

DEVELOPING SOFT SKILLS THROUGH DUAL HIGHER EDUCATION: A COMPARISON OF EDUCATION AND BUSINESS MASTER'S STUDENTS

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Abstract

This exploratory study examines changes in selected soft skills among master's students participating in Dual Higher Education (DHE) programmes and investigates whether these changes differ between fields of education and business. Using a pre–post design, data were collected from a convenience sample of 17 students enrolled DHE master's programmes in education and business. Students completed a questionnaire before and after participating in the programme, and repeated-measures analysis of variance was conducted to analyse changes over time, differences between fields of study, and interaction effects. The results indicated a significant improvement over time in oral and written communication skills, with a medium-to-large effect size. Education students reported consistently higher efficacy beliefs than business students at both measurement points, suggesting stable field-related differences. In addition, a significant interaction between time and field of study was found for social competence, with education students scoring higher than business students at post-test. These findings suggest that DHE master's programmes may effectively support the development of communication skills, while other soft skills appear to be shaped by disciplinary context and prior experiences. This underscores the need for discipline-sensitive and pedagogically intentional programme design.

1 Introduction

Ongoing societal transformations, including digitalisation, climate change, and rapid advances in artificial intelligence, are reshaping how individuals live, work, and learn (OECD, 2019). These changes have increased the demand for graduates who are not only technically competent but also able to respond effectively to uncertainty, complexity, and continuous change across professional and personal contexts (Sala et al., 2020).

European higher education policy has increasingly emphasised the role of universities in fostering these skills. In particular, the Bologna Process highlighted the responsibility of higher education institutions (HEIs) to support the development of transversal competences alongside academic knowledge (Sin & Neave, 2016). Soft skills are now widely recognised as higher-order capabilities that contribute to graduates' professional identity and work readiness, rather than as secondary or optional learning outcomes (Clarke, 2017). Nevertheless, despite sustained

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institutional efforts (Succi & Canovi, 2020), skills shortages remain across Europe (Chinn et al., 2020).

One approach that has gained increasing attention for supporting soft skill development is the integration of workplace learning into higher education programmes. Collaboration between HEIs and external organisations has been linked to improved skill acquisition and greater alignment between education and labour market needs (Arranz et al., 2022; Ferrández-Berrueto, 2016). In line with this perspective, research has shown that engaging in paid work alongside academic studies can contribute positively to students' soft skill development, particularly by exposing them to authentic professional demands and social interactions (Bennett et al., 2023).

Within this context, educational models that formally combine academic study with structured workplace experience are gaining increasing relevance. Dual Higher Education (DHE) programmes integrate university curricula with supervised periods of professional practice in qualified organisations, enabling students to apply theoretical knowledge to real-world tasks and challenges (Climent-Ferrando et al., 2024; Pogatsnik, 2018; Turk, 2023). Such initiatives are often discussed alongside related approaches, including Work-Based Learning (WBL) and Work-Integrated Learning (WIL), which similarly aim to connect higher education with workplace experience, although their terminology, structure, and degree of curricular integration vary considerably across national and institutional contexts (Ferns et al., 2024; Lester & Costley, 2010; Pogatsnik, 2018; Varga & Sági, 2024). Across Europe, a growing number of universities are implementing, expanding, or consolidating DHE programmes within their degree offerings, reflecting broader policy and institutional interest in work-integrated forms of higher education (Dragan & Hochrinner, 2024; Dupouy & Bakni, 2024a; Dupouy & Bakni, 2024b; Viklund & Elgundi, 2024).

DHE programmes differ from traditional internships in that they are embedded within the curriculum, involve systematic coordination between universities and workplaces, and often include enhanced tutoring and assessment mechanisms (Climent-Ferrando et al., 2024). Beyond facilitating the integration of theory and practice, DHE programmes are widely perceived as valuable for the development of soft skills because they encourage students to enact discipline-specific knowledge, behaviours, and professional competences in authentic work environments (Clarke, 2017; Tuononen et al., 2022). Across Europe, such programmes are increasingly being implemented at both bachelor's and master's levels. Although these programmes are perceived as beneficial for employability and professional development, empirical evidence on their effectiveness in fostering different soft skills remains limited, especially in master's degree programmes (Urkiá-Basterra et al., 2025).

2 Theoretical framework

Soft skills are widely recognised as essential components of professional competence, yet their conceptualisation remains diverse and, at times, inconsistent. Terms such as soft skills, generic skills, and transversal competences are often used interchangeably, reflecting differing theoretical traditions and research contexts (Cinque, 2016; Marin-Zapata et al., 2022). To provide conceptual clarity, the present study is informed by the OECD Future of Education and Skills 2030 framework, which defines skills as the capacity to mobilise knowledge, attitudes, and values in order to act effectively and responsibly in complex situations (OECD, 2019). The study also adopts the Robles' definition of soft skills as interpersonal and career-related skills (Robles, 2012). This perspective emphasises that skills are demonstrated through action and are shaped by learning opportunities within specific social and professional contexts. In this study, the terms skills and competences are used in a complementary manner. Following the OECD framework, competences are understood as broader capabilities that integrating knowledge, skills, attitudes, and values, whereas soft skills refer to specific interpersonal and self-regulatory abilities enacted within professional contexts. The present study focuses on measurable soft skills as observable components of broader professional competences.

Several learning theories provide a rationale for expecting DHE and other work-based programmes to influence the development of these competences (Ferns et al., 2024). Experiential learning theory conceptualises learning as a cyclical process in which concrete experiences are

transformed into knowledge through reflection, abstraction, and experimentation (Kolb, 1984). The alternating structure of DHE programmes, in which students move repeatedly between academic and workplace environments, offers opportunities to engage in these cycles and to refine behaviour through practice. From a sociocultural perspective, learning is understood as inherently social and situated within specific communities of practice (Lave & Wenger, 1991; Vygotsky, 1978). Through participation in workplace activities and interaction with supervisors, colleagues, and clients, students are able to observe, model, and internalise professional norms and behaviours.

Although higher education primarily offers structured and formalised learning environments, workplaces provide rich opportunities for informal and unplanned learning experiences (Eraut, 2004). Learning that occurs in professional contexts enables individuals to expand and refine their knowledge, skills, and attitudes through everyday practice and interaction (Janssens et al., 2017). Such learning processes emphasise the importance of peer exchange and experiential engagement and support the development of a wide range of competences, including personal growth and collaborative abilities (Eraut, 2004). In this regard, research highlights that combining employment with academic study can be particularly beneficial for enhancing career awareness, social competences, and broader professional skills (Brosnan et al., 2024; Clark et al., 2015).

While DHE programmes provide a shared structural framework, the nature of learning opportunities and the importance of soft skills may vary across disciplinary contexts. In education, teaching practice is shaped not only by subject knowledge and cognitive skills but also by interpersonal abilities, beliefs, motivation, and the capacity to engage productively with diverse stakeholders (Hakkinen et al., 2020). For students preparing to enter the teaching profession, soft skills form a crucial component of professional preparedness and qualification (Yurt, 2023). Education placements typically emphasise interpersonal and pedagogical communication, whereas business placements may focus more on organisational communication, teamwork, and adaptability in dynamic settings. In business areas, contemporary workplaces place particular value on soft skills that encourage initiative, collaboration, and engagement with complexity (Fletcher & Thornton, 2023). These contextual differences may influence which soft skills are most frequently enacted and how feedback is provided, leading to potential variation in developmental patterns between fields of study.

Effective communication plays a central role in broader societal functioning and collaborative performance in professional settings (Marlow et al., 2018; OECD, 2021). Within DHE and WIL contexts, communication skills are among the most frequently examined competences, with evidence across multiple disciplines indicating that DHE programmes are perceived as supportive environments for their development (Urkiá-Basterra et al., 2025). Nevertheless, despite their recognised importance, communication skills remain an area in which many students continue to demonstrate limitations (Moore & Morton, 2017).

Learning in workplace contexts is inherently social and experiential, offering opportunities for students to develop competences through interaction and participation in shared practices (Leiß & Rausch, 2023). The quality of students' interactions with peers, supervisors, and other professionals is closely related to their cognitive and behavioural development, highlighting the relevance of social competences in professional learning environments (Tan et al., 2022). Although social skills are often addressed under constructs such as teamwork or interpersonal competence, stakeholders continue to report gaps in students' social competences, underscoring the need for further investigation in this area (Prikshat et al., 2019).

Flexibility has been identified as a key competence for coping with uncertainty and navigating rapidly changing workplace environments (OECD, 2019). Immersive DHE experiences have been associated with enhanced adaptability, as students are required to respond to evolving professional demands and unfamiliar situations (Gardner, 2017; Martín-Lara et al., 2019). However, many graduates continue to struggle to develop flexibility, and students often underestimate its importance compared to employers' expectations (Chinn et al., 2020; Succi & Canovi, 2020). This discrepancy suggests that the role of workplace-based learning in fostering flexibility warrants further empirical attention.

Efficacy beliefs constitute a key construct in higher education research and refer to students' perceptions of their capacity to make a meaningful difference in academic and professional contexts (Yorke & Knight, 2006). Grounded in Bandura's (1997) conception of self-efficacy as beliefs in one's

ability to organise and execute actions to achieve desired outcomes, efficacy beliefs are particularly relevant in DHE programmes, where learning is closely tied to the performance of authentic professional tasks. While engagement in work-related and extracurricular activities has been shown to foster self-efficacy and career-related confidence (Bennett et al., 2023; Brosnan et al., 2024), the development of efficacy beliefs within structured DHE programmes remains comparatively underexplored (Urkiá-Basterra et al., 2025).

Finally, lifelong learning has been linked to improved professional adaptation, performance, and long-term employability (Drewery et al., 2017). Developing lifelong learning orientations is also considered essential for students' well-being and sustained success in dynamic labour markets (Ferns et al., 2024). Despite its relevance, research examining lifelong learning within DHE contexts remains limited, indicating a need for further studies exploring how structured work-integrated programmes support this competence over time (Drewery et al., 2020).

In this context, the present study explores changes in specific soft skills among master's students engaged in DHE programmes using a pre-post design. The research targets students enrolled in education and business master's programmes. It aims to determine whether participation in the DHE programme is associated with changes in social competence, efficacy beliefs, flexibility, lifelong learning, and communication skills, and whether these changes vary by field of study.

3 The present study

This study draws on the competence-based framework proposed by Scoupe et al. (2023), which integrates insights from higher education and workplace learning research. This perspective is particularly relevant for the present research, as DHE programmes intentionally integrate academic study with professional practice. Their work proposes seven soft skills: social competence, e-literacy, efficacy beliefs, flexibility, healthy work-life balance, lifelong learning, and oral and written communication. Nevertheless, while Scoupe et al. (2023) include e-literacy and work-life balance within their framework, these dimensions were not considered in the present study. In DHE programmes, digital competences are typically embedded within academic and workplace activities, while programme structures are less directly associated with students' work-life balance. Consequently, this study focuses on five soft skills: social competence, oral and written communication, flexibility, efficacy beliefs, and lifelong learning.

Within this framework, social competence refers to the ability to establish and maintain professional relationships and collaborate effectively with others. Efficacy beliefs reflect individuals' confidence in their capacity to perform tasks and manage learning processes within their field. The SECQ efficacy beliefs subscale operationalises self-efficacy as domain-specific, employability-related confidence, consistent with Bandura's (1997) conceptualisation of efficacy beliefs as context-bound perceptions of capability. Flexibility involves adapting to changing demands and students' capacity to control their emotions when responding to unexpected situations. Lifelong learning represents an ongoing orientation towards personal and professional development, including career planning and skill renewal. Communication encompasses oral and written abilities required to convey ideas clearly across diverse settings.

Empirical studies examining DHE as a distinct form of WIL remain limited, especially at the master's level. While DHE can be understood as a specific institutionalised form of WIL, the present study focuses on DHE due to its structured alternation and formal partnership model. Furthermore, existing research has tended to focus on selected skills or specific disciplinary contexts, leaving gaps in understanding how different soft skills develop over time and whether such development varies across fields of study (Urkiá-Basterra et al., 2025).

Therefore, the present study examines changes in these soft skills among master's students participating in a DHE programme. Using a pre-post design, the study investigates whether participation in the DHE programme is associated with changes in these five soft skills. In addition, the study compares students enrolled in education and business master's programmes in order to explore whether patterns of soft skill development differ by field of study. Given the limited empirical evidence on soft skill development within DHE master's programmes, particularly across disciplinary

contexts, this study adopts an exploratory approach. The findings are therefore intended to provide initial insights rather than definitive conclusions.

The following research questions were formulated:

- RQ1: Are there observable changes in students' soft skills over the course of participation in the DHE programme?
- RQ2: Are there any significant differences between the fields of study?

4 Methodology

4.1 Participants

The sample consisted of 17 students enrolled in master's degree programmes related to educational sciences and business at a university in the Basque Country, northern Spain. Of the 17 students, seven were enrolled in an educational sciences degree and ten in various business-related degrees. Given the exploratory nature of the study and the emerging implementation of DHE at the master's level, the sample size reflects an initial cohort rather than a representative population.

The participants were enrolled in DHE master's programmes offered by a university in the Basque Country, northern Spain. These programmes follow a structured alternation model in which academic coursework is formally integrated with supervised professional practice in partner organisations throughout the academic year. Although both groups were enrolled in DHE master's programmes, the organisation of university-workplace alternation differed by field of study. Students in education-related programmes alternated short, recurring periods of school-based practice with periods of university coursework throughout the academic year. In contrast, students in business-related programmes followed a daily alternation model, typically combining workplace and university activities within the same day, most commonly through morning-afternoon arrangements. In terms of total workplace hours, master's students in both fields completed approximately 700 to 800 hours of work.

4.2 Instruments

All five soft skills - social competences, efficacy beliefs, flexibility, lifelong learning, and oral and written communication - were measured using the SECQ Questionnaire (Scoupe et al., 2023). All items were measured on a five-point Likert-type scale, ranging from 1 = "Completely disagree" to 5 = "Completely agree".

Table 1. Questionnaire structure and reliability analysis

<i>Soft skill</i>	<i>Pre Cronbach's α</i>	<i>Post Cronbach's α</i>	<i>Item number</i>	<i>Example</i>
Social competences	0.78	0.84	6	I can operate within and contribute to a respectful, supportive, and cooperative group climate.
Efficacy beliefs	0.81	0.73	8	I feel confident and ready to start working.
Flexibility	0.59	0.78	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	0.57	0.64	4	I am focused on continuously developing myself.
Oral and written communication	0.80	0.82	5	I clearly express my thoughts and opinions in writing.

The lifelong learning subscale of the SECQ Questionnaire (Scoupe et al., 2023) originally included six items. The initial six-item lifelong learning subscale demonstrated low internal consistency at post-test ($\alpha = .41$). Inspection of item-total correlations indicated that two reverse-coded items contributed negatively to reliability. Reverse-coded items are known to introduce method effects and misunderstanding, particularly in translated or self-report educational measures. Therefore, these two items were removed to improve internal consistency and ensure more coherent measurement of the construct. Although removal of the reverse-coded items improved internal consistency, this decision may have implications for construct breadth. The revised subscale may emphasise positively framed aspects of lifelong learning orientation while potentially underrepresenting dimensions such as resistance or ambivalence towards learning that were reflected in the reverse-coded items. Therefore, the findings should be interpreted in light of this modification.

4.3 Procedure

Participants were recruited using convenience sampling. Before participation, students were informed about the purpose of the study and assured that participation was entirely voluntary and that all responses would remain confidential. The pre-test was administered in September before the start of the programme, and the post-test was administered after the programme in May-June. Electronic informed consent was obtained from all students before data collection. Completion of the survey took approximately 10 minutes. The study protocol received approval from the university's Ethics Committee for Research Involving Human Subjects.

4.4 Data analysis

Data were analysed using repeated-measures analysis of variance (ANOVA). Time (pre-test vs. post-test) was treated as a within-subjects factor, while field of study was included as a between-subjects factor. This approach enabled the examination of changes in students' soft skills over time, differences between fields, and the interaction between time and field.

The choice of repeated-measures ANOVA reflects the longitudinal structure of the data and the study's interest in both within-subject change and between-group differences. By modelling time as a within-subjects factor and field of study as a between-subjects factor, this approach enabled the simultaneous examination of developmental trajectories and disciplinary variation. Given the relatively small sample size, effect sizes were considered particularly important for interpretation. Partial eta-squared values provide information about the magnitude of observed effects and offer insight into practical significance beyond p-values alone.

A small amount of missing data was observed, primarily affecting some pre-test responses among business students. Analyses in JAMOVl were conducted using listwise deletion for repeated-measures ANOVA; therefore, only participants with complete data for the variables included in each model were retained. Given the exploratory nature and small sample size, no imputation procedures were performed.

Before analysis, assumptions of repeated-measures ANOVA were evaluated. All variables showed adequate skewness and kurtosis values (skewness range: -0.98 to 0.66; kurtosis range: -1.60 to 1.73), which were considered acceptable for normality. Effect sizes were reported using partial eta squared (η^2p). Statistical significance was set at $p < .05$. All analyses were conducted using JAMOVl version 2.6.26.0.

5 Results

Table 2 presents the descriptive statistics for all soft skills measured before (pre-test) and after (post-test) participation in the DHE programme. Overall, mean scores were relatively high at baseline across all dimensions. Small changes between pre- and post-test means were observed, with some skills showing slight increases and others remaining stable or slightly decreasing. Specifically, flexibility increased from a pre-test mean of 3.81 (SD = 0.41) to a post-test mean of 4.00 (SD = 0.49),

while communication increased from 3.88 (SD = 0.53) to 4.04 (SD = 0.58). In contrast, social competence showed a minimal decrease from 4.47 (SD = 0.38) to 4.42 (SD = 0.46). Similarly small decreases were observed for efficacy beliefs and lifelong learning. Descriptive statistics (Table 2) revealed high baseline means across all measured constructs, with social competence approaching the upper end of the scale, indicating limited variability at pre-test.

Table 2. Descriptive statistics

	Mean	Median	SD	Min	Max
pre_sc	4.47	4.40	0.380	3.80	5.00
post_sc	4.42	4.40	0.462	3.60	5.00
pre_eb	3.98	3.88	0.510	2.63	4.75
post_eb	3.84	3.75	0.528	3.00	4.88
pre_flx	3.81	3.75	0.410	3.00	4.75
post_flx	4.00	4.00	0.489	3.25	5.00
pre_ll	3.74	3.75	0.480	2.50	5.00
post_ll	3.71	3.63	0.611	2.50	5.00
pre_com	3.88	3.80	0.525	3.20	5.00
post_com	4.04	4.00	0.578	2.80	5.00

Results from repeated-measures ANOVA (Table 3) showed no significant overall change over time in social competence ($F = 0.176$, $p = 0.681$, $\eta^2p = 0.012$). However, a significant interaction between time and field of study emerged ($F = 5.639$, $p = 0.031$, $\eta^2p = 0.273$). Post hoc comparisons indicated that education and business students differed significantly at post-test, with education students scoring higher than business students (mean difference = 0.657, $p = 0.004$). No statistically significant differences between fields were observed at pre-test, and within-field pre-post comparisons did not reach significance. Descriptive statistics by field showed that education students' social competence increased from $M = 4.60$ (SD = 0.37) at pre-test to $M = 4.86$ (SD = 0.19) at post-test, whereas business students' scores decreased slightly from $M = 4.38$ (SD = 0.38) to $M = 4.22$ (SD = 0.44). Although these within-group changes were not statistically significant, the opposite directions of change resulted in a widening gap between fields at post-test, explaining the significant time \times field interaction.

Scores for efficacy beliefs remained stable over time, with no significant main effect of time ($F = 0.012$, $p = .914$, $\eta^2p = 0.001$) and no significant time and field interaction ($F < 0.001$, $p = 0.985$, $\eta^2p < 0.001$). Nevertheless, a significant between-subjects effect of field was found ($F = 7.02$, $p = 0.018$, $\eta^2p = 0.319$). Post hoc comparisons showed that education students reported higher efficacy beliefs than business students overall (mean difference = 0.490, $p = 0.018$).

A tendency towards improvement was observed in flexibility. Although this effect did not reach statistical significance, it showed a small-to-medium effect size ($F = 3.631$, $p = 0.076$, $\eta^2p = 0.195$). Neither the interaction between time and field ($F = 0.048$, $p = 0.829$, $\eta^2p = 0.003$), nor the between-subjects effect of field ($F = 0.278$, $p = 0.606$, $\eta^2p = 0.018$) reached statistical significance. Given the absence of significant effects, post hoc analyses were not interpreted.

No significant changes over time were detected in lifelong learning, with a non-significant main effect of time ($F = 0.005$, $p = 0.947$, $\eta^2p < 0.001$), and no significant interaction between time and field ($F = 0.147$, $p = 0.707$, $\eta^2p = 0.010$). Differences between fields of study were also not statistically significant ($F = 2.88$, $p = 0.110$, $\eta^2p = 0.161$), and no post hoc tests indicated meaningful pairwise differences.

A significant improvement over time was observed in communication, as shown by a significant main effect of time ($F = 6.783$, $p = 0.020$, $\eta^2p = 0.311$). Post hoc comparisons confirmed that communication scores were significantly higher at post-test than at pre-test (mean difference = -0.324, $p = 0.020$). Neither the interaction between time and field ($F = 0.701$, $p = 0.415$, $\eta^2p =$

0.045), nor the between-subjects effect of field ($F = 3.12$, $p = 0.098$, $\eta^2p = 0.172$), reached statistical significance, indicating that this improvement was consistent across fields of study.

Table 3. Effects of the DHE programme and field of study

		<i>F</i>	<i>Mean Square</i>	<i>p</i>	η^2p
Social competence	Time	0.176	0.012	0.681	0.012
	Time * field	5.639	0.393	0.031*	0.273
Efficacy beliefs	Time	0.012	0.002	0.914	0.001
	Time * field	3.76e-4	5.91e-5	0.985	0.000
Flexibility	Time	3.631	0.335	0.076	0.195
	Time * field	0.048	0.004	0.829	0.003
Lifelong learning	Time	0.005	9.45e-4	0.947	0.000
	Time * field	0.147	0.030	0.707	0.010
Communication	Time	6.783	0.866	0.020*	0.311
	Time * field	0.701	0.090	0.415	0.045

6 Discussion

The present study examined changes in selected soft skills among master's students participating in DHE programmes and explored whether these changes differed between education and business students. Overall, the findings provide a nuanced picture of soft skill development in DHE contexts, suggesting that participation in the programme is associated with improvement in specific competences, not all soft skills evolve uniformly over time or develop identically across fields of study.

This nuanced pattern reinforces perspectives that conceptualise soft skills as contextually situated and unevenly developed, rather than as a homogeneous set of outcomes. In DHE environments, students are exposed to multiple, and sometimes competing, expectations that may stimulate growth in some skills while stabilising others. Consequently, the absence of uniform change across all measured skills should not be interpreted as a weakness of DHE programmes, but rather as an indication of the differentiated nature of learning processes embedded within professional practice.

With regard to RQ1, the results indicate that oral and written communication skills increased significantly from pre-test to post-test during the programme period. Communication was the only soft skill showing a statistically significant main effect of time, with a medium-to-large effect size. This finding aligns with experiential and sociocultural learning perspectives (Kolb, 1984; Lave & Wenger, 1991), which emphasise that repeated engagement in authentic professional situations fosters the development of skills that are enacted through practice. DHE programmes require students to communicate regularly with supervisors, colleagues, and academic tutors, as well as to

adapt their discourse to different audiences and contexts. Such sustained exposure may explain why communication skills appear particularly responsive to development through DHE.

In addition, communication spans both academic and professional environments, making it consistently important throughout the DHE experience. Students must engage in written reporting, oral presentations, professional correspondence, and informal interaction, all of which provide frequent opportunities for feedback and self-regulation. These repeated communicative demands may accelerate the development of communication skills more effectively than skills that are enacted less explicitly or evaluated less directly. This finding is in line with previous research indicating that WIL programmes are effective for developing communication skills (Doolan et al., 2019; Fleming & Haigh, 2017; Grooters et al., 2023).

In contrast, no significant overall changes were observed for social competence, efficacy beliefs, flexibility, or lifelong learning. One plausible explanation relates to the relatively high baseline scores observed at pre-test, suggesting potential ceiling effects. Students entering DHE master's programmes may already possess well-developed soft skills due to prior academic and professional experiences, limiting the observable magnitude of change.

Nevertheless, flexibility showed a tendency towards improvement, with a medium effect size despite not reaching conventional levels of statistical significance. Given the small sample size, this trend may still be theoretically meaningful. Flexibility is closely linked to coping with uncertainty and adapting to changing demands (OECD, 2019), which are core features of alternating academic and work environments. From an experiential learning perspective, such competences are expected to develop through repeated cycles of action, reflection, and adjustment (Kolb, 1984). It is possible that flexibility may develop gradually as students accumulate diverse experiences across placements, suggesting that longer or more intensive DHE trajectories might yield clearer effects. This interpretation aligns with theoretical accounts that position flexibility as a skill shaped through exposure to complex and unpredictable situations, as well as with previous research indicating that adaptability can be developed in WIL contexts (Gardner, 2017; Martín-Lara et al., 2019). In DHE contexts, students must frequently negotiate transitions between institutional settings, manage competing deadlines, and respond to evolving workplace expectations. Such experiences may initiate developmental processes that are not immediately captured through quantitative measures but contribute to longer-term professional adaptability.

Regarding RQ2, differences between fields of study emerged for efficacy beliefs. Education students reported significantly higher efficacy beliefs than business students at both measurement points, indicating a field-related difference rather than an effect of participation in the DHE programme. This pattern may suggest that efficacy beliefs are strongly influenced by disciplinary and professional socialisation processes. The higher efficacy beliefs among education students may be attributable to educational pathways that typically emphasise clearly defined professional roles, normative standards of practice, and ongoing formative feedback, all of which support the development of self-efficacy through repeated mastery and social persuasion experiences (Bandura, 1997; Dacre Pool & Sewell, 2007). From a sociocultural perspective, efficacy beliefs are shaped not only by successful task completion but also by how achievement is interpreted and valued within specific professional communities. Research in teacher education has previously shown that strong efficacy beliefs are associated with professional commitment and motivation, personal accomplishment, resilience, and well-being, reinforcing their centrality in educational contexts (Pendergast et al., 2011; Zee & Koomen, 2016).

A significant interaction between time and field was observed for social competence. Although no overall change over time was detected, education students scored significantly higher than business students at the post-test. This divergence suggests that the DHE experience may differentially shape social competence depending on disciplinary context. Education placements typically involve sustained interpersonal interaction with pupils, colleagues, and families, as well as continuous relational and emotional engagement, which may provide richer opportunities to enact and refine social competences. In contrast, business placements may prioritise task-oriented collaboration and performance outcomes over explicitly relational processes.

Taken together, the findings suggest that DHE programmes may not uniformly enhance all soft skills, but they appear particularly relevant for fostering communication skills and, to a lesser extent, flexibility and social competence in context-specific ways. These findings suggest that soft skill

development may be highly situated and contingent on the nature of learning opportunities embedded within specific disciplinary and professional environments.

6.1 Implications

The findings of this study offer several practical implications for the design, implementation, and evaluation of DHE programmes at the master's level. However, given the exploratory design, small sample size, and absence of a control group, these implications should be interpreted cautiously and regarded as indicative rather than prescriptive. First, the significant improvement observed in oral and written communication suggests the value of sustained engagement in authentic professional contexts for developing skills that are enacted frequently across both academic and workplace settings. Universities and partner organisations might therefore consider embedding structured communication opportunities within DHE curricula, such as reflective reporting, professional writing tasks, presentations, and regular feedback exchanges with workplace tutors. These activities appear particularly effective when communication demands are explicit and aligned across institutional contexts (Clarke, 2017; Urkia-Basterra et al., 2025).

Second, the absence of significant change in several soft skills, despite medium effect sizes in some cases, suggests that not all competences develop automatically through participation in DHE programmes. Skills such as lifelong learning, flexibility, and efficacy beliefs may require more intentional pedagogical scaffolding. Programme designers could strengthen these dimensions by incorporating guided reflection, mentoring conversations, and goal-setting activities that encourage students to articulate learning strategies, manage uncertainty, and recognise competence development over time (Ferns et al., 2024). Such measures may be particularly important at the master's level, where students often enter programmes with relatively high baseline skills and may benefit more from refinement than from exposure alone.

Third, the field-specific patterns identified in social competence and efficacy beliefs highlight the potential importance of discipline-sensitive programme design. DHE initiatives should acknowledge that professional socialisation processes differ between education and business contexts and that soft skills are enacted and reinforced in field-specific ways (Fletcher & Thornton, 2023). Closer coordination between academic staff and workplace supervisors could support alignment between expected learning outcomes and the actual opportunities provided in placements, ensuring that less visible competences are recognised and intentionally supported.

Overall, these findings suggest that while DHE programmes may offer opportunities for soft skill development, their full potential may be enhanced when experiential learning is complemented by structured pedagogical support that accounts for disciplinary context and students' developmental stage.

7 Limitations and further research

Several limitations should be considered when interpreting these findings. The small sample size reflects the limited scale and emerging status of DHE master's programmes and constrains statistical power and generalisability. Significant interactions in studies with small samples should also be interpreted with caution. However, exploratory designs are particularly valuable in under-researched contexts, as they allow for the identification of patterns, effect sizes, and theoretically meaningful tendencies that can inform future large-scale and comparative studies. Some non-significant findings, particularly those with medium effect sizes, may reflect insufficient power rather than the absence of meaningful effects. The study also relied exclusively on self-report measures, which may be influenced by social desirability or students' subjective interpretations of their skills. Future research could incorporate supervisor assessments, peer evaluations, or performance-based measures to triangulate findings.

Additionally, baseline scores were notably high across several scales, especially in social competence, which nearly reached the upper limit of the response range. Such restricted variance reduces the sensitivity of the measures to detect change over time and may attenuate growth estimates. When participants begin near the maximum of a scale, further development cannot be

adequately captured, even if real improvements occur. Consequently, the observed stability in some domains may partly reflect measurement limitations rather than true developmental stagnation.

The absence of a control group prevents causal conclusions about the effects of DHE participation. Longitudinal designs, including comparison groups enrolled in traditional master's programmes, would strengthen causal inference. In addition, longer follow-up periods may be necessary to capture the development of more stable or dispositional skills such as lifelong learning and efficacy beliefs.

Moreover, the finding of higher efficacy beliefs observed among education students reflects enduring disciplinary cultures rather than differential benefits of the DHE programme itself. This highlights the need for further research on how DHE structures may more intentionally support the development of efficacy beliefs across fields. Similarly, research on contextual and interactional factors across distinct fields and DHE programmes may provide insight into the elements that support or hinder social competences. Finally, qualitative approaches could provide deeper insight into how specific features of workplace placements contribute to the development of different soft skills across disciplinary contexts.

8 Conclusion

This study contributes to the emerging empirical literature on DHE by examining changes in multiple soft skills among master's students in the fields of education and business. The findings indicate that DHE participation is associated with significant improvement in communication skills and field-specific patterns in social competence. At the same time, several soft skills remained stable over the programme period, highlighting the complexity of soft skill development and the influence of prior experiences and contextual factors. As an exploratory study, these findings should be understood as indicative rather than conclusive, offering a foundation for further empirical research on DHE master's programmes.

Overall, the results suggest that DHE programmes offer valuable opportunities to develop certain soft skills, particularly those closely tied to active participation in professional practice. However, they also suggest that intentional pedagogical design and targeted support may help promote broader and more consistent soft skill development across disciplines.

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