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"It made me reflect on the kind of teacher I want to be": Pre-service Teachers' Perceptions of a University–School Collaboration

Abstract

This study analyses pre-service teachers' (PSTs) perceptions of the educational value of the university–school collaborative project "*Un dia al SAF*" for the professional competence development of third-year undergraduate Primary Education students at a Spanish public university. The project engages PSTs in designing and implementing sports-based educational activities for approximately 200 primary school pupils within university facilities, creating a learning environment that connects theoretical coursework with teaching practice. A mixed-methods design was employed, combining a validated questionnaire with open-ended self-reports analysed thematically. Results indicate that PSTs perceived a positive contribution to their professional competence development in areas such as classroom management, conflict resolution, adaptability, and decision-making, as well as transversal skills including teamwork and communication. Participants also reported a perceived improvement in their integration of theory and practice, greater confidence in assuming the teaching role, and a clearer sense of professional identity. Overall, findings highlight the value of integrating university–school collaborative experiences for PSTs' perceived professional competence development within initial teacher education curricula beyond traditional internships.

Keywords: initial teacher education, professional competences, university–school collaboration, pre-service teachers.

Introduction

Transformations in Higher Education and Their Implications for Initial Teacher Education

The implementation of the European Higher Education Area (EHEA) represented a paradigm shift in university education, necessitating a comprehensive re-evaluation of traditional teaching and learning approaches. Within this new framework, the system transitions from a predominantly transmissive model to a competence-based approach, which equates knowledge with the ability to act and the capacity to be. The education of future professionals is no longer conceived merely as the transmission of information. It involves fostering the development of professional and personal skills and competences that must be understood, internalized, and applied both purposefully and reflectively (Fernández March, 2006; Mayorga-Fernández et al., 2024).

This transformation also redefines the traditional roles of teachers and students, requiring both to step outside their "comfort zones" (Forés Miravalles et al., 2015). The teaching role becomes increasingly decentralized, evolving into that of a guide, facilitator, and designer of active learning environments that prioritize knowledge application, skill development, critical reflection, and inquiry (Sasson et al., 2022). Concurrently, pre-service teachers (PSTs) assume a more active and responsible role in their learning process, conceived as a form of professional development that enables them "to act in practice, apply what they have learned in diverse contexts, and do so with reference to knowledge, norms, and values" (García Hernández et al., 2023, p. 149; based on Morin, 1999, and Palmer, Montaño and Palou, 2009).

Accordingly, this reconfiguration of university teaching and learning roles requires methodological strategies that are aligned with the proposed paradigm. The development of competences and professional skills demands learning experiences that connect theory with

practice, are situated and meaningful, and are anchored in real-life professional contexts (Cañadas et al., 2019; Fernández March, 2006; Hortigüela Alcalá et al., 2016; Trede & McEwen, 2015).

Initial teacher education stands to benefit considerably from this paradigm shift, particularly through the promotion of learning experiences that are authentic or closely resemble the environments in which future teachers will work (Campos et al., 2011; Janssen et al., 2015). The aim is to prepare them to meet the challenges of teaching with effective tools and a deeper understanding of their professional roles and identities (Köpsén, 2014; Puchegger & Bruce, 2021). This entails the enhancement and development of key competences expected of contemporary educators, such as the capacity to create inclusive and productive learning environments (Marcelo, 2009; Puchegger & Bruce, 2021), the ability to act as a facilitator (Sancho & Correa, 2013), and the exercise of leadership and mediation skills (Bolívar, 2011), among others.

The White Paper for the bachelor's degree in education in Spain, the national context of the present study, published by the Spanish National Agency for Quality Assessment and Accreditation (ANECA), also endorses this competence-oriented profile. It notes that the most highly valued teaching competences are those directly associated with classroom practice, stating that "the further a competence is from actual teaching activities, the less value it is assigned" (ANECA, 2004, p. 92). However, the report also highlights that university programs continue to prioritize knowledge-based competences over those related to action, identity, and interpersonal interaction. This observation is supported by additional studies that critique the persistently transmissive nature of teacher education programs (Gutiérrez & Sanz, 2018), the theory–practice divide (Bereiter, 2014), and the disconnection between what is learned at university and what is required in real-world professional contexts (Álvarez Álvarez, 2012; Diamond, 2010; Downing & Dyment, 2013).

Beyond the Spanish context, preparing PSTs for their future professional roles and the construction of a coherent teaching identity constitutes a central concern in initial teacher education (ITE) worldwide. International research has repeatedly highlighted persistent challenges in bridging theory and practice, fostering professional agency, and enabling PSTs to assume meaningful responsibilities in authentic teaching contexts (S. E. Jones & Clarke, 2025). In response to these challenges, recent studies emphasize the need for learning experiences that position PSTs not merely as observers, but as active participants who engage with the complexities of teaching in supervised yet realistic environments (Lestari et al., 2024; Meyer et al., 2023).

Seeking Coherence and Relevance: The Importance of University–School Collaboration

In this context, close and dynamic collaboration between universities and schools emerges as a critical factor in enhancing the quality of initial teacher education. Among the key contributions of such collaboration is its capacity to narrow the gap between theoretical knowledge and practical application, thereby facilitating the acquisition of essential professional competences (Mérida Serrano et al., 2011).

Furthermore, bridging academic learning with professional practice enables the creation of hybrid spaces that support the co-construction of shared and situated pedagogical knowledge (Tenorio Eitel et al., 2020; Zeichner, 2010). These spaces not only promote meaningful learning through the integration of prior knowledge and new experiences but also foster the development of new ideas, competencies, and more functional forms of learning. Such collaborative arrangements lay the foundation for a dialogic professional knowledge base and a shared professional culture that benefits both academic institutions and school communities (Mérida Serrano et al., 2011; Tenorio Eitel et al., 2020). In addition, these collaborations are mutually enriching, as PSTs gain guidance and knowledge from in-service

teachers, while the latter benefit from reflective practice and professional renewal through mentorship (Álvarez Álvarez & Osoro Sierra, 2014).

This reciprocal dynamic helps to prevent the isolation of the university from real school environments and simultaneously enables schools to access updated pedagogical perspectives, reinforcing a symmetrical and dialogic relationship (Gutiérrez & Sanz, 2018; Selfa, 2015). It also facilitates the co-development of innovative educational projects and the use of active teaching methodologies, such as Project-Based Learning (Alonso et al., 2021; Mérida Serrano et al., 2011) and Service-Learning (Carbonell, 2015; Rivas et al., 2015; Soler et al., 2021). These methodologies are particularly effective in preparing teachers who are reflective, skilled, and socially engaged.

It is therefore not surprising that the Practicum is consistently rated as one of the most valued components of teacher education programs. In a study of 390 in-service teachers, Sánchez & Pesquero (2002) found that while theoretical content and teamwork skills were highly regarded, notable deficiencies were identified in areas such as decision-making, the assumption of responsibility, and conflict resolution. As a result, the Practicum was ranked higher than other coursework in terms of its perceived formative value. Similar conclusions have been drawn in other research, which highlights the prominence of practical experience for novice and newly qualified teachers (Campos et al., 2011). The Practicum stands out as the most highly rated course, in part due to its direct engagement with students and the authentic transfer it enables into the professional teaching role (Hortigüela Alcalá et al., 2016).

However, to be more impactful, the university-school connection must be expanded beyond conventional internships and integrated into other curricular components, particularly those with an applied or didactic focus (González Garzón & Laorden Gutiérrez, 2012; Hortigüela Alcalá et al., 2016). This requires the intentional design of learning experiences

that allow PSTs to put their skills into practice in environments that closely simulate real classrooms. As Aoki (2005) argues, such a transformation implies shifting from a "curriculum-as-learned" to a "curriculum-as-lived" perspective, turning theoretical content into lived and meaningful experiences. The goal is to construct learning scenarios that are as authentic and contextualized as possible—ones that actively involve PSTs, integrate theory and practice, and promote the development of knowledge within motivating and realistic learning environments (Blázquez, 2016; García Hernández et al., 2023; Hortigüela Alcalá et al., 2016). As Blázquez (2016, p. 7) notes, “While exact duplication is often impossible, a close replication or a real-world context enhances learning.”

When analyzing the methodologies underpinning such initiatives, it is essential to consider the evolving role of university educators and the changing dynamics of student–teacher interaction. As Gutiérrez & Sanz (2018) emphasize:

"From a teacher-centered approach, responsibility becomes shared between the educator and the students, in this case, the PSTs. The forced exit from the “comfort zone” in which both parties may have felt secure gives way to new relationships and shared demands".

Acknowledging the central value of the Practicum, it becomes increasingly important to develop additional shared spaces where PSTs can apply and consolidate their training. Strengthening collaboration between universities and schools enables a model of education based on experiential learning and active participation.

Joint initiatives across educational institutions foster reciprocal learning for both primary school pupils and PSTs. These initiatives differ from conventional internships by involving structured activities that are co-designed, supervised, and evaluated by both university faculty and school teachers—thereby enabling deeper and more critical engagement with teaching practice (M. M. Jones, 2024).

Chacón & Suárez (2006) highlight that the creation of networks between universities and schools can give rise to action research projects, initiatives grounded in real classroom problems, and tripartite dialogue and observation systems involving tutors, in-service teachers, and PSTs (Mtika et al., 2014). Authentic, situated learning experiences should meet several key criteria (Blázquez, 2016), including: (1) Occurrence in real-world educational contexts; (2) Opportunities for meaningful knowledge application and transfer; (3) Development of skills and personal agency; (4) Facilitation of reflection on values and ethical issues.

Aligning with the current educational paradigm and contemporary pedagogical strategies, initial teacher education must be grounded in a robust integration between academic theory and situated professional practice. This demands effective collaboration between universities and schools. Such an alliance should be oriented toward the co-construction of professional knowledge (Knight, 2025). Within this collaborative framework, active methodologies connect teacher education with real educational challenges, fostering critical thinking, and pedagogical innovation (Martínez Valdivia et al., 2023).

Early integration of PSTs into authentic school contexts not only supports the development of core professional competences but also contributes to the consolidation of a reflective and committed teaching identity (M. M. Jones, 2024).

Ultimately, universities and schools can be understood as co-constructors of an interdependent learning ecosystem, in which theory and practice are continuously integrated in the process of teacher professionalization.

While university–school collaboration has been widely studied through the lens of the Practicum, service-learning, and project-based learning, most of this research has examined PSTs in roles that remain comparatively peripheral (Lave & Wenger, 1991), guided directly by an in-service mentor, or distributed across an extended placement period. Less attention

has been paid to short-term, intensive, PST-led interventions embedded directly within university coursework, in which PSTs assume full pedagogical responsibility under close but non-directive academic supervision. The contribution of the present study lies precisely in documenting one such model, which differs from conventional practicum and school-based partnership designs in three specific respects: first, it positions PSTs in a high-stakes pedagogical role, managing real teaching complexities such as conflict resolution and transitions, within an intensive, closely supervised format that allows for immediate feedback; second, it fosters collaborative, peer-led leadership, preparing PSTs to lead collaboratively in contexts where peer-led teaching is rarely practiced, such as conventional school placements (Hascher et al., 2022); and third, because the intervention is embedded directly within the course curriculum, it enables synchronous, in-classroom reflexivity on the theory–practice relationship, rather than a reflection process that is deferred or external to the university setting. This study therefore extends current scholarship on school–university collaboration by examining a coursework-embedded, high-responsibility model of practice-based learning.

In the current context of initial teacher education, there is a clear need to establish real and meaningful connections between universities and schools that enable future teachers to engage in authentic educational situations. Such experiences, particularly when situated in controlled yet authentic settings, hold strong potential to narrow the theory–practice gap by fostering the development of key professional competences such as group management, emotional support, conflict resolution, and pedagogical decision-making. Accordingly, the overarching aim of this study is to examine PSTs' perceptions of how the educational intervention "*Un dia al SAF",* a university-based initiative in which pre-service teachers design, lead, and implement educational activities with primary school pupils, contributes to their professional competence development as third-year students of the Primary Education degree within a Spanish initial teacher education program.

Method

Study Design

This study adopted a mixed-methods approach with a concurrent embedded design (Creswell & Plano-Clark, 2018). This specific design is justified by the necessity to triangulate quantitative trends with the systemic depth of the participants lived experiences. According to Creswell and Plano (2018), the embedding of qualitative data within a primary quantitative framework allows for a more nuanced understanding of the pedagogical process, providing a complementary perspective that a single-method approach could not achieve.

The research follows a non-experimental, descriptive, and cross-sectional design, using a mixed-methods approach to examine students' self-reported perceptions following the intervention. Given that the data were collected at a single point in time following the intervention, the study focuses on the participants' perceptions of their learning process rather than measuring longitudinal developmental change. No comparison group was included, as the intervention was embedded in the compulsory curriculum for all enrolled students; withholding it from a subgroup would have been neither practically feasible nor educationally appropriate. The absence of a comparison group is acknowledged as a design limitation.

Context

"Un dia al SAF" is a project designed to provide an authentic learning experience for PSTs enrolled in the third-year course "Physical Education (PE) and its Didactics I" within a Primary Education Degree at a Spanish public university. This course is taken in the first semester of the third year of the degree and builds directly on a prerequisite course, "PE in Primary Education", completed in the second year, which introduces PSTs to the pedagogical principles of PE without an explicit didactic focus. "PE and its Didactics I" represents the first course in which PSTs engage explicitly with didactic methods and curriculum design specific to PE, and is itself followed in the fourth year by a second, more specialized didactics course,

"PE and its Didactics II". Situating "*Un dia al SAF"* within this third-year course is therefore significant. It should be noted that this course is compulsory for all students enrolled in the Primary Education Degree, regardless of specialization, which means that the intervention reaches a broad and representative cross-section of PSTs rather than those with a specific interest in PE. Furthermore, the choice of a PE-based course as the vehicle for this intervention was deliberate, as the motor and cooperative nature of the activities provides an experiential learning context well-suited to the development of general pedagogical competences (Legrain et al., 2019). PSTs bring foundational knowledge of PE from their second year, but are only beginning to develop the pedagogical content knowledge—encompassing knowledge of learners, curriculum, and instructional methods—required to plan and deliver meaningful instruction, making the project a particularly demanding yet formative juncture in their training trajectory. The project consists of organizing sports-based activity days for approximately 200 pupils from 6 to 10 years old of a local government-subsidized primary school, who visit the university sports facilities to participate in activities planned and led by the PSTs. The participating school served a socioeconomically and culturally diverse pupil population, including pupils with special educational needs, which required PSTs to adapt their planned activities to accommodate a range of physical, cognitive, and social needs during implementation.

To ensure effective implementation, PSTs undergo rigorous pedagogical preparation within the subject framework. This involves specific training on the teaching methodologies to be implemented, alongside dedicated sessions for activity design. The preparation process is structured around two formative feedback loops with university faculty. First, PSTs submit a written proposal for review and then refine the design based on the instructors' comments before conducting a final "mock session" to test the activities.

The intervention takes place across four morning sessions (8:30–13:00), each consisting of two parallel circuits of physical activities. These activities are specifically designed to be cooperative, aiming for the pupils to achieve Primary Education curricular goals while improving group cohesion and classroom climate through motor tasks. The activities designed by PSTs explicitly take into account the official Primary Education curriculum currently in force in the region where the study was conducted (Decret 175/2022), which organizes PE content into five core knowledge areas: (1) problem-solving in motor situations; (2) active and healthy living; (3) playful, cultural, and expressive motor activities; (4) interaction with the environment during leisure time; and (5) emotional self-regulation and social interaction in motor situations. Specific examples of activities implemented within "*Un dia al SAF*"—collaborative games, the development of fundamental motor skills, and cooperative motor challenge-solving—were designed to engage all five of these curricular knowledge areas, situating the project as a structured application of the official Primary Education PE curriculum rather than an isolated or extracurricular activity. The "student-led" nature of the project is operationalized through a model of supervised autonomy. While university faculty provides continuous oversight and support throughout the event, PSTs are responsible for the overall management of the experience. Beyond planning and implementing the games, they lead the welcoming of pupils, organizing transitions, overseeing break times, ensuring hydration, providing emotional support, and resolving conflicts responsibly. This model, exercised within a safe supervised environment, fosters personalized interaction and a climate of trust. PSTs perceived it as providing opportunities to connect theory and practice in ways that are often absent from conventional teacher education settings. In this sense, "*Un dia al SAF*" positions PSTs as a "Third Space" (Zeichner, 2010) in which they transition from observers to lead practitioners with full agency, within a framework of academic support that the Practicum often lacks.

Participants

The study was conducted with a sample of 102 PSTs (77.45% female) from the third year of the Primary Education Degree at a Spanish public university. Participants were selected using purposive sampling, ensuring their involvement in all phases of the project and preserving the study's ecological approach (Hastie and Siedentop, 1999). The inclusion criteria were: (1) being enrolled in the course "PE and its Didactics I"; (2) having participated in the entire preparation and implementation process of the *"Un dia al SAF"* project; and (3) having provided positive informed consent. Participants were assigned alphanumeric codes (e.g., P1 – P102) to ensure anonymity.

Instruments

For quantitative analysis, a questionnaire previously employed in the field (Candela-Soto et al., 2021) was used, inspired by the evaluation of Service-Learning projects (Campo, 2015; Folgueiras, 2017; Peris et al., 2014). Although the questionnaire was based on the instrument proposed by Candela-Soto et al. (2021), the five exploratory, sample-derived components reported in this study were identified through a Principal Component Analysis (PCA) conducted on the present sample and were not directly adopted from the original study. To examine the dimensional structure of the questionnaire, an exploratory PCA with Varimax rotation and Kaiser normalization was conducted. The Kaiser-Meyer-Olkin measure indicated acceptable sampling adequacy (KMO = .754), and Bartlett's test of sphericity was significant ($p < .001$), confirming the suitability of the data for factor analysis. Following the Kaiser criterion (eigenvalues > 1), five components were retained, accounting for 59.87% of the total variance explained. The rotated solution converged after 10 iterations. The five retained exploratory components comprised 5 items (Improvement of Learning and Competencies), 4 items (Integration of Content and Connection Between Theory and Practice), 5 items (Teacher Training and Vocational Commitment), 2 items (Application of Learning in Real

Contexts), and 2 items (Knowledge of the Educational Center). Factor loadings generally supported the proposed dimensional structure. The first component was primarily defined by items related to perceived competence development, connection of previous and new learning, and professional and transversal competences (loadings ranging from .595 to .808). The second component was characterized by items assessing the relationship between the project and course theory and content (loadings from .583 to .791). The third component was mainly associated with vocational commitment, understanding of the teaching role, and perceived utility of the project for teacher education (loadings from .563 to .650). The fourth component reflected the application of learning in authentic teaching contexts (loadings from .663 to .677), whereas the fifth component was defined by items related to knowledge of educational centres and preferences regarding alternative learning formats (loadings from .697 to .774). Internal consistency of the overall instrument was satisfactory (Cronbach's α = .82). Reliability coefficients for the individual exploratory components were: ~~Reliability coefficients for the individual dimensions were:~~ Improvement of Learning and Competencies (α = .79), Integration of Content and Connection Between Theory and Practice (α = .71), Teacher Training and Vocational Commitment (α = .74), Application of Learning in Real Contexts (α = .72), and Knowledge of the Educational Center (α = .46).

Table 1

Dimensions and items of the questionnaire.

DIMENSION 1: Improvement of Learning and Competencies
Due to the development of the project, I was able to connect previous learning with new content
Due to the development of the project, I am or have been more motivated towards the subject
Due to the development of the project, I am or have been more attentive in class
Due to the development of the project, I have strengthened my professional competencies
Due to the development of the project, I have strengthened my transversal competencies
DIMENSION 2: Integration of Content and Connection Between Theory and Practice

I perceive a clear connection between the *"Un dia al SAF"* project and the subject content.
The *"Un dia al SAF"* project has helped me better understand the subject content.
The *"Un dia al SAF"* project has helped me see a stronger link between theory and practice in the subject.
I am satisfied overall with the *"Un dia al SAF"* project.

DIMENSION 3: Impact of the Project on Teacher Training and Vocational Commitment
I perceive a strong overall connection between the *"Un dia al SAF"* project and the subject.
Thanks to the development of the project, I have been able to strengthen my vocation as a future teacher.
The development of the project has helped me better understand my role as a future educator.
Due to the development of the project, I am or have been more motivated toward the subject.
I find the *"Un dia al SAF"* project useful for my training as a future teacher.

DIMENSION 4: Application of Learning in Real Contexts
I perceive a clear connection between the *"Un dia al SAF"* project and everyday life as a teacher.
The *"Un dia al SAF"* project has helped me better connect the theoretical content of the subject with real-life teaching practice.

DIMENSION 5: Knowledge of the Educational Center
I would have learned more if the time spent on the project had been used for classroom or gym-based lessons.
The development of the project has helped me better understand how a school operates.

To deepen the perspective of the participants, self-reports were collected in response to an open-ended question regarding the project's impact on their training, following previous research and common practices in similar studies (Asún-Dieste et al., 2020; Candela-Soto et al., 2021; José Camacho-Miñano & José Girela-Rejón, 2017; Loubet, 2018). The self-report questions were grouped according to the dimensions of the questionnaire, intending to qualitatively complement the quantitative responses. The open question was as follows: *"How would you rate the development of the "Un dia al SAF" project in relation to the learning you have acquired (e.g., group management, classroom management, confidence in developing*

the teaching role), your personal experiences, and its relevance to your future trajectory as a teacher? Please explain in detail how these aspects have influenced your training and how you believe this project can contribute to your professional development". PSTs were required to write a narrative of 300 to 500 words, a length designed to encourage concise yet meaningful pedagogical analysis.

Procedure

The study was carried out in three distinct phases: (1) Preparation Phase: Training sessions on active teaching methodologies, design of didactic activities, group management strategies, and final preparation of the event days; (2) Implementation Phase: Execution of the *"Un dia al SAF"* days, during which PSTs led activities with primary school pupils in a real learning environment; and (3) Data Collection Phase: To ensure a comprehensive capture of the experience, the questionnaire was administered immediately after the completion of the project sessions. Subsequently, the qualitative self-reports were requested during the following scheduled class of the course, allowing PSTs the necessary time for in-depth reflection.

All participants signed informed consent in accordance with the ethical principles established by the XXX, ensuring the anonymity and confidentiality of the data. The study was approved by the XXXXXX Ethics Committee (XXX-CERec368). Participation in both the questionnaire and the self-reports was entirely voluntary and had no bearing on students' grades in the course. Data collection was fully anonymized. Responses were identified only by alphanumeric codes (P1–P102) that could not be traced back to individual students by any member of the research or teaching team. Given the partial overlap between the teaching team and the research team for this course, the non-graded and fully anonymized nature of data collection was intended to minimize the risk that this overlap could translate into pressure on participants to provide positive feedback.

Data Analysis

This study was developed under a mixed-methods paradigm. The methodological complementarity pursued here goes beyond a simple aggregation of different data types, aiming for an effective integration of quantitative and qualitative perspectives to obtain more complete and robust findings (Bagur-Pons et al., 2021). This approach addresses the inherent complexity of educational processes, which require both quantification and interpretation for adequate analysis. Integration of the quantitative and qualitative strands occurred at both the analysis and interpretation stages. Consistent with the concurrent embedded mixed-methods design, quantitative findings derived from the questionnaire constituted the primary analytic framework, while qualitative self-reports were used to elaborate, contextualize, and deepen the interpretation of those findings (Fetters et al., 2013). Specifically, the qualitative analysis was initially organized according to the five exploratory components identified through the PCA, allowing direct comparison between quantitative patterns and participants' narratives. Integration was subsequently achieved through a joint display (see Table 2) linking each quantitative dimension with its corresponding qualitative themes and illustrative quotations, thereby enabling the identification of areas of convergence, convergence with nuance, and complementary insights across data sources.

On the one hand, quantitative data derived from the questionnaires were analyzed through descriptive statistics (means and standard deviations) to summarize PSTs' perceptions across the five exploratory components. All statistical analyses were performed using SPSS version 29.0. On the other hand, qualitative data were analyzed using a deductive thematic approach (Braun & Clarke, 2021; Hsieh & Shannon, 2005), guided by the five exploratory components identified through the PCA. Initially, all self-reports were coded into these predefined domains, ensuring alignment with the quantitative framework. Subsequently, inductive subthemes were generated within each dimension when new patterns emerged. This

hybrid strategy allowed us to integrate quantitative and qualitative strands while capturing emergent insights beyond the initial structure. Coding was conducted in Atlas.ti 25.0 by two researchers working independently; disagreements in coding were resolved through discussion until consensus was reached. Throughout the process, both researchers maintained reflexive memos documenting interpretive decisions and potential sources of bias, which were discussed regularly within the research team to enhance analytical rigor.

Results

The results are presented following the five exploratory, sample-derived components identified through the PCA: (1) “Dimension 1: Improvement of Learning and Competencies”; (2) “Dimension 2: Integration of Content and Connection Between Theory and Practice”; (3) Dimension 3: “Impact of the Project on Teacher Training and Vocational Commitment”; (4) “Dimension 4: Application of Learning in Real Contexts”; (5) “Dimension 5: Knowledge of the Educational Center”. It should be noted that dimension labels reproduce the original terminology of the validated questionnaire (Candela-Soto et al., 2021); throughout the narrative report of results, however, findings are described in terms of PSTs’ perceptions rather than demonstrated outcomes.

To illustrate how the quantitative and qualitative strands were integrated, Table 2 presents a joint display linking each questionnaire dimension to its corresponding qualitative themes. Consistent with the concurrent embedded design, the qualitative strand was used primarily for *elaboration* (Fetters et al., 2013): self-reports were analysed within the five predefined quantitative dimensions to provide depth, nuance, and participant voice to the patterns identified by the questionnaire, rather than to confirm them independently or to explore themes outside this framework. As shown in Table 2, qualitative data converged with quantitative results in most dimensions, but also revealed nuances—particularly experiences of difficulty and uncertainty—that the mean scores alone did not capture.

Table 2

Joint Display of Quantitative Dimensions and Qualitative Themes

Quantitative Dimension (Key Item, M, SD)	**Qualitative Theme(s)**	**Illustrative Quote**	**Integration: Convergence / Nuance**
Improvement of Learning and Competencies ("I have strengthened my professional competencies," M = 4.63, SD = 0.52)	Skill development (adaptability, classroom management, communication, conflict management); persistent challenges in sustaining attention	"I have been able to develop my adaptability skills, which will be key in my daily work..." (P12)	**Convergence with nuance:** high quantitative ratings are corroborated qualitatively, but self-reports also reveal that competence development emerged through effortful, sometimes difficult, in-the-moment problem-solving, a process not captured by the mean score alone.
Integration of Content and Connection Between Theory and Practice ("The project has helped me find a greater relationship between theory and practice," M = 4.54, SD = 0.67)	Application of theoretical knowledge in real settings; personal and lasting significance of the experience	"I have also been able to apply the theoretical knowledge acquired over the past years of the degree in a real context..." (P19)	**Convergence:** qualitative accounts closely mirror the high quantitative evaluation, elaborating on how theory–practice integration was experienced rather than only confirming that it occurred.
Impact of the Project on Teacher Training and Vocational Commitment ("I have been able to strengthen my vocation as a future teacher," M = 4.75, SD = 0.53)	Consolidation of teaching identity; reflection on the kind of teacher PSTs aspire to become; recognition of professional complexity	"It made me reflect on the kind of teacher I want to be..." (P62)	**Convergence with nuance:** alongside strong identification with the teaching vocation, several PSTs also articulated a more critical, complexity-aware understanding of the profession, enriching the otherwise uniformly positive quantitative pattern.
Application of Learning in Real Contexts ("The project has helped me better connect theoretical content with real-life teaching practice," M = 4.65, SD = 0.64)	Authenticity of the experience; growing confidence; difficulty managing inclusion and diversity	"Initially, I felt somewhat overwhelmed because I did not know how to react in the presence of a child with special educational needs" (P21)	**Convergence with tension:** this is the dimension with the clearest qualitative–quantitative tension. While quantitative ratings are high, qualitative data surface specific difficulties (inclusion, diversity) that the questionnaire items do not

			directly address, pointing to an aspect of the experience that is positively evaluated overall but experientially demanding.
Knowledge of the Educational Center ("The project has helped me understand how a school operates," M = 3.84, SD = 0.96)	Heterogeneous engagement with school staff and context	"I had the opportunity to speak with school teachers about the needs of two children in the group..." (P97)	**Convergence:** qualitative accounts confirm that PSTs who engaged directly with school staff perceived it as valuable (P97); however, the low mean score (M = 3.84, SD = 0.96) suggests this type of engagement was not consistently experienced across the sample, pointing to a more heterogeneous pattern than in the other four dimensions.

Improvement of Learning and Competencies

PSTs perceived the experience as crucial for their development as future teachers, as reflected in the item "The project has helped me strengthen my professional competencies" which achieved a mean score of M = 4.63 (SD = 0.52) (see Table 3). This sentiment is echoed in the self-reports, where they noted that the project provided an opportunity for professional growth throughout all phases of the process: "This project has provided me with the opportunity to engage in a process of planning, implementation, and reflection that has helped me grow professionally" (P77).

In terms of professional competencies, PSTs perceived that the experience supported the development of their skills in adapting to diverse needs and classroom management: "I have been able to develop my adaptability skills, which will be key in my daily work to address situations such as classroom diversity or the implementation of innovative methodologies" (P12). Moreover, the project offered a positive opportunity to develop strategies for managing groups and maintaining children's attention: "Coordinating a group of

children and keeping their attention during dynamic activities has been a challenge. This experience has helped us develop strategies to capture children's interest" (P49).

The results also demonstrate that PSTs became more aware of key aspects of communication within the educational context: "Moreover, as a result of the intervention, I have practiced speaking clearly to children, making explanations short and gradual, and observed the necessity of using examples and interacting with them so that the activity develops optimally" (P88). Likewise, PSTs perceived a gained hands-on experience in managing conflicts: "I considered this experience very valuable for my training, as I encountered a conflict that I had to resolve on my own, and I could see what worked and what did not, for future similar situations" (P61). Regarding transversal competencies, PSTs perceived a contribution to their teamwork and heightened awareness of the importance of collaboration in their future roles as teachers: "We worked in groups, which also brings us closer to the profession we are training for, as teachers must know how to collaborate and possess strong communication, coordination, and mutual support skills" (P5). In this sense, the questionnaire reflected a high evaluation of the project's contribution to the development of transversal competencies (M = 4.44, SD = 0.69) (see Table 3).

Furthermore, the project appears to have increased PSTs' attention during classes, as it was perceived as a highly motivating experience: "Overall, I consider that this activity has been much more motivating, and experiential compared to most of those we usually carry out" (P94).

PSTs reported that the project facilitated the connection between previous learning and new content (M = 4.3; SD = 0.76) (see Table 3), allowing them to develop essential professional skills. For instance, some highlighted its role in fostering leadership: "Activities like *"Un dia al SAF"* allow us to better visualize what our future profession will be like and develop key leadership skills" (P36). Others emphasized its impact on managing frustration:

"Throughout the degree, we are always told what and how to teach, but rarely are we prepared to manage frustration when things do not go as planned, and in this project, I was able to experience that" (P70). Additionally, the experience strengthened their decision-making abilities: "I have also learned to make quick decisions, an aspect that will undoubtedly be useful in my future career as a teacher" (P59).

In summary, PSTs perceived that the project supported their ability to practice essential teaching skills that had not been explicitly addressed in classroom settings: "This project has offered me the opportunity to practice essential skills for teaching that we had not been able to work on explicitly in class, such as creating connections with children, conveying trust, and above all, being a strong role model for them" (P28). However, while PSTs reported an overall perceived improvement in their professional competencies, they also encountered significant challenges inherent to the dynamic nature of PE. Classroom management in PE contexts demands more than theoretical knowledge and requires continuous and responsive energy regulation in unpredictable environments, as one participant noted: "Coordinating a group of previously unfamiliar children and sustaining their attention during dynamic activities proved to be challenging" (P10).

Table 3

Descriptive statistics for the items in the "Improvement of Learning and Competencies" dimension.

Items	N	Minimum	Maximum	Mean	Standard Deviation
Due to the development of the project, I was able to connect previous learning with new content	102	2	5	4.30	.768
Due to the development of the project, I am or have been more motivated towards the subject	102	2	5	4.65	.639

Due to the development of the project, I am or have been more attentive in class	102	2	5	4.46	.685
Due to the development of the project, I have strengthened my professional competences	102	3	5	4.63	.525
Due to the development of the project, I have strengthened my transversal competences	102	2	5	4.44	.698

Integration of Content and Connection Between Theory and Practice

One of the most emphasized aspects by PSTs was the ability to establish a solid connection between theory and practice. The item "The project has helped me find a greater relationship between theory and practice in the course" obtained a mean score of M = 4.54 (SD = 0.67), confirming this perception (see Table 4). Self-reports further underscore the value of this experience as an opportunity to apply the knowledge acquired in the course: "It allowed me to acquire and put into practice the learning and knowledge that I had worked on in the classroom" (P49). The project has contributed to a better understanding of the course content and has also reinforced the theoretical knowledge acquired throughout the entire degree. PSTs emphasized the importance of applying theoretical concepts in real-world settings: "I have also been able to apply the theoretical knowledge acquired over the past years of the degree in a real context, which allowed me to consolidate my learning in an experiential manner" (P19). Furthermore, engaging with different methodologies in authentic situations enabled them to assess the effectiveness of various pedagogical strategies: "We were given the opportunity to approach a real context and apply the various methodologies studied throughout the degree, and see what worked better and what did not" (P5).

The high level of overall satisfaction with the project is closely linked to its connection with the course content. PSTs highlighted the opportunity it provided for deep and meaningful learning in their teacher training: "The *"Un dia al SAF"* activity has been a very fruitful opportunity that I believe helped me acquire significant learning that will mark my

path as a future teacher" (P4); and it was considered a key experience in their training trajectory: "Personally, and as sincerely as I can say, I consider it one of the best projects I have done during my three years in the degree" (P83). Additionally, PSTs reported that the project had a lasting personal significance for them: "I will always remember the "*Un dia al SAF"* project, as it was one of the first times we worked with children in a course. It also made me feel very valued and proud of who I am and who I will be as a teacher in the future" (P33).

Table 4

Descriptive statistics for the items in the "Integration of Content and Connection Between Theory and Practice" dimension.

Items	N	Minimum	Maximum	Mean	Standard Deviation
I perceive a clear connection between the *"Un dia al SAF"* project and the subject content.	102	3	5	4.63	.506
The *"Un dia al SAF"* project has helped me better understand the subject content.	102	2	5	4.19	.780
The *"Un dia al SAF"* project has helped me see a stronger link between theory and practice in the subject.	102	2	5	4.54	.670
I am satisfied overall with the *"Un dia al SAF"* project.	102	3	5	4.70	.523

Impact of the Project on Teacher Training and Vocational Commitment

The experience positively contributed to consolidating the PSTs' teaching identity. The item "Thanks to the project development, I have been able to strengthen my vocation as a teacher" obtained a mean of M = 4.75 (SD = 0.53) (see Table 5). Self-reports revealed that the project played a crucial role in strengthening their vocation as teachers: "The "*Un dia al SAF"* project has been a very significant experience in my teacher training process, as it provided me with various experiences that helped consolidate my vocation towards education

and working with children" (P12). PSTs also noted that the project helped define their teaching identity: "This project helps consolidate and build a stronger teaching identity" (P40), and prompted reflection on the type of teacher they aspire to become: "It made me reflect on the kind of teacher I want to be: one who creates safe spaces where PSTs can grow and enjoy learning together" (P62). Furthermore, the project provided a deeper understanding of what it means to be a teacher (M = 4.75; SD = 0.53) (see Table 5): "It provided me with a much more complete vision of what it means to be a teacher" (P16). However, they also recognized the complexity of the profession: "This experience helped me better appreciate the complexity of the teaching task and understand the challenges it entails" (P57). Beyond shaping their teaching identity, the project also enhanced their motivation to improve as future teachers and reconnected them with the initial reasons for choosing the profession: "This project provided me with the tools and motivation to keep improving and continue learning in every future experience" (P8); and "I really missed remembering why I want to be a teacher—to feel again the emotions that this vocation generates in me. There is nothing more important than learning through real experience and stepping away from so much theory" (P83).

This is further complemented by PSTs' acknowledgment of the practical utility of the knowledge acquired: "Undoubtedly, I believe these learnings will be very useful in my future professional trajectory as a teacher" (P77). They also stressed the importance of such experiences for genuine teacher preparation: "I am convinced that experiences like this are essential for preparing us to face the realities of the classroom and ensure equitable and quality education for all children" (P43).

Table 5

Descriptive statistics for the items in the "Impact of the Project on Teacher Training and Vocational Commitment" dimension.

Items	N	Minimum	Maximum	Mean	Standard Deviation
I perceive a strong overall connection between the *"Un dia al SAF"* project and the subject.	102	4	5	4.84	.365
Due to the development of the project, I have been able to strengthen my vocation as a future teacher.	102	3	5	4.75	.539
The development of the project has helped me better understand my role as a future educator.	102	2	5	4.75	.553
Due to the development of the project, I am or have been more motivated toward the subject.	102	2	5	4.65	.639
I find the *"Un dia al SAF"* project useful for my training as a future teacher.	102	3	5	4.75	.481

Application of Learning in Real Contexts

The project played a key role in helping PSTs connect course theory with real-life teaching (M = 4.65; SD = 0.64) (see Table 6). Self-reports highlight how the experience allowed them to assume the role of teachers in a tangible way: "I found it very interesting, as it is a way to live my future work as a teacher" (P25). Many noted that this project provided a uniquely authentic experience compared to other university activities: "This project allowed us to assume the role of teachers in a way we had never done before. It is well known that internships exist at the university, but the degree is primarily developed through theoretical classes" (P51). Living the teaching role also proved crucial in developing confidence: "Collaborating directly with primary school children helped strengthen our confidence in developing our future teaching role" (P52). Moreover, it helped them overcome fears and insecurities: "This experience helped me overcome my fears and insecurities to develop my

teaching role" (P31). Nevertheless, applying learning in real contexts also exposed the complexity of inclusive education, and this dimension showed the clearest tension between PSTs' generally positive evaluations and the difficulties they described experiencing in practice. Some PSTs reported feeling overwhelmed when faced with the challenge of attending diversity in practice: "Initially, I felt somewhat overwhelmed because I did not know how to react in the presence of a child with special educational needs" (P21). This experience highlighted PSTs with the considerable difficulty of fostering inclusive environments in practice: "Creating truly inclusive environments is genuinely complex" (P95).

Table 6

Descriptive statistics for the items in the "Application of Learning in Real Contexts" dimension.

Items	N	Minimum	Maximum	Mean	Standard Deviation
I perceive a clear connection between the *"Un dia al SAF"* project and everyday life as a teacher.	102	3	5	4.76	.511
The *"Un dia al SAF"* project has helped me better connect the theoretical content of the subject with real-life teaching practice.	102	2	5	4.65	.624

Knowledge of the Educational Center

Given the low internal consistency of this component (α = .46) and the conceptual heterogeneity of its two constituent items - one assessing PSTs' understanding of how a school operates and the other assessing preference for conventional classroom or gym-based instruction - the following findings are reported descriptively rather than as evidence of a coherent construct and should be interpreted with particular caution. Although PSTs'

perceived contribution of the project to understanding the functioning of an educational center varied, self-reports indicate that, in some cases, interacting with in-service teachers enriched their perception of the educational environment: “Moreover, I had the opportunity to speak with school teachers about the needs of two children in the group, which allowed me to better understand how to adapt to each situation and collaborate effectively with other professionals” (P97). However, the item “The project development helped me understand or learn more about how an educational center functions” received the lowest mean score (M = 3.84, SD = 0.96) (see Table 7).

Additionally, several PSTs highlighted that such initiatives are perceived to support the development of essential skills that cannot be acquired solely through theoretical learning: “Through participating in this project, I have been able to develop essential skills and knowledge that I believe cannot be acquired in a normal classroom setting” (P44). In this regard, most PSTs disagreed with the item “I would have learned more if the time invested in the project had been dedicated to teaching in the classroom/gym” (M = 2.35, SD = 1.59) (see Table 7).

Table 7

Descriptive statistics for the items in the " Knowledge of the Educational Center" dimension.

Items	N	Minimum	Maximum	Mean	Standard Deviation
I would have learned more if the time spent on the project had been used for classroom or gym-based lessons.	102	1	5	2.35	1.596
The development of the project has helped me better understand how a school operates.	102	2	5	3.84	.962

Discussion

The findings of this study indicate that PSTs perceived their participation in the "*Un dia al SAF"* project as having considerable formative value for their self-perception as future teachers in the Primary Education Degree program. Participants emphasized the value of transferring classroom knowledge into real practice, resulting in meaningful, experiential learning closely tied to their future professional roles (Cañadas et al., 2019). PSTs perceived that engaging with a real educational context supported the consolidation of their knowledge, helped them gain confidence, allowed them to assume responsibilities inherent to the teaching role, and reconnected them with the motivation and vocation that initially led them to pursue a career in education. Furthermore, they reported the transversal development of key competencies such as classroom management, attention to diversity, decision-making, conflict resolution, teamwork, and professional communication (Suyatno et al., 2023).

Importantly, this experience was perceived as not only deepening PSTs' understanding of theoretical content but also fostering a reflective process regarding their training. PSTs described how they were able to plan, implement, and evaluate a real-life intervention, thereby linking prior knowledge with new insights and engaging in critical reflection on their teaching practice. Exposure to authentic teaching scenarios pushed them beyond their comfort zones (Forés Miravalles et al., 2015), forced them to navigate uncertainty, and challenged them to generate context-specific solutions, always from an active and engaged perspective. Such integration of theory and practice responds to one of the most pressing demands in initial teacher education (Bereiter, 2014; Zeichner, 2010) and aligns with the core principles of the EHEA (Fernández March, 2006). In this regard, participants viewed the project as an opportunity to consolidate learning, test the applicability of diverse methodologies, and critically assess their effectiveness—key aspects of situated and meaningful learning (Aoki, 2005; Blázquez, 2016). This process can also be understood

through the lens of the increasingly complex pedagogical content knowledge PSTs must develop to plan and deliver meaningful instruction—knowledge of learners, curriculum, and pedagogy alike (Shulman, 1986). By requiring PSTs to design activities explicitly aligned with the official PE curriculum (see Context) while attending to the specific needs of a diverse pupil population, the project positioned them to engage with the cognitive demands central to meaningful learning—encoding new disciplinary content, consolidating it within existing knowledge structures, and transferring it into purposeful instructional decisions (Ausubel, 1968) —rather than merely rehearsing isolated instructional techniques.

Beyond this cognitive dimension, and from the perspective of professional identity, the data suggest that PSTs perceived the project as helping to strengthen their vocational commitment and consolidate their self-perception as future teachers. This dimension is particularly relevant in early stages of professionalization, as it facilitates critical awareness of the teaching role and promotes emotional engagement with the profession (Palmer et al., 2009). The self-reports collected reveal a notable motivational effect and a renewed sense of purpose, highlighting the transformative potential of this type of intervention (Campos et al., 2011; Hortigüela Alcalá et al., 2016).

With respect to PSTs' engagement with the educational centre as an institution, the findings should be interpreted tentatively given the low reliability of the corresponding exploratory component ($\alpha = .46$) and the conceptual heterogeneity of its two items. Descriptively, the experience provided some PSTs with opportunities for interaction with in-service teachers, which several participants perceived as enriching their understanding of the school environment. These observations, while not sufficient to support interpretive claims about a coherent construct, are consistent with prior research advocating for closer collaboration between universities and schools to enrich teacher education (Mérida Serrano et al., 2011; Selfa, 2015). Such exchanges offer access to implicit, context-bound pedagogical

knowledge (Tenorio Eitel et al., 2020) and contribute to the development of a shared professional culture grounded in dialogue (Chacón & Suárez, 2006). These findings should, however, be interpreted in light of the isolated and time-bound nature of the intervention, which restricts our ability to assess whether the perceived gains in professional competence and vocational commitment are sustained over time. Similarly, because the sample was drawn from a single course and university, the extent to which these findings generalize to other training contexts, disciplines, or institutions remains an open question. The absence of longitudinal evidence on sustainability, in particular, means that the present findings should be read as an account of PSTs' immediate, perceived formative value rather than as evidence of durable professional development.

Considering these findings, it becomes necessary to advocate for the systematic integration of a dual university–school model within initial teacher education. Experiential learning opportunities should not be confined to the Practicum; rather, they should be extended to other courses with practical potential, particularly those linked to specific didactics or active methodologies (Hortigüela Alcalá et al., 2016). This broader integration would allow for the consolidation of a more coherent educational approach, one that is aligned with the competence-based paradigm of the EHEA (Fernández March, 2006) and responsive to current demands in the teaching profession (Köpsén, 2014; Sancho & Correa, 2013). Embedding joint projects within curricular subjects can create hybrid spaces (Zeichner, 2010) where students build knowledge through experience, strengthen their professionalization, and foster meaningful connections with real educational contexts.

In this sense, methodologies such as Service-Learning and Project-Based Learning provide an appropriate framework for developing proposals in collaboration with schools, as they bridge academic objectives with real-world needs (Alonso et al., 2021; Echauri-Galván, 2023). It is therefore essential to design structured initiatives that integrate theoretical and

practical knowledge through horizontal, ongoing collaboration. Such alliances between universities and schools not only enhance the training of future teachers but also support shared innovation and professional development (Álvarez Álvarez & Osoro Sierra, 2014; Tenorio Eitel et al., 2020).

Conclusions

The findings of this study show that PSTs perceived the "*Un dia al SAF*" project as making a positive contribution to their initial teacher education, supporting their perceived connection between theory and practice and their perceived development of key professional competences such as classroom management, conflict resolution, decision-making, and adaptability. Furthermore, PSTs reported that it strengthened their teaching identity and vocational commitment, which are crucial in the early stages of professionalization.

Nevertheless, this experience also presents some limitations that should be considered in future developments, beyond those already noted in relation to the intervention's isolated, time-bound, and single-site nature. In particular, although the experience was perceived as meaningful by most participants, it would be advisable to deepen the analysis of individual differences and explore the factors influencing the degree of engagement and appropriation of such interventions. Moreover, because data were collected immediately after the intervention, the study may still be subject to a general positivity or recency effect associated with the immediacy of a memorable experience. We note, however, that the voluntary, non-graded, and fully anonymized nature of the questionnaire and self-reports rules out grade-related demand characteristics as an explanation for the consistently positive results reported, even considering the partial overlap between the teaching and research teams for this course. Additionally, although the psychometric indicators supported the suitability of the questionnaire data for factor analysis, the relatively modest sample size may limit the stability and generalizability of the factor structure identified. In this sense, although four of the five

exploratory components demonstrated acceptable levels of internal consistency (α = .71–.79), the dimension "Knowledge of the Educational Center" yielded a lower reliability coefficient (α = .46). This result may be related to the small number of items included in the dimension (n = 2) and to the conceptual heterogeneity between them, as one item focuses on understanding how educational centers operate whereas the other assesses preferences regarding alternative learning formats. Relatedly, inspection of the rotated component matrix revealed several moderate cross-loadings among items related to vocational commitment, theory–practice integration, and perceived educational utility. Although items were assigned according to their highest factor loading, these results suggest that some dimensions are not entirely independent from one another. Given the inherently interconnected nature of PSTs' perceptions of professional learning, teaching identity, and theory–practice integration, a degree of overlap was expected. Consequently, the distinctiveness of some dimensions should be interpreted with caution. Finally, because qualitative coding followed a deductive scheme guided by the five exploratory components, with inductive subthemes generated only within that predefined structure, we cannot fully exclude the possibility that this approach constrained the emergence of independent qualitative themes. Future studies could adopt a fully inductive or independently coded qualitative strand to address this limitation.

Future research could incorporate control groups, expand the sample, and implement longitudinal follow-ups to assess the actual impact on professional teaching performance over time, while remaining sensitive to contextual specificities and principles of ecological research in education. It is also recommended to examine more systematically the role played by school- and university-based mentors in the success of these initiatives.

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