





Research paper

Soft skills development in pre-service teachers through dual higher education programmes: A mixed methods research

Iraia Urkia-Basterra ^{*} , Paula Álvarez-Huerta , Ainara Imaz Agirre 

Faculty of Humanities and Education Sciences - HUHEZI, Mondragon Unibertsitatea, Spain

ARTICLE INFO

Keywords:

Soft skills
Pre-service teachers
Dual Higher Education
Work-Integrated Learning
Mixed methods

ABSTRACT

Soft skills are essential for pre-service teachers to manage classrooms effectively, adapt to professional challenges, and enhance student learning. This study investigates soft skills development among pre-service teachers enrolled in a Dual Higher Education programme at a university in the Basque Country (Spain), which integrates academic learning with workplace practice. An explanatory sequential mixed methods design was applied to examine changes in social competence, flexibility, efficacy beliefs, lifelong learning, and communication skills, as well as the structural and pedagogical factors supporting their development. Quantitative data were collected through pre- and post-programme questionnaires completed by 102 final-year pre-service teachers, followed by two focus groups with pre-service teachers and university tutors. Results indicate improvements in flexibility, efficacy beliefs, lifelong learning, and communication skills. Programme duration, systematic theory-practice integration, reflective activities, mentoring, and peer support were identified as key enabling factors.

1. Introduction

As the world adapts to major shifts such as digitalisation, climate change, and advancements in artificial intelligence (OECD, 2019), individuals are increasingly required to build competencies that enable them to respond effectively to transformations in society and their professional and personal lives (Sala et al., 2020). Specifically, soft skills are considered essential skills for navigating these evolving challenges (OECD, 2019). The European Bologna Process highlighted the responsibility of higher education institutions (HEIs) to foster such skills (Sin & Neave, 2016). The development of soft skills is acknowledged as a crucial component of higher education, representing higher-order thinking skills that form the foundation of a graduate's professional identity and are expected outcomes of university education (Clarke, 2017). Nevertheless, despite initiatives by HEIs to address this need (Succi & Canovi, 2020), in Europe's public sector alone, approximately 8.6 million individuals are reported to lack key skills (Chinn et al., 2020).

A teacher's practice is shaped not only by cognitive skills but also by personal attributes such as interpersonal abilities, motivation, attitudes, beliefs, and dispositions, as well as by the wider contextual environment, all of which influence student learning outcomes (Hakkinen et al., 2020). For pre-service teachers, soft skills are particularly important, as

they form a vital component of professional readiness and qualification (Yurt, 2023). For instance, strong social and emotional competence in teachers serves as a predictor of their capacity to foster these same skills among their students (Jennings & Greenberg, 2009; Llorent & Núñez-Flores, 2023).

To respond more effectively to the changing needs of society, the workplace should be integrated within HEI programmes (Ferrández-Berruero et al., 2016). Studies also suggest that collaboration between universities and industry is positively associated with enhanced skill development (Arranz et al., 2022). In recent years, work-integrated learning (WIL) initiatives have become relevant as useful programmes to connect HEIs and the workplace. An example of this approach is Dual Higher Education (DHE) programmes, which take a distinctive approach to internships by closely integrating the training period with the academic curriculum (Pogatsnik, 2018). They feature a structured sequence of training periods, strong coordination between the university and the workplace, enhanced tutoring at both institutions, and the integration of the bachelor's or master's thesis into the overall program (Climent-Ferrando et al., 2024).

WIL programmes as a research field is emerging (Josefsson et al., 2024), and although some WIL programmes are recognised for fostering soft skill development (Jackson & Bridgstock, 2021), research within the educational field has received limited attention. In particular,

^{*} Corresponding author. Faculty of Humanities and Education Sciences. - HUHEZI, Mondragon Unibertsitatea, Aranzburuzabala kalea 21, 20540, Eskoriatza, Spain.
E-mail address: iurquia@mondragon.edu (I. Urkia-Basterra).

research examining DHE as a distinct form of WIL remains scarce. Moreover, few studies have explored the structural and pedagogical components of DHE or WIL programmes and their specific influence on soft skills development (Urkia-Basterra et al., 2025).

Therefore, this article presents an empirical study on the effects of DHE programmes on social competences, flexibility, efficacy beliefs, lifelong learning, and communication skills among pre-service teachers. It also aims to identify the pedagogical and structural elements supporting the development of the mentioned skills. The following research questions were formulated.

RQ1: How does participation in a DHE programme relate to changes in pre-service teachers' levels of social competence, flexibility, efficacy beliefs, lifelong learning, and communication skills?

RQ2: Which pedagogical or structural elements of the DHE programme explain the changes observed in the pre-service teachers' soft skills?

This research aims to enhance our understanding of the ways in which DHE programmes might assist in developing skills that are increasingly essential in today's complex educational and work environments. The outcomes will aid in shaping higher education practices to better equip future teachers for the challenges they will face in contemporary classrooms. Although there is a growing focus on soft skills, research on the impact of these experiences on the competencies of pre-service teachers is scarce. Investigating this connection is vital for acknowledging how DHE programmes may promote the mentioned skills.

2. Theoretical framework

2.1. DHE programmes and soft skills

DHE programmes represent a distinctive form of WIL or cooperative education, where structured academic instruction in an HEI is integrated with practical work-based learning experiences (Pogatsnik, 2018). In fact, such programmes support the practical application of subject-specific knowledge and skills within real work environments (Clarke, 2017). This integration of theory and practice is crucial in teacher education, where practical skills and understanding of work processes are essential (Coiduras Rodríguez et al., 2014).

The successful implementation of DHE and WIL programmes relies on several theoretical frameworks (Ferns et al., 2024). Soft skills can be understood as transferable interpersonal and career-related skills, such as social competence, flexibility, efficacy beliefs, lifelong learning, and communication, that enable effective professional functioning and adaptation within complex educational contexts (Robles, 2012; Scoupe et al., 2023). Experiential learning theory (Kolb, 1984) and Schön's (1983) concept of reflective practice explain how concrete workplace experiences, when systematically reflected upon, are transformed into learning and professional growth. These perspectives highlight reflection as a key pedagogical mechanism linking theory and practice within DHE programmes. From an experiential standpoint, skills such as flexibility and lifelong learning are expected to develop through iterative cycles of practice, reflection, conceptualisation, and adaptation embedded within the DHE programme. Complementarily, sociocultural theories of learning (Vygotsky, 1978; Lave & Wenger, 1991; Bandura, 1977) emphasise the role of social interaction, guided participation, and communities of practice in shaping learning and identity formation. From this perspective, soft skills develop through participation in authentic professional contexts, supported by scaffolding, feedback, and modelling provided by tutors and peers. Within this sociocultural framework, efficacy beliefs, social competence, and communication are conceptualised as emerging through mediated participation, progressive autonomy, and engagement within school-based communities of practice.

In the educational setting, Coiduras Rodríguez et al. (2017) mention three types of dual education: juxtapositional, associative and integrative. Of these, integrative dual training is regarded as the most authentic model, as it relies on pedagogical scaffolding to connect academic and workplace experiences through both deductive and inductive reasoning. Informed by experiential and sociocultural learning theories, this approach highlights progressive curriculum design, expert mediation, and close institutional collaboration as key elements for transforming practice into meaningful professional development.

Work-based learning and work-related projects are generally viewed as beneficial for developing soft skills (Tuononen et al., 2022). Soft skills such as communication, teamwork, and problem-solving have been studied in these and similar programmes, although the findings remain inconclusive regarding their development (Urkia-Basterra et al., 2025). In education degree programmes, research on the impact of these DHE or other similar programmes has been less studied. In this regard, Doolan et al. (2019) mention that key employability skills, particularly communication, professional networking, and relationship-building, were developed through their particular embedded WIL programme. However, the limited sample size and the specific study context restricted the extent to which their findings could be generalised.

Within these programmes, a variety of structural and pedagogical strategies may influence the development of soft skills. In a recent systematic review, Urkia-Basterra et al. (2025) found reflective practice, personal connections and communication between peers and other individuals involved in the programmes to be the most discussed strategies in literature. Nonetheless, factors such as limited interaction and inadequate real-world work experiences within these programmes have been negatively associated with the development of soft skills (Tuononen et al., 2022). Moreover, only a few of the analysed studies in the systematic review actually explored how these elements contribute to the development of soft skills, leaving their role insufficiently understood.

2.2. Importance of soft skills among teachers

Educators are expected to develop and demonstrate a wide variety of skills to foster effective teaching and promote student learning. Teachers' academic skills, together with their soft skills and environmental factors, influence their professional practices and consequently their students' learning outcomes (Hakkinen et al., 2020). The combination of factors influencing these professional practices includes cognitive abilities, such as academic skills, subject knowledge, and reasoning, personal characteristics like motivation, attitudes, interpersonal skills, beliefs, and dispositions, and environmental factors, including professional support (Klassen et al., 2018).

As mentioned above, the integration between the contexts of the workplace and the HEI is key in DHE programmes (Pogatsnik, 2018). The conceptualisation proposed by Scoupe et al. (2023) draws from both literatures, higher education and workplace learning. In their framework, they identified a set of seven competences: social competences, e-literacy, efficacy beliefs, flexibility, healthy work-life balance, lifelong learning, and oral and written communication. In the case of DHE programmes, however, e-literacy and healthy work-life balance are either embedded or not influenced due to the structure of the programme. For educators, modern classrooms are becoming increasingly complex, requiring today's teachers to constantly adjust their teaching methods to address diverse student needs and work collaboratively with various professionals. As a result, teachers now need broader and more adaptable skills compared to teachers in the past (European Commission, 2021).

Advanced communication skills are essential for promoting mutual understanding in society (Creo et al., 2020) and are a key element for effective teamwork and interpersonal cooperation in professional settings (Marlow et al., 2018). In today's teaching profession, social competence is essential for fostering classroom learning and relationships with students and parents, as well as navigating the growing

demands of collaboration with colleagues and other professionals (Tynjälä et al., 2016).

Flexibility is essential for navigating ever-changing work environments and uncertain future conditions (Jackson et al., 2019). For pre-service teachers, flexibility is essential for assessing classroom dynamics, adjusting lesson plans, and tailoring instruction to meet the diverse needs of students (Lindqvist et al., 2023). When pre-service teachers find it difficult to build professional relationships or modify their instructional approaches, these challenges may be seen as signs of limited readiness for the teaching profession (Lindqvist et al., 2023). Furthermore, greater adaptability and effectiveness in professional settings are related to higher levels of lifelong learning (Drewery et al., 2017). For pre-service teachers, committing to lifelong learning is critical to staying responsive to the evolving demands of modern classrooms (Wylie & Cummins, 2013).

Teacher self-efficacy is associated with students' academic adjustment, effective classroom practices, and teachers' well-being, including job satisfaction, personal accomplishment, and professional commitment (Zee & Koomen, 2016). Additionally, teachers who possess a strong sense of teaching efficacy tend to demonstrate greater resilience in their practice and are more motivated to support all students in achieving their full potential (Pendergast et al., 2011).

3. The DHE programme involved in the study

The programme is designed as a dual higher education initiative within the field of educational sciences, involving pre-service teachers from two Bachelor's degree programmes. All participants are organised into learning communities, each consisting of approximately 14–15 pre-service teachers. The programme follows a 2 + 3 structure. For two days per week, pre-service teachers attend university-based activities, which include expert-led seminars and collaborative sessions within their learning communities. These sessions also address aspects of soft skills development, framed within what is referred to as self-development. During the remaining three days, pre-service teachers are placed in schools, where they engage in workplace-based learning, with a specific focus on hands-on experience, for a total of 300 h across the academic year. Moreover, it should be noted that the pre-service teachers' Bachelor's thesis is also embedded in the programme.

A central element of the programme is the role of the university tutor. Tutors not only guide pre-service teachers in integrating theoretical knowledge from seminars with practical experiences in schools but also supervise the Bachelor's thesis and act as a vital link between the university and partner schools. This structure ensures a continuous interplay between academic learning and professional practice.

4. Methodology

4.1. Study design

This study employed an explanatory sequential mixed methods design, integrating quantitative and qualitative phases at the design level. The primary aim was to examine how participation in a DHE programme influenced pre-service teachers' development of five key soft skills: social competence, flexibility, efficacy beliefs, lifelong learning, and communication. In the first phase, a quantitative pre-post design with paired samples was used to assess changes in participant self-reported levels of these skills. In the second phase, qualitative data were collected through focus groups with pre-service teachers and university tutors to explain, elaborate on, and contextualise the quantitative findings, with particular attention to identifying the pedagogical and structural programme elements underlying observed changes or lack thereof. Integration occurred through the use of a joint results matrix and narrative synthesis, enabling convergence and divergence between quantitative and qualitative strands to be examined. The study protocol was approved by the Ethics Committee for Research Involving Human

Subjects of the university.

4.2. Quantitative phase

4.2.1. Participants

The study sample consisted of 102 pre-service teachers (see Table 1) enrolled in the fourth year in two Bachelor's degree programmes, Primary Education degree and Early Childhood Education degree, at a university in the Basque Country (northern Spain). The sample consisted of individuals aged 21 to 30 years, with 88% between 21 and 23 years old.

4.2.2. Data collection

This study employs the validated SECQ Questionnaire (Scoupe et al., 2023). The validity of the SECQ questionnaire is supported by a systematic literature review that ensured content validity and informed item development. Construct validity was established through exploratory and confirmatory factor analyses, with cross-validation in an independent international sample demonstrating the stability and generalisability of the seven-factor model. In this study five essential soft skills are assessed: social competences, efficacy beliefs, flexibility, lifelong learning, and oral and written communication. Although the original SECQ framework also includes e-literacy and work-life balance, these dimensions were intentionally excluded from the present research. In the context of DHE programmes, digital competences are already embedded across academic and workplace activities, while programme structures exert less direct influence on work-life balance. Consequently, the study focuses on those soft skills most directly shaped by the pedagogical and structural features of DHE programmes. Each skill was evaluated using a 5-point Likert-type scale, ranging from 1 ("Completely disagree") to 5 ("Completely agree").

According to Scoupe et al. (2023), social competencies encompass the ability to collaborate effectively within teams, manage various responsibilities, and build professional networks. Oral and written communication reflect the capacity to express ideas clearly across diverse contexts. Lifelong learning involves proactive engagement in study and career planning, anticipating future demands, and pursuing continuous personal and professional development. Flexibility is characterised by the ability to respond creatively to unexpected challenges while maintaining emotional regulation. Efficacy beliefs are defined as the confidence in one's capability to successfully perform tasks and navigate learning processes within a specific field.

Internal consistency across all subscales was high at the PRE measurement (see Table 2). However, at POST, the Lifelong Learning subscale showed lower reliability, with a Cronbach's alpha of 0.58. To improve reliability, two reverse-coded items were removed from the subscale, raising the alpha to 0.70. As a result, although the original Lifelong Learning subscale of the SECQ Questionnaire (Scoupe et al., 2023) included six items, only four were retained in the final analysis. For consistency, these two items were also removed from the PRE measurement, where internal consistency remained high ($\alpha = 0.88$).

4.2.3. Procedure

Participants were recruited through convenience sampling from a

Table 1
Demographic characteristics of the participants.

Gender	Female	Male
N	71	31
%	69,61%	30,39%
Age range	21-23	24-30
N	90	12
%	88,24%	11,77%

Source: Author's own work

Table 2
Structure of the questionnaire and reliability analysis.

Soft skill	Cronbach's α at PRE	Item number	Example
Social competences	0.82	6	I can operate within and contribute to a respectful, supportive, and cooperative group climate.
Efficacy beliefs	0.83	8	I feel confident and ready to start working.
Flexibility	0.85	4	In my field of expertise, I consider myself competent to add value by embracing new ideas and demonstrating creativity in addressing challenges and problems.
Lifelong learning	0.75	4	I am focused on continuously developing myself.
Oral and written communication	0.81	5	I clearly express my thoughts and opinions in writing.

Source: Author's own work

single faculty. Data were collected at the beginning and the end of the academic year, seven months apart. They were initially informed about the nature of the study, emphasising that their involvement was completely voluntary and confidential. All pre-service teachers signed an electronic informed consent prior to data collection. Approximately 10 min were required to complete the survey.

4.2.4. Data analysis

We examined the mean scores for each soft skill using descriptive statistics. The variables did not meet normality assumptions, as skewness values ranged from -1.13 to 0.28 and kurtosis values from -0.43 to 4.03 . Therefore, non-parametric repeated measures analyses, along with pairwise comparisons, were conducted for each soft skill to assess differences between the two measurement points. All analyses were conducted using JAMOVI version 2.6.26.0.

4.3. Qualitative phase

4.3.1. Participants

Two focus groups were organised, each comprising four pre-service teachers and four university tutors involved in the DHE programme. All four pre-service teachers were in their final year of their bachelor's degree; three were female, and one was male. Among the university tutors, three were female, and one was male. One of the female tutors also held the position of coordinator of the DHE programme and had three years of experience in that role. Two other tutors had two years of experience, while the remaining tutor was participating in the programme for the first time.

4.3.2. Data collection

The interview protocol was designed to encourage participants to explain how their involvement in the DHE programme may have supported the development of their soft skills, as well as to identify the pedagogical and structural elements contributing to that development. The interviews followed a funnel approach, beginning with broad, open-ended questions to allow participants to respond freely and reflectively, before progressing to more specific questions aimed at eliciting detailed insights. Both focus group sessions were conducted during the final week of the DHE programme to minimise the potential for memory bias in participants' retrospective accounts. The first author facilitated both meetings, which were held face-to-face and audio-taped for subsequent analysis.

4.3.3. Procedure

All participants contacted the first author to schedule their appointments and provided informed consent before participation. They

were fully informed about the purpose and nature of the study and confirmed their understanding of the implications of participation, including their ability to make an independent, voluntary decision about taking part. Participants were also informed that they could withdraw from the study at any time without consequence. Both focus groups were analysed with MAXQDA version 24.1.0.

4.3.4. Data analysis

The first author transcribed both focus groups. A deductive thematic analysis (Proudfoot, 2023) was conducted, focusing on the five soft skills under examination, along with the structural and pedagogical elements pertinent to their development. The coding process was organised around these predefined categories to systematically examine participants' perceptions of how the DHE programme fostered their growth in soft skills. To enhance trustworthiness, coding decisions were systematically documented and discussed among the research team, and analytic consistency was ensured through iterative refinement of codes. Although the analysis was predominantly deductive, openness was preserved to identify any emergent themes beyond the initial framework (see Table 3).

5. Results

5.1. Changes in soft skills after DHE programme

A quantitative analysis of the pre- and post-data (see Table 4) indicates significant differences in all the soft skills examined, except for social competence. Regarding the statistically significant changes in soft skills, efficacy beliefs exhibited the greatest raw mean difference. The pre-test results showed a mean score of $M = 3.75$ ($SD = 0.49$), which increased to a mean score of $M = 4.05$ ($SD = 0.55$) in the post-test after completing the DHE programme. However, the Durbin-Conover post-hoc test shows a stronger statistical improvement in flexibility than efficacy beliefs. The analysis of communication skills and lifelong learning also reveals, although more moderate, a significant improvement when comparing pre- and post-data. In contrast, the difference between the two was not statistically significant in the case of social competence, although it revealed the highest mean score across all five soft skills.

Although quantitative data indicate that flexibility shows the greatest statistical improvement, qualitative data reveal that it is the least discussed soft skill, together with communication skills. Nevertheless, pre-service teachers report perceiving personal development in this area. As one pre-service teacher explained, "We have worked on this a lot here. When I was at the school, I made mistakes and found myself saying, 'well, that's how you learn, right?' If I hadn't developed that, in that moment it could have really discouraged me" (F_Pre-service, Pos).

Table 3
Excerpt from the focus group guide with the rationale for the question.

	Interview question		Rationale for the question
	Pre-service teachers	University tutors	
DHE programme and soft skills development	How has the DHE programme helped you develop the mentioned soft skills?	How has the DHE programme helped the pre-service teachers with soft skills development?	Elicit reasoning behind soft skills development in the DHE programme
Strategies for soft skills development	Could you describe a situation or activity within the DHE programme that contributed to the development of these soft skills?	Which situation or activities within the DHE programme do you believe have contributed to the development of these soft skills?	Identify contributing factors for the development of soft skills within the DHE programme

Source: Authors own work

Table 4
Integrated results matrix.

	Quantitative		Friedman test and post-hoc	Qualitative Exemplar quote	Meta-inference
	Pre-Mean (SD)	Post-Mean (SD)			
Social competence	4.27 (0.49)	4.35 (0.51)	$\chi^2 = 3.66$ $p = 0.06$ $r = 0.19$ Post-hoc = 1.94	“The way pre-service teachers interact with their school tutors is very significant. They feel that the tutor is in one place, and they are in another, and until they walk the path together and create contexts for peer dialogue, there is a need to develop these skills and competencies.” (F_Tutors, Pos. 114, Participant: T_M)	Although pre–post scores showed no statistically significant change, university tutors observed its emergence in pre-service teachers’ interactions with school tutors.
Efficacy beliefs	3.75 (0.59)	4.05 (0.55)	$\chi^2 = 20.6$ $p < 0.001^*$ $r = 0.50$ Post-hoc = 5.07	“This year, I felt more attached to the profession, a sense of seriousness, and a different kind of relationship with the teachers. I felt like I was stepping into the role of the teacher.” (F_Pre-service, Pos. 62, Participant: I_J)	Pre-service teachers developed greater confidence in their professional capabilities and a stronger sense of professional identity.
Flexibility	3.64 (0.62)	3.92 (0.58)	$\chi^2 = 23.0$ $p < 0.001^*$ $r = 0.54$ Post-hoc = 5.47	“At first, when I made a mistake or faced a difficult situation, I froze, I got completely blocked and stuck in it. Now I feel I’ve developed that skill, and at this point, for example, if I get something wrong, I just say: calm down, think of another solution. If something comes to mind, great, and if not, it’s okay.” (F_Pre-service, Pos. 35, Participant: I_A)	Flexibility was manifested as pre-service teachers’ capacity for emotional regulation.
Lifelong learning	3.84 (0.67)	4.06 (0.51)	$\chi^2 = 9.99$ $p = 0.002^*$ $r = 0.33$ Post-hoc = 3.32	“There are very appropriate contexts to see ... regarding lifelong learning, how resistant each one is.” (F_Tutors, Pos. 36, Participant: T_O)	Participants enhanced their commitment to lifelong learning, but also recognised that openness to growth can vary among individuals.
Communication	3.82 (0.64)	4.06 (0.50)	$\chi^2 = 10.6$ $p = 0.001^*$ $r = 0.34$ Post-hoc = 3.43	“We’ve [with the school tutor] had small moments where we’ve talked about many different aspects, including communication skills.” (F_Pre-service, Pos. 114, Participant: I_E)	Participants improved their communication skills and became more aware of these skills in real-world professional interactions.

Source: Authors own work

31, Participant: I_E).

Regarding efficacy beliefs, qualitative data suggest that the DHE programme supported pre-service teachers by exposing them to the realities of the profession, with one of the most frequently discussed outcomes being increased confidence in their professional abilities. For instance, one of the university tutors mentions, “The DHE programme helps make the transition from being a pre-service teacher to an in-service teacher much smoother and allows them to really get to know reality. Especially in Early Childhood Education, you can notice it in how they intervene daily and also in their discourse, they keep saying they feel much more confident in themselves.” (F_Tutors, Pos. 140, Participant: T_M). Nevertheless, university tutors noted that some pre-service teachers lacked confidence in their professional abilities. They were critical of the contexts in which these pre-service teachers were placed, explaining that limited opportunities for hands-on experience could contribute to lower efficacy beliefs: “For me, the key point is what kind of contexts they’ve had during practicums over these four years. Generally, in Early Childhood Education, the pre-service teachers are given space to take on the role of a teacher. But in Primary, if the in-service teacher doesn’t give the pre-service teacher that autonomy and, depending on the context, the pre-service teacher ends up in ...” (F_Tutors, Pos. 130, Participant: T_O).

As previously mentioned, communication is another skill not frequently mentioned in the focus groups. Nonetheless, pre-service teachers acknowledged its importance and its transferability across other skills. As one pre-service teacher explained: “For me, communication is very important ... In the end, between two or more people, we need to have moments to communicate and to learn from each other. And that also helps to build social relationships. In that sense, communication skills are directly linked to the ability for lifelong learning, because if you know how to communicate, you also learn more from others, and I believe these are connected.” (F_Pre-service, Pos. 146, Participant: I_E).

Learning from others emerged as a key component of lifelong

learning, closely connected to each pre-service teacher’s willingness to actively engage in their own learning pathways. Tutors noted that the final year of study provides “appropriate contexts to observe how each person interacts socially, in terms of participation, or, in this aspect of lifelong learning, how resistant each one is,” emphasising that pre-service teachers must reflect on “the attitude they adopt toward their own training” as they complete the programme (F_Tutors, Pos. 36, Participant: T_O). Related to this, tutors also mention the need to activate this mindset prior to the DHE programme: “Training is needed for this; we need to get pre-service teachers used to it. If we want to achieve certain things in the fourth year, they (pre-service teachers) need to be accustomed to exploring, observing, and contrasting. And this would also help with lifelong learning.” (F_Tutors, Pos. 122, Participant: T_A).

Social competences, although not significant in the quantitative data, it is the second most discussed soft skill, followed by efficacy beliefs. Both pre-service teachers and university tutors mention that the DHE programme helps pre-service teachers develop these skills. However, it is also noted by the tutors that to effectively foster these social competences, pre-service teachers need strategies: “We have them work in groups over four years, but we don’t provide a foundation or guidance on how to work in a group in a healthy way.” (F_Tutors, Pos. 118, Participant: T_O).

5.2. Elements influencing soft skills development in the DHE programme

Several pedagogical and structural elements were identified as relevant to soft skills development (see Figs. 2 and 3, and Appendix A for details). Figs. 1 and 2 present elements mentioned more than once, while Appendix A lists all reported elements.

When specific skills were not identified (Fig. 2), the focus groups most frequently emphasised the importance of the university tutor and the learning community. These were followed by the role of reflective practice, which was also recognised as a key factor in fostering soft skills growth.

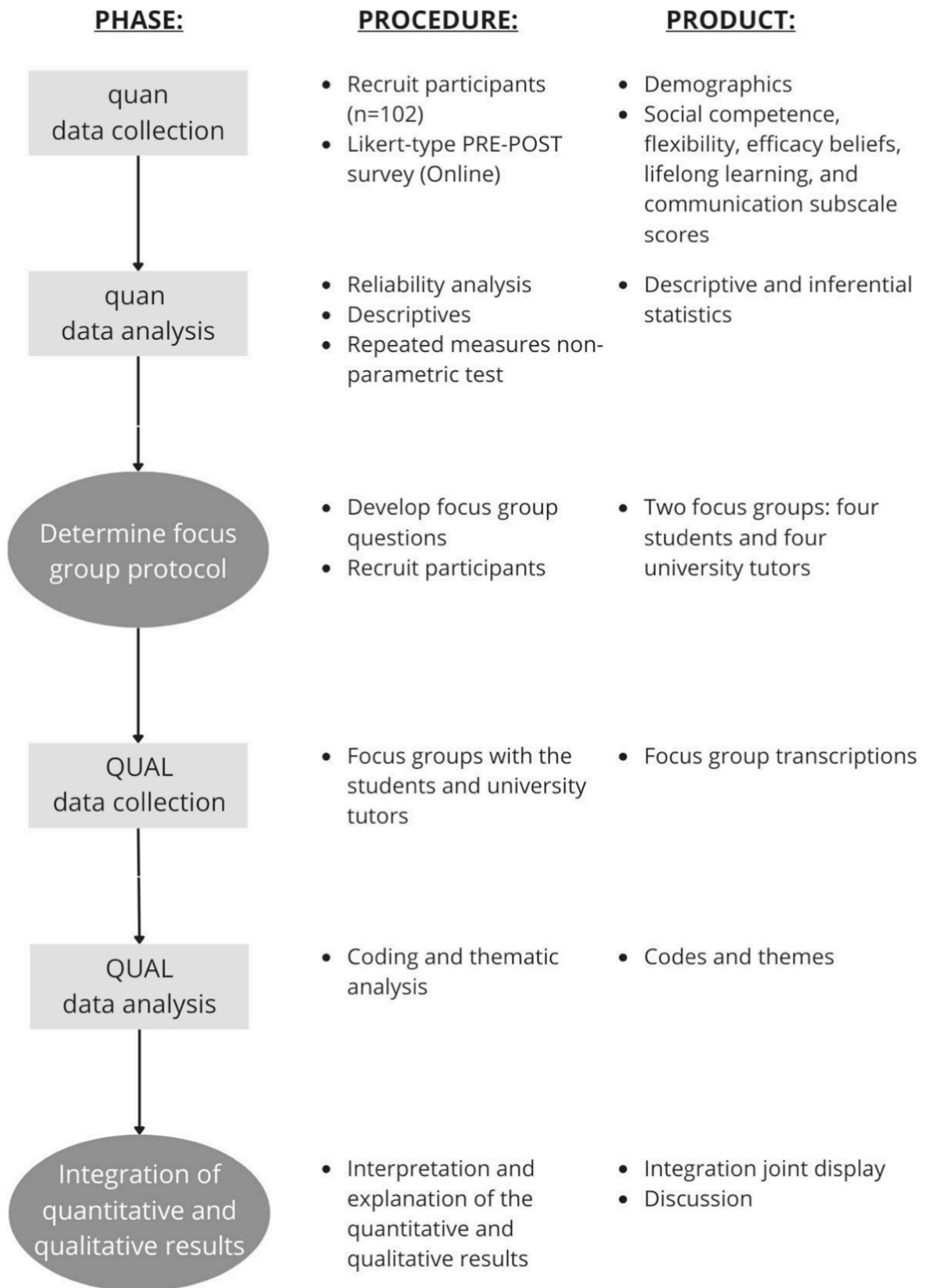


Fig. 1. Explanatory sequential study design procedure.
Source: Author's own work

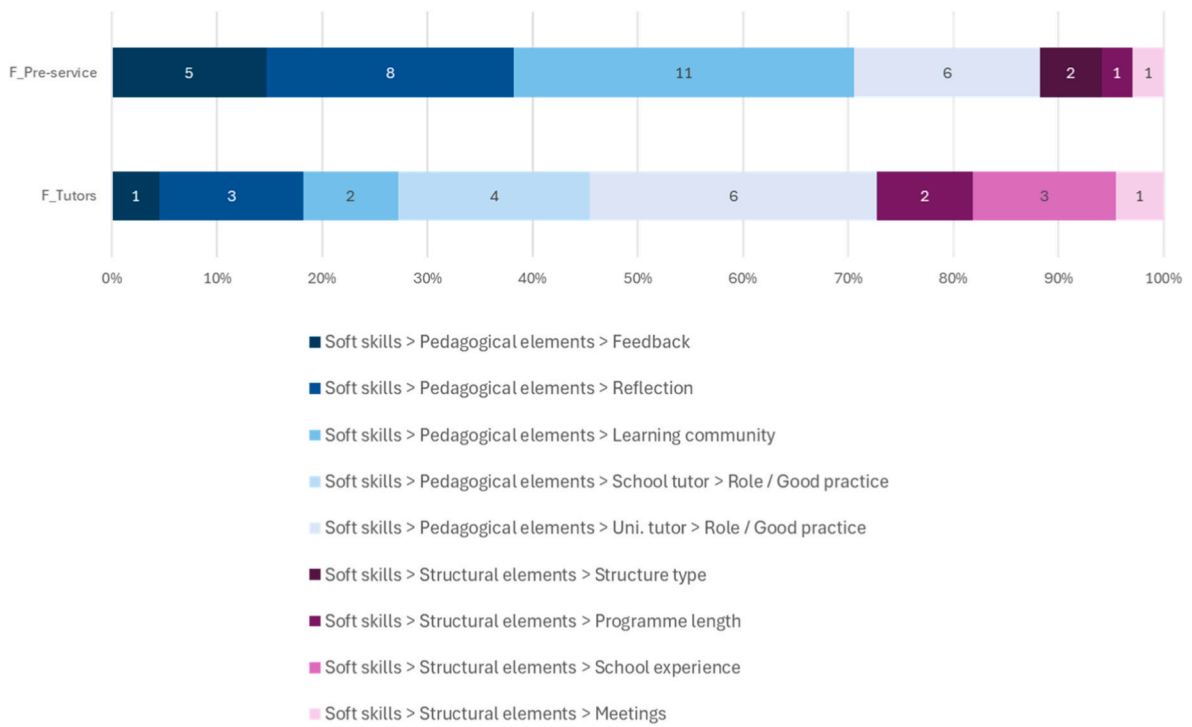


Fig. 2. Elements most frequently mentioned in relation to soft skills in general. Source: Authors own work

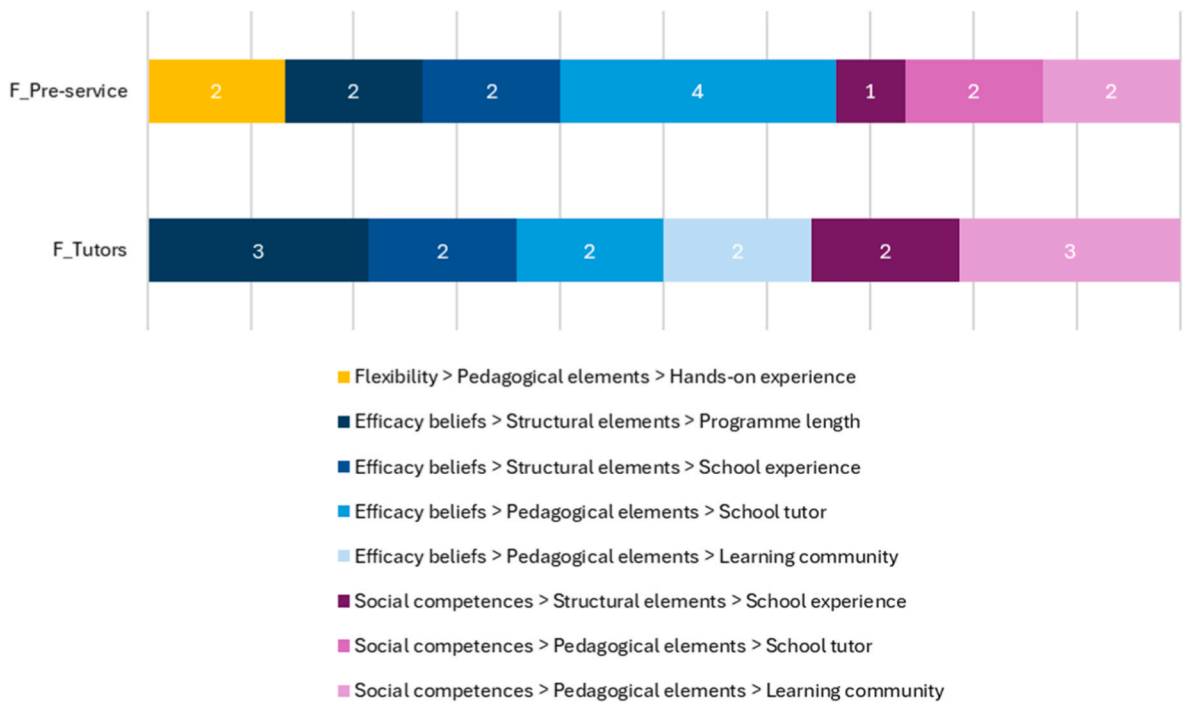


Fig. 3. Elements most frequently mentioned in relation to specific soft skills. Source: Authors own work

The learning communities have been identified as useful for soft skill development, especially by the pre-service teachers. These learning communities are meant to be spaces for sharing, learning from others, and building knowledge together (F_Tutors, Pos. 118, Participant: T_O). In these learning spaces, pedagogical elements such as reflective practice and the integration of theory and practice were also implemented

and identified as beneficial. For instance, a pre-service teacher mentioned: “Constantly reflecting or talking about the practicum. For example, in class someone shares what happened to them that week, and it sparks big debates. I think in that sense it really helps.” (F_Pre-service, Pos. 55, Participant: I_M). Furthermore, an important element mentioned by the pre-service teachers is the need for trust and building

safe spaces within these learning communities: “From the beginning, we also talked about what we could offer to our learning community, and what maybe we couldn’t. But then, someone else in the group could offer that, so it gradually became a network that shaped the group.” (F_Pre-service, Pos. 84, Participant: I_J).

Reflective practice and the integration of theory with practice were evident in various elements of the DHE programme, which are incorporated within the learning communities and also extend beyond them: “For example, the tasks we planned here are largely aimed at that. Yes, the learning journal, for example, the critical situation, and the last reflection we did. At least this year, I think the tasks were largely directed toward reflection.” (F_Pre-service, Pos. 66, Participant: I_M). Particularly, the critical situation activity has been identified as useful for soft skills development: “Returning to soft skills, it was a very interesting activity to really know where they are; it could be called a critical situation activity. There, we can see what they call ‘critical,’ they feed from that identification. I have learned a lot about them from that ... I think it is a very powerful activity, and it gives full meaning to the DHE programme.” (F_Tutors, Pos. 35, Participant: T_A).

Regarding the university tutor, focus groups emphasised the importance of their active involvement throughout the DHE programme, combined with granting pre-service teachers autonomy: “Within our role, there is also the possibility of giving them autonomy. Since they are in their fourth year, next year you won’t be following them around.” (F_Tutors, Pos. 56, Participant: T_O). Participants also highlighted the tutor’s capacity to adapt to different groups and pre-service teachers by providing contexts that make individual needs explicit. As one tutor mentions:

“It is very much a facilitator’s role, because you really need to analyse carefully. It is important to work with small groups, a maximum of 15 pre-service teachers, so you need to examine each one, see where they are, how they are, what they need, and then provide contexts accordingly.” (F_Tutors, Pos. 66, Participant: T_O)

Moreover, while the role of the university tutor was regarded as valuable for soft skills development, the need for specific training to strengthen and better define this role within the DHE context was stressed. To help them face this with the mentioned care, some expressed that they would benefit from receiving specific training to feel more prepared for this role, given that such accompaniment is highly individualised and often delicate (F_Tutors, Pos. 90, Participant: T_N). As one university tutor explained, “Sometimes I think, maybe we should receive some training for this, because I ask myself, who am I to accompany them in this? ... It feels very delicate, very personal from one person to another, and it’s something that requires a lot of care.” (F_Tutors, Pos. 90, Participant: T_N). Moreover, university tutors also mentioned that they perceived individual meetings as valuable for fostering soft skills, yet they also described tensions around the fine line between pedagogical accompaniment and psychological support. The importance of establishing a clear professional profile that reflects the soft skills of university tutors, along with supporting tutors in further developing their own soft skills, was also highlighted: “For me, you need to have a great ability to manage uncertainty, and I would especially emphasise that. Yes, the plan for each day is more or less defined, but then what will happen in your learning community, I don’t know ... the contexts we offer allow what happens to happen, and from there, everyone can build and learn together.” (F_Tutors, Pos. 100, Participant: T_O). In this regard, their own development of soft skills is also stressed, as one tutor mentions, “I think that we also need to develop soft skills ourselves. We are in a process of continuous learning, and I see that what we share in common is the feeling that we are not fully capable in this regard. So, this also applies to our own soft skills.” (F_Tutors, Pos. 87, Participant: T_A). University tutors also highlighted differences among them when addressing personal and human aspects in academic contexts and expressed a need for clearer shared perspectives and training to better situate their role (F_Tutors, Pos. 88, Participant: T_N). University

tutors also mentioned that school tutors would probably benefit from training to help them understand their role as pre-service teacher educators. Moreover, they discussed how school tutors often do not recognise themselves as transmitters of knowledge, and many felt unprepared to explicitly guide pre-service teachers (F_Tutors, Pos. 71, Participant: T_M). According to another university tutor, this lack of understanding of the school tutors regarding their role as educators also has an impact on the development of soft skills: “I think they do not perceive themselves as part of the training process, and if they do not see themselves as trainers, they are not fully aware of what they have contributed ... As a result, they do not consistently put it into practice, nor do they clearly identify or place specific focus on soft skills.” (F_Tutors, Pos. 72, Participant: T_A).

Regarding the overall design of the programme, university tutors observed that while the fourth-year context is particularly well-suited for fostering soft skills, pre-service teachers often require time to adapt after three years of working under different models (F_Tutors, Pos. 30, Participant: T_O). The time needed for adaptation limits opportunities to address other aspects, such as discussing soft skills in response to situations that arise during the programme. Related to this, it was also mentioned the need to further embed soft skills development throughout all years of the degrees, as one of the university tutors mentions, “We expect these skills to be developed in the fourth year, and indeed the DHE programme provides an opportunity to do so. However, it cannot be achieved in isolation, nor within a single academic year. It should instead be conceived as a long-term process and, as part of a four-year design within the university context, aimed at gradually fostering the development of these soft skills.” (F_Tutors, Pos. 120, Participant: T_M).

Although all the indicated elements are considered relevant in the development of soft skills, elements outside university curricula have also been mentioned. For instance, an element that has been mentioned to foster soft skills is becoming active agents in their communities. One pre-service teacher explained how a “spark” led them to join the local festival committee and a leisure group in their hometown. The same pre-service teacher emphasised that the involvement in these groups helped them acknowledge the importance of creativity and their strong attachment to the Basque language, as well as giving them context to learn how to deal with moments of uncertainty and frustration. Related to this, they highlighted the value of learning to manage these emotions constructively, which they considered to be a helpful outcome of their experience in these groups. (F_Pre-service, Pos. 45-48, Participant: I_E).

Nevertheless, the role of the university in providing opportunities for all pre-service teachers to develop their soft skills was also emphasised. As one tutor pointed out, not all pre-service teachers have equal access to contexts outside the university in which to cultivate these competences, and therefore, the university has the responsibility for ensuring such opportunities are available to all. (F_Tutors, Pos. 16, Participant: T_O). Moreover, tutors also mention the key role of the university in providing contexts so that pre-service teachers are conscious of the importance of these soft skills, so that they are then able to keep on developing them once they graduate, as the development of these soft skills may never come to an end. In this regard, one of the tutors mentions:

“It is important to focus on raising pre-service teachers’ awareness of the value of developing these skills. By the fourth year, our pre-service teachers should have a well-developed awareness and should already be experimenting with, practising, and attempting to apply these skills ... Since life itself also may give opportunities for development, the process continues, and professional contexts also provide valuable opportunities for growth. Therefore, raising awareness is essential.” (F_Tutors, Pos. 21, Participant: T_M).

5.3. Elements supporting the development of specific soft skills in the DHE programme

In relation to specific elements of the DHE programme that supported the development of social competences, efficacy beliefs, flexibility, lifelong learning, and communication skills, it is important to note that participants did not refer to all five soft skills with equal frequency (see Fig. 3). The findings reported here refer to elements mentioned more than once, while Appendix A provides an overview of all five soft skills together with their associated elements, including those cited only once.

Hands-on experience where pre-service teachers had to design and implement a session emerged as particularly significant for the development of flexibility, as it allowed pre-service teachers to adapt to diverse and often unpredictable classroom situations. As a pre-service teacher mentions, creativity is essential for designing a dynamic class that motivates pre-service teachers while also analysing and adapting to the classroom situation (F_Pre-service, Pos. 42, Participant: I_A).

In terms of the structural elements influencing efficacy beliefs, the length of the programme was the most frequently cited factor. Specifically, being in contact with the profession for 7 months was identified as more beneficial compared to one-month practicums. As a pre-service teacher mentions, "Being at the school for seven months gives you the time to really become part of the school. Other years, it was just a month, and that was it. With more time, you get used to the school, you feel valued there, and in my case, I've felt comfortable, like I belong, like a teacher in that school." (F_Pre-service, Pos. 61, Participant: I_M). For the pedagogical elements, the support provided by school tutors was viewed as crucial in building pre-service teachers' confidence in their professional abilities: "The school tutor telling you [pre-service teacher] that you can make an adjustment or, if you want, go ahead and do it, I'll let you. Often, I was even allowed to teach the class, and I thought, maybe I'm doing something well" (F_Pre-service, Pos. 105, Participant: I_I).

In the case of social competences, although this dimension did not appear as significant in the quantitative data, participants highlighted the school experience as a valuable structural element: "In the practicum, right? I think this skill becomes very evident. They have to do many things on their own: go there, get to know the place, interact with other colleagues, plan things, show what they learned in class ..." (F_Tutors, Pos. 115, Participant: T_A). Moreover, the learning community is identified as a supportive pedagogical element which facilitates interaction, collaboration, and the development of interpersonal skills. As one of the university tutors mentions, "I think being directly organised in learning communities means that we are with them weekly and directly talking about social interactions. Within that, they naturally have classes on Mondays, but then it's about bringing, participating, and that includes each person's communication skills. I would say that most of the tasks and dynamics carried out in the learning community help with these social relationships." (F_Tutors, Pos. 113, Participant: T_O). Nevertheless, in the specific case of social competences and communication skills, the need for training the pre-service teachers how to work collaboratively thought the degree was stressed, as one tutor mentions: "For four years we have pre-service teachers working in groups, but we do not provide them with a foundation for understanding how to work together in a healthy way." (F_Tutors, Pos. 118, Participant: T_O).

As previously noted, the qualitative data also indicate that the development of soft skills may occur beyond the formal components of the DHE programme. This was highlighted in relation to social competences, where experiences outside the academic context, such as work-related interactions, appeared to play a particularly significant role. One participant explained: "Well, I think you learn a lot from working together with colleagues ... especially interacting with colleagues helps build social competences." (F_Pre-service, Pos. 49-51, Participant: I_M).

6. Discussion

This study aimed to examine the potential effects of DHE programmes on pre-service teachers' social competences, flexibility, efficacy beliefs, lifelong learning, and communication skills. Specifically, we aimed to examine how participation in a DHE programme relates to changes in the mentioned skills and identify the pedagogical or structural elements of the DHE programme that explain the observed changes.

The quantitative strand contributed evidence of the magnitude and statistical significance of change, establishing which competencies improved and to what extent. The qualitative strand, in turn, provided explanatory insight into how these developments were experienced and enacted in practice. Thus, the mixed-methods integration enhanced interpretive depth and strengthened the validity of conclusions by combining generalisable measurement with contextualised understanding.

Our quantitative findings indicate that flexibility and efficacy beliefs showed the most substantial improvements, followed by communication and lifelong learning. Interestingly, however, social competences did not exhibit any significant change, which was unexpected given the collaborative nature of DHE programmes. Although flexibility was among the least discussed skills in the focus groups, quantitative data showed the greatest statistical improvement in this dimension. This development can be interpreted through experiential learning theory (Kolb, 1984). The DHE structure mirrors the experiential learning cycle. Pre-service teachers engage in classroom experiences, reflect upon them, connect them to theoretical perspectives, and then experiment with alternative approaches in subsequent practice. This cyclical movement between experience, reflection, conceptualisation and experimentation appears to function as a pedagogical mechanism transforming classroom uncertainty into adaptive competence. For the development of this specific skill, interpreting a situation in class and adapting previous plans to meet the needs of the pupils is common in classrooms and has been identified as useful (Lindqvist et al., 2023). We therefore suggest that DHE programmes in the educational field should integrate hands-on experiences for pre-service teachers, complemented by reflective practices explicitly focused on the development of soft skills. As specific reflective practices have been identified as useful for the articulation of soft skills (Goodwin et al., 2019), embedding them within the DHE programme could help pre-service teachers become more conscious of their improvement and enhance the application of these skills in the future.

Qualitative data also show that the DHE programme enhances pre-service teachers' efficacy beliefs by exposing them to real-world teaching experiences. From a sociocultural viewpoint (Vygotsky, 1978), the role of university and school tutors can be seen as offering scaffolding and progressively shifting responsibility and fostering greater independence. Nevertheless, university tutors mention that some pre-service teachers still lack confidence, partly due to limited hands-on opportunities. Previous research also suggests that immersive work-based activities provide contexts for the improvement of graduates' self-efficacy (Jackson & Cook, 2024). Programme length and the school experience have been identified as supporting structural elements for efficacy beliefs. For pedagogical elements, the role of the school tutor and the learning communities have been perceived as essential for the development of efficacy beliefs. This also reflects processes of legitimate peripheral participation within communities of practice (Lave & Wenger, 1991), where sustained engagement supports the transition from student to professional identity. This aligns with Reddan (2016), who found that WIL programmes effectively enhance work efficacy among exercise science undergraduates, with supervisor feedback, personal motivation and engagement, and consistent work experience identified as key contributing factors. Similarly, recent international research in teacher education highlights the importance of structured integration between university and school contexts for strengthening professional confidence

and identity (Forslund Frykedal & Zimmerman Nilsson, 2025). Accordingly, stronger communication and collaboration between HEIs and schools should be prioritised in DHE programmes to ensure consistent opportunities for pre-service teachers and reduce inequities in access to hands-on experiences.

In the context of lifelong learning, tutors emphasise the importance of fostering pre-service teachers' reflective and proactive attitudes toward their own learning. Work experience in one's field of study can enhance career engagement, as students who perceive their work as relevant tend to be more aware of their learning and actively participate in career planning and networking activities (Tuononen et al., 2024). This result further supports the idea that hands-on experiences stimulate pre-service teachers' reflective thinking and promote the development of skills essential for lifelong learning (Matsumoto-Royo et al., 2022). In this sense, lifelong learning emerges not only as a behavioural outcome but as a developing professional disposition shaped through reflective participation. However, the fact that some pre-service teachers lack a lifelong learning mindset highlights the necessity of explicitly embedding and fostering this mindset throughout DHE programmes. Comparable findings in higher education contexts emphasise the role of guided coaching and structured accompaniment in consolidating employability competences and reflective career engagement (van der Baan et al., 2024), reinforcing the importance of intentional pedagogical design.

Communication is also acknowledged as important and transferable to other skills, supporting lifelong learning and social competences. Real-world professional interactions have been perceived as useful for the development of communication skills. In their research, Doolan et al. (2019) also found that their WIL experience supported the development of, especially, communication through professional relationships. Although it was not specifically stated, the differences in roles of school tutors may lead to a variety of interactions and differences in involvement of their pre-service teachers in their practice. We then hypothesise whether this may also lead to differences in communication skills in professional settings. When discussing areas of improvement, the need for training for university tutors regarding the accompaniment of the pre-service teachers in these programmes, together with the training of their own soft skills was also stressed. Moreover, the need for training of school tutors regarding their role as tutors was also mentioned. We therefore contend that specific training programmes for both university and school tutors are necessary across DHE programmes, not only to guide pre-service teachers effectively but also to model the soft skills they are expected to develop.

Social competences, while not significant in quantitative data, are the second most discussed soft skill and benefit from the DHE programme, though tutors note that structured guidance is needed for effective group work. In this regard, school experience has been identified as a key structural element, together with the roles of the school tutor and the learning community in the case of pedagogical elements. This aligns with the theoretical viewpoints discussed by Ferns et al. (2024), who emphasise the significance of social learning and the learning environment of WIL programmes, as well as the importance of learning communities or communities of practice as discussed by Konstantinou and Miller (2020). The lack of significant differences in social competences may be due to the relatively high mean scores reported by pre-service teachers at the beginning of the programme. Such baseline levels could indicate that these competences had already been developed in other contexts, a possibility also suggested by pre-service teachers in the qualitative data. Research on pre-service teachers' 21st-century skills similarly reports elevated self-perceptions prior to targeted interventions (Gelmez Burakgazi et al., 2019), which may indicate a ceiling effect. Additionally, although collaboration was frequent, explicit instruction on how to collaborate effectively was limited. This indicates that exposure alone is unlikely to produce measurable development and that structural and pedagogical impeding factors need to be systematically accounted for (Tuononen et al., 2022). Pedagogically, this implies that social competence requires intentional

scaffolding rather than being assumed to emerge organically from group work.

Time management has been a particular focus of discussion among university tutors. It was noted that the transition process for pre-service teachers from modules to the DHE programme has also contributed to the insufficient time available to address issues related to the improvement of soft skills. As suggested by Ferns et al. (2024), these types of DHE or WIL programmes benefit from a pre-programme phase in which students prepare for the learning occurring at the workplace, reflect before the programme, set learning goals or identify skills needed during the programme, among other activities. We argue that DHE programmes should extend their duration and implement a pre-DHE phase to facilitate adaptation, maximise opportunities for soft skill development, and ensure a more equitable and effective learning experience for pre-service teachers.

7. Limitations and further research

This study is not without its limitations. First, the sample is limited to self-reported data from just one faculty and in the field of education, which restricts the generalisability of the findings to other professional or academic contexts. In addition, cultural and contextual characteristics of the DHE programme and its regional setting may have influenced participants' perceptions and development of soft skills, potentially limiting the transferability of the results to other national or educational contexts. Secondly, data were gathered in one academic year, meaning that whether the results are sustained over time is unknown. Thirdly, the study failed to consider participants' prior experiences and individual differences, such as their personal experiences with the DHE, which may have affected the results. Finally, qualitative data from school tutors was not gathered, which could have deepened the understanding of the participants' experiences and provided additional insights into the contextual factors influencing the development of soft skills in the DHE programme.

Future research could address these limitations by including participants from multiple faculties and fields to enhance the generalisability of the findings and explore potential differences across disciplines. Longitudinal and observational research designs would be particularly valuable to examine the sustainability of soft skills development and to triangulate self-reported data with behavioural and practice-based evidence. Longitudinal research designs would also be valuable to determine whether the observed effects are sustained over time. Additionally, future studies should account for participants' prior experiences and individual differences to analyse whether and how these factors influence outcomes. Finally, incorporating qualitative data from school tutors and other stakeholders could provide a richer understanding of the mechanisms and contextual factors that shape the development of soft skills within the DHE programme.

8. Conclusion

This study provides valuable insights into the development of pre-service teachers' soft skills within the DHE programme. Results indicate that the programme provided contexts for the development of flexibility, efficacy beliefs, lifelong learning, and communication skills. Flexibility and efficacy beliefs showed the most substantial improvement, followed by communication and lifelong learning. While quantitative results showed no significant change in social competences, qualitative findings emphasised their importance and development. Hands-on experiences, reflective practices, both university and school tutor guidance, and learning communities were identified as key pedagogical and structural elements contributing to these outcomes. These findings emphasise that the development of soft skills relies not only on specific activities but also on the broader educational and professional context. These findings have practical implications, indicating that DHE programmes should purposefully incorporate structured experiential

learning, reflective activities, and supportive mentorship to optimise the development of soft skills. Additionally, educators and programme designers can enhance pre-service teachers' skill acquisition by fostering collaborative learning communities and offering consistent guidance throughout the programme.

CRedit authorship contribution statement

Iraia Urkia-Basterra: Writing – original draft, Formal analysis, Data curation, Conceptualization. **Paula Álvarez-Huerta:** Writing – review & editing, Supervision. **Ainara Imaz Agirre:** Writing – review & editing, Supervision.

Funding

This research was supported by the Basque Government (IKERHEZI-IT1664-22). The first author also acknowledges a pre-doctoral grant awarded by the Faculty of Humanities and Education of Mondragon

Unibertsitatea (Grant number: MU-HUHEZI-2303). The funding sources had no involvement in the study design; collection, analysis or interpretation of data; writing of the report; or the decision to submit the article for publication.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

This research was supported by the Basque Government IKERHEZI-IT1664-22. The first author would also like to acknowledge a pre-doctoral grant awarded by the Faculty of Humanities and Education of Mondragon Unibertsitatea (Grant number: MU-HUHEZI-2303).

APPENDIX A. Qualitative data codification for structural and pedagogical elements

Code	Soft skills	Frequency of code		Example
		Tutors	Students	
Pedagogical elements within DHE for soft skills development				
Learning community	General	2	11	The idea of a learning community isn't just about working in a small group and that's it, it's about building together, enriching my own learning through what others know, or sharing what I have with someone else. (F_Tutors, Pos. 118, Participant: T_O)
	Social competence	3	2	The learning community creates a space where relationships must be developed. In other modules, students can hide, but here that isn't possible. (F_Tutors, Pos. 114, Participant: T_M)
	Efficacy beliefs	2		I think these kinds of spaces, the learning communities where students share and see that they are progressing at the same pace ... really situate them within the profession. (F_Tutors, Pos. 142, Participant: T_M)
	Lifelong learning		1	For me, it's clearly about lifelong learning. The way the classes were designed, with lots of debates and plenty of discussion ... have helped me develop it. (F_Pre-service, Pos. 138, Participant: I_M)
Reflective practice	General	3	8	So, would you say that reflection itself can be a tool for developing these competences? (All: Yes). And how? — Well, for example, the tasks proposed here were very much directed that way. The learning journal, the critical incidents, the final reflection we did ... at least this year, I think the tasks were clearly oriented toward that reflective process." (F_Pre-service, Pos. 64–66, Participant: I_M)
	Efficacy beliefs	1		The tasks help them reflect directly on real situations, and that helps them think, 'maybe I need to improve this.' Little by little, that process helps build their confidence. (F_Tutors, Pos. 143, Participant: T_O)
School tutor	General	4		The teacher has given, in a very spontaneous manner, spaces for reflection with the students, not only pushing them to act in interventions, but also taking time afterwards to think about what happened and what didn't. Meetings were systematised to situate the tasks, and there was constant communication with the students and also with me. (F_Tutors, Pos. 73, Participant: T_N)
	Social competence		2	We also had the opportunity to get to know the tutor and build that relationship. (F_Pre-service, Pos. 105, Participant: I_I)
	Efficacy beliefs	2	4	The tutor told me more than once, 'if you see something to be improved, you can change it, say it, and we'll prepare something.' Hearing things like that gives you a sense of confidence that you are not just a student who is sitting there. (F_Pre-service, Pos. 104, Participant: I_A)
University tutor	General	7	6	As tutors, we make things explicit and provide different contexts so that they also take them into account. (F_Tutors, Pos. 30, Participant: T_O)
	Efficacy beliefs	1	1	Having these interactions with tutors also gives them a lot of confidence, because the tutor isn't just an expert in the profession, they're also a person with doubts like me. Through that sharing, they gain confidence, realising it's okay to work with uncertainty in the profession. (F_Tutors, Pos. 142, Participant: T_M)
Feedback	General	1	5	The university tutor came to the school and we had a meeting. We taught the class, the university tutor observed to give feedback, and afterwards we met, the three of us: the school tutor, the university tutor, and the student. Many aspects were discussed from different perspectives, and I think that was very valuable. (F_Pre-service, Pos. 114, Participant: I_E)
Class intervention	Flexibility		1	You need creativity to design a dynamic intervention that motivates students, then identify any gaps in the class to address them, analysing the situation critically. (F_Pre-service, Pos. 42, Participant: I_A)
	Social competence and communication		1	With the tutor, you can't just leave them out and do whatever you want; you need a good relationship and proper communication to make it work. So I think, at least in my case, this year's interventions encompassed many competences. (F_Pre-service, Pos. 42, Participant: I_A)
Structural elements within DHE for soft skills development				
School experience	General	3		DHE involves various contexts, and one of them is the practicum, which consumes the most time. I believe that the practicum helps a lot in that sense. (F_Tutors, Pos. 30, Participant: T_O)
	Social competence	2	1	The way they relate to their tutors is crucial. They feel the tutor is in one place and they're in another, and until they build that path and create dialogue contexts, there's a need to develop these abilities and competencies. (F_Tutors, Pos. 114, Participant: T_M)

(continued on next page)

(continued)

Code	Soft skills	Frequency of code		Example
		Tutors	Students	
	Efficacy beliefs	2	2	This year, we had a kind of attachment to the profession, a different kind of seriousness, a different relationship with teachers, and you start to take on that teacher role more. (F_Pre-service, Pos. 62, Participant: IJ)
Structure type	General		2	Instead of spending the whole week at school, on Mondays and Tuesdays you take time for reflection, and then Wednesday to Friday you go to the school and see what happens. It gives you that space to reflect and to look at things critically. (F_Pre-service, Pos. 62, Participant: IJ)
Length	Social competence and communication		1	Since the practicum lasted seven or eight months, we also had the opportunity to get to know the tutor, to build that relationship, and to develop communication based on trust." (F_Pre-service, Pos. 105, Participant: IJ)
	Efficacy beliefs	3	2	Being at the school for seven months gives you the time to really become part of the school. Other years, it was just a month, and that was it. With more time, you get used to the school, you feel valued there, and in my case, I've felt comfortable, like I belong, like a teacher in that school. (F_Pre-service, Pos. 61, Participant: IJM)
Learning community	Social competence	3	2	I would say that most of the tasks and dynamics carried out in the learning community help with these social relationships. (F_Tutors, Pos. 113, Participant: T_O)
	Efficacy beliefs	2		The learning communities allow them to share with each other and to see that they are progressing at the same pace ... really situate them within the profession. (F_Tutors, Pos. 142, Participant: T_M)
Meetings	General	1	1	Soft skills are at the centre of every meeting ... I think these meetings are very useful and necessary for monitoring and understanding how students are doing. (F_Tutors, Pos. 84, Participant: T_M)
	Communication		1	Not formal meetings, but we have had small moments where we talked about many aspects, including communication skills. (F_Pre-service, Pos. 114, Participant: I_E)

Data availability

The data that has been used is confidential.

References

- Arranz, N., Arroyabe, M. F., Sena, V., Arranz, C. F. A., & Fernandez De Arroyabe, J. C. (2022). University-enterprise cooperation for the employability of higher education graduates: A social capital approach. *Studies in Higher Education*, 47(5), 990–999. <https://doi.org/10.1080/03075079.2022.2055323>
- Chinn, D., Hieronimus, S., Kirchherr, J., & Klier, J. (2020). *The future is now: Closing the skills gap in Europe's public sector*. McKinsey & Company.
- Clarke, M. (2017). Rethinking graduate employability: The role of capital, individual attributes and context. *Studies in Higher Education*, 43(11), 1923–1937. <https://doi.org/10.1080/03075079.2017.1294152>
- Climent-Ferrando, V., Altuna, J., Galarza, J., & Urquia, I. (2024). Dual university education in Spain. *State of affairs. Fundación Bertelsmann*.
- Coiduras Rodríguez, J., Correa Molina, E., Boudjaoui, M., & Curto Reverte, A. (2017). *Formación Dual en el Grado de Educación: Claves organizativas y pedagógicas. Revista Curriculorum*, 81–102.
- Coiduras Rodríguez, J., París Mañas, G., Torrelles Nadal, C., & Carrera Farran, X. (2014). La evaluación de competencias en una experiencia de formación dual de maestros: Diferencias y semejanzas entre tutores de escuela y de universidad. *Estudios Pedagógicos*, 40(Especial), 29–48. <https://doi.org/10.4067/S0718-07052014000200003>
- Creo, E., de, P., Mareque, M., & Portela-Pino, I. (2020). The acquisition of teamwork skills in university students through extra-curricular activities. *Education + Training*, 63(2), 165–181. <https://doi.org/10.1108/ET-07-2020-0185> (world).
- Doolan, M., Piggott, B., Chapman, S., & Rycroft, P. (2019). The benefits and challenges of embedding work integrated learning: A case study in a University Education Degree Program. *Australian Journal of Teacher Education*, 44(6), 91–108. <https://doi.org/10.14221/ajte.2018v44n6> (WOS:000473783100006).
- Drewery, D., Nevison, C., Pretti, T. J., & Pennaforte, A. (2017). Lifelong learning characteristics, adjustment and extra-role performance in cooperative education. *Journal of Education and Work*, 30(3), 299–313. <https://doi.org/10.1080/13639080.2016.1181728>
- European Commission. (2021). *Teachers in Europe: Careers, development and well-being. (eurydice report)*. Publications Office of the European Union.
- Ferns, S. J., Zegwaard, K. E., Pretti, T. J., & Rowe, A. D. (2024). Defining and designing work-integrated learning curriculum. *Higher Education Research and Development*, 0(0), 1–15. <https://doi.org/10.1080/07294360.2024.2399072>
- Ferrández-Berruero, R., Kekale, T., & Devins, D. (2016). A framework for work-based learning: Basic pillars and the interactions between them. *Higher Education, Skills and Work-based Learning*, 6(1), 35–54. <https://doi.org/10.1108/HESWBL-06-2014-0026>
- Forslund Frykedal, K., & Zimmerman Nilsson, M.-H. (2025). Work-integrated learning in teacher education from the perspectives of both pre-service teachers and teacher educators: An integrative literature review. *Cogent Education*, 12(1), Article 2534157. <https://doi.org/10.1080/2331186X.2025.2534157>
- Gelmez Burakgazi, S., Karsantık, Y., Aktan, T., Ayaz, M. A., Büge, B. C., Karataş, F., Ödün, S., Varol Şanlı, Ş., Tarım, B., & Yavaşca, O. (2019). Equipped or not? Investigating pre-service teachers' 21st century skills. *Asia Pacific Journal of Education*, 39(4), 451–468. <https://doi.org/10.1080/02188791.2019.1671803>
- Goodwin, J., Goh, J., Verkoeyen, S., & Lithgow, K. (2019). Can students be taught to articulate employability skills? *Education + Training*, 61(4), 445–460. <https://doi.org/10.1108/ET-08-2018-0186> (WOS:000489720200004).
- Hakkinen, P., Virtanen, T., Virtanen, A., Naykki, P., Poysa-Tarhonen, J., Niilo-Rama, M., & Jarvela, S. (2020). Finnish pre-service teachers' perceptions of their strategic learning skills and collaboration dispositions. *Journal of Education for Teaching*, 46(1), 71–86. <https://doi.org/10.1080/02607476.2019.1708628>
- Jackson, D., & Bridgstock, R. (2021). What actually works to enhance graduate employability? The relative value of curricular, co-curricular, and extra-curricular learning and paid work. *Higher Education*, 81(4), 723–739. <https://doi.org/10.1007/s10734-020-00570-x> (WOS:000539783100001).
- Jackson, D., & Cook, E. J. (2024). Work-integrated learning in the humanities, arts and social sciences: Where to from here? *Studies in Higher Education*, 0(0), 1–20. <https://doi.org/10.1080/03075079.2024.2409879>
- Jackson, D., Fleming, J., & Rowe, A. (2019). Enabling the transfer of skills and knowledge across classroom and work contexts. *Vocations and Learning*, 12(3), 459–478. <https://doi.org/10.1007/s12186-019-09224-1>
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79(1), 491–525. <https://doi.org/10.3102/0034654308325693>
- Josefsson, K., Naverá, E., Wilner, A., & Masterson, D. (2024). A bibliographic review of work-integrated learning research. *International Journal of Work-Integrated Learning*, 25(4), 517–535. <https://doi.org/10.1371/journal.pone.0216126>
- Klassen, R. M., Durksen, T. L., Al Hashmi, W., Kim, L. E., Longden, K., Metsäpelto, R.-L., Poikkeus, A.-M., & Györi, J. G. (2018). National context and teacher characteristics: Exploring the critical non-cognitive attributes of novice teachers in four countries. *Teaching and Teacher Education*, 72, 64–74. <https://doi.org/10.1016/j.tate.2018.03.001>
- Konstantinou, I., & Miller, E. (2020). Investigating work-integrated learning and its relevance to skills development in degree apprenticeships. *Higher Education, Skills and Work-based Learning*, 10(5), 767–781. <https://doi.org/10.1108/HESWBL-05-2020-0112>
- Lindqvist, H., Weurlander, M., Barman, L., Wernerson, A., & Thornberg, R. (2023). Work-based learning partnerships: Mentor-teachers' perceptions of student teachers' challenges. *Educational Research*, 65(3), 392–407. <https://doi.org/10.1080/00131881.2023.2234384>
- Llorent, V. J., & Núñez-Flores, M. (2023). Las competencias socioemocionales y morales del profesorado de Educación Infantil a Educación Secundaria. *Revista Complutense de Educación*, 34(3), 593–603. <https://doi.org/10.5209/rced.79717>
- Marlow, S. L., Lacerenza, C. N., Paoletti, J., Burke, C. S., & Salas, E. (2018). Does team communication represent a one-size-fits-all approach?: A meta-analysis of team communication and performance. *Organizational Behavior and Human Decision Processes*, 144, 145–170. <https://doi.org/10.1016/j.obhdp.2017.08.001>
- Matsumoto-Royo, K., Ramírez-Montoya, M. S., & Glasserman-Morales, L. D. (2022). Lifelong learning and metacognition in the assessment of pre-service teachers in practice-based teacher education. *Frontiers in Education*, 7, Article 879238. <https://doi.org/10.3389/educ.2022.879238>
- OECD. (2019). *OECD learning compass 2030*.
- Pendergast, D., Garvis, S., & Keogh, J. (2011). Pre-service student-teacher self-efficacy beliefs: An insight into the making of teachers. *Australian Journal of Teacher Education*, 36(12). <https://doi.org/10.14221/ajte.2011v36n12.6>
- Pogatsnik, M. (2018). Dual education: The win-win model of collaboration between universities and industry. *International Journal of Engineering Pedagogy (IJEP)*, 8(3), 145–152. <https://doi.org/10.3991/ijep.v8i3.8111>

- Proudfoot, K. (2023). Inductive/deductive hybrid thematic analysis in mixed methods research. *Journal of Mixed Methods Research*, 17(3), 308–326. <https://doi.org/10.1177/15586898221126816>
- Reddan, G. (2016). The role of work-integrated learning in developing students' perceived work self-efficacy. *Asia-Pacific Journal of Cooperative Education*, 17(4), 423–436.
- Robles, M. M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly*, 75(4), 453–465. <https://doi.org/10.1177/1080569912460400>
- Sala, A., Punie, Y., Garkov, V., & Cabrera, M. (2020). *LifeComp: The European framework for personal, social and learning to learn key competence (EUR 30246 EN)*. Publications Office of the European Union.
- Scoupe, R., Römgen, I., & Beusaert, S. (2023). The development and validation of the student's employability competences questionnaire (SECQ). *Education + Training*, 65(1), 88–105. <https://doi.org/10.1108/ET-12-2020-0379> (WOS:000904041100001).
- Sin, C., & Neave, G. (2016). Employability deconstructed: Perceptions of Bologna stakeholders. *Studies in Higher Education*, 41(8), 1447–1462. <https://doi.org/10.1080/03075079.2014.977859>
- Succi, C., & Canovi, M. (2020). Soft skills to enhance graduate employability: Comparing students and employers' perceptions. *Studies in Higher Education*, 45(9), 1834–1847. <https://doi.org/10.1080/03075079.2019.1585420>
- Tuononen, T., Hyytinen, H., Kleemola, K., Hailikari, T., Männikkö, I., & Toom, A. (2022). Systematic review of learning generic skills in higher education—enhancing and impeding factors. *Frontiers in Education*, 7. <https://doi.org/10.3389/educ.2022.885917>
- Tuononen, T., Räisänen, M., & Hyytinen, H. (2024). Students' work experience in relation to their career engagement and metacognitive awareness. *Higher Education Research and Development*, 43(6), 1399–1415. <https://doi.org/10.1080/07294360.2024.2332251>
- Tynjälä, P., Virtanen, A., Klemola, U., Kostiainen, E., & Rasku-Puttonen, H. (2016). Developing social competence and other generic skills in teacher education: Applying the model of integrative pedagogy. *European Journal of Teacher Education*, 39(3), 368–387. <https://doi.org/10.1080/02619768.2016.1171314>
- Urkia-Basterra, I., Agirre, A. I., & Álvarez-Huerta, P. (2025). Soft skills development in work-based learning: A systematic literature review. *Higher Education, Skills and Work-based Learning*, 15(4), 740–757. <https://doi.org/10.1108/HESWBL-11-2024-0348> (world).
- van der Baan, N., Nuis, W., Beusaert, S., Gijsselaers, W., & Gast, I. (2024). Developing employability competences through career coaching in higher education: Supporting students' learning process. *Studies in Higher Education*, 49(12), 2455–2474. <https://doi.org/10.1080/03075079.2024.2307976>
- Wylie, K., & Cummins, B. (2013). Can student teachers acquire core skills for teaching from part-time employment? *British Educational Research Journal*, 39(3), 565–584. <https://doi.org/10.1080/01411926.2012.663747> (WOS:000330178600007).
- Yurt, E. (2023). 21st-century skills as predictors of pre-service teachers' professional qualifications: A cross-sectional study. *International Journal of Education in Mathematics, Science and Technology*, 11(5), Article 5. <https://doi.org/10.46328/ijemst.3291>
- Zee, M., & Koomen, H. M. Y. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher well-being: A synthesis of 40 years of research. *Review of Educational Research*, 86(4), 981–1015. <https://doi.org/10.3102/0034654315626801>