Meetings have been held between the Guidance Department and external services.

No other Autonomous Community explicitly regulates the evaluation of transition processes, with the exception of the Canary Islands, discussed below.

Implementation of programmes by educational authorities

Another strategy adopted by regional educational authorities to improve students' transition is the development of specific programmes requiring schools to submit formal applications for participation.

An illustrative case is the Canary Islands. Since the 2021/2022 school year the *esTEla* Programme has been implemented. It is regulated by an administrative resolution specifying its objectives, the profile of eligible schools, participation requirements, commitments and responsibilities of the agents involved (education authorities, schools, management teams and teachers), actions, scheduling and evaluation criteria.

Its organisational structure is based on school districts, each composed of one IES and its feeder primary schools. Applications must be submitted jointly by all the schools within the district, which must establish a single *esTEla* Coordination Committee and a single District Transition Plan. Among the compulsory measures, co-teaching is particularly noteworthy.

Once the regulatory framework has been approved, the educational authority opens a call for applications and subsequently publishes the resolution list of authorised schools. In the 2024/2025 school year, 95 districts across the Canary Islands provinces were authorised.¹

Catalogue of measures

Finally, Table IX summarises the measures identified in the regulations of all the Autonomous Communities, organised into categories developed inductively through content analysis.

¹ Resolution of the Directorate-General for Curriculum Planning, Inclusion and Innovation publishing the final list of continuity districts in state schools offering pre-primary, primary and compulsory secondary education under the *EsTEla* programme during the 2024-2025 academic year. https://www3.gobiernodecanarias.org/medusa/procedimientos/wp-content/uploads/formidable/6/listado_definitivo-districtos-estela-2024_25.pdf

While some measures are found across most territories, such as the end-of-stage report established in national legislation, others appear only occasionally and, in some cases, in a single Autonomous Community. The measures were grouped into eleven categories: information exchange, curriculum, primary-secondary coordination, students, families, administration, policy documents, timing, school zoning, designation of responsible actors, and a residual category labelled *other*. This classification highlights the multiple dimensions involved in ensuring educational continuity.

Table IX. Types of measures identified across all the Autonomous Communities

Type of measure	Measures
Information exchange	1. Communication and information channels regarding the basic characteristics of schools 2. End-of-stage report, academic record and information transfer 3. Alignment of primary and secondary school cultures 4. Collegiate exchange and use of information (not limited to transfer from primary to secondary) 5. Inclusion of the personalised support measures (MAP) recommended in primary education 6. Identification of students to whom behaviour/coexistence measures have been applied 7. "In-depth analysis" of the Inter-Stage Transition Report, showing the progress in ESO of students from a given primary school 8. Communication of Year 7 (1 ESO) final assessment results to students' primary schools of origin 9. Monitoring of Year 7 (1 ESO) students by their primary school of origin
Curriculum	1. Methodological convergence 2. Methodological coordination between the schools involved as a tool for continuity 3. Requiring at least one more subject in Years 1 and 2 of ESO than in the last cycle of primary education 4. Grouping of subjects into knowledge areas in ESO 5. "Curricular versatility of teaching staff" in ESO 6. Co-teaching 7. The transition plan must form part of curriculum development documents

Type of measure	Measures
Primary-secondary coordination	1. Establishing the areas of coordination 2. Coordination of tutorial action and diversity-attention measures 3. Harmonisation of coexistence rules 4. Annual review and updating of Tutorial Action, Coexistence and Diversity Attention plans 5. Coordination of the family welcome process 6. Coordination of the student welcome process 7. Coordination of educational projects between associated schools 8. Establishing communication mechanisms before the start of the academic year 9. Programmes for developing student competence in autonomy, personal initiative and learning to learn 10. Joint preparation of the transition plan 11. Establishing evaluation indicators for the transition and the body responsible for evaluation 12. Coordination of the Inter-Stage Transition Plan across schools 13. Development of joint projects and activities
Students	1. Strengthening tutoring in ESO 2. Including measures in the tutorial action plan to facilitate the integration of students entering Year 1 ESO 3. Preparing students in advance for the changes ahead 4. Support for families and at-risk students during the transition 5. Peer-mentoring projects involving student volunteers for the transition 6. Flexibility of measures for students' benefit 7. Identifying factors that hinder the transition, promoting systems to detect especially vulnerable students, and designing response mechanisms for problems detected 8. Drawing up the transition plan based on the needs of students, teachers and families 9. Visits by Year 6 students to secondary schools (IES) 10. Including personalised measures for students unable to visit the high school (e.g., due to hospitalisation) so they can visit it
Families	1. Guidance and training for families 2. Promoting cooperation between families and schools through school management teams and parents' associations 3. Promoting family participation in students' transition processes 4. Development of the Family Welcome Plan 5. Recommendations for families aimed at improving the transition process 6. Individual interviews with families of ACNEAE students conducted by the Guidance Department
Administration	1. Guidance and training for teaching teams provided by the education authorities 2. Provision of human and material resources by the education authorities 3. Supervision and advice from the education inspectorate

Type of measure	Measures
Policy documents	1. Including transition-support measures in the School Educational Project (PEC) 2. Including a section on coordination and transition between levels and stages in the PEC 3. Including the Transition Plan in the PEC and the Annual General Programme (PGA), and its evaluation in the school's end-of-year report
Scheduling	1. Setting the calendar of meetings 2. Establishing minimum meetings, frequency or scheduling
Zoning	1. A single transition programme for each secondary school and its associated primary schools 2. Organisation of education zones by grouping schools that share the same educational-project objectives
Designation of those responsible	1. Designation of transition roles, positions or teams
Other	1. Requiring the creation of a transition plan or programme 2. A call for schools to apply to take part in transition programmes 3. Preparation and online publication of an Inter-Stage Transition Plan template 4. Identification of necessary human and material resources 5. School participation in good-practice programmes on transition 6. Establishment of partnerships between schools and other external organisations, associations, services or units 7. Collaboration between the Guidance Department and other external services or units 8. Promoting voluntary participation of school teaching staff in the Educational Reinforcement Programme 9. Collaboration with the tutors of inclusion-support teachers (such as special education or hearing-and-language specialists) in students' transition processes

Source: own elaboration

Overall, the findings highlight the central importance of inter-school coordination and tutorial action, the emphasis placed on personalised attention and the participation of families and students, the facilitating role of educational authorities, and the need to formalise transition activities within school planning documents to ensure their evaluation and sustainability. The catalogue provides a comprehensive reference framework that may be useful both for designing transition plans and for evaluating their implementation.

Discussion and conclusions

The comparative analysis reveals substantial heterogeneity in the regulation of the transition from primary to compulsory secondary education

(ESO), a dimension that has so far remained largely overlooked in the international literature (Bagnall et al., 2026; Jindal-Snape et al., 2020; Spernes, 2020). While some Autonomous Communities merely reproduce State legislation without introducing measures of their own, others have developed specific frameworks, defining inter-school coordination mechanisms, the composition and responsibilities of transition teams, timelines, and evaluation procedures. The Spanish case resembles that of other decentralised systems, where the distribution of competences and governance instruments implies divergent territorial developments (Dale, 2005; Verger et al., 2019).

This diversity makes it possible to identify three levels of regulatory development -low, intermediate and high-, a pattern already documented in other decentralised education systems (Bagnall et al., 2026). At the first level, regulation is minimal, and leaves responsibility for organising the transition largely to individual schools, making the process dependent upon the initiative and collaborative culture of each teaching team. This situation is particularly fragile when no joint planning exists between primary and secondary schools (Martínez & Pinya, 2015). The second level comprises Autonomous Communities that, despite not establishing comprehensive provisions, introduce some coordination measures. The third brings together the Autonomous Communities that have developed specific transition plans, thereby providing a more consistent and detailed framework. This approach is closer to the conception of transition as a process of support and accompaniment, rather than merely an administrative transfer, requiring curricular and organisational articulation between educational stages (Monarca, 2013; Sebastián Fabuel, 2015).

The contrast between these models highlights territorial disparities in the balance between standardisation and autonomy. Highly regulated Autonomous Communities, such as the Region of Murcia or the Valencian Community, ensure common and evaluable procedures, although this may reduce schools' scope for local adaptation. Where regulation is more flexible, as in Andalusia, greater autonomy is granted to teaching teams, at the expense of consistency and comparability of practices. This tension is not unique to transition processes. Rather, it reflects a broader debate concerning governance instruments in education systems and their implications for equity (Ball, 2017; Grek & Ozga, 2010). Within comparative education research, it is often conceptualised as the challenge of articulating the global and the local (Rodríguez-Martínez, 2024).

Overall, the transition between educational stages remains an under-developed field in most Autonomous Communities, where there persists a tendency to rely on general school coordination mechanisms, despite

international evidence linking poorly planned transitions to declines in performance and student well-being (Galton et al., 2000; Symonds & Galton, 2014), with particularly negative consequences for vulnerable students (Azorín, 2019; Gómez Vera et al., 2021; López Gil et al., 2022). Nevertheless, the cases displaying more advanced regulatory development demonstrate that it is possible to establish concrete frameworks, programmes, and measures that foster communication between educational stages, support attention to diversity, encourage family involvement, and ensure systematic evaluation. These approaches are consistent with the structured preparation and support interventions documented in other contexts (Beatson et al., 2023; Bharara, 2020; Hanewald, 2013). When implemented systematically, these appear to contribute to a more orderly and equitable transition, particularly when accompanied by mechanisms that recognise students' voices in both the planning and evaluation of the process (Jiménez Andújar et al., 2025).

Consistent with the nature of documentary research, the findings are limited to the regulations in force during the 2024/2025 school year, and do not address their actual implementation in schools. This delimitation necessarily constrains the scope of the study and calls for it to be complemented with empirical evidence examining both the implementation of these regulatory provisions and their impact on students' experiences (Stevens & Whipp, 2025) and on teaching teams.

Finally, this paper provides an original and up-to-date mapping of transition regulations across Spain, offering a valuable reference for both researchers and policymakers. It also opens up new lines of inquiry aimed at assessing the actual impact of these provisions on school practice and on the experiences of students and their families. The findings support the recommendation that transition plans should become mandatory in all schools in order to ensure continuity of learning and equal opportunities between educational stages. Furthermore, a common minimum regulatory framework at the national level appears desirable, defining the essential components of such plans, including coordination mechanisms and measures, responsible teams and personnel, implementation timelines, and evaluation procedures, while still allowing Autonomous Communities and individual schools sufficient flexibility to adapt them to their particular circumstances. Transition plans should also be publicly available and included in the official planning documents of the schools involved, thereby moving towards a balance between system-wide coherence and respect for territorial and organisational diversity at such a crucial stage in students' educational trajectories.

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Participating actors in the financial education process in Spain: Expectations vs reality

Actores participantes en la educación financiera en España: expectativas frente a realidad

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Abstract

Financial education is a key policy priority in Spain following crises that revealed significant knowledge gaps. While initiatives like the Spanish Financial Education Plan exist, their success depends on various actors' roles. Despite extensive research on financial literacy, there is limited analysis of these actors and the gap between citizens' expectations and actual engagement. This study surveyed 530 Spanish citizens on their perceptions and use of eight actor categories, including, amongst others, official institutions, private financial institutions, and educational centres. Results show a paradox: citizens highly value official and educational bodies but mainly use private financial institutions, which they trust less, when taking financial decisions. This discrepancy suggests informational asymmetries and access barriers. Current strategies require re-evaluation to improve accessibility and credibility of financial education, ensuring citizens effectively use trusted resources for informed decisions.

Key words: Financial education, Spain, financial literacy, public policy, institutions.

Resumen

La educación financiera es una prioridad de política pública en España, impulsada por crisis financieras que evidenciaron lagunas de conocimiento generalizadas. Aunque existen iniciativas como el Plan de Educación Financiera, su efectividad depende del papel de varios actores. A pesar de la extensa investigación sobre educación financiera, falta un análisis sistemático sobre estos actores y la alineación entre las expectativas ciudadanas en su empleo y su uso real. En este trabajo se ha encuestado a 530 ciudadanos españoles sobre sus percepciones y uso de ocho categorías de actores incluyendo instituciones oficiales, instituciones financieras privadas y centros educativos, entre otros. Los hallazgos revelan una paradoja: los ciudadanos valoran mucho los organismos oficiales y educativos, pero dependen predominantemente de instituciones financieras privadas, que perciben como menos confiables. Esta discrepancia evidencia posibles asimetrías informativas y barreras de acceso. El estudio concluye que las estrategias actuales requieren de reevaluación para mejorar la accesibilidad y credibilidad de la educación financiera, asegurando que los ciudadanos utilicen efectivamente recursos confiables para tomar decisiones financieras informadas.

Palabras clave: Educación financiera, España, alfabetización financiera, política pública, instituciones.

Introduction

Financial education has become a key priority in public policy, especially after financial crises exposed significant gaps in financial knowledge. In Europe there is growing concern about ensuring that education programs are both high quality and independent, aiming to equip citizens with the tools needed to make informed financial decisions in an increasingly complex economic environment. The success of those programs however greatly relies on the coordination and roles of the various actors involved in the educational process.

While academic research has focused mainly on the outcomes of financial education –often assessed through PISA-type tests or financial literacy surveys– less attention has been given to analyzing the actors who shape this process, how citizens perceive their relevance and effectiveness. In the Spanish context, there is still a lack of systematic academic studies that examine which actors should participate in the financial education and how citizens rank them in terms of importance and influence.

This research seeks to fill the existing gap by analyzing the role of different actors involved in the Spanish financial education framework and examining the mismatch between their perceived importance and their actual use by citizens. An empirical study based on a cross-sectional sur-

vey of 530 individuals identifies the key actors and how citizens perceive and employ them.

The analysis focuses on eight main categories of actors: official institutions (such as the Bank of Spain or the National Securities Market Commission), private financial institutions (banks, savings banks), educational centres, consumer associations, digital content creators, fintech companies, financial advisors, and friends and relatives. This classification provides a comprehensive view of Spain's financial education ecosystem.

Preliminary results reveal a striking paradox: although citizens value official institutions and educational centres as essential sources of financial education, they most frequently rely on private financial institutions for advice and information when conducting financial transactions. However, these institutions are also perceived as less trustworthy. This inconsistency highlights possible informational asymmetries and barriers to access to financial instruction, underscoring the need for deeper analysis to design more effective financial education strategies in Spain.

Method

Theoretical framework

According to the seminal definition from OECD (2005), financial education is “the process by which financial consumers/investors improve their understanding of financial products and concepts and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being.”

Therefore, financial literacy is understood as a continuous and dynamic process that involves both the acquisition of knowledge and the development of practical financial skills. It combines cognitive (understanding) and behavioral (decision-making) components and considers the institutional context, emphasizing the importance of knowing where to seek guidance. According to Lusardi and Mitchell (2014), financial literacy refers to people's ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions. Similarly, as Hastings et al (2012) indicate, “financial literacy as a construct was first championed by the Jump\$tart Coalition for Personal Financial Literacy in 1997, as the ability to use knowledge and skills to manage one's financial resources effectively for lifetime fi-

nancial security”. Thus, financial literacy is the practical outcome of financial education, as it translates theoretical understanding into effective financial behavior.

Globally, financial literacy is recognized as a key factor in promoting economic and financial stability. According to OECD (2013 and 2014) insufficient financial literacy contributes to poor financial decision-making, which can have serious macroeconomic consequences. Financially literate citizens make more informed decisions, demand better services, and stimulate market competition and innovation. They are also better equipped to manage risks, leading to a more efficient financial services sector and potentially less costly financial regulatory and supervisory requirements.

Therefore, financial education programs constitute a major issue for societies. However, as Salas (2022) points out, empirical studies show mixed results regarding their effectiveness. Thus, while some studies find significant positive effects on specific behaviours, such as retirement savings or debt management, other suggest that these effects may be temporary or limited to specific contexts. In fact, drawing on the work of Hastings et al. (2012) or Lusardi and Mitchell (2014), he states that “robust empirical evidence on the positive effects of financial education programs at the individual level is still scarce.” In this line, Fernandes et al. (2014) conclude that econometric and correlational studies of measured financial literacy show significantly larger effect-sizes than studies of the effects of manipulated financial education interventions. More recent works, such as Buratti and D’Ignazio (2024) find that pairing a financial education campaign with machine-learning based targeting rule to identify individuals can lead to a greater effectiveness of a financial education program.

In any case, comparative analyses of national financial literacy strategies (OECD, 2022) face challenges due to methodological differences and heterogeneous approaches, making it difficult to determine which initiatives are most effective. Overall, consumers display limited understanding of financial concepts, a problem exacerbated by the growing complexity of modern financial products. In Europe, Spain ranks among the lowest in financial literacy according to the 2023 Eurobarometer, highlighting the need for more effective strategies and coordination among key stakeholders (European Union, 2023). In this sense, as Gallardo-Vázquez *et al.* (2023) show, this need applies to university students, who will be the qualified professionals of the future.

A relatively underexplored yet crucial aspect of financial literacy research concerns the various actors involved in the financial education

process. Beyond defining educational goals, it is essential to identify and assess the main actors responsible for implementing financial education initiatives and their interrelations. These actors can be classified according to different criteria: their nature (public vs. private), level of specialization (generalist vs. specialized), relationship with users (commercial vs. non-commercial), and scope (local vs. national). Following Olsen and Withman (2007), they can also be grouped as formal advisors, informal advisors, and public sources.

Key actors in financial education—including schools, families, governments, financial institutions, universities, and digital platforms—can be strengthened through educational and learning theories. Thus, the family represents the primary environment in which individuals develop financial knowledge, attitudes, and conducts, a process that can be explained by Social Learning Theory, which posits that individuals acquire behaviours by observing and imitating significant role models (Bandura, 1977). Schools and teachers, in turn, foster knowledge construction through Meaningful Learning Theory (Ausubel, 1968) and the social interaction processes emphasized by Sociocultural Theory (Vygotsky, 1978). From an institutional perspective, governments promote competency development and equitable access to education (UNESCO, 2016), while financial institutions contribute to strengthening the financial capabilities required for sound economic decision-making (World Bank, 2013). Finally, digital media and artificial intelligence facilitate autonomous and personalized learning processes, consistent with contemporary approaches to educational technologies (UNESCO, 2023).

Obviously, each actor shows distinct advantages but also faces limitations. Public institutions, such as central banks or regulatory agencies, offer credibility and neutrality but may lack the resources or accessibility to reach all social groups. Private financial institutions possess technical expertise and infrastructure but often face conflicts of interest that can undermine trust. Educational institutions can incorporate financial education into formal curricula but may not have sufficient specialization or practical focus. Meanwhile, emerging digital actors—such as fintech companies and online content creators—can engage younger audiences effectively but raise concerns about the reliability and impartiality of their information.

Understanding how these actors interact and how citizens perceive their roles is essential for designing coordinated, trustworthy, and effective financial education policies that improve financial well-being at both the individual and societal levels.

Regulatory framework in Spain

The regulatory framework for financial education in Spain must be understood within the broader context of European policies. The European Union has actively promoted financial education through coordinated recommendations and specific initiatives, although there is no single regulation on financial literacy requiring all Member States to implement the same strategy.

This approach, based on principles and recommendations rather than binding regulations, reflects the principle of subsidiarity that characterizes many European education policies. The European Commission has established reference frameworks and best practices, but allows Member States to develop approaches tailored to their specific national contexts.

In the Spanish case, the specific regulatory framework for financial education is articulated through inter-institutional agreements and collaborations between the public and private sectors. This collaborative approach reflects both the complexity of the issue and the need to engage multiple stakeholders with different skills and resources.

Financial education in Spain is primarily promoted through the so-called “Plan de Educación Financiera” (Financial Education Plan), established in 2008 as a joint initiative of the Bank of Spain and the National Securities Market Commission. It has enjoyed the collaboration of the Spanish government in subsequent renewals (2013-2017, 2018-2021, and 2022-2025), demonstrating its institutional nature and continuity over time. Its main goal is to improve citizens’ financial literacy by providing them with the tools and knowledge necessary to make informed and responsible financial decisions. It is inspired and guided by the principles and recommendations for financial education approved by the OECD, ensuring its alignment with international best practices.

The Spanish Financial Education Plan stands out for its comprehensive approach, addressing financial decisions across different life stages and recognizing that educational needs change with personal circumstances. It targets all population segments to ensure inclusion, particularly of vulnerable groups, and combines formal and informal education through workshops, conferences, seminars, and school programs.

The Plan’s success relies on collaboration between public and private entities, acknowledging that no single actor has all the necessary resources or expertise to address financial education effectively. This collaborative model is both a strength and a challenge: it encourages diversity and shared responsibility, but also requires strong coordination among actors with differing goals and institutional cultures.

Also, the absence of binding regulation provides flexibility but risks fragmentation and inconsistent efforts. Dependence on voluntary agree-

ments may lead to the dominance of private interests over public goals. Even so, collaboration leverages each actor’s strengths and creates synergies that a centralized model might miss. The key challenge is building robust coordination and evaluation mechanisms to deliver concrete, measurable benefits for citizens and improve financial literacy in Spain.

The Financial Education Plan attempts to address this challenge, but its effectiveness depends on the willingness of participating actors to collaborate and the existence of aligned incentives amongst them.

Participating actors

The actor categories included in the survey were primarily identified through a review of the financial education literature, stakeholder theory, and the Spanish institutional context. AI-assisted searches were used only as an exploratory tool to identify potentially relevant categories and to support the preliminary mapping of the financial education ecosystem. The final selection of actors was made by the authors on conceptual and methodological grounds. This procedure integrates the advantages of automated information processing and the researcher’s conceptual rigor and critical evaluation, as recommended by international guidelines for the responsible use of artificial intelligence in research and education (UNESCO, 2023).

Table I: Participating actors in the financial education according AI tools

Actors involved	IA consulted			
	ChatGPT	Copilot	Gemini	Perplexity
Government and regulatory bodies	X	X	X	X
Educational institutions	X	X	X	X
Non-profit Organizations	X	X	X	X
Financial institutions	X	X	X	X
Media and content creators. Influencers	X	X	X	X
Professional associations and Networks	X			
Technology and Fintech companies	X		X	
Employers and corporate programs	X	X	X	X
Individuals and Households (Family members)			X	

Source: own elaboration.

There is available scientific evidence that supports the need to consider multiple stakeholders in the analysis. For example, Donaldson and Preston (1995) argue that stakeholder theory (Freeman, 1984) provides a normative and descriptive framework for understanding the relation-

ships among stakeholders and the shared responsibility among governments, regulatory bodies, financial institutions, education systems, civil society organizations, and citizens in financial education (OECD, 2022). In particular, we consulted different artificial intelligence tools and Table I shows the results obtained.

The analysis conducted using four artificial intelligence tools (ChatGPT, Copilot, Gemini, Perplexity) reveals the presence of numerous actors in the financial education ecosystem. All the platforms consulted consistently identify certain traditional actors: government and regulatory agencies, educational institutions, non-profit organizations, financial institutions, and the media; however, they also identify actors that reflect contemporary digital and social transformations: technology and fintech companies, employers and corporate programs, as well as family and friends.¹ Some tools also mention professional associations, digital content creators, celebrities, and influencers. These findings are in line with Sibanda and Sibanda (2016), who study the key initiatives and participating actors in financial education in South Africa, Cueva and Viera (2017) in Ecuador, and Csiszárík-Kocsir (2022) in Hungary.

This diversification of the ecosystem of actors presents both opportunities and challenges. On the one hand, it expands access routes to financial education and allows for reaching audiences that might not be reached through traditional channels. On the other hand, it raises questions about the quality, objectivity, and regulation of educational content.

Procedure

To empirically analyse the role of different actors in Spanish financial education, a quantitative survey-based study was designed. The main objective was to examine the gap between the perceived importance of each actor and its actual use by citizens.

The eight actors considered were:²

- 1) Official institutions (Bank of Spain, National Securities Market Commission).
- 2) Private financial institutions (banks, savings banks).
- 3) Educational centres (schools, institutes, universities).
- 4) Consumer associations (OCU, ASUFIN,...)

¹ As Salas (2022) points out: An individual can stop being 'financially illiterate' thanks to financial education programs or also thanks to family and friends. The process of teaching, acquiring, developing, and adopting financial literacy within the family context is known as "family financial socialization."

² All actors listed in Table I were included in the survey, except employers and corporate programs, as these play a limited role in Spain. Only employees of financial institutions typically receive continuous financial training through their organizations.

- 5) Content creators (bloggers, influencers, YouTubers,...)
- 6) Fintech companies.
- 7) Financial advisors.
- 8) Family and friends.

The survey included several blocks of information:

- General data: Identification, start and end time of the survey to control the quality of responses.
- Demographic variables: Gender, age, educational level, perception of financial literacy, and financial knowledge requirements in the current job.
- Stakeholder/actor evaluation: For each of the eight stakeholders considered, participants were asked to evaluate both the frequency with which they *should* use them and the frequency with which they *actually* use them, using a 5-point Likert scale (1. Always; 2. Usually; 3. Occasionally; 4. Almost never; 5. Never).
- Open-ended question: Opinions on how to improve financial skills, allowing for the capture of complementary qualitative perspectives.

The study relied on a non-probability convenience sample recruited through a snowball sampling strategy via WhatsApp. This procedure shows the ability to reach a large number of participants in a short period of time, facilitate the comparison of responses, and reduce interviewer bias (Fowler, 2014). One limitation is that the anonymity of responses prevents the verification of potential duplicate submissions.

Prior to its implementation, the questionnaire was validated over a one-week period by ten participants, whose observations were incorporated into the final version. Following Sánchez-Fernández et al. (2009), the survey link was disseminated through personalised messages, with recipients also asked to redistribute it among their WhatsApp contacts. The survey was available from 1 to 31 March 2025, and a reminder was sent two weeks later to increase participation. The potential target population was estimated at 3,000 individuals³, and 535 responses were obtained. The response rate (17.8%) falls within the ranges typically observed in external self-administered surveys (Sánchez et al., 2009).

³ A conservative scenario is assumed. The initial distribution by the authors was made to 300 unique contacts (with no duplicates) who were potential survey respondents. It is assumed that approximately 10% of these contacts (30 individuals) forwarded the survey to an average of 100 new contacts –Rosenfeld et al. (2018) indicate that the average user has between 100 and 300 contacts–, and that these contacts did not forward it further. Consequently, the potential reach of the survey was slightly above 3,000 participants.

The analysis was structured in three steps:

Step 1: Data cleaning and descriptive analysis, reviewing and eliminating records with missing or incorrectly coded values. After removing those records, the final sample consisted of 530 records.

Step 2: Comparative analysis, comparing results by gender, age, educational level, perceived financial knowledge, and job requirements for financial knowledge.

Step 3: Text analysis, processing open-ended responses to identify keywords and common themes.

Results

Descriptive analysis: sample characteristics

Table II shows the main demographic features of the final sample. Whereas a balanced distribution can be shown for gender (Panel A), the requirement of financial skills for work (Panel E) or, to a less extent, the financial skills' perception (Panel D), the sample shows a clearly unbalanced distribution for age, educational level and courses received to improve financial skills (Panels B, C and F, respectively).

Table II. Sample distribution by features

Panel A: Gender		Panel B: Age	
	Percentage (%)		Percentage (%)
Male	50.94	Less than 18	0.76
Female	47.36	18-25	5.09
I'd rather not say it	1.70	26-45	14.34
Total	100	46-65	60.75
		More than 65	18.87
		I'd rather not say it	0.19
		Total	100
Panel C: Educational level		Panel D: Financial skills perception	
	Percentage (%)		Percentage (%)
Primary	3.21	Low	36.79
Secondary	16.60	Medium	41.89
University	79.62	High	20.94
I'd rather not say it	0.57	I'd rather not say it	0.38
Total	100	Total	100

Panel E: Financial skills required for work		Panel F: Courses or material received to improve financial skills	
	Percentage (%)		Percentage (%)
Yes	44.72	Yes	36.65
No	53.96	No	62.69
I'd rather not say it	1.32	I'd rather not say it	0.76
Total	100	Total	100

Source: own calculations.

The mentioned sample bias with respect to some features clearly can affect the results to be discussed next, but in this case may allow for greater detection of potential inconsistencies in the use of the agents/actors participating in the financial education process, since, a priori, a more educated sample should act more consistently when taking their financial decisions.

Comparative analysis: Normative (should do) vs Positive (actually do) use of actors

The second section of the survey consisted on asking the participants to evaluate, using a 5-point Likert scale ranging from 1 (most significant) to 5 (least significant), both the frequency with which they *should* use the eight actors considered when taking financial decisions and the frequency with which they *actually* use them. Table III shows the results obtained.

Table III. Normative vs Positive use of financial actors

(Score: 1. Always; 2. Usually; 3. Occasionally; 4. Hardly ever; and 5. Never)

Actors considered	Should use average score	Actual use average score	Gap
Actor 1: Official institutions)	1.705	3.253	-1.548
Actor 2: Private financial institutions	2.492	2.871	-0.379
Actor 3: Educational centres	1.649	3.904	-2.255
Actor 4: Consumer institutions	2.317	4.096	-1.779
Actor 5: Content creators	3.465	4.353	-0.888
Actor 6: Fintech companies	2.758	4.414	-1.656
Actor 7: Financial advisors	2.027	3.423	-1.396
Actor 8: Family and friends	3.253	3.388	-0.135

Source: own elaboration.

Several conclusions can be drawn from the results in Table III, as they can be analyzed from two perspectives. First, to examine the existence of a gap for each actor between their ideal use and their actual use (last column of Table III). Second, to compare the rankings of actors established by participants in the survey when responding to the normative (“should do”) question and the positive (“actually do”) question.

Regarding the first perspective, there is a systematic gap between what citizens believe they should do and what they actually do concerning the use of different actors for financial education. For all actors considered, their actual use is lower than their perceived ideal one, indicating a widespread discrepancy between normative expectations and actual behaviour. This is striking, as it may suggest that, deep down, most people are aware of their limited financial knowledge and believe they should consult more advisors when making financial decisions, regardless of who those advisors may be. The largest difference appears for educational centres, but significant gaps are also observed for consumer institutions, fintech companies, official institutions, and financial advisors.

Regarding the second perspective, the ranking of actors based on the “normative” average score differs considerably from that based on the “positive” average one. According to the survey, the three actors who should be most consulted are educational centres, official institutions, and financial advisors. However, the most employed actors are, first, the financial institutions providing the products, second, official institutions, and third, family and friends.

Analyzing the results by the actors considered in the survey, it can be seen that educational institutions present the largest gap in the study. They are considered the most important normative actor, but they are only the fifth one used. This can reflect the limitations of the formal education system in providing practical and accessible financial education to the adult population. Also, in this case we suppose that it is not easy to identify this actor exactly by the participants in the survey since the use of material studied in different stage of education (school, institute or university) could be considered when answering this question in the survey and this may alter their answers.

Official institutions are also perceived as one of the most important actors but exhibit a remarkable gap between the expected use and reality. This suggests that, although citizens recognize the authority and credibility of these institutions, they may encounter significant barriers to accessing their resources or services.

Private financial institutions are the most used actor in practice. Paradoxically, they are considered only the fifth most important norma-

tive actor. This paradox can be explained by a greater accessibility and convenience of banking services than other ones offered by the remain actors. However, this dependence on institutions raises concerns about potential conflicts of interest.

Consumer associations, Fintech companies and financial advisors also show a considerable gap. In the case of consumer associations, this result can suggest that although they are valued for their independence and consumer orientation, they may suffer from limitations in reach or visibility. With respect to Fintech companies, their emerging nature and the lack of familiarity among certain population segments may have led to this result whereas with respect to financial advisors, it seems that access barriers (high costs) may play an important role in relation with their low use.

Finally, content creators and family and friends are, together with the private financial institutions, the actors with the lowest gap. Content creators have a moderate gap and are considered less important normatively. However, their actual use is relatively low, suggesting they have not yet achieved mass penetration in financial education. Family and friends present the smallest gap in the study, indicating that their actual use closely aligns with normative expectations.

Subsample analysis

The analysis has been repeated for each Panel considered in Table II with the aim to check if there are significant differences amongst subsamples. To this end, given that the survey sample meets the independence requirement by being composed of different individuals, a t-test of difference in means was carried out when the sample was divided into only two groups (Table IV, corresponding to the subsamples considered in Panels A, E and F of Table II) whereas an ANOVA analysis was implemented when the subgroups considered were three or more (Table V, corresponding to the subsamples considered in Panels B, C and D of Table II).

Together with the average values obtained for the normative (should do) and the positive (actually do) questions for the different subsamples, both in Tables IV and V the difference amongst groups and their statistical significance for each specific subsample considered are shown.

Table IV: Subsample results using a t-test of difference in means

		Actor 1	Actor 2	Actor 3	Actor 4	Actor 5	Actor 6	Actor 7	Actor 8
Gender (Panel A)	Should	1.753	2.506	1.684	2.381	3.483	2.811	2.192	3.364
	Actual	3.332	2.775	3.736	4.117	4.178	4.343	3.563	3.508
	Gap	-1.579	-0.269	-2.052	-1.736	-0.695	-1.532	-1.371	-0.144
	Should	1.663	2.480	1.594	2.213	3.432	2.678	1.837	3.110
	Actual	3.177	2.988	4.069	4.077	4.541	4.484	3.283	3.255
	Gap	-1.514	-0.508	-2.475	-1.864	-1.109	-1.806	-1.446	-0.145
	Should dif. (m – w)	0.090	0.026	0.090	0.167	0.052	0.133	0.355	0.254
	Actual dif. (m – w)	0.155	-0.212	-0.333	0.040	-0.363	-0.14	0.28	0.252
	Should	1.720	2.642	1.757	2.24	3.475	2.762	2.007	3.182
	Actual	3.502	3.061	4.210	4.075	4.448	4.537	3.558	3.310
Financial skills requirement (Panel E)	Gap	-1.782	-0.419	-2.453	-1.835	-0.973	-1.775	-1.551	-0.128
	Should	1.691	2.325	1.521	2.400	3.464	2.756	2.064	3.340
	Actual	2.962	2.650	3.552	4.120	4.27	4.292	3.290	3.496
	Gap	-1.271	-0.325	-2.031	-1.720	-0.806	-1.536	-1.226	-0.156
	Should dif. (not r – r)	0.029	0.317	0.236	-0.160	0.011	0.005	-0.057	-0.159
	Actual dif. (not r – r)	0.540	0.411	0.658	-0.045	0.178	0.246	0.268	-0.186
	Should	1.733	2.621	1.759	2.275	3.526	2.766	1.994	3.197
	Actual	3.362	3.129	4.265	4.160	4.502	4.576	3.502	3.323
	Gap	-1.629	-0.508	-2.506	-1.886	-0.975	-1.809	-1.508	-0.126
	Should	1.648	2.264	1.466	2.391	3.359	2.726	2.094	3.340
Courses received (Panel F)	Actual	3.074	2.423	3.326	3.969	4.126	4.147	3.293	3.516
	Gap	-1.426	-0.159	-1.860	-1.578	-0.766	-1.421	-1.199	-0.175
	Should dif. (not r – r)	0.085	0.357	0.293	-0.116	0.167	0.040	-0.100	-0.143
	Actual dif. (not r – r)	0.288	0.706	0.939	0.192	0.376	0.428	0.208	-0.193

Source: own elaboration. Statistical significance at 95% or more is denoted in bold.

As Table IV shows, there are statistically significant differences both in the normative and, specially, the positive use of each actor for the different subsamples considered. Specifically, actors 2 (financial institutions) and, specially 3 (educational centres) seem to be the ones with higher discrepancy in its use for the different subgroups of the sample.

With respect to the first feature (gender), the general patterns remain consistent between men and women, with some minor variations. Women show a slightly larger gap for all actors considered except official institutions, but gap figures are quite similar between both groups. The analysis carried out to check statistically significant differences between men and women with respect to both their ideal behaviour when using actors reveal that, even though in general women consider that all actors should be more used than men do, only for actors 4 (consumer institutions), 8 (family and friends) and, specially 7 (financial advisors) there is a statistically significant difference between genders. In the case of the actual use of each actor, there is no a stable pattern since in half of the cases the difference is positive and in the other half is negative. Thus, for example, actors 3 and 5 are actually more used by men whereas actors 7 and 8 are more employed by women.

With respect to the second feature (financial skills required for their jobs), as expected, individuals who are requested having financial knowledge act more consistently than those who are not, since they show small gaps for almost all actors considered (only the actor 8, family and friends, shows a larger gap for people with requirement of financial skills for their jobs). When considering the normative question, significant differences are found for actors 2 and 3 (private financial institutions and educational centres) between the two groups considered. In both cases the group of people with required financial skills for work consider these two actors should be taken more in consideration than the group of people with no financial skills required for work. With respect to the positive question, except for actors 4 and 8 (consumer institutions and family and friends, respectively) there are significant differences between the two groups of people considered.

Finally, in relation to the third feature (courses received), the results obtained for the gap between the theoretical use of each actor and their actual one are totally in line with the ones obtained for the financial skills requirement, since in all cases but for actor 8, family and friends, the gap is lower for people with courses received. This is not a surprising result since both sub-samples (people with requirements of financial skills for their job and people with courses received) are highly correlated. Similar results are also obtained when considering the statistical

differences between the two subgroups of the sample. As it did happen with the previous feature, when addressing the normative question there are only statistically significant differences between the subsamples with regard to actors 2 and 3 (financial institutions and educational centres) whereas that when focusing on the positive question (the actual use of each actor), significant statistical differences between groups are obtained for most of the actors considered.

Next, Table V shows the results obtained for the subgroups corresponding to the three remaining features of the sample, which implied more than two subgroups for each feature.

First of all, please notice that in this case the values indicated in the last two rows of each feature (should difference amongst groups and actual difference amongst groups) corresponds to either an Anova F-statistic or a Welch statistic depending on the existence of variance homogeneity amongst groups previously checked using the Levene test. As before, values in bold indicate statistically significant difference amongst groups to a 95% confidence level. In this case, since we are dealing with more than two groups for each feature, the detection of a statistically significant difference amongst them requires a post hoc analysis to identify which group(s) is responsible of the statistical significance.⁴

Looking at the results for each feature, with regard to age, the gap between the normative use of each actor and the positive one is similar for the three subgroups of age considered, being, on average, a bit lower for the group of 26 to 45 years old. This seems to suggest they are a bit more coherent than the other groups when taking financial decisions. When we pay attention to the statistically differences amongst groups in relation with the normative use of the actors, age seems to be an important feature since significant differences amongst groups of age are found amongst actors 2 (financial institutions), 3 (educational centres), 6 (fintech companies) and 7 (financial advisors). Post-hoc analysis reveals that in most of those differences is involved the group of people between 26 and 45 years old. In relation with the actual use of actors, significant differences are appreciated for actors 2 (private financial institutions), 5 (content creators) and 8 (family and friends). In the post-hoc tests can be observed that those differences are not always due to the same groups of age but they depend on the specific actor. In any case, group of people between 26 and 45 years old is involved in the differences for the three aforementioned actors.

⁴ Results of post-hoc analysis have not been included due to space restrictions. They are available upon request.

Table V: Subsample results using an ANOVA analysis

		Actor 1	Actor 2	Actor 3	Actor 4	Actor 5	Actor 6	Actor 7	Actor 8
Less than 26y.o.	Should	2.037	2.037	1.519	2.741	2.926	2.333	1.615	3.000
	Actual	3.852	3.481	3.444	4.519	3.407	4.370	3.778	3.185
	Gap	-1.815	-1.444	-1.926	-1.778	-0.481	-2.037	-2.162	-0.185
26-45 y.o.	Should	1.842	2.868	1.474	2.347	3.605	3.081	2.311	3.276
	Actual	3.467	3.041	3.851	4.176	3.960	4.446	3.493	2.865
	Gap	-1.625	-0.173	-2.377	-1.829	-0.355	-1.365	-1.182	0.411
Age (Panel B)	Should	1.655	2.444	1.671	2.306	3.531	2.775	2.038	3.320
	Actual	3.192	2.751	3.927	4.094	4.544	4.511	3.439	3.483
	Gap	-1.537	-0.307	-2.256	-1.788	-1.013	-1.736	-1.401	-0.163
More than 65 years old	Should	1.684	2.500	1.700	2.237	3.309	2.621	1.907	3.122
	Actual	3.140	2.928	4.000	3.917	4.344	4.125	3.213	3.520
	Gap	-1.456	-0.428	-2.300	-1.680	-1.035	-1.504	-1.306	-0.398
Should dif. amongst groups	Should	1.900	3.574	2.777	1.712	2.382	3.931	3.579	1.184
	Actual dif. amongst groups	2.089	2.725	1.123	2.169	7.713	2.371	1.435	5.102
Primary studies	Should	1.882	3.177	1.530	2.412	3.471	2.941	2.177	2.765
	Actual	3.353	3.647	3.882	4.059	4.438	4.412	3.471	3.588
	Gap	-1.471	-0.470	-2.352	-1.647	-0.967	-1.471	-1.294	-0.823
Secondary studies	Should	1.805	2.442	1.851	2.195	3.541	2.756	1.786	3.198
	Actual	3.471	3.163	4.200	4.035	4.470	4.369	3.354	3.612
	Gap	-1.666	-0.721	-2.349	-1.840	-0.929	-1.613	-1.568	-0.414
Educational level (Panel C)	Should	1.679	2.467	1.605	2.329	3.445	2.747	2.063	3.284
	Actual	3.208	2.778	3.839	4.106	4.329	4.431	3.437	3.339
	Gap	-1.529	-0.311	-2.234	-1.777	-0.884	-1.684	-1.374	-0.055
Should dif. amongst groups	Should	1.163	3.500	3.194	0.841	0.231	0.225	3.429	2.172
	Actual dif. amongst groups	1.352	6.574	2.726	0.149	0.711	0.153	0.175	2.268

		Actor 1	Actor 2	Actor 3	Actor 4	Actor 5	Actor 6	Actor 7	Actor 8
Low	Should	1.760	2.729	1.751	2.195	3.461	2.778	1.979	3.111
	Actual	3.492	3.246	4.349	4.183	4.568	4.605	3.705	3.305
	Gap	-1.732	-0.517	-2.598	-1.988	-1.107	-1.827	-1.726	-0.194
Medium	Should	1.709	2.394	1.683	2.384	3.525	2.756	2.023	3.323
	Actual	3.285	2.845	3.862	4.050	4.259	4.404	3.298	3.323
	Gap	-1.576	-0.451	-2.179	-1.666	-0.734	-1.648	-1.275	0.000
High	Should	1.604	2.261	1.405	2.409	3.342	2.716	2.110	3.355
	Actual	2.752	2.250	3.185	4.028	4.173	4.101	3.184	3.651
	Gap	-1.148	0.011	-1.780	-1.619	-0.831	-1.385	-1.074	-0.296
Should dif. amongst groups		1.209	7.526	8.119	2.716	0.935	0.097	0.690	2.808
	Actual dif. amongst groups	11.938	26.425	30.805	0.977	8.046	9.485	8.659	3.777

Source: own elaboration. Statistical significance at 95% or more is denoted in bold.

With regard to the educational level feature, as expected, the lowest gap on average corresponds to the group with higher educational level. The hypothesis of equal means amongst groups is rejected in the case of the normative question for actors 2 (financial institutions), 3 (educational centres) and 7 (financial advisors) whereas that in the case of the positive question the null hypothesis is rejected only when actor 2 (financial institutions) is considered. The post-hoc analysis reveals that the group of people with low studies is the one that shows significant differences in the normative use of financial institutions with respect to the other two groups whereas that in the case of actors 3 and 7 is the group of people with secondary studies the one with statistically different mean value. With respect to the actual use of financial institutions, it is the group of people with high education level the responsible of the statistically significant differences amongst groups since they use them more when taking financial decisions than the other two groups do.

Finally, with regard to the last feature considered (perception of financial skills), there is a clear similarity of the results obtained with those corresponding to the requirement of the financial knowledge for the job and the courses received, shown in Panels E and F of Table IV. A crucial finding is that, for most actors, gaps between normative and positive questions consistently decrease with the level of self-perceived financial knowledge. This suggests that financial education not only improves knowledge, but also the ability to access and use appropriate resources. The hypothesis of equal means amongst groups is clearly rejected in the case of normative question for actors 2 (financial institutions) and 3 (educational centres) whereas that in the case of positive question the null hypothesis is rejected for all actors but actor 4 (consumer institutions). Results of the post-hoc analysis for the normative question indicate that the group that shows differences with the other two depends on the actor considered. Whereas for actor 2 (private financial institutions) is the group of low financial skills perception the one different from the other two, when considering actor 3 (educational centres) the group different from the other two is the one with high perception of financial skills. In the case of the positive question, the post hoc analysis reveals that there is no homogeneity in the results, so depending on the actor considered, the groups that show statistically different results can vary. However, the behaviour of the group with high perception of financial skills is usually different from the other two groups.

As a general result by sub-samples, it can be seen that consistently for all subgroups considered all actors are used less than people think they should, therefore the obtained gap is negative. There are only two

exceptions, the group of people from 26 to 45 years old with respect to consulting family and friends when taking financial decisions (they think they actually do more than they should) and the group of high perception of their financial skills with regard to the use of financial institutions, even though in this case the difference of the average between the question of the should use and the actual one is near to zero. In both cases is the actual use of the actor that generates the gap to be positive since the theoretical use is similar to those of other groups.

We think the latter result is quite revealing, since it seems to suggest that, as expected, people with more financial skills act in a more rational way when taking financial decisions. In this sense, as expected, the educational level, the self-perception of financial skills, their requirement for the job and the financial courses received clearly influence on the difference between the normative use of the actors and its actual use. For all these features, the higher the educational level, financial skills, requirement for the job or courses received by the members of the group, closer to zero is the gap average between the normative expectations of use of all actors and their actual use. In the case of the other two features considered, gender and age, men show a lower average gap between the theoretical use of all actors and the actual one than women, and people between 26 and 45 years old appear to be a group slightly more coherent than the other groups when taking financial decisions.

Obviously, these results have to be taken with caution since the size of the subsamples in some cases makes difficult to obtain robust results.

Responses to the open question

A total of 390 individuals (73.58% of participants) responded to the open-ended question about how to improve financial education. The tag cloud in Figure I shows the most common terms used.

Specifically, the most frequent comment was the need for mandatory financial studies in all range of educational institutions, from primary schools to university, confirming the quantitative findings regarding the perceived importance of educational centres.

Other recurring themes included: the need for greater clarity and honesty from financial institutions, the importance of access to agents not affiliated with private banks, the role of the media in disseminating financial information, and the need to improve general cultural skills to understand complex texts.

Figure I. Common terms answered to the open question



Source: Own elaboration

Implications for educational theory, practice and research.

These findings also have implications for educational theory and practice. From a curriculum perspective, financial education should be understood not merely as the acquisition of individual financial skills, but as a component of citizenship education: it can support informed, critical, and responsible participation in increasingly financialised social contexts. Its integration should therefore promote not only knowledge of products and decisions, but also reflection on consumer rights, inequality, sustainability, risk, and the social consequences of financial choices. From a theoretical perspective, this suggests the value of adopting stakeholder-oriented approaches that recognize the interdependence of schools, families, financial institutions, public authorities, community organizations, and learners themselves (Cueva and Viera, 2017; Donaldson and Preston, 1995; Freeman, 1984).

In Spain, the practical incorporation of such content into school curricula depends substantially on regional education authorities, within the national curricular framework. This calls for educational-policy implementation strategies that combine curricular guidance with teacher professional development, high-quality open resources, and sustained evaluation (Björklund and Sandahl, 2023; and De Beckker et al., 2019). Collaboration with public institutions, universities, and civil-society or-

ganisations may help develop resources while safeguarding pedagogical independence from commercial interests.

For primary and secondary education, innovation projects could test cross-curricular approaches linking financial education with mathematics, social sciences, digital competence, and citizenship education (Kaiser and Menkhoff, 2020). Examples include project-based learning around household budgeting, consumer rights, digital payments, sustainable consumption, or simulated community decision-making.

Adult education is equally important. Municipal learning centres, employment services, community organisations, and lifelong-learning programmes could offer accessible, context-sensitive initiatives for adults facing financial transitions, such as entering work, unemployment, indebtedness, migration, retirement, or digitalisation. For research, further studies should examine how different stakeholders implement and evaluate financial education initiatives (Walstad et al, 2017). Particular attention should be given to the mechanisms through which collaboration among actors influences programmes design, implementation, and educational outcomes. It seems critical to effectively assess their contribution to financial knowledge, behaviour, and wellbeing (Fernandes et al., 2014).

Conclusions

This study provides an overview of the landscape of financial education in Spain, with a specific focus on identifying and analyzing the key actors shaping this field. While the literature has predominantly concentrated on measuring financial literacy outcomes —often through standardized assessments such as PISA-type tests or large-scale surveys— there has been comparatively little attention paid to the diverse range of actors involved in the financial education process itself. Our research addresses this gap by examining both the perceived and actual roles of these actors, as well as the broader regulatory and institutional context in which they operate.

At the European level, the regulatory framework for financial education is largely informed by recommendations and principles established by the OECD. In Spain, these guidelines have been operationalized through the Financial Education Plan, which incorporates several key actors into its structure. However, our findings suggest a disconnect between the actors that individuals consider most important for financial education and those they actually engage with in practice when taking their financial decisions.

Survey results indicate a widespread recognition of the importance of financial education among the Spanish population. Nevertheless, there is a notable inconsistency between the value attributed to specific actors and the extent to which these actors are utilized. Across all actors considered, the actual use consistently falls short of the perceived ideal, a pattern that holds true across nearly all demographic sub-samples. Notably, official institutions (such as the Bank of Spain or the National Securities Market Commission) and educational centres are regarded as the most appropriate actors to consult for financial education. Despite this, private financial institutions emerge as the most frequently used actors, even though they are ranked only fifth in terms of perceived desirability. This discrepancy may be attributed to the accessibility of private sector resources. Additionally, this dependence on institutions raises concerns about potential conflicts of interest.

The largest gap between what citizens believe they *should* do and what they *actually* do when taking financial decisions corresponds to educational centres, which are considered the most important normative actor but is ranked as the fifth actor according to their actual use. This suggests a vastly untapped potential of the formal education system to provide financial education. The open responses in the survey also show an explicit citizen demand for the integration of financial education into the formal education curriculum. Meeting this demand, however, requires investments in teacher training, curriculum development, and specialized educational resources.

Further analysis by sub-samples reveals that consistently for practically all subgroups considered, all actors are used less than people think they should use them. Nevertheless, features such as the educational level, the self-perception of financial skills, their requirement for the job and the financial courses received clearly influence on the gap between the normative use of the actors and its actual use. As expected, the gap narrows as those features increase.

Differences amongst groups have been also found in the theoretical use of actors and, specially, in their actual one. The frequency of use of actors such as official institutions, private financial institutions, educational centres, content creators and fintech companies is different amongst groups when features such as the self-perception of financial knowledge, its requirement for the job and the financial courses received are considered to split the sample in different groups.

All in all, our results suggest the need to strengthen the role of official institutions as sources of financial education, improving their accessibility and visibility. They also support the systematic integration of financial education into the formal education system, aspects that should be taken into account by regulators and public policymakers.

In any case, it is important to interpret these findings with caution, given certain limitations inherent in the study design. The survey sample is subject to bias due to the snowball sampling method, which resulted in an overrepresentation of individuals connected to university lecturers, as well as limited sample sizes in certain age or educational level groups. These factors may affect the robustness and generalizability of the results.

In light of these insights, further research is needed to deepen our understanding of the roles and effectiveness of different actors in financial education. In particular, future studies should seek to incorporate expert perspectives on the relative importance and impact of various actors, as well as explore strategies to bridge the gap between perceived and actual engagement with the most trusted sources of financial education.

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Child Sexual Abuse: Prevalence and Conceptualization among Preservice Teachers

Abuso sexual infantil: prevalencia y conceptualización en docentes en formación

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Abstract

This study examines the prevalence and conceptualization of child sexual abuse (CSA) among preservice teachers in Spain, analysing overall and gender-specific prevalence, discrepancies between perceived and objectively reported victimization, and exposure to pornography as a specific typology of CSA. A sample of 1297 university students (82.2% female, 17.8% male) enrolled in education-related degrees completed a Spanish adaptation of the ICAST-R questionnaire. Descriptive and chi-square analyses assessed CSA prevalence, distinguishing between self-perceived victimization and affirmative responses to specific abuse ty-

pologies. While 12.4% of participants self-identified as CSA victims, 52% reported at least one specific abusive experience, revealing a substantial gap between perception and objective experience. Women reported significantly higher rates of unwanted touching, sexually inappropriate comments, and non-consensual acts, whereas men reported greater exposure to pornographic material, the only abuse typology in which male prevalence exceeded that of females. Gender differences and a limited conceptualization of CSA appear to hinder its detection, particularly among men. These findings underscore the need to strengthen CSA-related training for preservice teachers, broaden current definitions to include emerging typologies such as pornography exposure, and develop more sensitive assessment tools to support the prevention and early detection of CSA in educational settings. Future research should consider the moderating role of psychological variables, such as resilience, and account for methodological constraints related to geographical bias and the retrospective nature of the study, in order to provide a more comprehensive and nuanced understanding of the phenomenon and the biases inherent in convenience sampling.

Keywords: Child Abuse, Sexual Abuse, Preservice Teachers, Gender Differences, Pornography

Resumen

Este estudio analiza la prevalencia y la conceptualización del abuso sexual infantil (ASI) en futuros docentes en España, examinando la prevalencia global y por sexo, las discrepancias entre la percepción y la experiencia objetiva de victimización, y la exposición a la pornografía como una tipología específica. Participaron 1297 estudiantes universitarios (82,2% mujeres, 17,8% hombres) matriculados en titulaciones del ámbito educativo, quienes respondieron a una adaptación española del cuestionario ICAST-R. Se aplicaron análisis descriptivos y de Chi-cuadrado para evaluar la prevalencia del ASI, diferenciando entre la autopercepción como víctima y las respuestas afirmativas a tipologías concretas de abuso. Mientras que el 12,4% de los participantes se identificó como víctima de ASI, el 52% declaró haber vivido al menos una experiencia abusiva específica, lo que evidencia una brecha considerable entre la percepción subjetiva y la experiencia objetiva. Las mujeres reportaron tasas significativamente más altas de tocamientos no deseados, comentarios sexuales inapropiados y actos sin consentimiento, mientras que los hombres reportaron una mayor exposición a material pornográfico, la única tipología en la que la prevalencia masculina superó a la femenina. Las diferencias de género y una conceptualización limitada del ASI parecen dificultar su detección, especialmente entre los hombres. Estos hallazgos ponen de manifiesto la necesidad de reforzar la formación del futuro profesorado en materia de ASI, ampliar las definiciones vigentes para incorporar tipologías emergentes como la exposición a la pornografía, y desarrollar instrumentos de evaluación más sensibles que favorezcan la prevención y la detección temprana del ASI en los contextos educativos. Asimismo, se recomienda que futuras investigaciones consideren el papel moderador de variables psicológicas,

como la resiliencia, y las limitaciones metodológicas derivadas del sesgo geográfico y del diseño retrospectivo del estudio, con el fin de ofrecer una comprensión más completa y matizada del fenómeno, así como del sesgo del muestreo por conveniencia utilizado.

Palabras clave: Abuso infantil, Abuso sexual, Profesorado en formación, Diferencias de género, Pornografía

1. Introduction

The prevalence of child and adolescent sexual abuse (CSA) is estimated to be between 10% and 20% of the global population, with female victims typically outnumbering male victims by a ratio of 2:1 (Pereda, 2016). However, according to the sixth edition of the European Sourcebook of Crime and Criminal Justice Statistics, only 11.6% of sexual assaults are reported (Aebi et al., 2021, p. 353). In Spain, between 2017 and 2021, 65% of reported sexual offences against women were classified as CSA, as the victims were minors at the time the offences occurred (INE, 2023). Thus, the gap between incidence and prevalence positions sexual violence as one of the most underreported crimes worldwide (Lameiras et al., 2011), resulting in greater impunity for perpetrators and increased vulnerability for victims.

In Spain specifically, the prevalence is approximately 9% for males and 18% for females (Pereda, 2016). However, considering the discrepancy between perceived reality and the concrete facts investigated in CSA studies, these rates might be inaccurate. Classic research, such as that by Ratican (1992), argues that the prevalence of CSA should be much higher than what is typically reported in self-reports and questionnaires, as victims do not always recognize their past experiences as abuse, particularly when they did not involve physical violence. On the other hand, studies such as Stoltenborgh et al. (2011) emphasize that the prevalence of abuse varies significantly across regions and sample types due to various moderating factors, with questionnaire design being key. According to these authors, questionnaires that adopt a broader definition, including non-contact abuse (such as exhibitionism or pornography), tend to report higher rates of abuse compared to those employing more restrictive or simplistic definitions. Complementary to this, Stoltenborgh et al. (2011) also found that a higher number of CSA-specific questions in self-reports is associated with a higher reported prevalence, particularly among girls. This likely indicates that there is a portion of the population who, despite having experienced CSA, do not disclose it in official surveys either because their experiences do not align with their under-

standing of sexual abuse or because they are not asked in a sufficiently detailed manner. This situation demands urgent solutions, given the psychological impact of sexual abuse during childhood and adolescence and its long-term consequences in adult life (Aguirre et al., 2022).

The consequences of experiencing CSA are severe: authors such as Pacheco (2021) indicate that victims often suffer psychological distress, effects on personality structure –particularly inhibited personality and insecurity– and feelings of fear, immaturity, and emotional instability characterized by sadness, despondency, an inability to experience pleasure, disinterest, and irritability, among others. Additionally, various reviews such as Latorre (2023) outline symptomatological consequences that manifest as chronic post-traumatic stress disorder, impacts on development and family dynamics, and, ultimately, alterations in self-identity. While there is growing awareness and an increasing focus on treatments aimed at mitigating these effects, prevention remains one of the main tools for addressing this severe issue (Kenny, 2004).

In this context, educational institutions are a privileged space where one can ‘diagnose and intervene in the reality of children and adolescents who suffer from or are at risk of suffering this type of abuse’ (Rúa, Pérez, & González, 2018, p. 23). These institutions – and particularly their staff – serve as a key environment for both prevention and for detecting and addressing CSA. While there are no formally defined criteria (Walsh et al., 2018), some countries have been implementing prevention education in a widespread manner for decades (Bright et al., 2022).

However, addressing CSA within the education system is not easy, as it requires considering the conflicts and barriers that teachers face when dealing with these issues (Russo & González-Torres, 2020). On the one hand, teachers feel that their academic training has not prepared them to address these problems, and on the other hand, they have concerns related to the consequences of reporting and a lack of trust in protection services (Kenny, 2004;). Additionally, personal circumstances related to CSA may affect the strategies implemented by triggering complex psychological mechanisms that, for example, can lead to downplaying the events in order to avoid stigmatization and preserve one’s beliefs about the world, others, and oneself (Fohring, 2015). As a result, a significant percentage of professionals in direct contact with children are unable to identify the presence of CSA indicators (Reitsema & Grietens, 2016). Worse still, even if they have detected them or heard a victim’s account, they do not act immediately to initiate child protection procedures (Swingle et al., 2016), despite the immense difficulty victims face in revealing the abuse they have suffered (Paine & Hansen, 2002).

It is important to note here that most prevalence studies focus on students, while there is still no specific research on the number of teachers affected by CSA and the particular problems they face. This is particularly relevant, as the proactive role of educators who have been victims themselves could be key in raising awareness and detecting these abuses, particularly in a context where early detection tools are rarely effective (Bailhache et al., 2013; Ramírez & Allison, 2018).

Furthermore, it is important to acknowledge the consequences of CSA for those affected, as these may directly impact an educator's ability to identify signs of abuse among their students. Two key consequences stand out: dissociation and Complex Post-Traumatic Stress Disorder (C-PTSD). Dissociation is a well-documented phenomenon in victims of childhood sexual abuse, recognized as a common coping mechanism to suppress traumatic memories. For instance, Briere and Conte (1993) found that 59% of adults with a history of abuse reported experiencing partial or total amnesia at some point in their lives, while Williams (1995) observed that more than a third of the women interviewed had no recollection of documented childhood abuse, with amnesia being more prevalent in severe cases. These traumas, particularly when prolonged and repetitive, are linked to C-PTSD, which was recognized by the World Health Organization (WHO) in ICD-11 (2022). This disorder is characterized by a range of symptoms, including significant difficulties in emotional regulation, interpersonal relationships, and self-perception, one's environment and others. Both phenomena may hinder the ability of an individual who has suffered abuse to recognize warning signs in potentially hazardous situations, whether for themselves or others. This not only increases the risk of re-victimization (Messman & Long, 1996), but also complicates the ability of educators to detect signs of abuse in their students.

In addition to the ineffectiveness of traditional screening mechanisms, we are faced with a new challenge: the rapid evolution of CSA and the emergence of new forms that were previously not recognized as CSA, such as exposure to pornography. It has been confirmed that adolescents exposed to sexually explicit content are more likely to engage in risky sexual behaviour in adulthood, as well as develop problems that negatively affect self-esteem, intimacy, and relationships with partners (Flood, 2009). Furthermore, the variety of exposure modes (such as magazines, films, and websites) amplifies this risk. While the effects are significant for both genders, a recent study has shown that the relationship is stronger in men, whereas in women, the relationship was less pronounced, except for early sexual initiation (Lin, Liu, & Yi, 2020). However, despite growing awareness of the dangers of pornography, it is not always considered in CSA prevalence studies, and even less so in those conducted in Spain,

where only the most recent research includes it among the types of abuse assessed (Ferragut, Ortiz-Tallo, & Blanca, 2022).

In light of these considerations, this study focuses on determining the prevalence of CSA in a sample of particular interest, as well as its conceptualization, by including an initial question, the response to which is compared with those referring to specific forms of sexual aggression. Based on this premise, two main objectives are outlined.

This study aims to analyse, firstly, the prevalence of CSA among pre-service teachers, who may contribute in the future to the prevention and detection of CSA in their students. This group was selected because they have not received prior training on CSA detection, in contrast to some in-service teachers (Kenny, 2004). This allows for comparisons between this and other populations, minimising the risk of overdiagnosis bias. Secondly, the study seeks to examine the extent to which individuals may not consider themselves victims despite having experienced any of the typologies described in the questionnaire. To achieve this, participants are first asked whether they consider themselves to have experienced CSA, followed by inquiries about specific events, so that the two responses can complement each other. This allows for an analysis of the participants' conceptualization and perception of CSA and its various typologies. This makes it possible to assess whether, to a greater or lesser extent, there are individuals who, after initially reporting not having experienced CSA – or being unsure – later state that they have experienced one or more of the typologies listed in the questionnaire. Such findings would suggest that these individuals may be victims without recognizing it and would point to the possibility that the typologies of CSA they have experienced do not align with their concept of sexual abuse. In order to achieve this, we will first analyse the portion of the sample that responded that do consider themselves to have been victims of sexual abuse, followed by an analysis of the portion that responded that they do not consider themselves victims or are unsure. The third objective is to examine the prevalence of pornography as CSA within this population, as it is a variable that is rarely included in sexual abuse questionnaires in Spanish.

This research sets forth three working hypotheses, formulated as affirmative statements consistent with the study's design. H1: The prevalence of CSA in this sample is similar to the official statistical data reported in other studies conducted with Spanish samples. H2: There is a significant discrepancy between reported CSA and self-perceived victimization, reflecting an outdated and/or misaligned conceptualization of CSA among preservice teachers. H3: The prevalence of pornography exposure is higher among males than among females.

2. Methods

2.1. Design

This study follows a cross-sectional, descriptive, and retrospective design. Data were collected at a single time point through a self-administered questionnaire, and participants retrospectively reported on childhood experiences of sexual abuse. Group comparisons by sex were conducted using a correlational, non-experimental approach based on Chi-square analyses.

2.2. Participants

A sample of 1297 university students (female participants = 1,066 [82.2%]; male participants = 231 [17.8%]) from Malaga, Spain, responded to the ICAST-R questionnaire (Dunne et al., 2009). Participants' ages ranged from 19 to 55 years ($M = 22.18$, $SD = 4.58$). The sample was drawn from students of Educational Sciences, including those enrolled in the Bachelor's Degrees in Primary Education, Early Childhood Education, Pedagogy and Social Education. The participants were recruited through non-probabilistic convenience sampling, which limits the statistical representativeness of the sample; nonetheless, the sample reflects diversity in terms of degree and academic year, with a female-to-male ratio of approximately 4:1, consistent with the gender distribution typically observed in Spanish education-related degrees.

2.3. Procedure

The questionnaire was administered in person by a researcher using Google Forms, with responses set as mandatory, ensuring no missing data. Participation was anonymous and voluntary. Participants were required to generate a personal password, exclusively known to them, in case they wished to contact the research team for further information or to participate in additional assessments.

2.4. Ethical Considerations and Informed Consent

Prior to completing the questionnaire, participants received written information about the study's purpose, the voluntary and anonymous nature of their participation, and their right to withdraw at any time without penalty; completion of the questionnaire was considered equivalent to informed consent. No personally identifying information was collected, the personal password described above was the only participant-generated identifier, and it was used exclusively to allow optional follow-up contact at the participant's own initiative. Data were processed in accordance

with Spanish Organic Law 3/2018 on Data Protection and Digital Rights Guarantee (LOPDGDD) and Regulation (EU) 2016/679 (GDPR).

2.5. Instruments

For this study, a Spanish adaptation of the ICAST-R questionnaire (Dunne et al., 2009) was used to retrospectively assess experiences of physical, emotional, and sexual abuse during childhood, applying only the items related to involuntary exposure to sexual acts (CSA). In this adaptation, two additional measurement variables of relevance, based on the scientific literature, were included: perceived experience of CSA and exposure to pornographic content. Additionally, participants were asked about sociodemographic variables such as age, gender, level of education, and academic year.

The first questions of the questionnaire focused on whether the individual had experienced non-consensual sexual acts, either directed towards them or others, always occurring involuntarily. The opening question asked whether they considered themselves to be a victim of CSA (victimization), with three possible responses (Yes, No, Maybe). The remaining questions were dichotomous (Yes, No). Participants were assessed on whether they had experienced various forms of abuse: being forced to watch another person's intimate body parts live (Exposure), being photographed or recorded in a sexual context (Recording), receiving unwanted touches (Touching), receiving sexually inappropriate comments (Comments), having had sexual relations against their will as minors (Acts), or being exposed to pornographic material (Pornography).

2.6. Analysis

The data analysis was conducted using SPSS 27 statistical software. Prior to the analysis, the internal consistency of the questionnaire was examined after including two new items. A Cronbach's alpha of .66 was obtained, which is comparable to the scores reported in previous applications of the ICAST-R (Dunne et al., 2009; Jiménez-Borja et al., 2020), although it remains below the conventional threshold of .70 recommended for internal consistency (Cohen, 1988). This lower value should be interpreted with caution: the addition of two new items modifies the original instrument, and no independent psychometric validation of this specific adaptation has yet been conducted. Given the heterogeneity in item endorsement rates (ranging from 1.5% to 28.4%) and the small number of items, McDonald's omega coefficient was also computed as a more robust alternative to Cronbach's alpha, since it does not rely on the assumption of tau-equivalence. Based on a single-factor model esti-

mated from tetrachoric correlations between the six items, omega was $\omega = .82$, appreciably higher than the alpha coefficient and indicating good internal consistency for the adapted instrument. This issue is addressed further in the Limitations section.

In the first phase of the analysis, a descriptive analysis of the variables of interest was conducted, both for the questionnaire and the socio-demographic variables, such as sex and age, with the aim of examining the prevalence of sexual abuse and its typologies among preservice educators. This provided an estimate of the frequencies of the victimization variables and their various typologies. The frequencies of responses to the different abuse typologies were then analysed from two perspectives: the first considered individuals who responded 'Yes' to whether they considered themselves victims of sexual abuse during their childhood; while the second analysis was performed by reclassifying the subjects based on whether they answered 'Yes' to any of the sexual abuse typologies, regardless of their response to the victimization question (Table 1). This reclassification will be used for the subsequent analyses.

In the second section, a chi-square test was conducted to examine sex differences regarding CSA, calculating the odds ratio (OR) to assess the likelihood of experiencing any type of CSA and the confidence intervals (CIs) as a measure of the effect size of the difference. Corrected residuals ($CR > 2$ in absolute value for significance) were also calculated to examine the direction of significance within the contingency tables for dichotomous variables. Finally, the Phi coefficient was computed to determine the effect size of the analyses ($P < 0.1$).

3. Results

3.1. Prevalence of CSA and Typologies

The initial analysis of responses to whether participants considered themselves victims of child sexual abuse yielded 161 affirmative responses from the total sample, with 11.4% in females and 1% in males (Table 1). Among the various typologies reported, touching (7.1%), comments (6.6%), and exposure of private parts (6.3%) were most prominent among females, while pornography (6.2%) was more common among males. It is worth noting that 12% of the sample reported being unsure whether they had suffered any type of abuse, and thus were excluded from the first analysis. However, when instead of the first general question about CSA, we consider the affirmative responses to one or more of the survey's typologies, the prevalence rises to 52% of the total, with

43.4% corresponding to women and 8.6% to men. On the other hand, this percentage is influenced by the sample's natural distribution, which exhibits a female-to-male ratio of approximately 4:1. When the prevalence percentage is calculated separately for each sex, it is shown that 52.8% of the women surveyed marked one or more types of CSA in the questionnaire, while the percentage for men is 48.1% (Table 2). Of the sample that answered 'No' to victimization, 19.7% indicated having suffered one or more types of abuse, while the percentage for those who responded 'Maybe' was 78.5%. When the two types of measures in the questionnaire – overall and by specific typologies – are analysed, and the distribution by sex is considered, interesting data emerge. Regarding women, when responses to specific typologies are taken into account, there is an increase in the total prevalence (43.4%) compared to the reported victimization rate (11.4%). In fact, all categories show an increase, with particularly notable rises in inappropriate comments (a 17% difference) and involuntary exposure to pornography (a 16.5% difference). As for men, while the data may be more nuanced due to the smaller sample size, the prevalence still increases from 1% to 8.6%, with pornography (a 5.7% difference) and exposure to private parts (a 2% difference) being the typologies with the largest increases.

Finally, the descriptive analysis revealed that the mean age of onset was 12.9 years (SD=4.30), with a range from 3 to 18 years (the maximum age allowed by the questionnaire). Regarding duration, the reported mean was 2.15 years (SD=1.54), with a range from 1 (minimum value) to 8 years. Similarly, the 10-18 years age range was the most frequently reported, with 67.1% of males and 74.8% of females. The average number of different types of abuse experienced was 2.0 (SD=1.4).

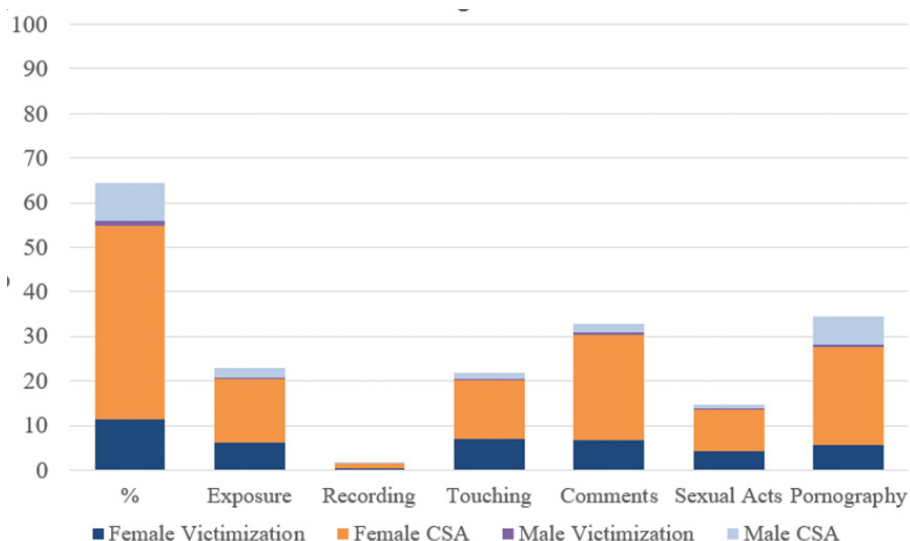
Table 1. Comparison by sex between the number of affirmative responses to victimization and the affirmative responses to any typology of CSA.

		N	M (SD)	Expos	Record	Touch	Comme	Acts	Pornogr
Female	Victimization	148 (11.4%)	2.7 (1.4)	82 (6.3%)	4 (0.3%)	92 (7.1%)	85 (6.6%)	55 (4.2%)	73 (5.6%)
	CSA	563 (43.4%)	1.9 (1.2)	185 (14.3%)	17 (1.3%)	168 (13%)	308 (23.7%)	122 (9.4%)	287 (22.1%)
Male	Victimization	13 (1%)	2.2 (1.0)	3 (0.2%)	0 (0%)	7 (0.5%)	6 (0.5%)	5 (0.4%)	6 (0.5%)
	CSA	111 (8.6%)	1.5 (0.7)	29 (2.2%)	2 (0.2%)	17 (1.3%)	27 (2.1%)	9 (0.7%)	81 (6.2%)

3.2. Sex-based analysis

The gender analysis reveals interesting data. The chi-square analysis testing the overall association between sex and having reported any CSA typology (Table 2 and Figure 1) did not reach statistical significance ($\chi^2(1) = 1.725$, $p = .189$, $\Phi = 0.036$, $OR = 1.21$), indicating a very weak association. This could be partly explained by the inclusion of the Pornography typology, as 81 of the 111 men who reported CSA selected this category. Women were 1.21 times more likely to report any typology. However, given the data, this difference was not significant when all typologies were considered together. No significant differences were found for the categories Exposure and Recording either. Regarding involuntary exposure to private parts (Exposure), a marginally significant trend was observed ($\chi^2(1) = 3.18$, $p = 0.075$, $\Phi = 0.049$, $OR = 1.46$), suggesting that women were 1.46 times more likely to report this type of exposure. Regarding being recorded without consent (Recording), the results were also non-significant ($\chi^2(1) = 0.70$, $p = 0.403$, $\Phi = 0.023$, $OR = 1.86$). Women were 1.86 times more likely to report this experience, which was not statistically significant.

Figure 1. Percentage distribution of child sexual abuse typologies based on the perception of victimization ('Victimization') and the actual prevalence based on specific typologies (CSA).



In contrast, significant differences were found in the categories of Touching, Comments, Acts, and Pornography. For unwanted touching (Touching), women were significantly more likely to report this experience ($\chi^2(1) = 10.96$, $p = 0.001$, $\Phi = 0.092$, $OR = 2.36$), being 2.36 times more likely than men to report this type of victimization (136% more). A similar pattern was observed for unwanted sexually charged comments (Comments), where the differences were statistically significant ($\chi^2(1) = 29.34$, $p < 0.001$, $\Phi = 0.150$, $OR = 3.07$). Women were 3.07 times more likely than men to report this type of experience (207% more). For sexually explicit acts (Acts), significant differences were also found ($\chi^2(1) = 11.91$, $p = 0.001$, $\Phi = 0.096$, $OR = 3.19$), with women being 3.19 times more likely than men to report such experiences (219% more). Regarding exposure to pornographic material (Pornography), the results showed a significant relationship ($\chi^2(1) = 6.19$, $p = 0.013$, $\Phi = -0.069$, $OR = 0.68$). In this case, women had 0.68 times the odds of reporting exposure to pornographic material compared with men. that is, men reported this experience more frequently than women (35.1% versus 26.9%).

Table 2. Typology of Reported CSA and Sex Differences

	Female	Male	χ^2	Phi	OR	CR	CI (L)	CI (U)
CSA	52.8%	48.1%	1.725	0.036	1.21	1.3	0.91	1.61
Exposure	17.4%	12.6%	3.176	0.049	1.46	1.8	0.96	2.23
Recording	1.6%	0.9%	0.699	0.023	1.86	0.8	0.43	8.09
Touching**	15.8%	7.4%	10.956	0.092	2.36	3.3	1.40	3.96
Comments**	28.9%	11.7%	29.335	0.150	3.07	5.4	2.01	4.69
Acts**	11.4%	3.9%	11.914	0.096	3.19	3.5	1.60	6.37
Pornography*	26.9%	35.1%	6.193	-0.069	0.68	-2.5	0.50	0.92

Note: % = Proportion of responses for each sex relative to the total number of individuals of that sex reporting one or more typologies, OR = Odds Ratio, CR = Corrected Residuals, CI = Confidence Interval. ** $p < 0.001$. * $p < 0.01$

4. Discussion and Conclusions

Sexual assaults are currently recognized as one of the most serious problems in western society (Barbaree et al., 1993). Among these, the most researched are those occurring in childhood and adolescence, due to the complexity involved in addressing them. CSA has been identified as a universal phenomenon (e.g., Finkelhor et al., 2014), present in all social classes and cultures (Losada, 2012), with a multifactorial configura-

tion in which individual, social, family, and cultural influences converge (Echeburúa & Guerricaechevarria, 2005). The psychological impact of the numerous sequelae that occur throughout the victim's life course (Tew, 2022) creates the need for further study, both in the general population and specifically among future education professionals who work directly with minors and who play a crucial role in both prevention and detection of child and adolescent victims. However, studies focusing on this population are scarce.

Considering this context, the present study aims to address a three-fold objective: firstly, to examine the prevalence of CSA victimization in a sample of preservice educators, and to compare these findings with those from other contexts and similar studies within the Spanish population. Secondly, the study seeks to compare the reported prevalence of victimization with discrete responses to the various typologies of CSA included in the questionnaire with the aim of detecting whether there are individuals who do not identify the situations they have experienced as abusive. Thirdly, a new typology has been included with the aim of gathering relevant data on the impact of an under-researched variable in CSA literature: exposure to pornographic material during childhood.

Regarding prevalence, studies on child sexual abuse (CSA) in university populations in Spain have reported percentages similar to those found in our study, ranging from 9% to 14% (Cortés Arboleda et al., 2011; Cortés & Justicia, 2008; Pereda & Forns, 2007). In our research, 12.4% of the participants identified themselves as victims of CSA. Consistent with previous literature (Cortés Arboleda et al., 2011; Cortés & Justicia, 2008), we found that the prevalence was lower in men than in women, which confirms the first hypothesis of this study. However, these data present an incomplete picture, as 19.7% of the sample, although initially responding negatively to having been victims of CSA, later reported experiencing at least one of the defined forms of abuse. This suggests that, although these individuals did not initially recognize themselves as victims in response to a general starting question, they acknowledged having experienced situations that are classified as abusive. Additionally, when three response options (Yes, No, Maybe) were provided to the question of whether they considered themselves victims of CSA, 12% of the sample expressed uncertainty. Further analysis revealed that 78.5% of these individuals reported having experienced one or more abusive situations during their childhood. This highlights a misperception, insufficient understanding, or incomplete conceptualization of what constitutes child or adolescent sexual abuse. Consequently, many individuals may have been victims of CSA without being fully aware of it. This finding is

particularly significant in the context of preservice educators, owing to their pivotal role in the long-term prevention and detection of CSA cases. Addressing this lack of awareness is essential to ensuring more effective interventions in childhood protection.

In terms of the second objective, the initially reported victimization was compared with the specific responses to the different CSA typologies included in the questionnaire. When considering affirmative responses to one or more typologies in the survey, the resulting CSA prevalence was 52% of the total sample, with 43.4% for women and 8.6% for men. Considering the gender distribution in our study, the data indicate that 52.8% of the women surveyed reported at least one type of CSA, compared to 48.1% of the men. This represents a significant increase in the prevalence reported in previous studies, not only in general populations (Pereda, 2016) but also in the context of university populations in Spain. In fact, the results are comparable to those observed in populations considered high-risk (Segura et al., 2016). Although discrepancies in prevalence rates are common in this type of study, due to variations in assessment methodologies, measurement tools, and the frequent under-reporting of cases (Finkelhor, 1994; Redondo et al., 2005), the data presented here warrant thorough attention and analysis.

Several possible explanations can be proposed. The first would be the lack of confidence in the reliability of self-reports and the challenges in conceptualizing what constitutes child sexual abuse, an issue that has been discussed for over two decades (Bright et al., 2022; Bruck & Ceci, 1999). This has led to a gradual increase in the sensitivity of assessment tools, either by leveraging growing social awareness of abuse (Pereda & Forns, 2007) or by improving the way CSA is assessed through a broader conceptual framework (Ratican, 1992; Stoltenborgh et al., 2011). The findings of this study align with this trend, as refining the assessment method has increased the reported prevalence from 161 to 674 cases.

With regard to the responses of women, all typologies, except one, exceed a prevalence rate of 11%, with three of them (Touching, Acts, and Comments) significantly doubling or nearly tripling the incidence observed in men. This aligns with findings in previous literature. For instance, the report *Hostile Hallways* by the American Association of University Women (AAUW, 2001) highlights that female students are disproportionately more likely to experience sexual harassment in schools compared to their male counterparts. Specifically, 83% of girls report having experienced some form of sexual harassment, whether physical (being touched, grabbed, or pinched in a sexual manner) or non-physical (sexual rumours and offensive comments). According to the study, 44%

of girls report fearing sexual harassment at school, more than double the percentage of boys (20%), experiences which have a significant impact on their emotional and academic lives, leading many to avoid speaking in class, change seats, or even avoid attending school entirely.

However, exposure to unsolicited sexual images does not show significant differences between sexes, despite being the third most reported typology, but this can be explained by the fact that the score is similarly high for both sexes (17.4% for women and 12.6% for men). Studies such as Clark et al. (2016) assert that, although most legal reports of this type of abuse are made in adulthood, over 75% of acts of exhibitionism occur for the first time with underage girls. It is noteworthy, however, that the prevalence is nearly identical between men and women. This may be due to gender differences in the way individuals are exposed to these images. Until recently, girls were the primary victims of traditional exposure by perpetrators of indecent exposure, but with the advent of new technologies and easy access to pornographic material, boys have become new victims of involuntary exposure to private parts. In summary, the prevalence among girls in this category has not decreased; rather, it has increased to nearly match the prevalence among boys.

It is also worth emphasizing the high number of cases among men, which, when CSA is accounted for, increases 8.5-fold, rising from 13 to 111 victims. Romano and De Luca (2001) observed that the use of overly direct questions about CSA in research may generate resistance among male participants, making it difficult for them to acknowledge their status as victims. This phenomenon can be attributed to various cultural and social barriers, such as the stigma associated with homosexuality, norms that promote male self-sufficiency, and the fear that victimization will be perceived as a weakness. Furthermore, involuntary physiological responses during abuse can create ambiguity regarding consent, and contexts where perpetrators are of similar age contribute to the misperception of abuse as experimentation or play. This issue is exacerbated by deeply ingrained gender stereotypes, including sexist, homophobic, and misogynistic attitudes (Easton et al., 2014), which hinder the disclosure and recognition of male CSA cases. These factors underscore the need for the development of complementary and methodologically sensitive approaches to understanding male experiences of sexual abuse.

The aforementioned results for men in the study align with the findings for the Pornography variable, which is not only the most prevalent typology in the entire study, but also the only one in which men report more cases than women. In this regard, it is important to note that recent research – such as Peter and Valkenburg (2016) – indicates that early

exposure to pornography, particularly that which depicts violent sexual acts, can lead to the development of aggressive violent behaviours or, paradoxically, to increased victimization, as individuals may come to perceive such violent behaviours as normalized. In fact, it may serve as a model for violence (Álvarez, 2022), by internalizing unrealistic, sexist patterns that depict relationships of male domination over women, with higher levels of exposure to pornography among adolescent boys compared to girls (González-Ortega & Orgaz-Baz, 2013). In other studies that do not include pornography, touching and propositions are identified as the most prevalent typologies (López et al., 1995), highlighting the importance of incorporating this category, as done in the present study.

One possible explanation for the presence of so many victims of sexual abuse who seemingly manage to overcome some of the negative consequences of CSA and reach university level could lie in the existence of potential moderating variables, such as the importance of a supportive environment in the family or school, as well as resilience. This psychological construct, understood as the ability to positively adapt to significant adversity, has been shown to be crucial in recovering from the consequences of experiencing CSA (Pinto-Cortez, 2014), by activating complex psychological mechanisms that may lead individuals to minimize the events in order to avoid stigmatization and to preserve their beliefs about the world, others, and themselves (Fohring, 2015). Resilience appears to depend on a variety of factors, such as how it is conceptualized, the time elapsed since the abuse occurred until the point of measurement, and the gender disparity in the samples used (Daigneault et al., 2007). However, a systematic review by Domhardt et al. (2015) has found that education is the primary protective factor against negative consequences for a victim of CSA. Specifically, commitment to one's education, educational plans, academic achievement, and positive feelings towards school are fundamental pillars of resilience in both adolescent and adult samples. This is particularly relevant, as preservice educators tend to be highly motivated, which in turn fosters academic optimism for tackling the challenges of their future profession (Eren, 2012). Therefore, the analysis of these variables in future CSA studies within this population should adopt a multifactorial approach.

We would like to conclude by emphasizing that the assessment of childhood sexual abuse is a complex and challenging area. Numerous cognitive, social, and methodological variables complicate the task of establishing a prevalence that accurately reflects reality. The fact that studies are increasingly raising their statistics indicates positive progress in this field. This is crucial, as we may be overlooking a significant number

of CSA victims who never disclose their experiences or only do so when they reach adulthood after receiving more specialized training (McElvaney, 2015; Reitsema & Grietens, 2016), which carries a high personal and social cost, as it may be too late to address the negative consequences of abuse (Fabra et al., 2018).

As for the limitations of the present study, one of the main ones is the lack of a larger male sample. There is also a need to improve the tool used in order to update it to the new victimological context we are facing and to ensure it can gather as much information as possible about CSA. This tool should be applied to other contexts to study the actual prevalence of the different typologies investigated. Additionally, the sample was drawn exclusively from a single geographic area (Malaga, Spain) using non-probabilistic convenience sampling, which limits the generalizability of the findings to other regions or populations. The retrospective nature of the design is also a limitation, as it relies on participants' recollection of childhood experiences and may be subject to memory biases (e.g., underreporting or misremembering the timing and nature of events). Finally, as noted above, the internal consistency of the adapted instrument (Cronbach's $\alpha = .66$) was below the conventional threshold, which should be taken into account when interpreting the prevalence estimates reported here.

This study underscores the importance of addressing childhood sexual abuse (CSA) from a multidimensional perspective, given its long-term psychological and social impact. The main findings highlight that the prevalence of CSA in the sample studied is significantly higher when tools that include specific typologies are used, reaching levels comparable to those found in high-risk populations. This reflects the need to expand and refine assessment instruments to better capture the complexity of the phenomenon. Additionally, the study reveals a notable discrepancy between perceived victimization and reported experiences, particularly among men, suggesting an inadequate societal conceptualization of abuse. This finding emphasizes the influence of cultural and gender factors on the disclosure and recognition of abuse. Furthermore, the inclusion of new categories, such as exposure to pornographic material, can enhance the understanding of CSA, showing that this type of experience affects both men and women similarly in specific contexts, though with gender-differentiated patterns. Among the proposed explanations, resilience emerges as a key moderating factor in victims' ability to cope with the consequences of abuse, particularly in populations with high levels of educational engagement, such as preservice educators. This highlights the importance of investigating its role in mitigating the effects of CSA.

To conclude, the results highlight the need to further enhance the training and awareness of preservice education professionals to optimize their ability to detect and prevent CSA. Additionally, continued advancements in the development and application of more sensitive assessment tools across diverse contexts are essential to obtaining a more accurate understanding of the prevalence of CSA and its various manifestations. In practical terms, these findings support the incorporation of specific CSA-detection content into initial teacher education curricula, the development of clear and accessible protocols for reporting suspected cases within schools, and closer coordination between educational institutions and child-protection services, so that preservice teachers are better equipped to recognize indicators of abuse, including less visible typologies such as pornography exposure, and to respond appropriately once in professional practice.

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REVIEWS

Reviews

**Benítez Gavira, Remedios & Aguilar Gavira, Sonia. (2025).
Addressing Diversity in Early Childhood Education. Madrid:
Dykinson. 155 pp. ISBN: 979-13-7006-391-7.**

The book *Addressing Diversity in Early Childhood Education* is, undoubtedly, a book that cannot go unnoticed by those who wish to dedicate themselves professionally to the educational field, specifically in early childhood. Because, although it may seem to only hide numerous tools, contents, and/or valuable resources regarding Inclusive Education in such an important context as Early Childhood Education, it is a book that goes further, inviting readers directly and indirectly to (re)think and understand one of the most complex challenges within the educational system: *attention to diversity*. Therefore, we should speak of a perfect pedagogical manifesto clearly designed for the training of future teachers, where the authors encourage them at all times to transform that traditional vision of Early Childhood Education.

And while speaking of attention to diversity may seem like an incomplete pedagogical issue -as mentioned in its prologue- due to the utopian and unfinished nature that Inclusive Education can possess, this book is necessary in the face of the complex situations that coexist in the Early Childhood Education stage and the palpable gaps in teacher training. This is expressed in great detail throughout its five chapters, reclaiming the uniqueness of every boy and girl as the central axis for a truly inclusive education.

In these chapters, we see how it is structured: a theoretical framework of reference, defining diversity not from a “deficit” but shifting the focus toward “barriers”. A chapter is dedicated to didactic programming, proposing formal planning that includes flexibility measures in time, space, and methodologies, placing play and experimentation as engines of learning. It covers practical strategies such as work in learning stations, projects, or Service-Learning (SL), offering real tools for a respectful pedagogy. It also discusses Universal Design for Learning (UDL) as a framework for the creation of materials and even the potential of ICT, including innovations under a pedagogical approach that favors the individual rhythm of the students.

However, beyond its content, the book is also important as a reference because it sustains both the importance of the early childhood frame-

work and the massive challenge that attention to diversity represents in this stage, given that it defends the decisive character of the 0-6 age range as a compensatory tool for inequalities that daily -and unfortunately- are experienced inside and outside of schools. Nonetheless, although all this could remain merely theoretical, the book stands out as a valuable theoretical-practical compendium, showing real experiences and examples with the intention of redefining school practices under an inclusive lens. This will undoubtedly be appreciated by the reader in their initial training.

But redefining school practices in Early Childhood Education also means doing so from the perspective of the complete stage. This book reflects a great opportunity to systematically cover not only the pillars of attention to diversity in the 3-6 age group but also the 0-3 group, valuing the importance of both the first and second cycles (0-6). Because giving visibility to the 0-3 cycle is also necessary, although perhaps a greater differentiation between both cycles in some of its chapters would have been even more appreciated.

In short, we could say that *Addressing Diversity in Early Childhood Education* is a monograph that captures many of the “facets” of Inclusive Education and attention to diversity, being a necessary and innovative contribution that can benefit any professional, but especially teachers in training. It invites reflection and the implementation of flexible and active tools, contributing to and significantly evidencing that Inclusive Education is a challenge full of constant learning. To this end, the combination of a solid theoretical background on the paradigm of Inclusive Education and the set of practical proposals and methodological tools oriented toward the Early Childhood Education stage is perfect. And naturally, it promotes something very important: a school that takes diversity as a starting point to build an environment without exclusions, more just and equitable.

José Manuel Tobío Morejón

Monge López, C. (Coord.). (2025). *Mediación de conflictos y ayuda entre iguales en centros de educación infantil y primaria*. Madrid: Morata. 294 pp. ISBN: 979-13-87510-09-1

The book reviewed here is a conflictive book, in the best sense of the word: one that generates conflict—problem, question, matter for discussion, as the RAE dictionary states in its fourth definition. The problem that, in my view, it seeks to address is formulated by Molero-Jurado and colleagues in the introductory chapter, quoting Alzate (1998): the conflicts that arise from relationships among students, teachers, or families “may be constructive, improving relationships after addressing existing differences or, on the contrary, may be destructive, weakening the parties involved” (p. 26). The question? How we can make the conflicts that inevitably emerge in schools become constructive. The chapters in the second, third, and fourth sections take on the task of illustrating this, providing—and building upon—evidence to support informed decision-making.

The second section focuses on school mediation practices: by making communication strategies explicit and practicing in situations involving between-team competitive games and within-team collaboration in Physical Education (Chapter 2); through talking circles, among students to resolve conflicts arising from football on the playground, or among teachers to gain first-hand understanding of the dynamics, and through the creation of an emotions classroom (Chapter 3). All of this, from a restorative justice model, which encourages responsibility and reparation, instead of placing emphasis on sanctions as the retributive justice model does (Chapter 4). The third section focuses on peer-support practices, such as student helpers (Chapter 5), peer tutoring and school counsellors (Chapter 6), activities aimed at reducing stigma toward people with mental illnesses (Chapter 7), or peer tutoring for the cooperative resolution of everyday mathematical problems (Chapter 8).

As Ruiz-Rodríguez and colleagues point out (Chapter 9), mediation programmes focus on the in-depth analysis of conflicts for their constructive resolution, whereas peer support adopts a preventive character by promoting situations of mutual help and respect. Of course, both types of actions are complementary and are framed within a school coexistence plan, as shown by the perspectives of well-being and protection coordinators (Chapter 9) and by the experience of a school involving the entire educational community (Chapter 10).

One notable aspect of the book is its diversity. It reports experiences from Valencia, Navarra, Teruel, Madrid, Gipuzkoa, Castilla-La Mancha and

Catalonia; in preschool and in primary education; involving students, but also teachers and families; in urban schools, but also rural ones; emerging from the practice of a few teachers in a particular school and also through participation in institutional programmes; implemented within a single grade or across different grades; with a variety of resources, such as games, observatories, whole-school tutoring, peace patrols, friendship benches, calm and consensus corners, or digital applications; and in chapters with different formats—mostly describing specific documented practices, but also including literature reviews. Diversity in practices, in format, and also in substance: with the purpose of achieving quality education for all students.

I would highlight four conclusions that, in my view, are shared across all chapters. These kinds of practices need to be implemented in a sustained way, beyond occasional actions; they should be adapted to the reality of each school; they should aim to share the mediation capacity with students; and they should involve the entire educational community.

The presentation of such diverse practices generates matter for discussion. First, individually, as it prompts the reader to ask themselves questions: Would this work in my context? With what adjustments? Could it have unintended effects? What evidence exists and what evidence could I gather myself if I implemented it? Second, collectively, if the reader brings themselves to try out some of the practices in their own context, with their colleagues and with their students.

At the beginning I said that this is a conflictive book. Its aim: to find its antonym—concord, peace, according to the RAE dictionary. Concord and peace in schools in pursuit of quality education. In fact, whether these words must always be considered antonyms is challenged by the book.

Jesús Ribosa

Ramos Zamora, S. y Martínez Valle, C. (eds.) (2025). La formación del profesorado en el siglo XXI. Claves históricas y comparadas de la educación. Madrid: Ediciones Morata. 238 pp. ISBN: 979-13-87510-33-6.

Teacher education currently occupies a central place on the educational agenda, in a context shaped by curriculum reforms, digitalisation processes, and the increasing diversification of the social demands placed on schools. Against this backdrop, the edited volume by Sara Ramos Zamora and Carlos Martínez Valle, Associate Professors in the Department of Educational Studies at the Complutense University of Madrid, focuses on an area that is often overlooked in these debates: the role of the History of Education and Comparative Education as essential fields of knowledge for understanding the teaching profession. Published by Morata Editions, the volume brings together contributions from researchers in the research group *Historical and Comparative Keys to Education. Gender and Identities* (CLAVES), based at the same university. It is grounded in a clear premise: understanding education as a historical and social construct broadens perspectives on teacher education beyond exclusively technical approaches (p. 12). From this standpoint, the contributors advocate a model of teacher education that situates educational discourses within broad historical and pedagogical frameworks, fostering a critical memory of education while establishing explicit connections with contemporary practice through the critical analysis of continuities, ruptures, and reinterpretations (p. 85).

The structure of the volume reflects this orientation. The first section, entitled *Historical and Comparative Education for Twenty-First-Century Teacher Education*, examines the contributions of the History of Education and Comparative Education to initial teacher education, with particular attention to their place within undergraduate teacher education programmes. The chapters address, among other topics, the integration of a gender perspective into teacher education (Ainhua Resa, Miriam Revuelta, and Teresa Rabazas); an analysis of the subsystem of teacher training colleges during the Bergamín Plan (1914–1931) (Carlos Martínez); the conceptual distinction between pedagogical renewal and educational innovation (Sara Ramos and Andra Santiesteban); the use of teachers' professional trajectories and primary sources as tools for the critical interpretation of the educational past (Carlos Sanz and Miriam Sonllea); and the contributions and challenges of Comparative Education in this field (Inmaculada Egido). Rather than offering a closed historiographical

review, these chapters raise important questions about how particular traditions, categories, and analytical frameworks continue to shape—whether explicitly or implicitly—the ways in which teacher education is conceived and organised today.

The second section, *Teacher Education in a Changing World: Challenges and Opportunities*, shifts the focus to issues that shape contemporary teaching practice. It examines topics such as the relationship between education, sustainability, and technological change (Bonifacio Pedraza); the affective and emotional dimensions of teacher education through the teaching of Social Sciences (Norberto Reyes); competencies related to equality, diversity, and inclusion (Esteban Tejada and Esteban López-Medina); and sexuality education in contexts shaped by digital technologies (Raquel Poy). These themes are presented as part of broader transformations in processes of socialisation, in societal expectations of schooling, and in the very definition of the teaching profession, thereby highlighting the increasing complexity of educational work in contemporary society.

One of the book's most consistent strengths lies in its integration of theoretical foundations, methodological analysis, and practical implications for teacher education. It is situated within a tradition that emphasises the dual nature of teacher education as both a field of research and a formative space. From this perspective, the volume advocates an approach that goes beyond the mere circulation of educational models or the adoption of “best practices,” paying close attention instead to the contexts, mediations, and tensions that shape processes of pedagogical transfer. Across its chapters, the book develops a coherent argument that connects historical and comparative inquiry with the contemporary challenges of teaching. In doing so, it provides valuable conceptual tools for rethinking teachers' professional identity and contributes to strengthening models of teacher education that integrate pedagogical knowledge, historical consciousness, social awareness, and the capacity to respond to changing educational contexts. Taken as a whole, the volume represents a substantial contribution to the field of teacher education, both because of its internal coherence and because of its ability to open up new avenues for reflection.

Andra Santiesteban Adam

**Moraleda Ruano, A., & Galán Casado, D. (2024, Coord.).
Stigma and Education. An Approach to Equality. Narcea. 177
pp. ISBN. 978-84-277-3186-8**

The book *Stigma and Education: An Approach to Equality*, coordinated by Professors Álvaro Moraleda Ruano and Diego Galán-Casado from Camilo José Cela University and the Distance University of Madrid, respectively, is presented as a collective work of considerable relevance to both the educational and social fields. The various chapters that make up the volume, authored by experts from different Spanish universities, offer an in-depth reflection on stigma from multiple perspectives and examine its influence within educational settings, as well as the ways in which it affects diverse groups and contexts linked to the educational process. Across its ten chapters, the book not only defines the phenomenon of stigma through different analytical lenses, but also provides new data derived from recent research that contribute to addressing this issue, thereby positioning the work as a key reference in the struggle for inclusive and equitable education.

In the foreword, José Antonio Luengo Latorre introduces the theme of stigma as a “branding mark,” emphasizing the urgency of eradicating the prejudices that affect vulnerable individuals and groups. This introductory text sets the tone for the volume, calling for decisive action to dismantle the structures that perpetuate stigma in both society and education.

Chapter 1, *Foundations of Stigma: Concept and Main Types*, offers a solid and indispensable theoretical framework for understanding the subsequent chapters, enabling readers to grasp the different forms of stigma and their social impacts. This chapter provides an essential conceptual foundation, exploring the most prevalent types of stigmatization and their manifestations in educational life.

Subsequently, Chapter 2 analyzes socio-educational policies and their relationship to stigma reduction. This section is particularly valuable, as it contextualizes public policies within the educational sphere, illustrating how governmental initiatives have the potential both to mitigate and to exacerbate stigma in society. The author advocates for the development of inclusive policies that promote equity and social justice within the educational system.

The book also addresses topics previously explored by other scholars, such as stigma related to addictions, in Chapter 3, *Stigma and Drug Dependence: Socio-Educational Perspectives and Challenges*. This chapter examines how drug dependence affects students and how subsequent

stigmatization limits their reintegration and academic success, highlighting the need for a rehabilitative and integrative educational approach.

In addition, the volume tackles emerging issues, such as the relationship between stigmatization, gender, and sexual education. Chapter 4 deconstructs the stigmas surrounding sexual education, underscoring the importance of teaching grounded in gender equity and of combating the stereotypes that persist in classroom settings.

Chapter 5, *Diversity and Multiculturalism in Education: Challenges and Stigma*, focuses on the relationship between cultural diversity and education, a key issue in contemporary societies. The authors emphasize the challenges faced by students from ethnic minorities and the urgency of creating inclusive educational environments.

Chapter 6 addresses problematic use of information and communication technologies (ICT) and digital stigma among Spanish university students. This chapter presents an empirical study examining the relationship between these concepts and various sociodemographic variables, such as sex, educational level, and employability. The findings suggest differentiated behavioral patterns by sex and preferences for different social networks, as well as the influence of educational modality and employment status on technology use. The study highlights the vulnerability of certain groups predisposed to developing addictive behaviors, such as individuals with mental disorders or prior addictive behaviors.

Moreover, and in a novel contribution, the chapter introduces the concept of “digital stigma,” pointing to the need for further research into its impact on virtual interactions and stigmatizing attitudes. It highlights how perceived social support on social networks is associated with factors such as employability, suggesting that such support may function both as a compensatory mechanism and as a means of perpetuating stigma. This underscores the importance of continuing to explore virtual stigma and its relationship with technology use, particularly among vulnerable populations.

Chapter 7, *Stigma and Disability*, provides a detailed analysis of how people with disabilities continue to face barriers within the educational system, reflecting the need for environmental transformation and for targeted measures and school practices aimed at achieving genuine inclusion. Chapter 8, in turn, addresses the stigmatization of adolescents with mental health problems, examining stigma associated with mental disorders from a practical perspective and emphasizing the importance of implementing interventions that facilitate the integration of individuals with psychological difficulties.

Chapter 9, authored by the volume's coordinators, draws on their expertise and prior research on the relationship between education and penitentiary contexts. The chapter approaches stigma from a perspective of social reintegration and stigma reduction among incarcerated populations, referring to reintegration programs and educational opportunities in prison. It also highlights the potential of education to mitigate penitentiary stigma among former inmates, emphasizing how educational programs can render "time in prison meaningful" and serve as an effective means of addressing "psychological and emotional aspects."

Finally, Chapter 10, *Ageism: Stigma Toward Older Adults*, examines stigma and its impact on older adults, highlighting the need to promote educational policies that enable lifelong learning without age-based discrimination. The chapter offers practical strategies to combat this issue and to foster a culture of respect across society as a whole.

In conclusion, *Stigma and Education: An Approach to Equality* is an essential work for academics, educators, and the broader educational community interested in understanding and combating stigma in its various forms and from multiple perspectives. The richness of its theoretical and practical approaches, combined with the quality of its contributors and the depth of the issues addressed, make this book a significant contribution to the construction of a more just and socially inclusive educational system.

José Luis Estévez-Méndez

Jian Li and Eryong Xue. (2023). Teacher Development Policy in China: Multiple Dimensions. Singapore: Springer Nature, 2023, 129 pages, ISBN 978-981-99-1015-1

Jian Li and Eryong Xue compiled this comprehensive volume about the teacher development policy in China to make a scholarly contribution to the global discourse. In this book, the authors rely on extensive literature reviews about multiple dimensions of teacher development to solve the challenges and problems that still exist in the education system in China. This volume was published in the “Exploring Education in a Globalized World: Concepts, Contexts, and Practices” series. The explanations used to explain the ‘Four Have’ policy such as ideals, faith, morals, and values, cannot be explained without contextualizing it theoretically. The context gives further in-depth insight because the authors investigated the teacher salary management policy, the teachers’ professional title appointment policy, the teacher evaluation policy, the teacher’s ethics policy in the education system, the county management recruitment, the honor recognition policy for teachers, and the management of teachers’ qualifications. However, the question arises whether this book contextualizes the theory convincingly that would explain the multiple dimensions such as the two-factor theory, policy tools theory, and the theory of teacher professional growth. The answer is yes. It does provide theoretical contexts, but it also omits post-colonial theoretical context which is a gap in the book.

One of the book’s strengths is analyzing the morals, values, ideals, and faith over eight chapters and its research based on these four principles. While critical discourse about the teacher development policy in China is not new, studies about the challenges and problems in the ‘New Era’ are relatively new. Although international academic interests in the development of teacher policy in China have gathered momentum in recent years, discourse about critical theory should play a more central role not only because more countries implement similar policies to China, but globalization also plays a role. Against this backdrop, readers will engage in the progress and challenges of teacher development policy in China.

Another strength of the book is the discussion about the eighteenth congress of the Communist Party of China where the central committee constructed teachers’ ethics in education reform (p. 1). It comprehensively explores teacher development policy in China from multiple dimensions as mentioned in the first paragraph. It also brings an in-depth

understanding to contextualize the teacher development policy in China. In addition, this book also offers specific suggestions to address various challenges of teacher development policies nationally and locally.

A gap in the book is the lack of in-depth insight into the influence of Confucius on education and teachers' roles. It also lacks insight into the Song Dynasty when Confucian principles impacted education. These studies could have expanded the governance philosophy within China and enhanced the reader's understanding of the Chinese administration over historical times. Furthermore, comparative literature research on teacher development policies between Asia and Sub-Saharan African countries could have provided the readers with a more in-depth understanding of the progress and challenges. These comparative studies could further highlight the intervention models.

Chapter 1 represents the "Four Good Teachers" values as the general secretary Xi Jinping remarked at the 18th Congress. He pointed out the direction in the new era for the construction of teachers. Methodologically, literature research uses "four have" to discuss types of systems and related research with a combination of ethics to enhance the construction of teachers. For instance, policy text interpretation of the concept and the ethics strengthening policy. These are discussed to improve teachers' morality. Furthermore, ideals and faith are also discussed to implement better the concept of "four have" good teachers. This chapter thus presents the leading values of good teachers. Chapter 2 discusses high-quality teachers and education about the management policy of teachers' salaries in China. The literature search focussed on the policies between 2011 to 2020. The authors identify two significant periods, 1993 – 2018 when the teachers' salary should not be higher or lower than civil servants, and the second period 2018 to 2023 when the performance and average salary should also not be higher or lower than civil servants.

Chapter 6 investigates the school recruitment policy in the management of teachers and qualification management. It further highlights the importance of county management and school recruitment to ensure the urban-rural allocation of teachers, reduce the problems in compulsory education such as barriers to teacher resources in the inter-schools in towns and cities, the loss of rural teachers, and the imbalance which occur in the structure of rural teachers. This brings us to the teacher evaluation in Chapter 3 which extends the analysis of the teacher qualification. One of the arguments is that the evaluation process is key to the guarantee of higher education and quality construction. Four variables are identified for developing high-quality education, enhancing efficiency, promoting construction, promoting reform, and improving quality.

The example of the university teacher is at the core of the evaluation since 2012, issued by the Ministry of Education. Key to the evaluation as identified by the authors are result, standard, subject, content, and way.

There are currently problems within the current professional title employment system as discussed in Chapter 4. They are the title structure of administrative posts and whether the positions can be applied above or below. At the center of this chapter is the primary and secondary school teachers and it is the core problem of teacher management. As China's society reforms, the education system also reforms, and this chapter further analyses the professional title evaluation, post-setting, and post-employment. However, the evaluation process is evolving and as with many other variables in the education system experiencing challenges, this chapter suggests ideas for improvement. For instance, re-examining professional title-evaluation of teaching and administrative posts re-examines the core purpose of primary and secondary school teachers' professional title system, and lastly, establishes a reasonable and scientific salary system. Against this background, General Secretary Xi Jinping stressed the importance of being a good teacher (p. viii).

The teacher's honor recognition policy in China is discussed in Chapter 7. Because teachers are spreading knowledge, shaping the soul, and shaping the people as inheritors of human civilization, teachers make important contributions to the social and economic development of China. Therefore, the system of honoring teachers is of paramount importance because it guides and encourages teachers and society. Theoretically, Chapter 5 analyzes existing policy documents from the perspective of policy tools theory. It further establishes the difficulties and challenges of policy practice and gives solutions. However, despite the difficulties, teachers' morality is the most important factor in the process of constructing high-quality teachers. In the last chapter, the authors document the importance of a qualification and the management of it to ensure a quality teacher who contributes to quality education. The authors explain that if problems such as teacher's standards are not properly designed according to the development of the times, the registration of teacher qualification is not effective.

The book crosses a diversity of scientific literature to give meaning to the concept of 'Four Good Teachers'. Combining the challenges and problems in practicing the ideological and political curriculum as well as the ideological and political education, the perspective that is claimed in research that the quality is high is often not realized. Different degrees of problems exist. For example, the inspection opinions of the central government about 31 universities were identified as the low political

and ideological quality of ideological and political courses. Moreover, the lack of innovation and coordination and the lack of joint force and cohesion contributed to more problems. Thus, the political and ideological construction of the curriculum is implemented habitually through command, practices, mobilization, and shortcuts. Therefore, the shortcut is because of publicity and to look beautiful in the data.

Li and Xue's contribution to the mission of the series to advance the modernization of the social construction of education forms part of the international contributors to understanding the global phenomena of teachers and education, and they admit that despite the diverse perspectives there are still challenges within China and globally. The author's contribution from the Asian region attempted to explain how specific education policies bring about change in the development of quality education and social involvement. For example, most of the studies the authors document in this book are on pre-K, K-12, post-secondary, and vocational education. The goal of developing a teacher policy in China is to reduce the problems by increasing teachers' knowledge and understanding of the challenging issues and by empowering them with opportunities and skills to address these issues. As teachers are at the core of the development, the strategy is to focus more on cultural guidance, because it is a strategic way to address challenges in moral cultivation. To achieve this, spiritual maintenance is equally important as well as cultural literacy and will therefore build a teacher's cultural capital.

The book identified several factors about the level of teacher salary. A key factor is the salary that is affected by the economic development level, political system, and education policy of the country, and the supply and demand market of the teacher labor force should be established. Henceforth, improving working conditions and teachers' pay could attract more teachers. The authors suggest the exploration of various models, for instance, agreement systems, project systems, and annual salary systems to reduce the huge differences between the salaries of teachers in the provinces and regions. The more attractive the salary the more retention of teachers. However, the book nuances this hypothesis because low salaries cannot be the only explanation for the challenges in rural areas. In some of the literature, it is pointed out that the process of higher salaries is in the advanced stages (Fu, 2019, Tian & Du, 2021).

The book is convincing when it analyses the evaluation results of university teachers. Two key areas are identified, teacher improvement and effective feedback about the evaluation outcome. The authors remind us that horizontal factors such as evaluators, evaluation procedures, evaluation methods, evaluation standards, feedback, and utilization of evalu-

ation results, although far from inclusive of cultural dynamics, are also related to the vertical perspectives. I think the book could have also engaged with studies from other BRICS countries about results feedback, its positive impact on teachers, and how teachers adjusted their teaching behavior. Although the book engaged with Hu & Zhang (p. 40) about evaluation based on improving school performances, a report by UNESCO comes to mind and the authors could have engaged with recent work on teacher evaluation from UNESCO (2023) as well. Furthermore, the book draws on various reasons to improve the teacher's professional title appointment policy, paying attention to the assessment of skills and avoiding employing unregistered teachers. Another improvement is to replace teachers who resigned. Based on the two-factor theory, one of the theoretical highlights of the book is analyzing the problems existing in the current professional title employment system, for example, whether the positions can be employed above or below. The authors contextualize solutions to improve the system; (1) distinguishing the professional title evaluation of administrative and teaching posts clearly; (2) re-examining the core purpose of the professional title system of primary and secondary school teachers and establishing a scientific and reasonable salary system (p. 43).

The implications of teacher development without ethics are also central to the book. The readers are reminded of the moral character of the teacher that is of vital importance to teaching and educating a nation, through to the changes of the evaluation system, via the change of the concept of college teachers, coupled with the focus on educating and teaching people, which are of paramount importance for the improvement of teacher's ethics. To enhance teacher development policies in China to make teaching more efficient, the authors argue for a diversified supervision system of teacher ethics. For example, through the participation of subjects such as parents, students, universities, media, and various other subjects. Hence, a long-term method of teachers' moral character to teach. The strength of this book is that it will influence other non-western countries to implement stronger policies on teachers' morality where it lacks strong policies about morality and ethics in the development of teachers.

Then there is the question of the problems about hiring county administrators and schools. Li and Xue, in tandem with many other critical scholars in education in China, view the education management system as problematic. Teachers might slow down and slack after tasks, enthusiasm is reduced, or some might disrespect and ignore school arrangements. Thus, the trend about policy on the hiring of country adminis-

trators and schools aims to deepen the reform. This becomes evident even though it is not without challenges in optimizing the allocation of resources, especially teacher resources, implementing the development of education from a balanced perspective, and most importantly, advocating for equity in education. The book explicitly reveals the important role teachers play as the inheritors of human civilization, engineers of the human soul, spreading knowledge, ideas, and truth, shaping human beings' souls and lives into new people. As educators, teachers deal with the influence and the impact of globalization on their roles as well. The paths for reform in the new era of China proposed by Xi Jinping serve as guidance for all the stakeholders in education, especially teachers to understand how to be good teachers and how it will contribute to a prosperous country. These guidelines will determine the social respect for teachers, which increases the status of education and leads to a prosperous country. An omission by the authors is to compare literature from countries that implemented similar teacher recognition policies. It could have broadened the reader's worldview on how the Chinese model was implemented in other countries.

Lastly, as the authors demonstrate, the supervision of the outside world plays a vital role in the objective, fairness, and specific criteria of honor selection. However, the rural status of honor selection criteria needs more quantitative standards for comparison and supervision as explained by Li and Xue. In addition, third-party institutions' participation in the qualification management of teacher are encouraged by the authors. While discussing it, this is not without challenges and the emphasis is on drawing from foreign practices. The authors draw from a neighboring country, Japan, where teacher training institutions and certification institutions have a clear division, and each institute operates independently. Another example is drawn from the United States where teacher institutions, non-profit organizations, and official administrative agencies are jointly responsible. This method reduces unfairness within the accreditation process. Given this, the authors suggest that China follow the method of the United States and Japan and give full play to the expert committees.

This book offers insights into the policies of the development of teachers. The in-depth literature illustrates the discourse about education in policies in China and other countries. The book provides new insights into China post new era. The book is not only focused on the issues of the new era in China which contributed to one of the fastest-growing economies in the world, but it also focuses on the problems and challenges. Overall, this theoretical context is an up-to-date contribution to

the existing literature. On the one hand, while delving into the different theories of teacher development policies, the book is also excellent in critically analyzing discourse analysis and how other different approaches from a few countries could be integrated. On the other hand, by providing this critical analysis of authentic discourse on various variables, concepts, and topics, this timely book is written in chronological order, in a lucid style, with accessible content to a broad readership, including students, researchers, scholars, administrators, government, and activists. It is a roadmap to help with the conceptualization of policies. This book is being recommended as an innovative, fact-based, and impressive piece of research. It is invaluable to education policy research.

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Martín, A., Mateu Gordon, J. L., & Guede Cid, R. (Coords.). (2023). Building the Education of the Future in Engineering, Economics and STEM Fields. Madrid: Dykinson S.L. 1062 pp. ISBN: 978-84-1170-150-1.

The book *Construyendo la Educación del Futuro en Áreas de Ingeniería, Economía y STEM* (2023), edited by Alejandro Martín, José Luis Mateu Gordon and Rocío Guede Cid, is a must-read for those working in higher education, especially in technical and scientific disciplines. The title itself reveals its intention to explore what educational innovations need to be experimented with to ensure that students are prepared to face the challenges of the present. Through research, reflections and proposals, the book attempts to contribute to the improvement of university education, which clearly needs to be oriented in a multidisciplinary direction that articulates technology, economics and STEM sciences and technologies.

The book is divided into three main groups: Educational Innovation in Engineering, Educational Innovation in Economics and Business, and Educational Innovation in STEM. One manages to see that older teaching practices are left behind, and methods that may seem revolutionary in research are advanced. The research conducted in the text focuses on questions of how education could be improved in certain dimensions, either with emerging technologies or active methodologies, or in terms of the development of new skills that the students of this century will need. Importantly, the book emphasizes that educational research is applied in real settings, not studied and forgotten.

One of the most striking aspects is the question of how Artificial Intelligence (AI) is transforming engineering education, given that it can personalize learning, lead to better feedback and, considering that its impact has already left its mark on society, it seems that AI wants to be deterministic in the future by modifying how we teach and how we learn.

In the book, the authors also mention the Project Based Learning (PBL) methodology, which is mentioned repeatedly, and gamification techniques, which have proven to be effective in generating motivation in students, especially in computer science, electronics and other engineering disciplines, since they can put their knowledge into practice by applying it to situations that are similar to reality.

The section related to Economics and Business. The adoption of strategies such as “learning by doing” is interesting, as it helps students to approach the working world within the safe environment of the classroom, not only prepares them to acquire practical skills such as decision mak-

ing, but also allows them to occupy leadership and project management roles, competencies that will be determinant in their future professional life.

In the STEM section we see very interesting innovations, such as the use of augmented reality in science and mathematics, which not only facilitates the explanation of abstract concepts, but also makes courses such as physics and chemistry more interesting for students.

One of the greatest strengths found in the book is its orientation towards pedagogy and the role that technology plays in it. This suggests that all teachers should be aware of the need to use tools that reflect contemporary advances in the labor and scientific fields. Although the book addresses a wide variety of interesting topics, in some cases, it is perceived that the authors do not go deep enough, as in the challenges faced by educational institutions with few resources to implement innovations such as AI or augmented reality.

The inclusion of the ethical module, one of the most important aspects in the training of future professionals, is noteworthy. The chapters on the development of ethical competencies, especially in the field of engineering and technology, are quite important, since today's students will be the ones facing complex ethical dilemmas in a future marked by globalization and interconnection.

For educators and researchers seeking to improve higher education in engineering, economics and STEM, this book is a valuable contribution, which allows to permeate these areas; although at times the discussion may seem a bit superficial, "*Construyendo la Educación del Futuro en Áreas de Ingeniería, Economía y STEM*" offers practical and theoretical guidelines that are useful for those who wish to contribute to transform education and prepare future generations for the challenges of the 21st century.

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| *ResearchGate* | *GoogleScholar* | *ORCID* | *Scopus* | *CvLAC* |

Salgado Somoza, M., Navarro Moncho, M. T., Lázaro Ascurra, P., Comalat Navarra, T., García Marrero, A. A., Alonso González, J. C., Pérez García, F., Pina Romero, J. A. and Pinto Cerezo, S. (2026). Mathematics with the 5 Senses: Touching, Looking, Listening... and Thinking. CASIO Educación España and the Spanish Federation of Mathematics Teachers' Societies (FESPM). 216 pp. ISBN: 978-84-09-86471-3.

The book *Matemáticas con los 5 sentidos. Tocar, mirar, escuchar... y pensar* (Mathematics with the Five Senses: Touching, Looking, Listening... and Thinking), published by CASIO Educación España and the Spanish Federation of Mathematics Teachers' Societies (FESPM), presents an innovative pedagogical proposal aimed at primary education teachers. The work is grounded in a competency-based approach to mathematics education, in which students learn through experimentation, problem-solving, and the active construction of knowledge. Far from being a mere collection of isolated activities, the book offers a coherent methodological model that places mathematical thinking, hands-on learning, and the strategic use of the calculator at the core of learning, aligning with current curricular approaches and the Sustainable Development Goals.

The work is structured around five major pedagogical challenges, each linked to one of the five mathematical senses established in the curriculum: number sense, spatial sense, measurement sense, stochastic sense, and algebraic sense. Before presenting the specific proposals, the book introduces the pedagogical foundations underpinning the project, advocating for mathematics instruction centred on inquiry, reasoning, communication, and connections with real-life situations. It also presents a clear organisational structure for each activity, including an introductory narrative for students, a comprehensive teacher's guide, supplementary materials, formative assessment strategies, and digital resources through QR codes and activities developed using GeoGebra. Particularly noteworthy is the way the calculator is no longer viewed simply as a computational tool but rather as a resource for exploration, hypothesis formulation, and the validation of results, encouraging students to focus their efforts on mathematical reasoning rather than on mechanical procedures. This approach positions the calculator as a tool for mathematical inquiry rather than merely for performing calculations, making it one of the work's most original features.

The five instructional proposals address familiar and engaging contexts that connect mathematics with everyday problems and sustain-

ability. Among them are the study of responsible water consumption through the activity ¡Mójate! (Get Wet!), which develops measurement sense through calculations involving capacity, scale, and volume; the exploration of numerical and algebraic patterns in ¿Magia o mates? (Magic or Maths?); data analysis and statistical interpretation in Zapatería Correcamina (Roadrunner Shoe Store); the understanding of numerical and ecological relationships in ¡El bosque cuenta! (The Forest Counts!); and the development of spatial sense through visual perception and geometry challenges in ¿Qué ves? (What Do You See?). All the activities share a structure based on open-ended questions, experimentation, mathematical modelling, cooperative work, and reflection on the processes involved, encouraging students to develop their own problem-solving strategies and justify their conclusions.

Among the book's main contributions is the coherence between its theoretical foundations and the practical proposals it presents. Each challenge incorporates detailed methodological guidelines, easily reproducible materials, examples of students' work, assessment tools such as rubrics and checklists, and adaptations for the different stages of primary education. Furthermore, all the activities establish explicit links with the Sustainable Development Goals, integrating mathematics education with environmental education, responsible citizenship, and the development of critical thinking. This interdisciplinary approach turns mathematics into a tool for understanding and interpreting reality beyond the classroom.

Another noteworthy aspect is the conception of assessment as an integral part of the learning process itself. The book prioritises the observation of reasoning processes, argumentation, mathematical communication, and peer collaboration over the mere attainment of correct answers. Likewise, the incorporation of technological resources and manipulative materials promotes inclusive and accessible teaching for students with different learning needs and styles.

Overall, *Matemáticas con los 5 sentidos. Tocar, mirar, escuchar... y pensar* is a highly valuable work that presents educational experiences capable of serving as a reference for teaching practice. Its competency-based approach, emphasis on problem-solving, active learning, and the connection between mathematics and real-life situations make this book a highly recommended resource for primary school teachers, teacher educators, and pre-service teachers interested in renewing mathematics teaching from an inclusive, meaningful perspective that is committed to the educational and social challenges of the twenty-first century.

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Revista de Educación is a scholarly publication of the Spanish Ministry of Education, Vocational Training and Sport. Founded in 1940, and retaining the title of Journal of Education since 1952, it is a privileged witness to the evolution of education in recent decades, as well as a recognized platform for disseminating advances in research and innovation in this field, from both a national and international perspective. The journal is published by the General Directorate of Citizen Services, Documentation and Publications, and is currently affiliated with the National Institute for Educational Evaluation of the General Directorate of Evaluation and Territorial Cooperation.



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