

## Educational innovation and international mobility: a model for dual learning in Europe

### Innovazione educativa e mobilità internazionale: un modello per l'educazione duale in Europa

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#### Abstract

Higher education in Europe faces increasing pressure to adapt to the rapidly evolving demands of the global labour market. Economic, technological, and social transformations are reshaping industries and job requirements, necessitating educational models that go beyond traditional academic instruction. By fostering practical skill development, promoting intercultural competence, and encouraging cross-sector partnerships, projects like the EuroDuaLE one, described in the paper, offer a forward-looking vision for the future of higher education in Europe. Not only exploring some of the outcomes of the EuroDuaLE project, this paper also highlights future opportunities for expanding and improving dual education models.

**Keywords:** dual learning; international mobility; EuroDuaLE; educational innovation; academia-industry collaboration.

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#### Sintesi

L'istruzione superiore in Europa si trova ad affrontare una crescente pressione per adattarsi alle richieste in rapida evoluzione del mercato del lavoro globale. Le trasformazioni economiche, tecnologiche e sociali stanno rimodellando i settori e le esigenze lavorative, rendendo necessari modelli educativi che vadano oltre la tradizionale istruzione accademica. Favorendo lo sviluppo di competenze pratiche, promuovendo la competenza interculturale e incoraggiando i partenariati intersettoriali, progetti come quello di EuroDuaLE, descritto nel documento, offrono una visione lungimirante per il futuro dell'istruzione superiore in Europa. Oltre a esplorare alcuni dei risultati del progetto EuroDuaLE, questo documento evidenzia anche le opportunità future per espandere e migliorare i modelli di istruzione duale.

**Parole chiave:** apprendimento duale; mobilità internazionale; EuroDuaLE; innovazione educativa; collaborazione università-industria.

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## 1. Introduction

Higher education in Europe faces increasing pressure to adapt to the rapidly evolving demands of the global labour market. Economic, technological, and social transformations are reshaping industries and job requirements, necessitating educational models that go beyond traditional academic instruction. Universities are now called upon to offer programs that not only provide a strong theoretical foundation but also cultivate the practical skills required by employers. In this context, dual education programs – often referred to as dual studies – have emerged as a promising solution to bridge the gap between academic training and employment, enhancing graduates' employability and aligning education with labour market needs.

One initiative worth mentioning in this field was the EuroDuaLE (European Dual Learning Experience) project. EuroDuaLE was an Erasmus+ KA2 project which aimed at promoting innovative and flexible teaching and learning methods building on existing good practice. Its goal was to find ways for EU Members States to establish and expand the apprenticeship approach, with the development of an integrated transnational Dual Learning framework, where Higher Education Institutions and relevant stakeholders in the labour market would establish a synergy and provide students with new curricula, combining formal training and training on-the job, physical and virtual mobility. EuroDuaLE intended to expand the dual scheme to Higher Education Institutions, where students acquire a wider range of knowledge and competences, offering more comprehensive programs, yet including professional and technical training on-the-job. 13 partners from six different countries (Italy, Germany, Belgium, Netherlands, Spain and the UK) were involved in the project (eight Universities and five associations/companies). Drawing on the analysis of the different contexts in the various countries, they first developed a framework on how to implement dual experiences in the field of HEIs (Higher Education Institutions), to draft a 'prototype' (common principles and practices) to be applied in different sectors and nations and create a Handbook. They then designed, implemented and evaluated a pilot activity of dual learning programmes at European level, in which a total of 30 students from five different universities (two from Italy and one from Germany, Belgium and Spain each) were selected to enrol in a dual learning mobility programme (with a work-abroad period: 25 days of virtual mobility and 15 days of physical mobility). Thus, the EuroDuaLE project extends the traditional dual learning model by incorporating an international dimension, enabling students to participate in work experiences abroad. This approach addresses two critical needs: enhancing students' professional competencies and fostering intercultural skills in an increasingly globalised job market. The project provided a unique platform for students to learn by doing while adapting to different cultural environments, helping them develop skills such as communication, collaboration, and cross-cultural understanding – qualities that are highly sought after by employers in today's economy.

International mobility, a core feature of EuroDuaLE, not only benefits students but also promotes greater cooperation between universities, companies, and international stakeholders. By facilitating cross-border exchanges, the project strengthens ties between different European countries and fosters a sense of European citizenship based on shared values of inclusion, diversity, and cooperation. Moreover, it underscores the importance of international experience in preparing students for the challenges of a globalized labour market, where adaptability and cultural intelligence are key differentiators.

The need for such innovative approaches is underscored by the challenges faced by many young graduates across Europe. According to recent studies, a significant number of graduates encounter difficulties in securing employment, often due to a perceived lack of

practical skills and insufficient work experience (European Commission: Directorate-General for Employment, Social Affairs and Inclusion, 2024). At the same time, companies report a shortage of talent equipped with the skills necessary to meet their specific needs. This mismatch between supply and demand highlights the critical role of dual learning in addressing these gaps, offering students opportunities to gain hands-on experience and become workforce-ready upon graduation. Ultimately, dual education in higher education represents a paradigm shift towards a more integrated and applied approach to learning. The EuroDuaLE project exemplifies how educational innovation can respond to the complex challenges of the 21st century by combining dual learning, international mobility, and multi-stakeholder collaboration. By fostering practical skill development, promoting intercultural competence, and encouraging cross-sector partnerships, EuroDuaLE offers a forward-looking vision for the future of higher education in Europe.

This paper not only explores some of the outcomes of the EuroDuaLE project but also highlights future opportunities for expanding and improving dual education models. The insights gained from this analysis can serve as a foundation for the development of new educational initiatives aimed at integrating theoretical learning with practical experience on an international scale. Such initiatives have the potential to create a more cohesive and responsive educational ecosystem, better equipped to meet the needs of students, employers, and society as a whole.

## **2. Theoretical framework and context**

Dual education in higher education stands out by fully integrating academic learning with professional experience through formal partnerships between universities and companies. Students are simultaneously enrolled in academic institutions and employed by partner organizations under formal contracts. This model ensures that both academic institutions and workplaces serve as complementary learning environments, alternating between theoretical study and hands-on professional practice. Thus, dual education models integrate formal academic learning with real-world work experience. Specifically, students enrolled in dual education programs split their time between classroom instruction and practical training within companies, allowing for the immediate application of theoretical concepts in professional environments. This approach is particularly well-established in countries like Germany, Austria, and Switzerland, where dual education has played a pivotal role in building a highly skilled workforce (ECoVEM, 2022; Tsertsvadze et al., 2024). Given its effectiveness, the dual education model is now being adopted across Europe, supported by both national initiatives and European Union policies aimed at fostering collaboration between educational institutions and industry (Murphy et al., 2014; Gaebel et al., 2024).

Despite its advantages, dual education faces significant challenges. Ensuring equitable access for all students remains a concern, as participation often depends on factors such as geographical location and socio-economic background. Additionally, maintaining consistent quality across programs is critical, particularly when institutions and companies operate in different contexts and sectors. Effective coordination between universities and industry partners is essential to ensure that the academic and professional components of dual education are seamlessly integrated. To address these challenges, robust quality assurance frameworks and key performance indicators must be established, ensuring that dual education programs deliver both high-quality academic content and meaningful work experiences.

Different approaches, such as work-related learning (WRL), work-based learning (WBL), and work-integrated learning (WIL), have been extensively studied as methods to bridge the gap between academic instruction and professional skill development (Cunha & Heckman, 2007; Cooper et al. 2010; Zegwaard, 2014; Jackson, 2015; Ferreira et al., 2016; Turcotte et al., 2016; Atkinson, 2021; Tsertsvadze et al., 2024). WRL emphasizes skill acquisition through both formal training and informal on-the-job learning, with research suggesting that informal methods often have a stronger impact on skill enhancement. In contrast, WBL immerses students in real work environments through apprenticeships, internships, and traineeships, while WIL embeds practical experience within academic curricula through structured learning objectives. Despite their differences, all three models share the goal of enhancing employability by integrating academic knowledge with practical skills.

The European Union (EU) has played a critical role in promoting dual education to address skill gaps and youth unemployment. Initiatives like Erasmus+, the European Alliance for Apprenticeships, and the Youth Guarantee aim to strengthen work-based learning systems across member states. The EU4Dual alliance, involving nine leading institutions, seeks to standardise and expand dual education across Europe. However, countries transitioning from traditional, school-based vocational education and training (VET) systems face unique challenges requiring tailored approaches. A European Parliament study titled “*Dual Education: A Bridge Over Troubled Waters?*” (Murphy et al, 2014) examines the strengths and weaknesses of dual education systems within the EU, while also providing policy recommendations for member states considering the adoption or improvement of apprenticeship schemes, highlighting the role of dual education in addressing youth unemployment and skills mismatches. Several EU initiatives emphasise the need for stronger work-based learning and apprenticeships more generally (European Alliance for Apprenticeships, Youth Guarantee initiatives). These initiatives need to recognise that countries have to go through transition phases before reaching the state of having a fully-fledged apprenticeship system. It is also important that these initiatives enable countries to learn from a variety of systems, not just those that represent fully-fledged apprenticeships. Other models have strong features that can be highly relevant for those countries that still have strongly school-based VET models. A more recent study (Šćepanović, 2020) provides an analysis of Dual Training in Europe and critically analyses the proliferation of dual training models across Europe, questioning whether they represent a genuine policy shift or a transient trend. The study calls for a nuanced understanding of the socio-economic contexts in which these models are implemented to assess their long-term viability and impact. The *Trends 2024. European higher education institutions in times of transition* report by the European University Association (EUA) highlights (Gaebel et al., 2024), on the other hand, the increasing adoption of dual education models across Europe, emphasizing the need for higher education institutions to adapt to changing societal and economic demands. It underscores the importance of collaboration between universities and industries to ensure that curricula remain relevant and responsive to labour market needs.

The expansion of dual learning models across Europe has also benefited from projects like EuroDuaLE. This initiative emphasizes international mobility and intercultural competence as core elements of dual learning, offering students a unique opportunity to “learn by doing” in a globalized context. According to EuroDuaLE reports, integrating practical experiences into academic curricula is increasingly recognized as essential for improving employability in a competitive labour market. EuroDuaLE’s methodological framework aims to overcome traditional barriers between theory and practice. It prioritises the creation

of strategic partnerships and common standards for assessing competencies acquired during dual learning pathways. Stakeholders in the project highlighted the value of international mobility, particularly in fostering transversal skills such as adaptability and intercultural communication. This aligns with EU strategies promoting student mobility as a means of developing a skilled and globally aware workforce.

Moreover, the COVID-19 pandemic significantly impacted the sector, as its hands-on nature made it particularly vulnerable to social distancing and remote learning challenges (OECD, 2020). While disruptions were substantial, some initially negative effects led to positive changes, such as the shift to multi-modal learning. Despite investments in staff capacity-building, further efforts are still needed, especially in digital literacy. In response to the pandemic period, several European countries with high early school leaving and youth unemployment rates – such as Spain, Portugal, and Malta – implemented dual learning reforms to support disadvantaged students and enhance educational opportunities (Zancajo et al., 2022).

Despite these advantages, significant challenges remain in implementing dual learning models on a European scale, such as ensuring effective collaboration between educational institutions, companies, and governments. Addressing these issues requires systemic approaches, as demonstrated by EuroDuaLE, which emphasises stakeholder engagement and policy support to sustain and expand these training models.

Germany and Italy provide contrasting examples of how dual education is implemented within distinct socio-economic contexts. Germany's dual education system is globally regarded as a model for combining academic learning with vocational training. It integrates theoretical education with hands-on work experience through structured partnerships between universities of applied sciences (*Fachhochschulen*) and industries. Students in dual programs sign employment contracts with partner companies, alternating between academic courses and workplace training. Some of its key features include its structure: Bachelor's programs last 6-7 semesters (180-210 ECTS), while master's programs span 4 semesters (60-120 ECTS). The teaching process is split between academic institutions (60%) and companies (40%). Moreover, programs are nationally regulated and accredited, ensuring uniform quality, and the employers themselves are involved, since companies contribute to curriculum design, student mentoring, and assessment. In terms of outcomes, Germany boasts high employment rates and low dropout rates due to its standardized and well-established dual education system (Tsertsvadze et al., 2024). The German dual vocational education and training (VET) system also supports continuous vocational training (CVET) for professionals, offering nationally recognised qualifications like the "Meister" (master craftsperson). Furthermore, Germany actively shares best practices internationally through partnerships and initiatives like the "Apprenticeship Toolbox." (ECOVEM, 2022). On the other hand, Italy has made significant strides in developing its dual education system to address high youth unemployment and skill mismatches. Legislative reforms since 2014 have aimed to align education with labour market needs, with dual learning implemented primarily through technical and vocational institutes. In Italy, Work-Based Learning (WBL) is mainly implemented through three measures: first-level apprenticeships for young people under 25, vocational education and training (VET) pathways within the dual system, and work experience programs. The dual learning model, inspired by the German system and introduced in 2014, was designed to address youth unemployment by aligning education with labor market needs. It combines classroom-based vocational education with practical workplace training, facilitating a smoother transition to employment. As said, Italy has progressively reformed its apprenticeship



system, with the latest major reform in 2015 introducing a structured dual system for young people without a high school diploma. The country now recognises three types of apprenticeships: first-level (for obtaining vocational qualifications and diplomas), second-level (for occupational qualifications without educational value), and third-level (for higher education and research). The third-level apprenticeship remains quite rare, with around 1,000 participants despite a positive trend that started in 2017 (Inapp, 2022), but offers a more structured educational component leading to secondary and tertiary degrees (Garofalo, 2014). One of the main issues remains that of the still very uneven geographical concentration that characterises third-level apprenticeship training: in this case, only two regions in northern Italy, Piedmont and Lombardy, account for 87% of trainees, while, if we exclude Sicily, with a modest 1.4% of apprentices in training, the South is missing (Inapp, 2022). Despite these efforts, Italy faces challenges due to its fragmented system, where regions hold legislative authority over VET programs. Small enterprises, which dominate Italy's economy, often lack the resources to host apprentices. However, initiatives like EuroDuaLE and national budget allocations demonstrate Italy's commitment to developing a cohesive dual education framework (ECoVEM, 2022).

While both Germany and Italy share a commitment to dual education, their systems differ significantly in various aspects. For example, in standardisation, since Germany's system is highly regulated and uniform, while Italy's is fragmented across regions; also in terms of employer engagement, where German employers play a central role, whereas Italian employer involvement varies; but also for the apprenticeship models, since Germany's programs emphasise direct employment contracts, while Italy offers diverse pathways with varying levels of formalisation; and then in terms of outcomes, as Germany achieves higher employment rates and lower dropout rates, while Italy is still addressing structural issues.

Dual education represents a strategic approach to integrating academic knowledge with professional skills, fostering employability and adaptability. Projects like EuroDuaLE and country-specific practices in Germany and Italy demonstrate the transformative potential of dual education in meeting the needs of contemporary labour markets. However, realising its full potential requires addressing systemic challenges, promoting best practices, and ensuring long-term sustainability. Future research and policy efforts must focus on developing cohesive frameworks that balance local needs with international aspirations, contributing to a more inclusive and resilient education system across Europe.

### **3. Methodology**

This paper focuses on the evaluation processes of virtual mobility learning activities, presenting the methodology, tools, and results obtained within the development and implementation of dual learning pathways at the European university level. To compare the perceptions and experiences of the three participant groups involved in the project, a self-assessment survey was designed. This survey provided an opportunity for all EuroDuaLe stakeholders – students, sending universities, receiving universities, and company tutors – to share their opinions and levels of satisfaction regarding different phases of the mobility experience. The survey was available in three versions: one for students, one for company tutors, and one for academic tutors. This paper presents the responses collected from 22 students (six from Belgium, five from Spain, five from Italy, and six from Germany) out of the expected 30 participants. The questionnaires included both closed questions on a Likert scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree) and open-ended questions.

This methodology was chosen to ensure a balanced mix of quantitative and qualitative data collection. The quantitative component allowed for the aggregation and comparison of general trends, while the qualitative component captured nuanced insights and personal reflections. This dual approach provides a robust foundation for the subsequent analysis and interpretation of results.

While the limited number of respondents does not allow for broad generalisations, the survey offers valuable insights into the implementation of dual learning in Italy's Higher Education sector. The findings provide a glimpse into the experiences, challenges, and opportunities perceived by those involved, helping to identify key areas for improvement. Although not exhaustive, the results highlight important aspects that merit further exploration, offering useful reflections on how dual learning initiatives can be more effectively integrated and optimised within the academic and professional landscape.

The experiences gained through the EuroDuaLE project have provided valuable insights for internal developments at Roma Tre University, particularly in relation to the structure and delivery of II level post-graduate courses in the field of humanities. With the onset of the COVID-19 pandemic, these programs underwent a significant transformation, shifting to a blended format that combines in-person and online learning. A key innovation has been the extensive use of a dedicated online platform, which enables the delivery of multimodal educational content, fostering greater flexibility and accessibility for students. Beyond the pedagogical dimension, these programs now offer an integrated internship component, allowing students to gain hands-on experience at affiliated institutions, organisations, or companies. This approach not only enhances their academic learning but also supports the development of crucial professional skills, strengthening the connection between higher education and the labor market. Given the relevance of these developments to the themes explored in EuroDuaLE, the analysis will also include a brief overview of the results from a survey evaluating these post-graduate courses, offering further reflections on their impact and areas for improvement.

## **4. Findings**

### **4.1. Virtual Mobility – Digital Platform and Content**

In the virtual mobility section of the self-assessment questionnaire, three out of 22 students chose not to respond. Among those who did, more than half found the online platform user-friendly, although about 10% felt it was not particularly intuitive. Regarding the logbook's usefulness, approximately 50% found it beneficial, while around 30% disagreed. Most students considered the course content well-organized, though 34% were undecided, and fewer than 20% felt the materials were poorly structured. A similar trend was observed regarding web content sufficiency, with over 50% finding it adequate, 28% remaining neutral, and less than 20% perceiving it as insufficient.

Interestingly, when evaluating the integration of Virtual Mobility with Physical Mobility, responses were mixed: while half of the students believed the two were well-integrated, the remaining half either disagreed or were unsure (Figure 1).

These findings underline the importance of refining the digital learning environment to enhance the overall experience of virtual mobility. Digital education plays a crucial role not only in improving learning outcomes but also in fostering essential digital skills. This perspective aligns with the European Centre for the Development of Vocational Training

(Cedefop) & National Institute for the Analysis of Public Policies (Inapp) 2023 Report, which highlights a strategic focus on digital education through national initiatives, including training schemes and inclusion programs for disadvantaged groups. Furthermore, efforts to support the digitalization of SMEs (small and medium-sized enterprises) via public-private partnerships emphasise the broad impact of such strategies. By monitoring these actions at both regional and national levels, stakeholders aim to ensure sustainable and effective implementation, which could, in turn, improve the integration and overall quality of virtual mobility programs.

Virtual mobility vs physical mobility as complementary experiences

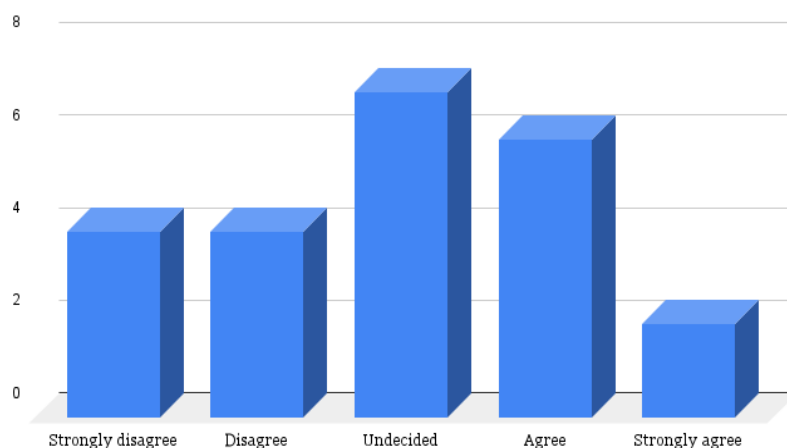


Figure 1. Evaluation results of students' virtual mobility experience.

#### 4.2. Physical Mobility – Relevance of the Experience

Students generally perceived their placement experience as highly beneficial to both their academic growth and professional development. Almost all participants agreed that undertaking a placement abroad offered significantly greater value to their professional profiles compared to local placements, underscoring the importance of international work experiences in enhancing employability and fostering a broader professional outlook (Figure 2 and 3).

The practical experience gained from the internship is useful to my professional profile

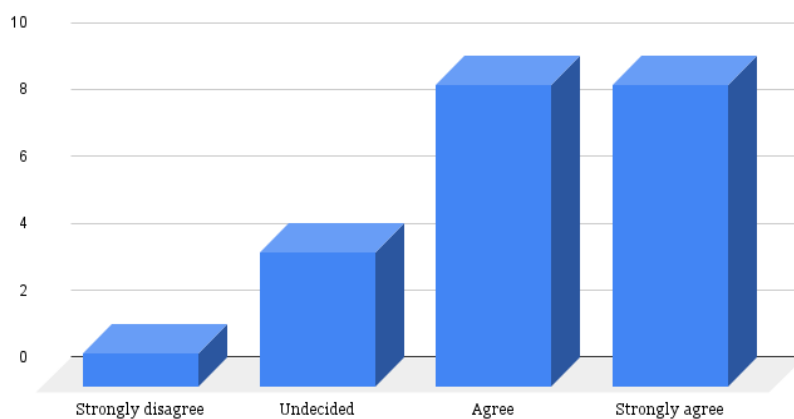


Figure 2. Evaluation results of students' dual learning experience.



Soft skills acquired during the placement period were beneficial to my professional profile

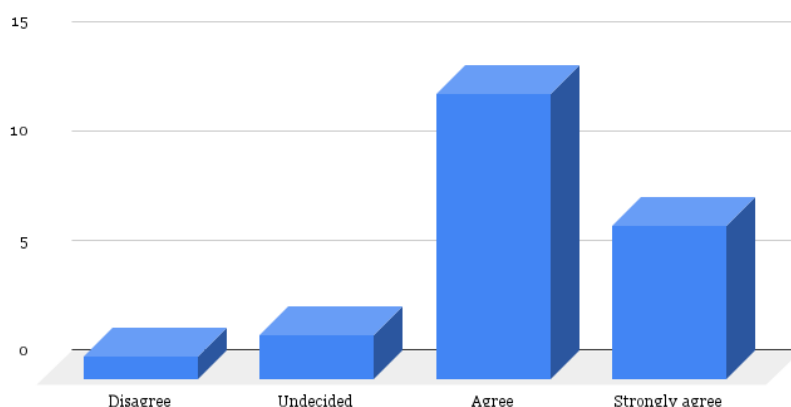


Figure 3. Evaluation results of students' dual learning experience.

However, as highlighted in the European Commission's *Education and Training Monitor 2024* report on Italy, significant challenges remain in increasing the appeal of vocational education and training (VET) both at upper secondary level and within Higher/tertiary education. The share of students in medium-level education attending vocational programs has declined steadily over the past decade, dropping by 7.8 percentage points since 2013, with only 51.8% enrolled in 2022. As previously said, numbers for Higher Education appear to be stable, despite small. Additionally, work-based learning opportunities remain limited, as just 25.9% of recent VET graduates reported having such experiences, far below the EU average of 64.5% and well short of the EEA target of 60% by 2025.

Moreover, according to the Cedefop & Inapp 2023 report, unemployment remains disproportionately high among those with lower qualifications, a gap that widened during the pandemic, as unskilled workers were more vulnerable to job losses. Despite a modest recovery in 2021, employment levels remained below pre-pandemic figures, with the employment rate for the population aged 15 to 64 at 58.2%, reflecting only half the gains lost in 2020. Encouragingly, the employment rate of VET graduates aged 20 to 34 rose from 66.0% in 2018 to 71.3% in 2022, slightly outpacing the employment growth of all graduates in the same age group.

These data suggest that VET programs must remain flexible and responsive to evolving labour market demands, with a particular emphasis on reskilling vulnerable groups, such as unskilled workers, to close the skills gap. Investing in VET can improve employability, support economic recovery, and help mitigate the long-term impacts of the pandemic on the workforce. The observed 5.3 percentage point increase in employment for VET graduates from 2018 to 2022 illustrates the potential of targeted investments in vocational education to drive meaningful labour market outcomes, reinforcing the value of further strengthening Italy's VET ecosystem.

#### 4.3. Physical Mobility – Skills Self-Assessment

Participants were asked to assess their skill development following the placement experience during the EuroDualLE project using a framework proposed by Poce et al. (2015). The results (Figure 4) demonstrated significant improvements in several key areas. Among the well-developed skills (average scores between 3.5 and 4), communication

ranked highest (3.96), followed by attitude to research (3.83), planning (3.78), and collaboration (3.52). Moderately developed skills (average scores between 3 and 3.5) included problem-solving (3.48), critical thinking (3.30), digital skills (3.30), and creativity (3.00). The lowest-rated skill was entrepreneurship, with an average score of 2.87, indicating a need for targeted improvement in fostering entrepreneurial mindsets among students.

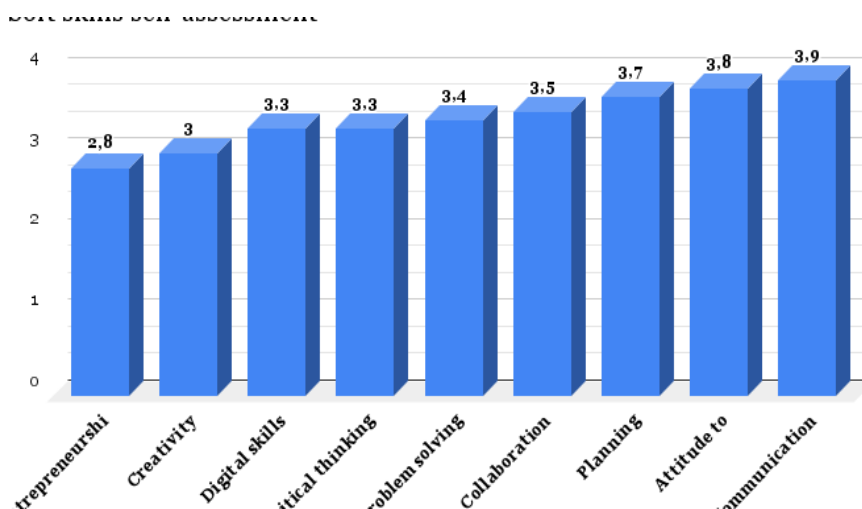


Figure 4. Soft skills self-assessment data.

These findings suggest that the placement experience was particularly effective in fostering teamwork, communication, and research-related skills—critical areas in both academic and professional contexts. The relatively low score for entrepreneurship reflects the structured nature of the placement tasks, which were conducted within established organisations rather than entrepreneurial environments. This highlights the potential benefit of integrating more entrepreneurial activities into future placements to broaden students' skill sets.

Despite Italy's recent efforts to strengthen key competences, challenges persist. According to the European Commission's *Education and Training Monitor 2024*, recent VET graduates in Italy continue to face the lowest employment rate in the EU, at 62.2% compared to the EU-wide average of 81% in 2023. However, steps are being taken to improve this situation, starting from the upper secondary level upwards, including for instance the redesign of PCTO (Percorsi per le competenze trasversali e per l'orientamento, or Transversal competence and guidance pathways) programs to better integrate key skills and provide more meaningful work-based learning experiences for secondary school students.

The OECD's *Education at a Glance 2024* report emphasises the critical role of combining education with employment in improving students' long-term labour market outcomes. Work-study programs, particularly in countries like Germany and Switzerland, have proven effective in equipping students with both technical expertise and valuable interpersonal skills. In contrast, students in countries without robust work-study integration often work in unrelated jobs, which yields fewer labour market benefits. Evidence suggests that students who engage in work related to their studies tend to experience smoother transitions into the labour market, higher employment rates, and better wage prospects after graduation. This dual approach also helps cultivate essential soft skills, such as time

management, teamwork, and problem-solving, which are increasingly sought after by employers.

In Italy, the need for targeted upskilling policies is particularly urgent, given the high proportion of low-skilled individuals in the population. As the Cedefop & Inapp 2023 Report highlights, national and regional authorities are implementing multiannual plans to upskill adults and ensure the acquisition of both basic and transversal competences. These include the ‘Guaranteeing the Skills of the Adult Population’ initiative and the 2021–2027 ‘Strategic Plan for the Development of the Adult Population’, aimed at enhancing lifelong learning opportunities.

A key area of concern remains the transition of young people from education to employment. The OECD stresses that this transition is influenced by several factors, including the duration and nature of education, the relevance of acquired skills, and prevailing labour market conditions. In particular, attention must be paid to NEET (Not in Employment, Education, or Training) youth, who are at risk of long-term disengagement from the labour market. Prolonged periods of inactivity can lead to discouragement and further reduce the likelihood of reintegration into education or employment. Preventive measures, such as targeted support for NEETs, are critical in reducing youth unemployment and fostering social inclusion.

In conclusion, while the placement experience has proven effective in developing essential skills, such as communication, collaboration, and problem-solving, further improvements are needed, particularly in fostering entrepreneurial skills and providing students with opportunities to engage in real-world, action-oriented tasks. Strengthening work-study integration and expanding targeted upskilling programs are essential steps in ensuring that students not only acquire the right skills but also experience a smoother transition into the labour market. Investing in these areas will help bridge the gap between education and employment, enhance youth employability, and support long-term economic resilience in Italy.

#### **4.4. Comparison with post-graduate courses**

As already said, the experiences gained through the EuroDuaLE project helped better develop some courses at Roma Tre University – particularly in relation to the structure and delivery of II level post-graduate courses in the field of humanities. In the academic year 2022/2023, the students of the one-year “Museum Education” and Two-Year “Advanced Studies in Museum Education” post-graduate courses were asked to answer a questionnaire to detect the educational impact in terms of knowledge acquisition and development of transversal and professional skills. The questionnaire had a specific section designed to identify which transversal skills, abilities and attitudes were prompted through self-assessment using the Likert scale (values from 1, “Not at all” to 5, “Very much”).

The analysis of the survey results highlights the role of entrepreneurship competence as a key area of development within the post-graduate programs. Among the transversal skills assessed, entrepreneurial abilities received positive feedback, with participants particularly acknowledging improvements in ‘goal setting, organisation, and prioritisation’ (Average = 4.21/5). These skills are crucial for navigating complex professional environments and aligning with the broader objectives of fostering self-efficacy and initiative in the workplace. The results indicate that proactiveness (4.16/5), learning by doing (4.10/5), and opportunity recognition (4.13/5) were significantly enhanced through the program’s structure, which emphasises hands-on learning and practical application. Additionally, the

ability to assess the impact of ideas and actions (4.00/5) and to persist in achieving objectives (4.00/5) suggests that the courses help students develop a resilient and solution-oriented mindset, essential for professional adaptability. A notable finding is the strong correlation between entrepreneurship and both critical thinking ( $r = .777$ ,  $p < .001$ ) and creativity ( $r = .769$ ,  $p < .001$ ). This suggests that the development of an entrepreneurial mindset is closely linked to problem-solving abilities and innovative thinking, reinforcing the need for interdisciplinary approaches that merge creativity, analytical reasoning, and practical application.

The survey results from students enrolled in the two-year 'Advanced Studies in Museum Education' program confirm the significant role of entrepreneurial competence in their learning experience. Among the transversal skills evaluated, Entrepreneurship ranked second overall (Average = 4.06/5), following Critical Thinking and Metacognition (4.22/5) and ahead of Creativity and Innovation (4.04/5). These findings highlight the interconnected nature of entrepreneurial thinking, problem-solving, and creativity, as further supported by strong correlations between Entrepreneurship and both Digital Skills ( $r = .730$ ,  $p < .001$ ) and Creativity and Critical Thinking ( $r = .752$ ,  $p < .001$ ). Within the entrepreneurship domain, students particularly recognised the development of proactiveness and the ability to take on challenges (4.23/5), followed by learning by doing (4.17/5) and the capacity to assess the consequences of ideas and opportunities (4.17/5). The ability to remain focused and persistent (4.05/5) and to effectively prioritise and set objectives (4.05/5) were also well-rated, indicating that the program fosters a structured yet dynamic approach to project development and problem-solving. The high internal consistency of the competence items (Cronbach's  $\alpha = .975$ ) further validates the reliability of these findings, confirming that the program successfully enhances entrepreneurial skills while maintaining a strong interdisciplinary foundation.

The findings from this analysis further underscore how the structure and pedagogical approach of these post-graduate programs have successfully integrated key transversal competences, including entrepreneurship, creativity, and critical thinking. This evolution aligns with the institutional learning derived from the EuroDuaLE project, which played a pivotal role in shaping the blended format and competency-based design of these programs at Roma Tre University. The strong emphasis on multimodal digital learning and professional internships reflects a broader commitment to equipping students with both theoretical knowledge and practical skills, preparing them for the evolving demands of the museum sector.

## 5. Conclusions

The findings from the placement experience analysis underscore the vital role of experiential learning in developing key competencies that enhance both employability and personal growth. Students reported significant improvement in teamwork, communication, and research-related skills, indicating that well-structured placements provide an effective framework for cultivating essential soft skills. However, the relatively low score in entrepreneurship highlights an opportunity for further enhancement, particularly by introducing more unstructured, self-driven tasks that simulate real-world business challenges. These conclusions resonate with the broader goals of both Italian and European educational strategies, which emphasise the importance of transversal skills in preparing students for the uncertainties of a rapidly changing labour market.

Despite progress in fostering transversal competencies through initiatives like PCTOs, there remain significant gaps in Italy's vocational education and training (VET) system. The low employment rate of recent VET graduates compared to their European counterparts calls for continued policy efforts, particularly in integrating work-based learning more effectively into educational programs. This could involve expanding partnerships between educational institutions and industry, ensuring that placements not only provide technical training but also encourage the development of entrepreneurial mindsets and problem-solving skills.

Furthermore, as highlighted by OECD and Cedefop & Inapp reports, the importance of combining education with employment cannot be overstated. Countries with well-established work-study models, such as Germany and Switzerland, have shown that structured dual-learning pathways significantly improve students' labour market outcomes. Italy can draw on these models to refine its own educational policies, focusing on creating more meaningful work opportunities that complement formal education. This dual approach will help bridge the current gap between education and employment, particularly for NEET youth, who remain at high risk of long-term exclusion from the labour market.

Some areas for further research can be suggested. First of all, given the consistently low scores in entrepreneurship, future research could explore innovative pedagogical methods for fostering entrepreneurial skills within placements. This might include case studies of successful programs that integrate entrepreneurship through project-based learning or internships in startup environments. Moreover, long-term studies tracking students who combine education with employment could provide deeper insights into how different types of work experiences impact career trajectories, wages, and job satisfaction. Comparative analyses with countries that have established dual-learning systems would offer valuable policy guidance. Besides, with NEET youth representing a significant societal and economic challenge, research into effective reintegration strategies is crucial. This could involve evaluating existing upskilling and reskilling programs and piloting new interventions aimed at improving labour market access for this vulnerable group. Furthermore, as digital skills become increasingly critical in modern economies, further research could focus on how educational institutions can more effectively integrate digital competence training into both traditional curricula and experiential learning opportunities. Special attention should be given to how digital skills can complement and enhance transversal skills, such as problem-solving and critical thinking. Additionally, as Italy continues to revise and expand its dual learning framework, it would be valuable to conduct a systematic evaluation of the outcomes associated with these reforms. This could include tracking student skill development, employment rates, and feedback from industry partners to assess whether these initiatives are meeting their intended goals.

To summarise, while significant progress has been made in improving educational and vocational outcomes, ongoing efforts are needed to address existing gaps and prepare students for an increasingly complex labour market. By fostering a culture of lifelong learning, promoting entrepreneurship, and strengthening the link between education and work, Italy can better equip its young population to navigate future economic challenges. Research in these suggested areas will not only inform future policy development but also help refine educational strategies to ensure that students receive the comprehensive support they need to thrive in both local and global contexts.

Overall, the experience was positively evaluated by all participants, highlighting the potential of such dual learning initiatives to enhance academic and professional outcomes. Students acknowledged the relevance of the placement to their curricula and reported



significant improvements in key soft skills, particularly communication and collaboration. The cooperation among the students, host universities, sending universities, and companies was smooth, with minimal organizational challenges.

The virtual mobility component proved to be a valuable preparatory tool for dual learning experiences at the university level. By engaging in activities designed to develop transversal skills, students gained theoretical knowledge that they later applied during their placements. This innovative approach highlights the potential for virtual mobility to evolve further as a key element in apprenticeship pathways. It can serve various purposes, such as enhancing cultural and linguistic awareness, providing initial task assignments, or developing technical competencies before the physical mobility phase begins. Ensuring academic supervision in the design and implementation of virtual mobility pathways is essential for maintaining pedagogical coherence and maximizing learning outcomes.

Nevertheless, some challenges were identified. Chief among them was the placement duration, which several students found insufficient to fully meet learning objectives. The short-term nature of the placement means that it should be considered a preliminary apprenticeship experience rather than a fully-fledged dual learning program. To achieve the latter, extending the placement duration would be necessary, thereby offering students a more comprehensive exposure to real-world work environments.

Drawing from the experience of EuroDuaLE, some recommendations and policy implications for enhancing Dual Learning in Italy can be considered. The findings from this study highlight the potential of dual learning initiatives to strengthen the connection between education and employment. However, several areas require targeted improvements to maximise the impact of such programs, particularly within Higher Education. The following recommendations aim to refine the implementation of dual learning pathways, addressing both structural and pedagogical challenges while offering strategic policy guidance. First of all, the necessity of strengthening Industry-Academia collaboration is one of the main aspects to be taken into account. One of the key factors in improving dual learning experiences is the expansion of partnerships between universities and industry. While the placements provided valuable experiential learning opportunities, ensuring greater industry involvement in curriculum design and student mentorship could further enhance skill development. This could be achieved by: establishing long-term collaborations between educational institutions and companies, ensuring that placements align with evolving labor market needs; introducing co-designed learning pathways, where academic and industry partners jointly define learning objectives and assessment criteria; encouraging companies to offer longer-term apprenticeship opportunities, providing students with deeper, more immersive experiences. Relating to this last aspect, a key challenge identified was the insufficient duration of placements, which limited students' ability to fully develop and apply their skills. To tackle it, Universities and policymakers should consider extending minimum placement durations to allow students to engage in more substantial projects, also, a tiered approach to apprenticeships could be implemented, where students begin with shorter exploratory placements and then progress to longer, in-depth work experiences in later study years; moreover, financial incentives, such as tax benefits or subsidies for companies, could encourage employers to offer longer placements and structured mentorship programs. In addition, the relatively low impact of dual learning on entrepreneurial skills suggests a need for greater emphasis on self-driven, real-world challenges. Potential interventions can include designing project-based internships, where students work on real business problems, either within companies or in simulated settings, but also expanding opportunities for interdisciplinary collaboration, enabling students from



different fields to work together on innovative solutions. Another key aspect to consider is that of virtual mobility. The virtual mobility component was positively received, offering preparatory learning that enhanced students' placement experiences. To optimise its impact, universities should expand virtual mobility opportunities to include ongoing mentorship, digital collaboration projects, and post-placement reflection sessions and integrate digital skill development modules into virtual mobility programs, ensuring students are equipped with competencies relevant to hybrid and remote work environments, preparing them also for global career opportunities. Given Italy's high proportion of youth not in education, employment, or training (NEETs), dual learning programs can serve as a key instrument for reintegration. Targeted strategies can include developing bridging programs, expanding reskilling and upskilling initiatives tailored to young people at risk of labor market exclusion, and creating flexible apprenticeship models, including part-time and modular options, to accommodate diverse learner needs.

To summarise, in order to sustain long-term improvements in Italy's dual learning system, the following policy measures should be considered: legal and financial incentives for companies actively participating in dual education programs; national quality standards for dual learning pathways, ensuring consistency in learning outcomes across institutions; comprehensive tracking mechanisms to evaluate student progression, employment outcomes, and the long-term impact of dual learning experiences.

While this study confirms the effectiveness of dual learning initiatives in enhancing employability and transversal skills, further refinements are necessary to bridge the gap between education and employment more effectively. Strengthening industry-academia partnerships, extending placement durations, fostering entrepreneurship, and leveraging digital tools are critical steps toward optimising dual learning in Higher Education. Moreover, targeted policies can ensure that dual learning serves as a powerful mechanism for addressing youth unemployment, particularly among NEET populations. By fostering a culture of lifelong learning and refining dual learning strategies, Italy can better equip its students to navigate an increasingly complex and competitive global labor market.

## Reference list

- Atkinson, G. (2021, June 2). *What is work integrated learning?* MyFuture. <https://myfuture.edu.au/career-articles/details/what-is-work-integrated-learning>
- Cooper, L., Orrell, J., & Bowden, M. (2010). *Work integrated learning: A guide to effective practice*. Milton Park: Taylor & Francis.
- Cunha, F., & Heckman, J. (2007). The technology of skill formation. *American Economic Review*, 97(2), 31–47. <https://doi.org/10.1257/aer.97.2.31>
- European Centre for the Development of Vocational Training (Cedefop), & National Institute for the Analysis of Public Policies (Inapp). (2023). *Vocational education and training in Europe - Italy: system description*. In Cedefop, & ReferNet. *Vocational education and training in Europe: VET in Europe database - detailed VET system descriptions* [Database]. <https://www.cedefop.europa.eu/en/tools/vet-in-europe/systems/italy-u3>
- European Centre of Vocational Excellence in Microelectronics (ECoVEM) (2022). *Dual Education & Work Based Education. Best Practices from Bulgaria, France, Germany, Italy and Spain*.

<https://ecovem.eu/Dual%20Education%20%20Work%20Based%20Education%20-%20Good%20Practices.pdf>

- European Commission: Directorate-General for Education, Youth, Sport and Culture. (2024). *Education and training monitor 2024: Italy*. Publications Office of the European Union. <https://data.europa.eu/doi/10.2766/630>
- European Commission: Directorate-General for Employment, Social Affairs and Inclusion. (2024). *Employment and social development in Europe (ESDE): Annual review*. Publications Office of the European Union. <https://op.europa.eu/webpub/empl/esde-2024/PDFs/KE-BD-24-002-EN-N.pdf>
- Ferreira, M., Künn-Nelen, A., & De Grip, A. (2017). Work-related learning and skill development in Europe: Does initial skill mismatch matter? *Skill mismatch in labor markets (Research in Labor Economics, Vol. 45)*, 345–407. Emerald Publishing Limited. <https://doi.org/10.1108/S0147-912120170000045010>
- Gaebel, M., Zhang, T., Stoeber, H. (2024). *Trends 2024. European higher education institutions in times of transition*. European University Association (EUA). [https://www.eua.eu/images/publications/Publication\\_PDFs/Trends\\_2024.pdf](https://www.eua.eu/images/publications/Publication_PDFs/Trends_2024.pdf)
- Garofalo D. (2014), Gli interventi legislativi sul contratto di apprendistato successivi al T.U. del 2011. *Giornale del diritto del lavoro e di relazioni industriali*, III(143), 427-459.
- Istituto Nazionale per l'Analisi delle Politiche Pubblica (Inapp), Vaccaro S. (2022), *L'apprendistato nella crisi pandemica*. Roma, Policy Brief n. 30 <https://oa.inapp.org/xmlui/handle/20.500.12916/3596>
- Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education*, 40(2), 350–367. <https://doi.org/10.1080/03075079.2013.842221>
- Ministero dell'Istruzione, dell'Università e della Ricerca. (2018). *Percorsi per le competenze trasversali e per l'orientamento. Linee Guida*. [Transversal competence and guidance pathways. Guidelines.] <https://www.mim.gov.it/documents/20182/1306025/Linee+guida+PCTO+con+all+egati.pdf>
- Murphy, I., Chatzichristou, S., Ulicna, D., & Curth, A. (2014). *Dual education: A bridge over troubled water*. Directorate-General for Internal Policies of the Union, European Parliament. [https://www.europarl.europa.eu/RegData/etudes/STUD/2014/529072/IPOL\\_STU\(2014\)529072\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2014/529072/IPOL_STU(2014)529072_EN.pdf)
- Organisation for Economic Co-operation and Development (OECD). (2020). *VET in a time of crisis: Building foundations for resilient vocational education and training systems*, OECD Policy Responses to Coronavirus (COVID-19), OECD Publishing, Paris, <https://doi.org/10.1787/efff194c-en>
- Organization for Economic Cooperation and Development (OECD). (2024). *Education at a glance 2024: OECD indicators*. OECD Publishing. <https://doi.org/10.1787/c00cad36-en>
- Poce, A., Agrusti, F., & Re, M. R. (2015). Sviluppo di uno strumento di valutazione delle risorse aperte (OERs) – Analisi dei dati raccolti: Abitudini nell'uso della

tecnologia e di scrittura. *CADMO. Giornale Italiano di Pedagogia Sperimentale: An International Journal of Educational Research*, 23(2), 86–92.

- Šćepanović, V. (2020). Dual training in Europe: A policy fad or a policy turn. *Transfer*, 26(1).
- Turcotte, J. F., Nichols, L., & Philipps, L. (2016). *Maximizing opportunity, mitigating risk: Aligning law, policy and practice to strengthen work-integrated learning in Ontario*. Higher Education Quality Council of Ontario.
- Tsertsvadze, V., Khurtsia, L., Bakradze, N., & Turkia, G. (2024). European best practices in dual higher education (DHE). *Journal of Politics and Democratization*. <https://journal.gipa.ge/2024/01/23/european-best-practices-in-dual-higher-education-dhe/>
- Zancajo, A., Verger, A., Bolea, P. (2022). Digitalization and beyond: the effects of Covid-19 on post-pandemic educational policy and delivery in Europe. *Policy and Society*, 41(1), 111–128. <https://doi.org/10.1093/polsoc/puab016>
- Zegwaard, K. (2014). Work integrated learning in the curriculum. In S. Ferns (Ed.), *Work integrated learning* (pp. 1–6). HERDSA.