Non-Academic Tertiary Education: a Comparison Between Switzerland, Italy, and the United Kingdom

Istruzione terziaria non accademica: un confronto tra Svizzera, Italia e Regno Unito

VIRGINIA CAPRIOTTI

This article explores the institutional structures, models, and evolution of non-academic tertiary education in three European countries: Switzerland, Italy and the United Kingdom. While Switzerland offers a consolidated dual model rooted in strong cooperation between educational institutions and the labor market, the UK is undergoing structural reforms to strengthen a historically marginalized technical sector. Italy, in turn, represents a model in transition, with Higher Technological Institutes (also known as ITS Academies) emerging as a promising yet fragile example of integration between theory and practice. Beyond institutional specificities, the article proposes a pedagogical rethinking of vocational tertiary education as a space for reflective and transformative learning.

KEYWORDS: NON-ACADEMIC TERTIARY EDUCATION; WORK-BASED LEARNING; VOCATIONAL EDUCATION AND TRAINING; DUAL MODELS; PEDAGOGICAL REFLECTION ON WORK.

Questo articolo esplora le strutture istituzionali, i modelli e l'evoluzione dell'istruzione terziaria non accademica in tre Paesi europei: Svizzera, Italia e Regno Unito. Mentre la Svizzera offre un modello duale consolidato, radicato in una forte cooperazione tra istituzioni educative e mercato del lavoro, il Regno Unito sta attuando riforme strutturali per rafforzare un settore tecnico storicamente marginalizzato. L'Italia, a sua volta, rappresenta un modello in transizione, con gli Istituti Tecnologici Superiori (noti anche come Accademie ITS) che emergono come un promettente ma fragile esempio di integrazione tra teoria e pratica. Al di là delle specificità istituzionali, l'articolo propone un ripensamento pedagogico dell'istruzione terziaria professionale come spazio di apprendimento riflessivo e trasformativo.

PAROLE CHIAVE: ISTRUZIONE TERZIARIA NON ACCADEMICA; APPRENDIMENTO BASATO SUL LAVORO; ISTRUZIONE E FORMAZIONE PROFESSIONALE; MODELLI DUALI; RIFLESSIONE PEDAGOGICA SUL LAVORO.

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In recent decades, European education systems have been increasingly called upon to rethink the structure and function of tertiary education in response to a variety of social, economic, and cultural transformations. Among these, particular attention should be paid to the growing demand for increasingly specialized technical and professional skills, the emergence of new forms of work, and the need to reduce the structural skill mismatch. In this context, tertiary vocational education has gradually become a strategic sector capable of integrating theoretical and practical learning and promoting youth employability in key areas of innovation and competitiveness (Cedefop, 2017; Organization for Economic Cooperation and Development [OECD], 2020, 2023).

This renewed interest in the practical dimension of learning must be understood within a broader historical dynamic marked by a longstanding separation between theoretical and practical knowledge. Since classical antiquity, intellectual education has been the prerogative of the elite, while manual activities have been relegated to slaves and artisans (Jaeger, 1986). In the Middle Ages, this distinction materialized in the sharp separation between universities and workshops, which were, respectively, the places of abstract knowledge and of artisanal transmission. With the Industrial Revolution, work-related training gained new centrality, leading to the establishment of the first technical and vocational schools aimed at qualifying specialized labor (Green, 1990; Verger, 1991). Over the course of the twentieth century, a more integrated vision of the relationship between education and work began to take shape in some European contexts as a result of the development of dual models based on the alternation between school and enterprise (Deissinger, 2001; Baethge, 2008).

However, these models have not spread evenly. While countries such as Switzerland have built a coherent system of tertiary vocational education – one that is socially recognized as university education and well-integrated with the labor market – others, such as Italy and the United Kingdom, have struggled to overcome the subordination and persistent marginalization of technical and vocational pathways compared to university education, both in terms of social status and structural investments and policy attention (Bertagna, 2009, 2022; Powell & Solga, 2012).

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This contribution offers a comparative analysis of selected aspects of vocational tertiary education in three national contexts: Switzerland, the United Kingdom, and Italy. The aim is to investigate how each system has constructed – through specific institutional, regulatory, and educational arrangements – its own balance between theoretical education and practical learning and between the autonomy of educational paths and responsiveness to the needs of the production sector.

The choice to examine the systems of non-academic tertiary education in Italy, Switzerland, and the United Kingdom stems from the need to compare models with markedly different structural features and degrees of institutionalization. It is important to clarify that the terms "vocational tertiary education" and "non-academic tertiary education," though often used interchangeably, do not necessarily coincide.

In this article, "vocational tertiary education" refers to all forms of post-secondary education focused primarily on developing technical, professional, and occupational skills aimed at direct labor market entry. "Non-academic tertiary education," by contrast, designates all tertiary-level education that falls outside traditional academic university programs, regardless of whether it is vocationally oriented.

These two categories overlap but are not identical across national contexts.

In Switzerland, for example, vocational tertiary education includes both non-academic institutions (Professional Education Institutions) and academically recognized institutions (Universities of Applied Sciences). Switzerland offers a consolidated example of integration between education and the labor market, with a tertiary vocational education system that enjoys strong recognition from businesses and which features close cooperation between public and private actors.

In the United Kingdom, vocational tertiary education is fragmented between non-academic providers (colleges, independent training organizations) and universities offering vocational qualifications such as Foundation Degrees.

In Italy, vocational tertiary education is almost exclusively positioned in the non-academic sector, represented by ITS (Istituti Tecnologici Superiori - Higher Technological Institutes) Academies, without formal integration into the university system. Italy currently finds itself in an intermediate phase, with ITS Academies representing an attempt to bridge the gap between education and employment,

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yet still facing limited diffusion and lower social recognition compared to university pathways[1].
For each country, the analysis explores the institutional and regulatory configuration of educational pathways, the modes of integration between school, training, and enterprise, and the educational value of alternation. These dimensions are not treated as separate sections, but are addressed in an integrated manner within each national case, highlighting how institutional structures, training practices, and pedagogical approaches interact to shape models of vocational tertiary education (Billett, 2011; Potestio, 2020; Striano, 2024).

Non-Academic Tertiary Education in Switzerland

As in other European countries, the Swiss tertiary education system is structured around two main components: academic education, represented by ten cantonal universities and two Federal institutes of technology (ETH Zurich and EPFL Lausanne); and vocational tertiary education, delivered through three distinct types of institutions: Universities of Applied Sciences (UAS), Universities of Teacher Education (UTE), and Professional Education Institutions (PEIs, or Höhere Fachschulen - HF).
The UAS and UTE offer tertiary-level programs that are academically recognized (ISCED level 6) and equivalent to the first cycle of university studies. These programs, which typically last three years (180 ECTS), correspond to Italian and English bachelor's degrees (except for Scotland, where these programs often last four years). In contrast, Professional Education Institutions provide non-academic tertiary programs (ISCED level 5) focused on practical and professional training. These programs generally last two years and share similarities with Italy's ITS Academies and with British qualifications such as Higher National Diplomas (HNDs), foundation degrees, and Diplomas of Higher Education (DipHEs).
The role of vocational tertiary education in Switzerland is particularly significant: in the 2021/2022 academic year, students enrolled in UAS and UTE accounted for around 40% of all students in the Swiss university system. Between 2010 and 2020, student numbers in these institutions grew by approximately 30%, indicating the sector's increasing legitimacy. Although numerically smaller than the academic segment, PEIs have also experienced notable growth: the number of

[1] In this regard, see also in the same journal: P. Bertuletti, V. Capriotti, A. Potestio, *Formazione terziaria non accademica. Un approfondimento pedagogico su Istituti Tecnologici Superiori*, pp. 42-63.

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diplomas awarded rose from 3,249 in 2000 to 9,977 in 2020/2021, with a student population of 35,855 enrolled (SCCRE, 2023)[2].
According to Rudolf Strahm (2016, p. 72), the success of the Swiss system can be largely attributed to the coherent articulation between basic vocational education and tertiary vocational education. This integrated model, which facilitates smoother transitions between school, training, and employment, is often considered one of the factors associated with Switzerland's low youth unemployment rate, which stood at 6.3%[3] in 2022 – one of the lowest in Europe.

Institutional Framework: Decentralized and Cooperative Governance

The Swiss education system, which is characterized by a high degree of institutional decentralization, reflects the country's Federal structure. Responsibility for education is shared between the Confederation and the 26 cantons, which fund approximately 90% of public educational institutions (Eurydice, 2022). Compulsory education falls under the exclusive jurisdiction of the cantons (Federal Constitution, Art. 62), while post-compulsory levels have adopted a model of cooperative federalism based on a structured dialogue between the different levels of government.
In particular, the Confederation holds legislative authority over upper-secondary vocational education (Art. 63), with specific responsibilities regarding the issuance of core qualifications such as the Federal certificate of competence and the Federal Vocational Baccalaureate. The Federal certificate of competence is a three-year qualification certifying the completion of a dual apprenticeship that combines in-company practical training with school-based instruction and is recognized nationwide as a basic vocational qualification. The Federal Vocational Baccalaureate, which can be obtained either alongside or after the Federal certificate of competence, serves as a bridge between vocational education and tertiary-level studies and grants access to studies at UAS (SERI, 2020).
At the tertiary level, the system is divided into two segments: university education and non-academic vocational tertiary education. Legislative authority over non-academic vocational tertiary education lies primarily with the Confederation. The main legal framework is the Federal Act on Vocational and Professional

[2] See https://www.bfs.admin.ch/bfs/en/home/statistics/education-science/pupils-students/tertiary-professional-education.html
[3] https://data.worldbank.org/indicator/SL.UEM.1524.ZS

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Education and Training (VPETA, 2002), complemented by the Ordinance on Vocational and Professional Education and Training (VPETO, 2003), and the provisions issued by the Federal Department of Economic Affairs, Education and Research (EAER) in 2017. The latter regulates the accreditation of programs offered by PEIs, particularly through the *Ordinance on Minimum Requirements* of September 11, 2017, which established the conditions for Federal recognition of study programs and continuing education.
The quality and consistency of the system are ensured through close collaboration between the Confederation, the cantons, and labor market organizations – that is, the professional associations, employer federations, and trade unions that represent the interests of the various economic sectors. These organizations play a key role in designing curricula, defining occupational profiles, and ensuring that training pathways remain aligned with labor market needs. The overall coordination of the system is entrusted to the State Secretariat for Education, Research and Innovation (SERI). Within this framework, the Swiss Conference of Professional Education Institutions (Die Schweizerische Konferenz der Höheren Fachschulen [K-HF]) acts as a representative and coordinating body, promoting cooperation among the institutions operating in the professional education sector (Turri, 2023). Even within the vocational tertiary education sector, resource allocation follows performance-based logic, using indicators such as the number of enrollments and degrees awarded. This framework enables consistent and transparent governance, highlighting the quality of educational provision and the effectiveness of learning outcomes (Bauer & Gessler, 2016).

UAS, UTE, and Professional Education Institutions[4]

Vocational tertiary education in Switzerland is structured into three main types of institutions: Universities of Applied Sciences (UAS), Universities of Teacher Education (UTE), and Professional Education Institutions (PEIs), each of which plays a specific role by offering distinct programs oriented toward the labor market[5].

[4] While the Swiss tertiary education system includes Universities of Applied Sciences (UAS), Universities of Teacher Education (UTE), and Professional Education Institutions (PEIs), this study concentrates on PEIs due to their distinctive role in providing vocational tertiary education that closely aligns with comparable institutions in Italy and the UK.
[5] https://www.edk.ch/en/education-system-ch/post-compulsory/tertiary?set_language=en

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The UAS provide first-cycle academic training with a strong practical orientation. Established as part of education system reform in the 1990s—following the introduction of the Federal Vocational Baccalaureate (1994) and the Federal Act on UAS (1995)—they were officially created in 1997 through the merge of around 50 higher vocational schools. UAS offer bachelor's programs and, since 2008, master's programs. Admission is gained mainly through the Vocational Baccalaureate, although alternative pathways are available for holders of other secondary qualifications. According to the *Swiss Education Report* (2018, p. 222), the main UAS disciplinary areas are management (33%), computer science (18%), social work (11%), and architecture/construction (6%), with some disciplines—such as agriculture, applied linguistics, and applied psychology—offered at only one or two institutions nationwide. UAS graduates show high levels of employment outcomes: 90% find a job within one year since graduation, and this rises to 94% after five years (FSO, 2018).

The UTEs train teachers for all school levels up to upper secondary, including special needs education. Their programs combine a solid theoretical foundation with practical classroom experience, with proportions varying by canton. Created in the early 2000s through the transformation of pre-existing pedagogical schools, UTEs are managed and funded by the cantons, which also define the curricula. Their degrees are nationally recognized through agreements within the Swiss Conference of Cantonal Ministers of Education (EDK)[6]. UTEs follow a two-tier structure (bachelor's and master's degrees) and are regulated by the *Ordinance on the Coordination of Teaching in Universities*. Academic performance is measured through European Credit Transfer and Accumulation System (ECTS) credits, and the final degree qualifies graduates for teaching or for pedagogical–therapeutic practice.

Alongside Federal professional diplomas, PEIs represent the core of non-academic vocational tertiary education. PEIs occupy a unique niche in Switzerland's tertiary education, often referred to as "tertiary level B." Unlike Universities of Applied Sciences (UAS) and Universities of Teacher Education (UTE), which are considered "tertiary level A" and have a more academic orientation, PEIs focus on providing advanced vocational education that is closely aligned with specific occupational fields[7]. A hallmark of PEIs is their robust collaboration with industry partners. The curricula are often developed in close consultation with

[6] https://www.edk.ch/en/the-edk
[7] https://www.edk.ch/en/education-system-ch/post-compulsory/tertiary

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professional organizations and employers to ensure that the training remains relevant to current labor market needs. This partnership extends to the design of core syllabuses, which outline the competencies to be achieved, the structure of the programs, and the qualification procedures.
They offer highly specialized programs that last between two and four years and have a strong focus on practical and professional skills. Around 400 study programs are available, distributed across eight main fields: engineering and technology; hospitality, catering, and tourism; business and management; agriculture and forestry; healthcare; social work and adult education; arts and design; and transport and logistics[8]. Admission requires a Federal Certificate of Competence; holders of a Vocational Baccalaureate may access related vocational tertiary programs directly without having to take entrance exams (e.g., PEIs or, in some cases, UAS programs).
PEI programs are often offered in part-time formats compatible with employment. The teaching model alternates classroom instruction, lab activities, and workplace training. A distinctive feature is the integration of technical, managerial, and interpersonal skills. For example, the Tourism Specialists program includes languages and mathematics; management (accounting, HR, legal framework); sector-specific skills (geography, tourism management); and a company internship during the second year. Students sign an employment contract with the host company and receive compensation. They are supervised by a company tutor and a faculty supervisor from the PEIs, while the canton conducts regular inspections to ensure internship quality.
Training concludes with final exams and a diploma project that consists of a business-oriented project developed under school guidance and defended before a mixed evaluation board. Faculty members are active professionals, ensuring the ongoing integration of theory and practice. PEIs operate within a network that includes secondary-level vocational schools, thereby facilitating continuity between apprenticeships and tertiary education. Nevertheless, only a minority of Federal Certificate of Competence holders continue on to PEI programs.
PEIs maintain limited relationships with universities, although some lecturers work in both types of institutions. A notable exception is the PEI in Hospitality and Tourism in Bellinzona, which has established a bridging agreement with the École Hôtelière de Lausanne (EHL), which allows graduates to obtain a bachelor's

[8] https://www.sbfi.admin.ch/sbfi/it/home/formazione/fpc/fps/scuole-specializzate-superiori.html

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degree in hospitality management in four semesters. Although there is no formal institutional accreditation system, PEIs apply the ISO 9000 quality management standards with triennial certification. In the canton of Ticino, the system was introduced by the Division for Vocational Training and complemented by a set of cantonal monitoring indicators used to facilitate benchmarking among schools and with cantonal authorities (Strahm et al., 2016).
The Swiss vocational tertiary education system stands out for its strong institutional consolidation, social legitimacy, and deep integration with the labor market. Its decentralized yet cooperative governance enables responsiveness to regional economic needs while maintaining national quality standards. A key strength is the articulation between upper-secondary vocational training and tertiary professional education, allowing for seamless educational and occupational transitions. Furthermore, the active participation of employers in curriculum development and assessment processes ensures that competencies remain aligned with labor market demands. However, the system also presents some limitations: its strong specialization may reduce flexibility for students wishing to change sectors, and the relatively small size of the Professional Education Institutions (PEIs) compared to Universities of Applied Sciences (UAS) may limit broader access to non-academic tertiary education.

Non-Academic Tertiary Education in Italy

The Italian system of vocational tertiary education has developed within a historical and cultural tradition in which technical and professional knowledge has long been considered subordinate to academic and university education. In broad terms, the national school system consolidated over the twentieth century a structure based on a strong separation between theoretical education and vocational training (Bertagna, 2009, 2022).
This “separative logic” has had a dual effect: on the one hand, it has deprived vocational training of full educational and cultural legitimacy, often reducing it to mere job training; on the other, it has fostered a hierarchical representation of educational pathways whereby only the *liceo* (an Italian upper secondary school with a strong general and theoretical focus, designed to prepare students for university) and later university studies are considered truly formative for the individual, while technical, and especially vocational schools are seen as suited for

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students deemed "unfit" for abstract studies (Bertagna, 2022, pp. 29–50; Potestio, 2019; Massagli, 2019).
This logic has deeply shaped guidance practices and social expectations and thus contributes to the reproduction of long-standing educational and social inequalities.
Within this context, characterized by a strong historical separation between academic and vocational pathways and by the lack of a structured vocational track at the tertiary level, the introduction in 2010 of the Higher Technological Institutes (now known as ITS Academy – Istituti Tecnologici Superiori) represented a strategic attempt to reconfigure the vocational tertiary segment. The creation of ITS was intended not only to provide a pathway for the advancement of technical-professional competencies beyond upper secondary education but also to address Italy's low tertiary education attainment rate, which remains among the lowest among OECD countries, partly due to the absence of alternative non-university pathways (OECD, 2023).
ITS Academies are characterized by participatory governance, strong integration with companies, the systematic use of work-based learning, and a clear focus on improving youth employability in innovative sectors (MIUR, 2020). In theory, they embody a model that approaches the dual system of German-Swiss inspiration; in practice, however, they are still affected by structural weaknesses, including inadequate systemic integration and limited social recognition, which continue to hinder full affirmation of the model within the Italian context (Bertagna, 2022; Massagli, 2024).

Institutional Framework and Participatory Governance

ITS Academies were established by Article 13, paragraph 2 of Law No. 40 of April 2, 2007, and their regulatory framework was set out in the Prime Ministerial Decree (D.P.C.M.) of January 25, 2008, which defined their organization and operational requirements. These institutions became operational in 2010 with the launch of the first post-secondary courses[9] in key sectors of the Italian economy (Massagli, 2024). A major turning point came with Law No. 99 of July 15, 2022, which reformed the system and transformed the ITS into ITS Academies. This legislation redefined governance, introduced new quality standards, and

[9] For further information on the first ITS Academy institutes established between 2010 and 2015, see the 2015 INDIRE Monitoring Report: https://www.indire.it/wp-content/uploads/2017/05/Scheda-di-sintesi-monitoraggio-2015.pdf

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provided structural funding to strengthen the system. The reform aims to consolidate ITS Academies, enhance their ability to respond to the needs of Italy's productive fabric, and improve the integration of young people into the labor market.

To ensure the quality of training provision, a national monitoring system managed by INDIRE (National Institute for Documentation, Innovation and Educational Research) was introduced in 2013 and periodically evaluates the performance of ITS programs and their respective foundations[10].

ITS Academies represent the main channel of professionalizing tertiary education in Italy and correspond to levels 5 and 6 of ISCED. However, the number of ITS students remains below European benchmarks, and a key goal of the 2022 reform is to increase participation and attractiveness. As part of this effort, the National Recovery and Resilience Plan (NRRP) allocated €1.5 billion to double student enrollments by 2025, expand the number of ITS programs, and improve the technological infrastructure of laboratories. This investment seeks to consolidate the role of ITS Academies within the Italian education system, thereby strengthening their visibility and integration with the labor market.

In 2024, the approval of Law 121/2024 introduced a new architecture for technical and vocational education called the "technological and professional training pathway" (*filiera formativa tecnologica professionale*). This model is based on the structural and curricular integration of various levels of the education system: upper secondary technical and vocational schools, accredited vocational training centers, and ITS Academies. The proposed model follows a "4 + 2" vertical continuity logic: students may complete a four-year upper secondary vocational pathway and take the State Exam (*Esame di Stato*, or final diploma examination) without necessarily attending the traditional fifth year. Students passing the State Exam may directly access a two-year tertiary vocational program within an ITS Academy.

Regarding governance, ITS Academies are structured as participatory foundations (*fondazioni di partecipazione*). This legal model combines elements of traditional foundations and associations and functions as a non-profit entity in which public and private actors actively participate in the management and development of the institution. In the case of ITS Academies, this structure ensures

[10] For further information on performance indicators, rankings, and annual monitoring, see: https://www.indire.it/progetto/its-istituti-tecnologici-superiori/monitoraggio-nazionale/

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shared governance by enabling the stable and continuous involvement of schools, universities, companies, training providers, and local authorities.
This configuration allows for greater flexibility in the design of educational offerings and promotes the ongoing updating of study programs based on the actual needs of the labor market. Companies are directly involved in identifying the required skills and contributing to the organization of training activities. At the same time, the presence of educational and academic institutions ensures a balance between theoretical and practical training, while the involvement of local authorities makes it possible to adapt the educational offer to territorial specificities (INDIRE). In this framework, as of 2023, the ITS Academy system enrolled 11,834 students across 450 programs offered by 109 ITS foundations, with a graduation rate of 72.6% (INDIRE, 2025). The growth in applications – over 36,000 in 2023, with a 38.1% increase compared to the previous year – demonstrates a rising interest in these pathways, which are seen as strategic tools to bridge the skills gap and foster local economic development.

ITS Academies

The educational offer of ITS Academies is structured on two levels: the Diploma of Specialization in Applied Technologies (ISCED level 5, two years, 1,800–2,000 hours) and the Higher Diploma of Specialization in Applied Technologies (ISCED level 6, three years, 3,000 hours). Teaching integrates theoretical instruction, practical activities, and work-based learning to ensure continuous alignment between the skills acquired by students and the evolving needs of the labor market. Six technological areas are considered strategic (D.P.C.M., January 25, 2008): energy efficiency; sustainable mobility; new technologies for life; new technologies for Made in Italy (including business services, agri-food system, housing system, mechanical system, fashion system); information and communication technologies; and innovative technologies for cultural heritage and tourism.
Learning in ITS Academy programs is based on a dual model grounded in the systematic integration of classroom education, laboratory practice, and on-the-job training. This alternation is not merely a juxtaposition of separate activities, but constitutes a genuine educational strategy aimed at connecting theoretical knowledge with professional practices, thereby fostering situated and reflective learning (Potestio, 2020).

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At least 35% of the total training hours are devoted to internships[11] that are carried out in collaboration with national and international companies. This allows students to develop operational abilities, strengthen soft skills, and gradually transition into the labor market. In some cases, this integration occurs during the course itself through higher-level apprenticeships, which allow students to be employed while completing their training. Interaction with the productive sector is further enhanced by the direct involvement of businesses in course design, ensuring the constant updating of skills and the alignment of training provision with sectoral needs.

Each student is supported by a dual tutoring system: a training tutor, who is member of the ITS staff, and a company tutor who is selected from the host enterprise. From the beginning of the course, partner companies present their training projects, illustrate employment opportunities, and engage directly with students to foster a match between interests, profiles, and competencies.

At the core of the learning experience is a project-based activity that students carry out in collaboration with companies. This constitutes a concrete experience of addressing real problems faced by businesses. The activity is jointly supervised by both tutors and represents a hybrid learning space where theory and practice intersect, enabling students to autonomously build professional knowledge and skills.

Learning assessment follows an integrated approach that takes into account not only technical-specialist competencies but also the transversal and socio-cognitive skills developed by the student. In this regard, ITS pathways differ significantly from traditional university programs: whereas the latter tend to adopt a theoretical-disciplinary curriculum, ITS programs are structured in a pragmatic and collaborative way that is strongly oriented toward applied contexts and the expressed needs of the production system. The difference lies in the organizational structure and the mission pursued by each pathway: university programs originate from humanistic and scientific research and reflect its culture, passing on knowledge and theory; professional pathways are grounded in the needs of the labor market (Massagli, p. 71).

Another qualifying element of the ITS Academy teaching methodology is the structural integration between education and the labor market, as evidenced by

[11] Italian Law No. 99 of July 15, 2022.

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the composition of the teaching staff. In accordance with national guidelines, at least 50% of instructors come directly from the productive sector (MIUR, 2020). As bearers of experiential knowledge and context-specific operational skills, these industry experts play a key role in making learning authentic and situated. They bring into the classroom not only up-to-date knowledge about technologies and processes but also a concrete understanding of the organizational dynamics, real-world challenges, and decision-making practices that characterize workplace environments. Their presence helps to create a hybrid learning environment where the boundaries between theory and practice are softened, thereby promoting the development of enacted and reflective knowledge.
Italy's ITS Academy system represents a promising effort to bridge the gap between education and employment by integrating theoretical learning with structured work-based experiences. The participatory governance model, involving schools, companies, and local authorities, is a notable strength that promotes the continuous updating of curricula based on labor market needs. The system also benefits from recent legislative reforms and significant investments under the National Recovery and Resilience Plan (NRRP), which aim to expand and stabilize the ITS network. Nonetheless, the model remains fragile: enrollment rates are still low compared to European averages, social recognition of vocational pathways remains limited, and regulatory fragmentation at the regional level continues to pose challenges. Cultural biases favoring academic education persist, and organizational capacity varies significantly among ITS foundations, impacting the overall consistency of training quality.

Non-Academic Tertiary Education in the United Kingdom

Although the United Kingdom has a well-developed tertiary education system characterized by high participation rates and strong learning outcomes (European Commission, 2019), the Higher Technical Education (HTE) segment – corresponding to ISCED level 5 – remains marginal, particularly in England. In the 2021/2022 academic year, HTE accounted for only 16% of total new entrants in higher education, a significantly lower share compared to other OECD countries such as Germany, where short-cycle tertiary programmes attract over 47% of new entrants, France, where the figure is approximately 32%, Italy, where the share is around 15%, or Switzerland, where it exceeds 50% (OECD, 2023; INDIRE, 2023; SERI, 2020). To address this issue, the English government has since 2020

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promoted the structural reform of HTE aimed at strengthening its profile, quality, and attractiveness. A key innovation is the introduction of Higher Technical Qualifications (HTQs), which are approved by independent bodies based on occupational standards defined in close collaboration with employers. The goal is to improve the alignment between the educational offer and labor market needs, thereby granting greater legitimacy to a training sector traditionally perceived as less prestigious than academic degrees (DfE, 2024).

In addition, the Department for Education announced the creation of Skills England, a new national body aimed at coordinating the governance of the skills system by facilitating dialogue between the government, local authorities, educational institutions, and economic stakeholders.

However, despite the reforms underway, the English HTE system continues to exhibit structural weaknesses. The existence of a large number of qualifications (often overlapping in content), the lack of a unified strategic vision, and the still limited involvement of employers in training processes have hindered the growth and recognition of the sector. This is also due to a highly fragmented supply: HTE qualifications are offered by a range of providers—colleges, universities, and independent organizations—often without clear specialization or institutional identity, making it difficult for both students and employers to navigate and plan coherent pathways (DfE, 2024).

Another critical issue is the limited integration of work-based learning into HTE programs. Although England has developed apprenticeship schemes at the tertiary level, traditional classroom-based courses largely lack structured and mandatory practical experiences. This weakens the capacity of HTE programs to enable direct entry into the labor market, placing them at a disadvantage compared to more professionally oriented models adopted in other European countries (DfE, 2023).

Quality assurance mechanisms also appear fragmented, as they involve a multiplicity of agencies with partially overlapping responsibilities. While this plurality can allow for diverse approaches, it also generates issues of coordination, clarity, and transparency for the stakeholders involved. On the funding side, although some progress has been made toward equalizing financial support for HTE and university students, gaps remain in the provision of incentives for employers and in the recognition of prior learning for adults undergoing reskilling (House of Commons Library, 2024).

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While marking a significant shift in the institutional vision of higher technical education, the English HTE system still struggles to establish itself as a strong, recognizable, and attractive alternative to academic pathways due in part to the weak integration of political strategy, educational institutions, employers, and students (Unwin, 2004).

Institutional Framework in the United Kingdom and Its Jurisdictions

The United Kingdom features a highly devolved tertiary education system, with significant differences in the governance of Higher Technical Education (HTE) across England, Scotland, Wales, and Northern Ireland. Although they share some common frameworks—such as the use of ISCED levels, the presence of technical and vocational qualifications at levels 4 and 5, and the emphasis on linking education and employment—the four jurisdictions adopt distinct regulatory models, responsible institutions, and educational policies (DfE, 2022, 2023; OECD, 2024; CEDEFOP, 2019).

England

In England, the governance of Higher Technical Education (HTE) is entrusted to a plurality of public bodies with distinct but complementary responsibilities. These actors jointly contribute to policy development, the regulation of educational provision, and the accreditation of qualifications. The Department for Education (DfE) sets the overall strategic direction for the post-secondary education system by promoting reforms and legislative tools. The Office for Students (OfS), the regulatory authority for tertiary education, is responsible for monitoring the quality of educational provision and ensuring equity in access, including for institutions offering technical tertiary programs.

A crucial role is played by the Institute for Apprenticeships and Technical Education (IfATE), an independent public body responsible for defining occupational standards and accrediting Higher Technical Qualifications (HTQs). Introduced in 2022, HTQs are a central pillar of the strategy to strengthen higher technical education. These qualifications are closely aligned with occupational standards defined by employers and are designed to offer professional pathways consistent with emerging labor market needs. Their introduction aims to fill the so-called *missing middle* of the English education system—that is, the absence of a strong

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intermediate segment between secondary and university education (Field, 2018).

As of 2024, the government has been implementing Skills England[12], a new national body with a broader mandate than IfATE. In addition to assuming future responsibility for HTQ accreditation, Skills England will coordinate skills policy at both the national and local levels, promoting collaboration among central institutions, local authorities, employers, training providers, and social partners. It will also manage innovative financial instruments such as the Growth and Skills Levy[13], a fund aimed at supporting modular technical training for adults undergoing reskilling and for businesses investing in upskilling.

This reform has been introduced into a troubled learning environment marked by a persistent mismatch between educational provision and labor market needs: according to recent data, around one in ten UK employers reports difficulty in finding qualified staff for open positions (Deb & Li, 2024). To support the HTE infrastructure, the government has also promoted the creation of Institutes of Technology (IoTs), or centers of excellence in STEM fields, which were established through partnerships between universities, technical colleges[14], and local businesses. IoTs represent a model of school–to–work collaboration aimed at advanced training, with a strong focus on innovation and employability.

While the establishment of Skills England and the expansion of IoTs signal a paradigm shift in skills governance, the system is still in transition. Careful monitoring will be needed to assess their actual capacity to reduce fragmentation and to enhance the visibility and effectiveness of higher technical education in England.

Scotland

Governed by its own institutional system, which is distinct from that of England, Scotland enjoys a high degree of autonomy in the field of education. HTE is the responsibility of the Scottish Government, specifically the Cabinet Secretary for Education and Skills and the Minister for Higher and Further Education, Youth

[12] https://www.gov.uk/government/collections/skills-england

[13] The Growth and Skills Levy is a proposal by the UK government aimed at reforming the current training funding system by expanding the use of employer contributions to also cover short, modular technical courses in addition to apprenticeships.

[14] In the UK, technical colleges are further education institutions that provide vocational and technical education, typically at Levels 3 to 5, including T Levels, Higher National Certificates (HNCs), Higher National Diplomas (HNDs), and Higher Technical Qualifications (HTQs). They focus on delivering practical, career-oriented training aligned with labour market needs, particularly in sectors such as engineering, IT, health, and construction.

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Employment and Training. Technical and vocational qualifications are regulated by the Scottish Qualifications Authority (SQA), the body responsible for the development, assessment, and certification of Scottish Vocational Qualifications (SVQs).
SVQs are based on National Occupational Standards similar to those used in England but are fully integrated into Scotland's national qualifications framework, the Scottish Credit and Qualifications Framework (SCQF). The SCQF provides a unified and coherent reference for all qualifications, both academic and vocational, enabling the recognition of competencies and supporting both horizontal and vertical mobility across different educational pathways.
A distinctive feature of the Scottish model is its high level of integration between education, training, and employment policies, an approach that is supported by stable partnerships between colleges, universities, regional development bodies, and employers. Further Education Colleges in particular play a central role in delivering post-secondary technical and vocational training, often through apprenticeship programs or flexible pathways designed to support adult reskilling. These institutions, which are deeply rooted in their local communities, are predominantly publicly funded and represent a key pillar of Scotland's skills development strategy (Scottish Government, 2022, 2023). In the 2022/23 academic year, the total number of students in further education across the UK increased by 4.1% compared to the previous year, with rises observed in every part of the UK. Notably, since 2015/16, the total number of FE students has decreased by 16.1% across the UK, with decreases in each part of the UK except in Scotland, where the number of FE students has increased over the same period[15].

Wales
In Wales, the governance of HTE is entrusted to the Welsh Government, under the responsibility of the Minister for Education and Welsh Language. Qualification regulation falls under the remit of Qualifications Wales, an independent body responsible for the accreditation and quality assurance of non-university qualifications. The Welsh strategic vision for HTE differs from the English model; its more integrated approach emphasizes territorial balance, curricular coherence, and accessibility of training opportunities.

[15] https://explore-education-statistics.service.gov.uk/find-statistics/education-and-training-statistics-for-the-uk/2024

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Technical qualifications may be delivered by further education colleges coordinated by ColegauCymru, the national organization representing and supporting colleges in Wales. These institutions, which work closely with local communities, businesses, and public authorities, play a fundamental role in post-secondary technical education.
A distinctive element of the Welsh system is the Skills Strategy for Wales, which highlights the school-to-work transition, the role of colleges in regional economic development, and the importance of providing professional pathways that are also accessible to adults. Welsh education policies promote cooperative models of training that are built on the synergy between the public sector, the productive economy, and the education system (Cantor & Roberts, 2021; Glover & Hutchinson, 2023).

Northern Ireland
In Northern Ireland, responsibility for technical and vocational education lies with the Department for the Economy (DfE-NI), which oversees both HTE programs and apprenticeship pathways. The system is regulated by the Council for the Curriculum, Examinations & Assessment (CCEA), the body in charge of defining curriculum standards and accrediting qualifications. HTE is primarily delivered by the six Further Education Colleges operating in Northern Ireland, which work in close partnership with the local economy, particularly in sectors considered strategic for regional economic development, such as healthcare, engineering, and information and communication technologies (ICT).
The Northern Irish model is characterized by its strong emphasis on inter-institutional collaboration and on the involvement of employers in the design of educational provision. Technical pathways often include structured internship periods, and HTE is conceived as a key tool for promoting youth employment, especially in economically disadvantaged areas. The system also promotes flexible and modular learning pathways that are accessible to adult workers undergoing reskilling (Department for the Economy of Northern Ireland, 2023).

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HTE Provision: Qualifications and Pathways[16]

Within the England education system, HTE represents a key component of the post-secondary offer, positioned between ISCED level 3 qualifications (such as A-levels, BTECs, and T-levels)[17] and academic university degrees (bachelor's and master's degrees, ISCED levels 6–8). HTE focuses primarily on levels 4 and 5 of the Regulated Qualifications Framework (RQF), offering programs designed to meet labor market needs and to develop applied, up-to-date, and immediately transferable skills.

After completing compulsory education (General Certificate of Secondary Education [GCSE], typically at age 16), students can access level 3 qualifications, either academic (A-levels) or vocational (T-levels, BTECs, diplomas). Data from 2022/23 indicate that approximately 66% of students choose A-levels, while vocational pathways account for one-third of enrolments, with T-levels still representing a marginal share (1%) (DfE, 2024).

Access to HTE programs is marked by a high degree of flexibility: unlike in other countries, where transitions are governed by formal standards, in England, the entry requirements vary across providers, making the system fragmented and, at times, difficult to navigate for both students and employers (OECD, 2024). The HTE offer includes several types of qualifications, which are summarized in Table 1.

[16] While the United Kingdom is a devolved system with distinct educational models in each of its four nations, this section focuses on Higher Technical Education (HTE) provision in England, where most of the recent structural reforms (HTQs, IoTs, Skills England) have been implemented. The HTE systems in Scotland, Wales, and Northern Ireland follow different regulatory and institutional logics and are addressed separately and briefly in the preceding subsections.

[17] A-levels (Advanced Levels) are qualifications obtained between the ages of 16 and 18, at the end of upper secondary education. In the Italian system, they correspond to the *diploma di scuola secondaria di secondo grado* (particularly from *liceo* tracks), while in the Swiss system they are equivalent to the *maturité gymnasiale*, which grants direct access to university. BTECs are technical and vocational qualifications, also obtainable after the age of 16. In the Italian context, they are comparable to diplomas awarded by technical or vocational institutes; in the Swiss context, they are similar to the *Federal Certificate of Competence*, awarded at the end of vocational education and training programs. T-levels, more recently introduced, combine classroom-based learning with work placements. In Italy, they are comparable to *Istruzione e Formazione Professionale* (IeFP) pathways, while in Switzerland they correspond to the dual vocational education system, which integrates school-based learning and company-based apprenticeships and also leads to the Federal Certificate of Competence.

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Table 1

Qualifications Offered by HTE in England

Type of qualification	Duration/Credits	Target group	Delivered by	Entry requirements
Higher National Certificate (HNC)	1 year/120 credits	Young people and adults	Colleges, universities, independent training providers	Typically at least one A-level or equivalent
Higher National Diploma (HND)	2 years/240 credits	Young people and adults	Same as above	Typically at least one A-level or equivalent
Foundation Degree	2 years/240 credits	Young people and adults	Same as above	No standard formal requirement
National Vocational Qualification (NVQ) – ISCED 5	1–2 years/120–240 credits	Adults with work experience	Vocational training providers	No standard formal requirement

Note. Own elaboration based on https://www.cedefop.europa.eu/en/tools/vet-in-europe/systems/united-kingdom-2019

Higher National Certificates (HNCs) and Higher National Diplomas (HNDs) are well-established technical qualifications and are particularly common in the productive, engineering, and business sectors. These qualifications can often be supplemented with an additional year of study to obtain a bachelor's degree. Foundation degrees are hybrid programs with strong ties to the labor market and are frequently developed in partnership with local employers. National Vocational Qualifications (NVQs)[18] at level 5[19] are based on the assessment of work-based competencies, making them especially suitable for adult learners (CEDEFOP, 2019).

In recent years, the English HTE sector has suffered from reduced public funding and a degree of discontinuity in programmed provision. Between 2010 and 2016, the budget for adult education was cut by 30%, undermining the ability of colleges to deliver technical training. Although student loans were extended to

[18] https://www.gov.uk/government/publications/criteria-for-national-vocational-qualifications-nvqs
[19] For the different levels, see: https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels

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adult learners in 2016, their effectiveness in boosting enrollment remains uncertain (Barbato et al., 2016; Boniface et al., 2018).
Data for the period 2015/16 to 2022/23 show an overall decline in enrollment in levels 4 and 5 HTE programs in England, falling from around 153,000 to 143,000 students. The decrease is particularly marked for traditional classroom-based courses: compared to 2015/16, enrolments in classroom-based level 4 courses fell by 37%, and those in level 5 courses dropped by 40%. In contrast, technical apprenticeships at equivalent levels have significantly increased, suggesting a gradual shift in both the educational offer and student demand toward dual models, where learning and work are more closely integrated (IfATE[20]; Johnston L. & Johnston A., 2024).
To address these challenges, the government introduced Higher Technical Qualifications (HTQs) in 2022. These are designed in collaboration with labor market experts and are accredited only if they are fully aligned with occupational standards. The first HTQs were launched in the digital sector, followed by construction, healthcare, and science (2023), with additional sectors currently being rolled out (2024–2025). In 2023/2024 the government has allocated £117 million toward establishing these qualifications, of which £83 million is earmarked for strengthening programmed provision and improving infrastructure (DfE, 2023).
Work-based learning (WBL) is a key component of HTE systems in countries such as Italy and Switzerland, where it is regulated by mandatory standards. In England, however, the integration of WBL is fragmented and not governed by national regulation. For Foundation degrees, WBL is recommended, but not compulsory; in HNC and HND courses, it is generally absent. Only apprenticeships ensure genuine alternation between study and work. Even HTQs—while based on professional standards—do not include mandatory work experience components (Deb & Li, 2024; Pearson Education, 2023).
The English HTE system is characterized by a plurality of qualifications and providers, flexible access routes, and low levels of central regulation. Recent reforms aim to simplify the system, enhance its quality, and address the *missing middle* between secondary school and university by offering stronger, more attractive tertiary pathways that better reflect the needs of the labor market.

[20] https://occupational-maps.instituteforapprenticeships.org/

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The United Kingdom's tertiary education system benefits from a high overall participation rate and a strong academic sector recognized globally for excellence. In recent years, reforms targeting the Higher Technical Education sector, such as the introduction of Higher Technical Qualifications (HTQs) and Institutes of Technology (IoTs), signal a growing institutional awareness of the need to strengthen vocational pathways. A key strength lies in the effort to align technical education with occupational standards and employer needs. However, the system continues to suffer from major structural weaknesses: fragmentation across qualifications and providers, a lack of coherent strategic governance, and limited mandatory integration of work-based learning. These factors hinder the visibility, credibility, and accessibility of technical pathways, reinforcing the traditional divide between vocational and academic education.

Perspectives and Future Challenges of Professionalizing Tertiary Education

The analysis carried out highlights both commonalities and significant differences among the three models of professionalizing tertiary education. On the side of similarities, a shared trend emerges: the growing emphasis on practical learning and stronger links with the world of work, albeit with varying intensities and modalities. In all three countries, the non-academic segment of tertiary education appears increasingly as a strategic response to the skill mismatch and as a lever to promote youth employability in key sectors of innovation.
However, structural differences remain marked. Switzerland is characterized by a mature and integrated system, with vocational pathways that are fully legitimized both socially and institutionally. This is achieved through cooperative governance and the strong involvement of economic actors, who play a structural role in decision-making processes, curriculum design, and quality assurance. Employers also actively contribute to the design and delivery of workplace training. The strength of this model is confirmed by the fact that over 70% of young people in Switzerland undertake an apprenticeship in companies that collaborate with schools and cantonal authorities. Professional organizations also help draft training standards and take part in final exams, ensuring continuous alignment between education and labor market needs (SERI, 2020; Strahm et al., 2016).
The United Kingdom, despite its high-performing university system, has historically neglected the technical tertiary segment, which has only recently become

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the focus of structural reforms (HTQs, IoTs, Skills England). However, the system still suffers from institutional fragmentation and a lack of coherence among qualifications, providers, and professional standards, all of which are factors that undermine its visibility and effectiveness.

Italy occupies an intermediate position, with ITS Academies representing an evolving experience capable of effectively integrating theory and practice, yet which is still fragile in terms of diffusion,[21] social perception, and regulatory stability. The recent reforms and financial support from the National Recovery and Resilience Plan mark a crucial opportunity for consolidation, which nonetheless requires both cultural and organizational change.

Although the United Kingdom and Italy both originate from a cultural tradition that historically privileged academic over vocational education and training, their current trajectories reveal important divergences. In both contexts, vocational and technical pathways have long suffered from lower social prestige, fragmented governance, and underinvestment compared to university education. This shared background is rooted in a separation between theoretical and practical knowledge that dates back to the structuring of their national education systems.

However, the ways in which each country has responded to these structural imbalances differ. In the United Kingdom, despite recent reforms such as the introduction of Higher Technical Qualifications (HTQs), Institutes of Technology (IoTs), and the establishment of Skills England, the system remains characterized by institutional fragmentation, a lack of clear articulation among qualifications and providers, and a persistent weakness in work-based learning integration. In contrast, Italy, through the development of the ITS Academy system, has attempted to build a more coherent and stable model of vocational tertiary education. ITS Academies embody an institutional effort to foster the integration of education, training, and employment by establishing structured partnerships among schools, businesses, and local authorities. Although challenges remain—particularly regarding the diffusion, social perception, and regulatory stability of the model—Italy has moved toward a more consolidated system, supported by

[21] According to INDIRE's 2024 national monitoring report, referring to pathways completed by December 31, 2022, the number of students enrolled in ITS Academy programs was 9,246. This figure is significantly lower than the more than 1.8 million students enrolled in Italian universities during the same period. Moreover, out of 26,283 applications submitted for ITS Academy entrance tests, only 9,246 students formally enrolled, representing just 47.2% of those who were deemed eligible (https://www.indire.it/progetto/its-istituti-tecnologici-superiori/monitoraggio-nazionale/)

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recent legislative reforms and significant financial investments through the National Recovery and Resilience Plan (NRRP).
Therefore, while both countries share a historically negative view of vocational education, their contemporary developments point to different institutional responses: one marked by ongoing systemic fragmentation (United Kingdom), and the other by a gradual, though still incomplete, process of consolidation (Italy).
These three models span a continuum from full institutionalization (Switzerland) to ongoing restructuring (UK) to progressive development (Italy). Beyond their structural differences, what emerges is a shared effort to develop educational models that combine theoretical knowledge with practical skills and reflection with employability.
This common tension, which is visible across European education systems, calls for a pedagogical reflection on the role of work within education and, more broadly, on the meaning of vocational tertiary education delivered by non-university institutions. The comparison of these three systems shows that non-academic tertiary education takes on diverse institutional and pedagogical forms, resulting in a structurally plural educational landscape. This plurality is not limited to a diversity of qualifications or providers, but reflects a broader articulation between theoretical and practical knowledge, between school and workplace settings, and between educational intentions and occupational needs.
In this context, work is not merely the outcome of education but an intrinsic epistemic and transformative component of the educational process itself. Work should not be reduced to a purely productive function, nor should it be interpreted solely in instrumental or employment-related terms. Rather, it should be viewed as a formative device with anthropological, cultural, and social implications that is capable of guiding educational experiences toward authentic, contextualized, and reflective learning.
Direct student involvement in real work settings promotes not only the development of professional competencies but also processes of subjectivation and meaning-making, which is consistent with a vision of education as a situated and transformative practice (Callegari, 2024; Dewey, 1916; Striano, 2024). From this perspective, the role of school is not to prepare for work but to educate through work (Dewey, 1916), providing an environment in which individual capabilities can be developed within a democratic, equitable, and participatory framework (Striano, 2024).

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This approach is especially relevant today, as vocational education risks being subordinated to the logics of economic efficiency and labor market flexibility, often neglecting the ethical and formative dimensions of education. The key question is whether these pathways are to be oriented toward mere preparation for employment—often understood as passive entry into a labor market governed by efficiency logics—or whether they can be reclaimed as educational spaces in which aware, skilled, and responsible subjectivities are cultivated. It is from this second perspective that vocational tertiary education can become a space of empowerment that is capable of promoting freedom as the capacity to act, choose, cooperate, and transform (Mari, 2024).

Reflecting on work as an educational dimension is especially urgent in today's cultural landscape, which is marked by growing professional insecurity and a crisis of meaning and recognition associated with labor. Educational institutions are thus called upon to take responsibility in building a new cultural imaginary of work—one that romanticizes leisure as generative time and labor as a space for growth, relationships, and freedom (Mari et al., 2024).

To interpret this educational segment solely in economic or functional terms would be reductive and risky for employability in the long-run. Instead, it is essential to reactivate a vision centered on the learning subjects, their dignity, and their potential. Only from this genuinely pedagogical and idiographic perspective can vocational tertiary education be rethought of as a fully legitimate educational experience, one that is capable of contributing to the personal and social development of citizens. In this light, the enhancement of tertiary pathways in all their institutional, epistemological, and methodological diversity becomes a necessary condition to recognize the plurality of learning forms and the diversity of learners, thus restoring full educational dignity to every form of work-oriented training.

VIRGINIA CAPRIOTTI
University of Bergamo

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