Working paper series
No 29/March 2026

VET TEACHERS AT A TURNING POINT

Pilot evidence from Cedefop's European Vocational Teacher Survey

Irene Psifidou
Michail Papazoglou
Konstantinos Pouliakas

cedefop

Please cite this publication as:
Psifidou, I. Papazoglou M. and Pouliakas, K. (2026). *VET teachers at a turning point: Pilot evidence from Cedefop's European Vocational Teacher Survey.* Cedefop working paper. Publications Office of the European Union. http://data.europa.eu/doi/10.2801/1254726

Luxembourg: Publications Office of the European Union, 2026

PDF
ISSN 1831-2403
ISBN 978-92-896- 3935-4
doi: 10.2801/1254726
TI-01-26-014-EN-N

The **European Centre for the Development of Vocational Training** (Cedefop) is the European Union's reference centre for vocational education and training, skills and qualifications. We provide information, research, analyses and evidence on vocational education and training, skills and qualifications for policymaking in the EU Member States.
Cedefop was originally established in 1975 by Council Regulation (EEC) No 337/75. This decision was repealed in 2019 by Regulation (EU) 2019/128 establishing Cedefop as a European Union Agency with a renewed mandate.

Europe 123, Thessaloniki (Pylaia), Greece
Postal address: Cedefop service post, 570 01 Thermi, Greece
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu
www.cedefop.europa.eu

Table of Contents

Tables and figures

Tables

Figures

Acknowledgements

This working paper authored by Cedefop experts Irene Psifidou, Michail Papazoglou and Konstantinos Pouliakas is based on Cedefop's European Vocational Teacher Survey (EVTS) within the Department for VET and Skills (DVS) headed by Antonio Ranieri.

The authors would like to thank the contracted research consortium Verian and its extended network of national VET experts who carry out the EVTS on behalf of Cedefop, and members of the tripartite EVTS stakeholder group – comprised of around 100 members representing relevant ministries from the participating countries; the European and national members of the European Trade Union Committee for Education (ETUCE); and the European Federation of Education Employers (EFEE) – for their continuous support and active engagement throughout the preparation and implementation of the EVTS.

The paper also draws on insights and reflections shared by participants in Cedefop's 4th Policy Learning Forum, Launching the EVTS, held on 25 and 26 September 2025 in Thessaloniki, Greece which contributed to refining the analytical focus and policy relevance of the survey.

Irene Psifidou, PhD
Department for VET and Skills – the European Agency for the Development of Vocational Training (Cedefop), Thessaloniki, Greece
Email: rena.psifidou@cedefop.europa.eu ORCID: https://orcid.org/0000-0002-5728-7730

Michail Papazoglou, PhD
Department for VET and Skills – the European Agency for the Development of Vocational Training (Cedefop), Thessaloniki, Greece
Email: michail.papazoglou@cedefop.europa.eu ORCID: https://orcid.org/0000-0002-5493-2976

Konstantinos Pouliakas, PhD
Department for VET and Skills – the European Agency for the Development of Vocational Training (Cedefop), Thessaloniki, Greece
Email: konstantinos.pouliakas@cedefop.europa.eu ORCID: https://orcid.org/0009-0008-0708-3116

CHAPTER 1.
Introduction

Across Europe, initial vocational education and training (IVET) is central to preparing a skilled workforce capable of supporting a greener, more digital, inclusive, and resilient economy. Teachers and trainers in IVET play a pivotal role in this process, not only delivering technical and vocational knowledge, but also bridging the gap between schools and workplaces, mentoring students, and fostering transferable skills. Yet recent evidence highlights that this profession faces significant pressures, which, if unaddressed, could limit the effectiveness and attractiveness of VET systems across Europe. This could be a detriment to the future competitiveness and resilience of the EU economy, given the crucial role that VET systems have in the diffusion of new technologies into workplaces, mitigating skill shortages, attaining balanced economic growth and facilitating social inclusion (Cedefop, 2013).

Against this backdrop, the European Vocational Teacher Survey (EVTS) was developed to provide systematic, comparable evidence on the realities of IVET teaching. The EVTS is the first EU-wide, representative survey dedicated to IVET teachers (Psifidou et al., 2025). Its primary aim is to capture teachers' experiences, needs and perspectives on key issues such as professional development, working conditions, the twin transition (digital and green skills) and career attractiveness (Psifidou, 2025a). By collecting robust quantitative data offering insights into teachers' learning and school practices, the EVTS provides evidence to inform EU and national policies designed to strengthen the profession and enhance the quality of VET provision.

The survey is guided by five key research questions: (a) how teachers maintain and develop their professional skills; (b) which professional development activities are most effective; (c) what competences need further development so that VET teachers can be best prepared to address digitalisation, the green transition, and the need for inclusion; (d) how teachers perceive their working conditions, leadership, and organisational support; and (e) how attractive the VET teaching profession is in terms of career progression and status.

This work is aligned with broader EU policy frameworks. The European Skills Agenda (European Commission, 2020a) and the European Education Area (European Commission, 2020b) emphasise the importance of attracting and retaining skilled teachers, fostering high-quality professional development, and ensuring the teaching profession is equipped to support digitalisation, sustainability, and inclusive education (European Commission, 2020a, 2020c).

The Council Recommendation on VET for sustainable competitiveness (Council of the European Union, 2020b) highlights the need for targeted professional learning opportunities to prepare teachers for evolving labour-market demands, while initiatives such as the Pact for Skills (European Commission, 2020c) encourage continuous upskilling and stronger links between VET schools and workplaces. The recently announced Union of Skills (European Commission, 2025) calls for, inter alia, the need to further strengthen the basic and advanced skills of learners and to introduce a new EU VET strategy.

Cedefop actively supports these objectives through evidence-based tools, policy guidance, and facilitation of peer learning. Cedefop's EVTS, policy learning forums, and practical toolkits – such as those addressing early leaving and inclusive VET – help national authorities, social partners, and VET providers design and implement strategies that strengthen teachers' competences, wellbeing and career prospects. By combining survey evidence with examples of good practice from across Europe, Cedefop aims to ensure that VET teachers are recognised, supported, and empowered as key drivers of a future-ready workforce.

This working paper draws on preliminary evidence from the Cedefop EVTS pilot survey, conducted between May and October 2025 and covering 735 teachers across 23 EU Member States. The pilot offers a first empirical snapshot of a complex and dynamic professional landscape. Teachers are increasingly required to master digital and green competences, respond to diverse learner needs and maintain links with industry, while managing administrative pressures and heavy workloads (Council of the European Union, 2020a). But concrete, representative evidence on how many teachers in vocational schools are adequately prepared for the task has been missing. Only anecdotal, qualitative evidence has been available at EU level on the extent to which teachers participate in high quality and relevant continuing professional development (CPD) and the major obstacles they face (Psifidou & Symeonidis, 2025).

Overall, while much is said about the need for improved CPD, information on how effective different forms of CPD are in terms of improving teaching performance has been scarce. Much of the available literature on the CPD of VET teachers comprises of studies carried out at national level, while comparable and comparative data at Member State level has not been available to date (Cedefop, 2022, 2023). For this reason, Cedefop made in 2024-25 an extensive investment to overcome the marked logistical and administrative challenges of making a pan-European survey of initial VET teachers a reality.

This working paper draws on preliminary findings of the EVTS pilot survey and aims to interpret what they mean for European VET systems and policies today. While only a small subset of what will be the full EVTS database covering thousands of VET teachers in Europe, it points already to some clear and consistent patterns concerning the VET teaching profession.

Many IVET teachers report feeling undervalued, overstretched and insufficiently prepared for the evolving demands of their role. Teachers' professional development is most strongly linked with high quality, informal and self-directed learning practices, supportive organisational environments and favourable working conditions, rather than with participation in formal training alone. Professional development tends to be higher where teachers report stronger organisational commitment, better working conditions and a sense of accomplishment in their work. By contrast, heavy workloads, limited support and indicators of burnout are associated with lower engagement in professional learning. The results further suggest that engagement with digital practices constitutes one the main driving forces behind VET teachers' professional development, highlighting how critical it is to continue investing in schools' digital infrastructure and teachers' digital skills.

Such findings described in this paper are essential not only for improving teaching quality and learning outcomes, but also for making VET teaching a more attractive and sustainable career, ensuring that teachers remain central to Europe's social and economic transitions.

The structure of the paper is as follows. Section 2 describes the EVTS methodology and conceptual framework. Section 3 provides an overview of the data used in the study, while Section 4 outlines the empirical strategy. Section 5 presents and discusses the results, robustness checks and heterogeneity findings. Section 6 sets out policy recommendations and Section 7 concludes.

CHAPTER 2.

Cedefop's European Vocational Teacher Survey (EVTS)

The EVTS is Europe's first systematic survey focused on the professional development and working conditions of teachers in initial VET schools ([1]). After several years of assessing the feasibility of a European survey of VET teachers and trainers ([2]), the EVTS methodology and survey instrument was developed through an iterative, evidence-informed process.

In particular, the focus of the EVTS built on lessons of a dedicated feasibility study carried out between 2020-2022, which involved an in-depth literature review, interviews with key national and European stakeholders and a test survey carried out in six European countries3. The study involved a participatory approach, in which key stakeholders, including teachers (through their unions and VET providers), were consulted during the stage of identifying the main areas of research and policy priority. The EVTS focus was further refined by accompanying in-depth, qualitative, analysis conducted by Cedefop, which focused on teachers and trainers in a changing world and their need to buildup competences for the digital and green transition and the inclusivity challenge (Cedefop, 2022).

2.1. EVTS sampling methodology

The EVTS methodology employs a robust, two-stage random sampling design to ensure that the findings reflect the experiences of a representative teacher and IVET school and are not affected by selection bias.

At the first stage, upper secondary IVET schools (ISCED level 3), defined as Institutions that deliver at least one vocational programme at ISCED level 3, be it private or public entities, and are in operation for at least one year, are randomly selected within each participating country ([4]). They are drawn from national school registers or equivalent administrative sources, which have been compiled and synthesised into a central sampling frame as part of a major initial investment made as part of the EVTS project. An extensive network of national VET experts and regular consultation with individual national authorities, facilitated by Cedefop, underlined the creation of the frames.

([1]) European Vocational Teacher Survey (EVTS): Giving a voice to Europe's VET teachers - Supporting VET teachers' professional development

([2]) Making excellence inclusive: towards a new Cedefop survey of VET teachers and trainers

([3]) Third Policy learning forum (PLF): Assessing the feasibility of a pan-European survey of VET teachers and trainers

([4]) This is based on stratified probabilistic sampling and using probability proportional to size sampling within each stratum.

The EVTS project team (Cedefop and contracted consortium ([5])) subsequently engages in close and continued cooperation with the school principal/representative, who is asked to nominate a school coordinator. The latter is tasked with the responsibility of compiling and uploading a full list of teachers employed at the school into a custom-made interface ensuring full teacher anonymity. The process is guided by a range of supportive background materials and guidelines, translated into respective national languages, prepared by the EVTS project team. Full support to schools and teachers in the form of a dedicated helpline and national fieldwork representatives is provided, along with the design of an attractive EVTS website that provides extensive information to interested parties.

At the second stage, teachers aged 18+ are randomly selected within participating VET schools ([6]) This approach ensures that teachers are sampled independently of school size, school resources or other personal or institutional characteristics, minimising selection bias. Confidentiality is preserved as teachers receive individual access credentials and complete the survey anonymously in a dedicated EVTS platform, which prohibits participation by non-selected teachers. Personal identifiers of schools and teachers are not disclosed to Cedefop at any stage of the data collection process, in line with EU GDPR and confidentiality requirements. The data is collected primarily via an online survey, complemented by telephone and virtual interviews in some cases.

2.2. EVTS conceptual framework

The EVTS conceptual framework builds on existing EU policy priorities and available academic literature focused on the determinants of VET teachers' professional development (Andersson et al., 2018; Andersson & Köpsén, 2018; Antera & Nilsson, 2025; Cedefop, 2022; Kennedy, 2005; Sancar et al., 2021; Serafini, 2018; Zhou et al., 2022), also accounting for the impact of digitalisation and teachers' AI digital skills (Cattaneo et al., 2022; Ng et al., 2023), inclusion, sustainability and teacher wellbeing. Drafts of the survey instrument were developed primarily by Cedefop experts, considering inputs by European stakeholders, national VET experts and academic researchers.

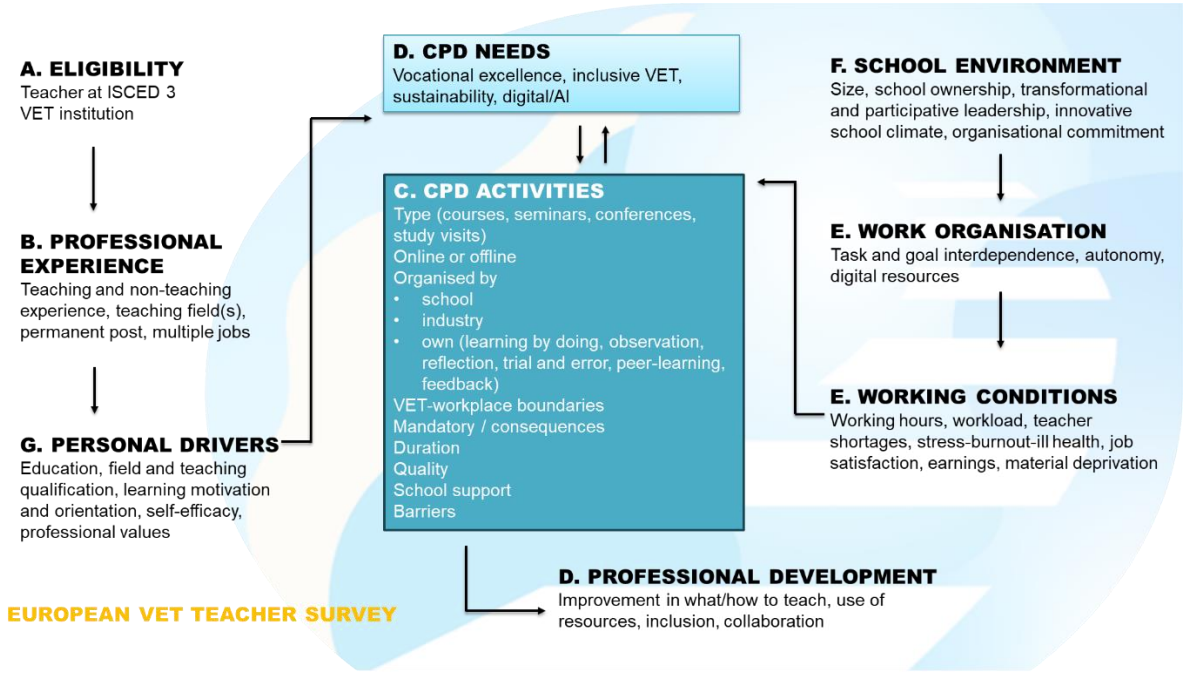
The questionnaire, structured in modules, covers several pillars related to the drivers and determinants of VET teachers' CPD (Figure 1). Emphasis is given on their prior work experience in both teaching and non-teaching professional roles and its connection with the formation of a professional teacher identity (Antera & Teräs, 2024). The survey aims to cover the different forms of professional learning, building on the distinct metaphors of learning as acquisition or as participation (Sfard, 1998) therefore addresses any learning that is organised either at school- or industry-level. Particular attention is paid to any learning also taking place

([5]) Verian (formerly Kantar BE) is the EVTS contracted authority, selected following a public tendering procedure and responsible for supporting Cedefop in implementing the EVTS framework contract.

([6]) Following the definitions set out in the UNESCO-UIS/OECD/Eurostat (UOE) manual (2021), eligible teachers are defined as members of professional personnel whose primary or at least some activity (0.25 FTE) involves direct learner instruction in a general and/or vocational subject(s) as part of a VET programme(s) at ISCED level 3 (or ISCED level 4, if applicable to the country) delivered at a relevant institution, and who have been employed at the institution for at least six months.

informally or via self-initiated or community-based education or training activities (Cedefop, 2026; Margaryan et al., 2009). This includes, for instance, any learning ensuing as a result of cooperation and communication with other school actors (e.g. students, guardians, principals) or within communities of practice at school or external level. Alternatively, it may involve self-regulated learning (Margaryan et al., 2013), that may occur via own reflection, learning by doing or via experimentation, receipt of feedback and general planning and reflection of one's learning goals ex ante and ex post.

Figure 1. Modules and elements of Cedefop EVTS questionnaire



Source: Cedefop.

Considering the distinct nature of VET teaching, typically involving regular interaction between the worlds of education and work, the EVTS zooms into the boundary processes between school and working life (e.g. industry visits, workplace projects or placements or other social exchanges with professionals) and how these may be enabling VET teachers' CPD participation (Andersson & Köpsén, 2019; Mårtensson, 2022).

A distinguishing characteristic of the EVTS, echoing the approach carried out also by the UK Learning at Work survey (Felstead et al., 2004) and Cedefop's European Training and Learning Survey (Cedefop, 2026), is the focus on the perceived quality and relevance of CPD. To assess whether CPD efforts of VET teachers are associated (although in a non-causal way) with improved professional development, a specific module was designed that aims to capture if a teacher recently experienced any improvement in job performance. Typical 'meta' elements of what comprises teacher quality, identified based on available literature (Goe & Stickler, 2008), include the content and methods of teaching, ability to use available resources, modes of collaboration with students and other school actors and efficient deployment of inclusive practices.

The EVTS further aims to collect information on different barriers or facilitators of learning, with emphasis on individual or environmental (job or organisational) factors that may be

conducive or detrimental to the CPD of VET teachers. At individual level, the survey collects insight into the extent to which teachers are affected by skill gaps. Emphasis is given on any lack of knowledge of state-of-art teaching methods and practices (vocational excellence) or of digital tools and sustainability practices, or their ability to meet inclusiveness goals in the classroom. Much attention is given to VET teachers' frequency of use of artificial intelligence (AI) tools as part of their job and how they see AI's potential value for augmenting their tasks, along with an assessment of their preparedness to deal with such advanced digital tools or applications.

Additional modules focus on assessing teachers' goal orientation (Kunst et al., 2018) psychological self-efficacy (Bandura, 1997; Rigotti et al., 2008) and innovative work behaviour (Jong & Den Hartog, 2010), detecting the extent to which they engage in proximal or distal skills development.

Different theories of teachers' motivation to participate in learning are also considered and transcribed into relevant survey questions, as inspired by self-determination theory (Deci & Ryan, 1985), particularly the interplay between extrinsic or intrinsic motivational levers, or the AMO (abilities, motivation, opportunities) approach (Appelbaum et al., 2000).

Learning motivation and the scope for skills development and utilisation is significantly influenced by the type of learning environment and where it is placed on the expansive-restrictive continuum (Fuller & Unwin, 2004). The EVTS focuses accordingly on the degree of autonomy and discretion that teachers have as part of their work, workplace norms of learning, engagement with communities of practice and the wider affordances (e.g. time, resources, flexibility) of their school. The instrument also contains questions targeting the extent to which there is goal or task interdependence in VET teachers' jobs (Runhaar, 2008; Van Der Vegt et al., 2001), namely the degree of cooperation required with other teachers or school personnel.

Specific scales aimed at measuring the extent of transformational and participative leadership at school (Geijsel et al., 1999), presence of an innovative work climate and degree of teachers' organisational commitment (Cook & Wall, 1980) are included in the EVTS as they have been shown in related literature to be significant correlates of the continuing professional development of VET teachers (Oude Groote Beverborg et al., 2015).

In addition to the above contextual factors, the EVTS collects extensive data on individual characteristics, including VET teachers' educational background (qualifications, field). Crucially, it zooms into their working conditions (e.g. work hours, administrative workload also attributable to school staffing shortages, earnings and material deprivation) and the strain posed by job stressors on their health (e.g. burnout, anxiety, depression, health problems) and wellbeing (Kokkinos, 2007).

2.3. EVTS pilot testing

Following its development, the EVTS master questionnaire underwent expert review, in-depth cognitive testing and translatability assessments to ensure conceptual equivalence across languages and national contexts. It was subsequently translated into the national languages of the participating countries following a rigorous, high quality and multi-stage translation protocol. Pilot testing and subsequent psychometric testing was conducted ahead of the main

fieldwork to assess question clarity, response burden and scale reliability, introducing refinements ahead of the mainstage fieldwork planned to commence in Fall 2025 ([7]). The EVTS pilot stage also served as a useful test-drive for the two-stage sampling methodology as described above.

As a precursor to the mainstage EVTS fieldwork, which aspires to collect thousands of responses from VET teachers in European countries, the pilot survey surveyed about 30 VET teachers from each participating Member State between May and October 2025. At the stage of the pilot survey, a total of 23 Member States formally agreed to be part of the survey, namely Belgium, Bulgaria, Czechia, Denmark, Ireland, Greece, Estonia, Croatia, Hungary, Cyprus, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Finland, Sweden ([8]). The completion of the pilot stage hence saw the collection of a total of 735 achieved cases across these 23 participating countries.

2.4. EVTS governance

While Cedefop is the responsible body for developing, funding, managing and coordinating this complex, new pan-European VET teacher survey, it does so in collaboration with key European stakeholders, including national authorities from all participating countries, European social partners for education (European Trade Union Committee for Education (ETUCE) and the European Federation of Education Employers (EFEE)), and the European Commission (DG EMPL). The EVTS is carried out by the contracted research consortium Verian and its extended network of national VET experts. All such stakeholders participate in a dedicated EVTS stakeholder group that was initiated in 2024, with a mandate to support the EVTS during its development and implementation. Further, Cedefop collaborates closely with European VET provider associations (EVBB, EfVET, EVTA, EURASHE, EUProVET, EUCEN) ([9]), the Association for Teacher Education in Europe (ATEE), and together with the EVTS stakeholder group members crucially support the translation of EVTS key findings into meaningful policy action for teachers around Europe.

([7]) Interested readers may consult the EVTS pilot testing technical report, available upon request from the authors.

([8]) Following the pilot phase, insurmountable difficulties encountered in the Netherlands resulted in its exclusion from the final group of countries to be included in the mainstage fieldwork.

([9]) European Association of Institutes for Vocational Training (EVBB), European Forum of Technical and Vocational Education and Training (EfVET), European Vocational Training Association (EVTA), European Association for the Applied Science in Higher Education (EURASHE), platform for European VET providers (EUProVET), European University Continuing Education Network (EUCEN)

CHAPTER 3.

Data

The analysis of this working paper draws on data from the European Vocational Teacher Survey (EVTS) pilot survey. The pilot was implemented to test the survey instrument, sampling procedures and fieldwork protocols ahead of the EVTS mainstage, while also providing initial empirical evidence on the professional development, working conditions and wellbeing of teachers in initial vocational education and training (IVET).

Data were collected through an online questionnaire lasting about 41 minutes on average and using the EVTS random, two-stage sampling design. The final pilot sample consists of 735 teachers from 23 Member States, nested within more than 150 IVET schools. Country-level sample sizes range from 13 to 50 respondents. These were generated based on a school response rate of 33 %, which is comparable to that of other major international school-based surveys (e.g. OECD, 2018), and a 57 % response rate among eligible teachers. As is evident, the dataset has a hierarchical structure, with teachers nested within schools and schools nested within countries. Table 1 presents the number of schools and respondents by country.

It is important to acknowledge that the EVTS pilot dataset used in this paper is not yet based on a representative sample of the VET teacher population in the participating Member States, as will be the case for the main survey, nor has been appropriately weighted. The schools selected for the pilot survey were drawn using generally the same sampling approach as for the main sample. However, they are based on residual schools after selecting the main sample, with three spare samples also reserved for the main survey. In countries where the number of available schools was limited, the pilot schools were in some cases selected from small schools excluded from the main sample.

Table 1. Number of schools and respondents by country

Country	No of schools	No of responses	% of responses by country
BE	4	35	4.76 %
BG	4	30	6.12 %
CY	4	31	4.22 %
CZ	9	45	1.77 %
DK	1	13	2.45 %
EE	4	18	4.63 %
EL	4	34	3.40 %
FI	9	35	6.53 %
HR	9	45	2.04 %
HU	9	49	2.04 %
IE	25	25	2.59 %
IT	16	48	6.67 %
LT	4	15	2.59 %
LU	4	19	2.04 %

Country	No of schools	No of responses	% of responses by country
LV	1	15	5.58 %
MT	9	19	6.12 %
NL	4	15	6.26 %
PL	4	41	6.80 %
PT	9	45	4.35 %
RO	9	46	4.76 %
SE	4	30	4.08 %
SI	4	50	6.12 %
SK	4	32	4.08 %
Total	**154**	**735**	100.00 %

Source: Cedefop EVTS pilot survey

The teacher population of the pilot dataset is also skewed towards older aged (mean age of 48 years), experienced teachers (average school tenure of about 12 years). Sixty-six percent (66 %) of the respondents in the pilot dataset are females and 88 % work in schools that are publicly owned institutions. VET schools in the sample are generally of large size, with an average number of 91 members of staff (part-time and full-time teachers, teaching or other assistants, administrative employees and all other employees). 86 % of the VET teachers have completed a standard teacher education or training programme, with the highest shares having completed education (20 %), languages (11 %), engineering (11 %), health (8 %) and mathematics and statistics (5 %) fields of study as part of their highest educational attainment.

The pilot questionnaire covered the full thematic scope of the EVTS. All composite variables used in the analysis are constructed using internally consistent item batteries from the EVTS questionnaire; internal consistency is assessed using Cronbach's alpha and scale structure is examined using principal component and factor analyses (see Annex).

The main outcome variable used in the analysis of this paper is a composite professional development index. It is constructed from multiple survey items capturing the extent to which VET teachers have developed professionally since the beginning of the previous academic year (2024-25), across a range of thirteen (13) distinct areas of their work (e.g. further understanding the content of the subject they teach or learning new content; monitoring and assessing student performance; using digital tools for teaching; teaching a diverse group of students; handling challenging student behaviour). This scale exhibits very high internal consistency with an overall Cronbach alpha score of $a = 0.91$. It exhibits a Pearson correlation of $rho = 0.51$ with teachers' overall assessment of their professional development during the same period. This correlation highlights that the thirteen areas of work used to construct the composite professional development index, constitute a subset of the complex array of tasks that comprise the totality of a teacher's job.

The explanatory variables used as determinants of VET teachers' professional development are derived from predefined item batteries as described in Section 2. They cover aspects of VET teachers' professional learning modes, with psychometric analysis revealing that their continuing learning activities are mostly structured around four distinct types; (a) organised training (in and out of one's school), (b) observation visits/placements at other

schools or companies, (c) own-initiated formal or non-formal learning (e.g. attending courses, seminars, conferences) and (d) own-initiated informal learning (e.g. reading or viewing learning materials, experimentation, reflection, interaction, feedback). All remaining independent factors also exhibit good statistical psychometric properties (DeVellis & Thorpe, 2022), with Cronbach alpha scores that range between 0.7-0.9 (see Annex).

The empirical analysis additionally includes a range of teacher and school-level characteristics, such as gender, tenure at the current school, multiple job holding, contract type, public versus private school status and school size. Summary statistics for the main variables used in the analysis are reported in Table 2 and their definitions are available in Annex. Given the pilot nature of the data, results are interpreted as preliminary and intended to inform the design and analytical focus of the EVTS mainstage.

Table 2. Summary statistics of the main items used in the analysis.

Variable	Obs	Mean	Std. Dev.	Min	Max	Skew	Kurt
Professional development index⁺	735	2.02	0.60	1.00	4.00	0.50	3.03
Low frequency of formal training participation⁺	735	3.36	0.85	1.00	5.00	−0.26	2.64
Low frequency of workplace-based learning activities⁺	735	4.21	0.91	1.00	5.00	−1.20	3.93
Low frequency of own learning activities⁺	735	0.00	0.75	−1.40	2.28	0.24	2.93
Low engagement in informal learning practices⁺	735	2.44	0.65	1.00	5.00	0.20	3.32
Low quality CPD⁺	722	2.04	0.63	1.00	4.00	0.41	3.24
School support for training⁺	721	3.15	1.06	1.00	5.00	−0.14	2.37
Low frequency of study and workplace visits⁺	735	3.99	0.82	1.00	5.00	−0.85	3.25
No CPD: No consequences⁺	732	3.01	0.69	1.00	4.00	−0.40	2.76
Use of digital technologies⁺	735	0.77	0.22	0.00	1.00	−0.88	3.28
Bad working conditions⁺	735	1.31	0.49	0.00	3.44	0.20	3.17
Burnout	733	0.29	0.45	0.00	1.00	0.94	1.89
Bad health⁺	735	0.37	0.30	0.00	1.00	0.33	2.03
Autonomy⁺	735	1.87	0.56	1.00	4.00	0.45	3.26
Transformative leadership⁺	734	2.05	0.72	1.00	4.00	0.57	2.70
Innovation in school⁺	731	2.01	0.63	1.00	4.00	0.28	3.14
Weak organisational commitment⁺	734	1.50	0.58	1.00	4.00	1.06	3.57
Self-efficacy⁺	734	1.45	0.43	1.00	3.20	0.80	3.01
Gender (female)	735	0.66	0.48	0.00	1.00	−0.67	1.45

Years of tenure in current school	735	11.94	10.11	0.00	45.00	0.88	2.88
Multiple job holding	734	0.35	0.48	0.00	1.00	0.63	1.40
Public school	734	0.88	0.33	0.00	1.00	−2.28	6.21

Source: Cedefop EVTS pilot survey; Note: Variables marked with '+ ' are composite indices constructed from multiple EVTS questionnaire items. For more details, please see Annex.

CHAPTER 4.

Empirical strategy

For the empirical analysis we employ a battery of econometric estimation methods to investigate the relationship between teachers' professional development and a set of individual, organisational and contextual factors, using the cross-sectional EVTS pilot data. The empirical strategy is designed to assess the robustness of the estimations across alternative model specifications, while accounting for the hierarchical structure of the data.
The baseline model is specified as follows:

$$CPD_{isc} = \alpha + X'_{isc}\beta + Z'_{isc}\gamma + \varepsilon_{isc}, \quad (1)$$

where CPD_{isc} denotes the professional development index of teacher i in school s and country c; X'_{isc} is a vector of composite indicators capturing key dimensions of teachers' professional environment; Z'_{isc} is a vector of teacher and school-level control variables; and ε_{isc} is an idiosyncratic error term. This model is first estimated using pooled ordinary least squares.

To account for unobserved heterogeneity across institutional contexts, the baseline specification is then extended to include fixed effects. Country fixed-effects models absorb all time-invariant differences across national contexts, such as education system characteristics and institutional frameworks. School fixed-effects models exploit within-school variation across teachers, thereby controlling for unobserved school-level characteristics. A two-way fixed-effects specification combining country and school fixed effects is also estimated, identifying associations solely from variation among teachers within the same school and country.

In all fixed-effects models, standard errors are clustered at the school level to account for within-school correlation in unobserved determinants of professional development.

As an alternative approach to modelling the nested data structure, multilevel random-intercept models are estimated. These models allow the intercept to vary across schools and countries and can be written as follows:

$$CPD_{isc} = \alpha + X'_{isc}\beta + Z'_{isc}\gamma + u_c + v_c + \varepsilon_{isc}, \quad (2)$$

where u_c and v_c denote school and country-level random effects, respectively. These specifications explicitly model between-school and between-country variation while retaining within-unit variation.

Because the dependent variable is bounded, additional robustness checks estimate fractional response models using a normalised version of the professional development index. Average marginal effects are reported to facilitate interpretation.

It is important to note here that across all specifications, the empirical strategy is descriptive in nature. Coefficients are interpreted as associations rather than causal effects, reflecting the cross-sectional design and the exploratory scope of the EVTS pilot. The focus of the analysis is on the consistency and stability of the estimations across alternative model specifications, rather than on any single preferred estimate.

CHAPTER 5.
EVTS pilot findings

5.1. Descriptive evidence

5.1.1. A profession feeling undervalued

One of the most striking findings of the EVTS pilot is how few IVET teachers feel adequately recognised for their work. Only around one in ten (9 %) believes that society in their country values VET teachers, and barely 13 % think they receive an adequate salary for the work they do. In a continent that increasingly relies on skilled trades, technicians, and vocational specialists to deliver everything from renewable energy to digital infrastructure, this disconnect raises alarm for the continued attractiveness of the VET teaching profession and educators' motivation.

Europe has long struggled with shifting people's mindset about the supposedly poorer image of VET compared with academic pathways. The EVTS pilot corroborates this challenge, highlighting that teacher recognition and attractiveness are a Europe-wide concern. The data suggests that this perception continues to affect not only learners but teachers themselves – and it directly impacts recruitment. As many Member States already face ageing teaching workforces, low professional recognition risks deepening shortages across VET institutions.

5.1.2. Shortages and administrative burden stemming CPD

Teacher shortages in the face of a marked demographic crunch and low attractiveness are no longer a future concern: they are already shaping everyday life in IVET schools. Nearly half of all teachers (49 %) say they had to take on additional responsibilities due to a lack of staff. This adds to the widespread feeling of administrative overload, experienced to a large extent by more than one in three (37 %), and to the behavioural challenges many face – with more than a quarter (27 %) reporting they must constantly deal with maintaining classroom discipline.

In this context, it becomes easier to understand why roughly one in three teachers (34 %) feel their career is not progressing as fast as it should. Instead of engaging with innovative pedagogies or sector-specific upskilling, many are absorbed by paperwork, crisis management and compensating for absent colleagues.

These pressures echo wider labour-market trends: shifting occupational preferences among young graduates and private industries increasingly drawing potential VET teachers away with the promise of higher salaries, making it even harder for schools to fill specialised positions. As shortages deepen, the workload intensifies, feeding a cycle that threatens retention and long-term sustainability.

5.1.3. Wellbeing under strain: a silent crisis in the VET teaching workforce

Perhaps the most concerning element of the data relates to teacher wellbeing. High levels of stress and exhaustion emerge across countries. Sixty percent (60 %) report physical exhaustion and the same proportion suffer from sleeping difficulties. Stress-related symptoms

– such as anxiety (42 %), heart racing (39 %), increased blood pressure (33 %), stomach pain (28 %) or even depression (16 %) – appear with alarming frequency.

These are not isolated experiences: they signal a European-wide wellbeing crisis among IVET teachers. Teachers' roles have expanded, and expectations have intensified, often without corresponding support. Many VET teachers work with learners who face socio-economic vulnerability, behavioural challenges, or learning difficulties, which increases emotional pressure. The combination of heavy workloads, complex student needs and feeling undervalued contributes directly to burnout. Indeed, 42 % of the respondents often or very often feel emotionally drained by their job.

Yet it is important to note that commitment and motivation have not disappeared. More than a third (35 %) still describe their work as intellectually stimulating, and nearly four in ten (43 %) say their school offers abundant professional development opportunities. This shows that when support systems exist, teachers respond positively.

5.1.4. Navigating complexity: inclusion and classroom diversity

European classrooms are becoming more diverse, and IVET teachers feel the impact. Many report needing further and diversified skillsets to support their students properly. About one in five (21 %) feels significantly unprepared to teach highly diverse groups, and one in four (25 %) needs a lot more training to identify vulnerable learners. The challenge of addressing student misbehaviour, including bullying or even violence, is highlighted as a very important issue by nearly a third (32 %).

These numbers capture the growing complexity of today’s VET learning environments. As Europe promotes inclusive education and encourages more young people to pursue vocational pathways, teachers require additional competences to manage differences in learning levels, social backgrounds and emotional needs. But these expectations have risen faster than the training systems that are meant to support them.

5.1.5. Sustainable VET: high expectations, low preparedness

Europe’s green transition is reshaping industry, and with it, IVET curricula. But only around one third of teachers feel ready to integrate sustainability meaningfully into their lessons, whether through teaching environmental protection or using environmentally sustainable practices and technologies.

This gap is unsurprising. Green skills evolve quickly and often require specialised knowledge of specific industries (energy, manufacturing, construction, logistics). Without targeted professional development, teachers struggle to stay aligned with changing occupational standards. As Europe accelerates investments in renewable energy, circular economy approaches and sustainable technologies, strengthening teachers’ competences becomes essential.

5.1.6. Digitalisation and AI: excitement and unease

Digitalisation adds another demanding layer. Nearly 30 % of IVET teachers feel they significantly need digital upskilling, particularly as new technologies, from simulation environments to digital manufacturing tools, become integral to vocational education.

Artificial intelligence is a special area of concern. Even though 29 % of VET teachers are already using AI tools and technologies often or very often as part of their work, around a third (31 %) believe they largely need to improve their ability to identify relevant AI tools, and a similar share feel insufficiently prepared to evaluate the ethical risks, biases and potential harms associated with AI use.

Perhaps more telling is that 57 % expect that robots or intelligent systems may perform parts of teachers' work within the next decade. Whether realistic or not, this perception reflects deep uncertainty about the future of teaching roles. It also highlights the pressure teachers feel to keep up with technological innovations that run faster than institutions can integrate them into training programmes.

5.2. Econometric analysis

This section presents the empirical findings from the EVTS pilot econometric analysis. Results are reported sequentially, starting from the baseline specification (equation 1) and moving to specifications that control for unobserved heterogeneity and the hierarchical structure of the data (equation 2).

5.2.1. Baseline results

Table 3 reports pooled OLS estimates of the association between teachers' professional development and the main explanatory variables. The dependent variable indicates instances where VET teachers have developed their professional capacity to a lesser extent, or not at all, during the previous year. Several clear patterns emerge.

In general, less experienced VET teachers are more likely to experience professional growth, in alignment with the predictions of human capital theory. Indicators capturing informal and self-directed learning are strongly and positively associated with the professional development index (reversely, learning new things for work on one's own initiative less often is associated with less professional development). The estimated coefficients are positive and statistically significant at conventional levels ($p < 0.05$), with effect sizes that are among the largest observed in the baseline specification, along with bad working conditions but behind the effect of digital technology use.

Table 3. OLS estimates – factors associated with less professional development of VET teachers

	(1) Model1a	(2) Model1b	(3) Model1c
Low frequency of formal training participation	**0.110*** **	**0.111*** **	**0.111*** **
	(0.030)	**(0.029)**	**(0.029)**
Low frequency of workplace-based learning activities	-0.020	-0.019	-0.021
	(0.027)	(0.027)	(0.028)
Low frequency of own learning activities	0.007	0.008	0.010
	(0.033)	(0.032)	(0.032)
Low engagement in informal learning practices	**0.227*** **	**0.198*** **	**0.193*** **
	(0.037)	**(0.037)**	**(0.037)**
Low quality CPD	**0.073** **	**0.076** **	**0.079** **

	(1) Model1a	(2) Model1b	(3) Model1c
	(0.034)	**(0.034)**	**(0.033)**
School support for training	**-0.044****	**-0.037****	**-0.041****
	(0.019)	**(0.018)**	**(0.018)**
Low frequency of study and workplace visits	0.042	**0.049***	**0.056***
	(0.030)	**(0.029)**	**(0.029)**
No CPD: No consequences	**0.074*****	**0.072*****	**0.076*****
	(0.028)	**(0.027)**	**(0.027)**
Use digital technologies	**-0.375*****	**-0.363*****	**-0.377*****
	(0.093)	**(0.092)**	**(0.092)**
Bad working conditions	**0.244*****	**0.248*****	**0.246*****
	(0.042)	**(0.042)**	**(0.042)**
Burnout	**0.137*****	**0.156*****	**0.159*****
	(0.044)	**(0.043)**	**(0.043)**
Bad health	**0.206*****	**0.206*****	**0.206*****
	(0.066)	**(0.066)**	**(0.066)**
Autonomy	0.009	0.014	0.010
	(0.035)	(0.035)	(0.035)
Transformative leadership	0.026	0.026	0.027
	(0.034)	(0.033)	(0.033)
Innovation in school	0.032	0.025	0.025
	(0.031)	(0.031)	(0.031)
Weak organisational commitment	**0.142*****	**0.159*****	**0.164*****
	(0.046)	**(0.045)**	**(0.046)**
Self-efficacy	0.031	0.046	0.038
	(0.052)	(0.051)	(0.052)
Gender: female (base: male)		-0.019	-0.016
		(0.041)	(0.041)
Years of school tenure		**0.009*****	**0.009*****
		(0.002)	**(0.002)**
Work multiple jobs		0.041	0.046
		(0.039)	(0.039)
Public school			**0.115****
			(0.051)
Constant	0.240	0.082	-0.002
	(0.196)	(0.192)	(0.195)
Observations	717	716	716
R-squared	0.355	0.380	0.384
Respondent Controls	No	Yes	Yes
School Controls	No	No	Yes
Country FE	No	No	No
School FE	No	No	No

NB: Significance levels: ***1 %, **5 %, *10 %, Standard errors in parentheses.
Source: Cedefop EVTS pilot survey.

Perceived quality of training provision, professional consequences from not attending CPD (e.g. reduced salary or career progression, loss of job or peer esteem) and institutional school support also play an important role, as they are all positively related to professional development. Teachers less likely to report higher-quality training opportunities, those insulated from negative professional consequences or those receiving inadequate support for their education or training activities (e.g. allowed time-off or training leave, receiving financial

coverage of training expenses and materials) exhibit significantly lower values of the professional development index. Similarly, VET teachers lacking professional development tend to have lower organisational commitment[10]. The magnitude of these relations is comparable to that of informal learning indicators, underscoring the importance of training quality and organisational support rather than participation alone.

Importantly, the magnitude of the positive effect of engagement with digital tools and practices is greater than all remaining correlates, including those related to teacher training or learning. This highlights how critical digital literacy and aptitude have become for the VET teaching profession and that lack of professional development is intrinsically linked to the non-use of digital mediums as part of teachers' work.

Working conditions and wellbeing also display strong associations with professional development. Less favourable working conditions are associated with lower professional development scores, as are indicators capturing emotional exhaustion and reduced sense of accomplishment.

5.2.2. Accounting for within-group variation

To consider possible heterogeneity among teachers within countries and schools, table 4 presents the estimates from the two-way fixed effects specifications including country and school fixed effects.

As expected, the inclusion of fixed effects reduces the magnitude of several coefficients, reflecting the absorption of unobserved institutional heterogeneity. However, the main relationships remain qualitatively unchanged.

Table 4. Two-way fixed effects specification with school and country FE.

	(1) Model2a	(2) Model2b	(3) Model2c
Low frequency of formal training participation	**0.104*** **	**0.108*** **	**0.108*** **
	(0.030)	**(0.029)**	**(0.029)**
Low frequency of workplace-based learning activities	-0.036	-0.033	-0.033
	(0.024)	(0.025)	(0.025)
Low frequency of own learning activities	0.043	0.036	0.036
	(0.034)	(0.034)	(0.034)
Low engagement in informal learning practices	**0.230*** **	**0.213*** **	**0.212*** **
	(0.031)	**(0.032)**	**(0.032)**
Low quality CPD	**0.063***	**0.060***	**0.061***
	(0.033)	**(0.033)**	**(0.034)**
School support for training	-0.007	-0.006	-0.006
	(0.017)	(0.017)	(0.017)

([10]) It is important to note that there is a high correlation among the variables 'organisational commitment', 'innovation' and 'transformative leadership'. The inclusion of organisational commitment 'absorbs' most of the statistically significant, independent effect of the latter two variables. This highlights that transformative leadership and an innovative school environment is likely to manifest in higher organisational commitment among VET teachers.

	(1) Model2a	(2) Model2b	(3) Model2c
Low frequency of study and workplace visits	0.032	0.041	0.042
	(0.031)	(0.032)	(0.032)
No CPD: No consequences	**0.100*** **	**0.094*** **	**0.094*** **
	(0.028)	**(0.028)**	**(0.029)**
Use of digital technologies	**-0.319*** **	**-0.309*** **	**-0.311*** **
	(0.113)	**(0.114)**	**(0.114)**
Bad working conditions	**0.136** **	**0.136** **	**0.136** **
	(0.064)	**(0.063)**	**(0.063)**
Burnout	**0.130*** **	**0.141*** **	**0.141*** **
	(0.040)	**(0.039)**	**(0.039)**
Bad health	**0.180*** **	**0.177*** **	**0.177*** **
	(0.060)	**(0.065)**	**(0.065)**
Autonomy	-0.021	-0.017	-0.017
	(0.035)	(0.034)	(0.034)
Transformative leadership	0.056	0.054	0.054
	(0.038)	(0.039)	(0.039)
Innovation in school	0.031	0.032	0.032
	(0.029)	(0.030)	(0.031)
Weak organisational commitment	**0.117** **	**0.133*** **	**0.133*** **
	(0.046)	**(0.044)**	**(0.044)**
Self-efficacy	-0.020	-0.009	-0.009
	(0.053)	(0.054)	(0.054)
Gender: female (base: male)		-0.037	-0.037
		(0.043)	(0.043)
Years of school tenure		**0.008*** **	**0.008*** **
		(0.002)	**(0.002)**
Work multiple jobs		0.046	0.045
		(0.043)	(0.044)
Public school			0.026
			(0.078)
Constant	**0.405***	0.261	0.240
	(0.239)	(0.240)	(0.248)
Observations	715	714	714
R-squared	0.467	0.483	0.483
Respondent Controls	No	Yes	Yes
School Controls	No	No	Yes
Country FE	Yes	Yes	Yes
School FE	Yes	Yes	Yes

Note: Significance levels: ***1 %, **5 %, *10 %, Robust standard errors in parentheses.
Source: Cedefop EVTS pilot survey

Within-school estimates show that the use of digital technology, informal and formal learning, organisational commitment and training quality remain positively and statistically significantly associated with professional development ($p < 0.05$). These effects persist even when identification relies exclusively on variation across teachers within the same school and country, indicating that they are not driven solely by cross-institutional differences.

In contrast, variables related to school support and being in a public institution are no longer statistically significant once fixed effects are introduced. This suggests that their

baseline associations primarily reflect between-school or between-country differences rather than within-school variation among teachers.

Wellbeing-related indicators remain robust across fixed-effects specifications. The negative association between burnout and professional development remains statistically significant and of similar magnitude to the baseline estimates, highlighting the close link between psychosocial working conditions and teachers' engagement in professional learning.

Table 5 further reports results from multilevel random-intercept models with teachers nested within schools and schools nested within countries. The estimated coefficients are highly consistent with those obtained from fixed-effects specifications. Professional development remains positively associated with school environments that foster high informal learning and organisational commitment and negatively associated with adverse working conditions and poor wellbeing. All key coefficients retain their sign and statistical significance.

Table 5. Multilevel random-intercept models (teachers nested within schools and schools nested within countries)

	(1) Model3a	(3) Model3b	(3) Model3c
Low frequency of formal training participation	**0.100*** **	**0.105*** **	**0.104*** **
	(0.032)	**(0.029)**	**(0.028)**
Low frequency of workplace-based learning activities	-0.032	-0.028	-0.028
	(0.026)	(0.027)	(0.027)
Low frequency of own learning activities	0.033	0.026	0.026
	(0.030)	(0.032)	(0.031)
Low engagement in informal learning practices	**0.226*** **	**0.205*** **	**0.202*** **
	(0.036)	**(0.038)**	**(0.039)**
Low quality CPD	**0.071** **	**0.071** **	**0.073** **
	(0.032)	**(0.034)**	**(0.033)**
School support for training	-0.022	-0.019	-0.021
	(0.019)	(0.018)	(0.018)
Low frequency of study and workplace visits	0.043	0.050	**0.053***
	(0.031)	(0.031)	**(0.030)**
No CPD: lack of consequences	**0.091*** **	**0.086*** **	**0.088*** **
	(0.022)	**(0.025)**	**(0.025)**
Use of digital technologies	**-0.323*** **	**-0.316*** **	**-0.327*** **
	(0.088)	**(0.090)**	**(0.090)**
Bad working conditions	**0.181*** **	**0.185*** **	**0.185*** **
	(0.060)	**(0.058)**	**(0.057)**
Burnout	**0.131*** **	**0.145*** **	**0.148*** **
	(0.044)	**(0.041)**	**(0.041)**
Bad health	**0.181*** **	**0.184*** **	**0.184*** **
	(0.048)	**(0.054)**	**(0.054)**
Autonomy	-0.017	-0.011	-0.013
	(0.041)	(0.041)	(0.042)
Transformative leadership	0.045	0.044	0.043
	(0.035)	(0.036)	(0.036)

	(1) Model3a	(3) Model3b	(3) Model3c
Innovation in school	0.038	0.033	0.033
	(0.030)	(0.032)	(0.032)
Weak organisational commitment	**0.129*** **	**0.145*** **	**0.148*** **
	(0.039)	**(0.035)**	**(0.035)**
Self-efficacy	0.006	0.018	0.015
	(0.043)	(0.045)	(0.046)
Gender: female (base: male)		-0.038	-0.035
		(0.036)	(0.036)
Years of school tenure		**0.008*** **	**0.008*** **
		(0.002)	**(0.002)**
Work multiple jobs		0.038	0.040
		(0.041)	(0.041)
Public school			0.103
			(0.075)
Constant	0.322	0.175	0.091
	(0.217)	(0.230)	(0.242)
Observations	717	716	716
Respondent Controls	No	Yes	Yes
School Controls	No	No	Yes
Country RE	Yes	Yes	Yes
School RE	Yes	Yes	Yes

Note: Significance levels: ***1 %, **5 %, *10 %, Robust standard errors in parentheses.
Source: Cedefop EVTS pilot survey

5.2.3. Robustness checks

Table 6 presents the estimates from fractional response models using a normalised professional development index. Average marginal effects are reported. The marginal effects closely mirror the linear estimates in both direction and relative magnitude, with the exception of the now significant transformative leadership variable. This confirms that the main findings are not driven by functional form assumptions or by the bounded nature of the dependent variable.

Table 6. Fractional response models

	(1) Model4a	(2) Model4b	(3) Model4c	(4) Model4c Marginal Effects
Low frequency of formal training participation	**0.174*** **	**0.179*** **	**0.179*** **	**0.037*** **
	(0.048)	**(0.048)**	**(0.048)**	**(0.010)**
Low frequency of workplace-based learning activities	-0.055	-0.049	-0.049	-0.010
	(0.040)	(0.040)	(0.040)	(0.008)
Low frequency of own learning activities	0.075	0.066	0.066	0.013
	(0.056)	(0.056)	(0.056)	(0.011)
Low engagement in informal learning practices	**0.370*** **	**0.344*** **	**0.343*** **	**0.070*** **

	(1) Model4a	(2) Model4b	(3) Model4c	(4) Model4c Marginal Effects
	(0.051)	**(0.054)**	**(0.054)**	**(0.011)**
Low quality CPD	**0.110****	**0.105***	**0.106***	**0.022***
	(0.054)	**(0.054)**	**(0.054)**	**(0.011)**
School support for training	-0.013	-0.011	-0.011	-0.002
	(0.027)	(0.027)	(0.027)	(0.006)
Low frequency of study and workplace visits	0.053	0.068	0.068	0.014
	(0.051)	(0.053)	(0.053)	(0.011)
No CPD: No consequences	**0.165*****	**0.152*****	**0.152*****	**0.031*****
	(0.047)	**(0.049)**	**(0.050)**	**(0.010)**
Use of digital technologies	**-0.467*****	**-0.458*****	**-0.460*****	**-0.094*****
	(0.175)	**(0.176)**	**(0.176)**	**(0.036)**
Bad working conditions	**0.228****	**0.227****	**0.226****	**0.046****
	(0.105)	**(0.105)**	**(0.105)**	**(0.021)**
Burnout	**0.206*****	**0.228*****	**0.229*****	**0.048*****
	(0.062)	**(0.061)**	**(0.061)**	**(0.013)**
Bad health	**0.281*****	**0.285*****	**0.285*****	**0.058*****
	(0.096)	**(0.105)**	**(0.104)**	**(0.021)**
Autonomy	-0.031	-0.023	-0.023	-0.005
	(0.055)	(0.055)	(0.055)	(0.011)
Transformative leadership	**0.110***	**0.107***	**0.107***	**0.022***
	(0.062)	**(0.063)**	**(0.063)**	**(0.013)**
Innovation in school	0.051	0.053	0.054	0.011
	(0.046)	(0.048)	(0.048)	(0.010)
Weak organisational commitment	**0.158****	**0.179*****	**0.179*****	**0.037*****
	(0.071)	**(0.068)**	**(0.068)**	**(0.014)**
Self-efficacy	-0.039	-0.021	-0.022	-0.004
	(0.080)	(0.082)	(0.082)	(0.017)
Gender: female (base: male)		-0.056	-0.055	-0.011
		(0.068)	(0.068)	(0.014)
Years of school tenure		**0.011*****	**0.011*****	**0.002*****
		(0.003)	**(0.003)**	**(0.001)**
Work multiple jobs		0.086	0.086	0.018
		(0.070)	(0.070)	(0.014)
Public school			0.038	0.008
			(0.102)	(0.021)
Constant	**-3.136*****	**-3.346*****	**-3.381*****	
	(0.432)	**(0.438)**	**(0.448)**	
Observations	717	716	716	716
Respondent Controls	No	Yes	Yes	Yes
School Controls	No	No	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
School FE	Yes	Yes	Yes	Yes

NB: Significance levels: ***1 %, **5 %, *10 %, Robust standard errors in parentheses.
Source: Cedefop EVTS pilot survey.

5.2.4. Heterogeneity, sub-group analysis

Table 7 examines whether the associations between professional development and its key determinants differ across institutional, contractual and individual teacher characteristics. Overall, the results indicate a high degree of consistency across subgroups, reinforcing the central role of organisational and contextual factors in shaping professional development outcomes. At the same time, even though the estimated coefficients of the subgroup regressions are susceptible to selectivity biases, particularly those implying potential endogenous placement of VET teachers into schools of differential characteristics (e.g. school size, ownership status or leadership), several meaningful patterns of heterogeneity emerge.

First, the association between organisational features and professional development is generally stronger in public schools than in private institutions. Coefficients on organisational commitment, working conditions and burnout tend to be larger in magnitude and more precisely estimated in public schools, suggesting that institutional environments play a more prominent role where organisational structures and employment conditions are more standardised.

Second, leadership-related effects display clear heterogeneity. In schools with below-median transformative leadership, poorer health and weaker organisational commitment are significantly associated with lower professional development, while these are weaker and statistically insignificant in schools with stronger leadership. By contrast, school-level innovation is positively and significantly associated with professional development only in schools with above-median leadership, suggesting that innovative work climates translate into professional growth primarily when supported by stronger leadership. In addition, public school status displays a marked sign reversal across leadership contexts, being negatively associated with professional development in high-leadership schools but positively associated in low-leadership schools.

Third, contract status matters. Teachers on permanent contracts exhibit stronger associations between professional development and informal learning, organisational commitment and working conditions, whereas these relationships are weaker and less precisely estimated among teachers on temporary contracts. This finding points to the importance of employment stability in enabling teachers to engage more fully in professional learning processes.

Next, associations between professional development and working conditions, wellbeing and incentive-related factors are generally stronger and more precisely estimated for female teachers than for male teachers. In particular, lack of professional consequences from CPD participation, limited use of digital technologies, unfavourable working conditions, burnout and poor health are significantly associated with lower professional development among women, while these relationships are weaker and statistically insignificant for men. Informal learning remains strongly associated with professional development for both genders.

Finally, heterogeneity by school size indicates that associations between professional development and organisational as well as wellbeing-related factors are largely driven by larger schools. In particular, lack of professional consequences from CPD participation, limited use of digital technologies, unfavourable working conditions, burnout, poor health and weaker organisational commitment are all significantly associated with lower professional

development in larger schools, while these relationships are generally weaker and statistically insignificant in small schools. By contrast, informal learning practices remain strongly associated with professional development regardless of school size.

Table 7. Heterogeneity across selected subgroups

	(1) Public School	(2) Private School	(3) Leadership above	(4) Leadership below	(5) Permanent Contract	(6) Temporary Contract	(7) Female	(8) Male	(9) Small School	(10) Big School
Low frequency of formal training participation	**0.101*** **	0.064	**0.095***	**0.096****	**0.101*** **	**0.260****	**0.069****	**0.116***	-0.078	**0.108*** **
	(0.032)	(0.082)	**(0.053)**	**(0.037)**	**(0.033)**	**(0.120)**	**(0.033)**	**(0.063)**	(0.140)	**(0.032)**
Low frequency of workplace-based learning activities	-0.032	-0.006	-0.030	-0.027	-0.024	-0.175	-0.052	-0.027	0.060	-0.040
	(0.028)	(0.043)	(0.053)	(0.031)	(0.027)	(0.161)	(0.036)	(0.053)	(0.146)	(0.027)
Low frequency of own learning activities	0.037	0.086	0.072	0.030	0.027	0.148	0.040	0.003	0.012	0.033
	(0.041)	(0.049)	(0.051)	(0.051)	(0.038)	(0.156)	(0.042)	(0.066)	(0.098)	(0.036)
Low engagement in informal learning practices	**0.211*** **	**0.206*** **	**0.193*** **	**0.211*** **	**0.201*** **	**0.318****	**0.218*** **	**0.191*** **	**0.332*** **	**0.206*** **
	(0.038)	**(0.049)**	**(0.067)**	**(0.044)**	**(0.036)**	**(0.135)**	**(0.042)**	**(0.067)**	**(0.094)**	**(0.038)**
Low quality CPD	**0.066***	-0.007	0.068	**0.081***	**0.081***	**-0.282***	0.051	0.070	0.111	**0.065***
	(0.038)	(0.066)	(0.050)	**(0.048)**	**(0.041)**	**(0.138)**	(0.053)	(0.068)	(0.159)	**(0.036)**
School support	0.002	**-0.052***	-0.036	0.031	-0.014	**0.152***	-0.029	0.022	-0.044	-0.006
	(0.020)	**(0.026)**	(0.031)	(0.025)	(0.020)	**(0.074)**	(0.023)	(0.043)	(0.126)	(0.018)
Low frequency of study and workplace visits	0.054	-0.040	0.077	0.019	0.047	0.000	0.044	0.066	0.082	0.049
	(0.036)	(0.083)	(0.050)	(0.046)	(0.035)	(0.193)	(0.045)	(0.073)	(0.213)	(0.035)
No CPD: No consequences	**0.094*** **	0.090	**0.090*** **	**0.089***	0.079**	0.165	**0.105*** **	0.062	-0.031	**0.094*** **
	(0.034)	(0.059)	**(0.032)**	**(0.052)**	(0.030)	(0.109)	**(0.027)**	(0.055)	(0.143)	**(0.032)**
Use of digital technologies	**-0.317****	-0.325	**-0.274***	**-0.365***	**-0.330*** **	-0.035	**-0.510*** **	-0.074	-0.165	**-0.333*** **
	(0.131)	(0.266)	**(0.151)**	**(0.198)**	**(0.118)**	(0.219)	**(0.165)**	(0.175)	(0.698)	**(0.124)**

	(1) Public School	(2) Private School	(3) Leadership above	(4) Leadership below	(5) Permanent Contract	(6) Temporary Contract	(7) Female	(8) Male	(9) Small School	(10) Big School
Bad working conditions	**0.135***	0.078	**0.180***	**0.158***	**0.131***	0.011	**0.188****	0.063	0.240	**0.127***
	(0.070)	(0.238)	**(0.100)**	**(0.091)**	**(0.075)**	(0.116)	**(0.081)**	(0.088)	(0.195)	**(0.069)**
Burnout	**0.127*****	**0.249***	**0.155****	**0.177*****	**0.152*****	-0.003	**0.184*****	0.078	0.514	**0.124*****
	(0.044)	**(0.116)**	**(0.075)**	**(0.055)**	**(0.042)**	(0.098)	**(0.047)**	(0.114)	(0.340)	**(0.039)**
Bad health	**0.173****	0.083	0.155	**0.182***	**0.189****	0.021	**0.196***	0.051	-0.088	**0.169****
	(0.072)	(0.205)	(0.116)	**(0.104)**	**(0.073)**	(0.312)	**(0.105)**	(0.210)	(0.318)	**(0.073)**
Autonomy	-0.024	0.063	-0.068	0.013	-0.026	-0.174	-0.008	0.001	0.124	-0.028
	(0.042)	(0.089)	(0.053)	(0.050)	(0.034)	(0.213)	(0.043)	(0.067)	(0.197)	(0.036)
Transformative leadership	0.071	-0.107	0.097	-0.046	0.056	-0.005	0.072	0.033	0.234	0.047
	(0.045)	(0.090)	(0.074)	(0.087)	(0.045)	(0.079)	(0.050)	(0.074)	(0.147)	(0.041)
Innovation in school	0.028	0.111	**0.076***	-0.012	0.032	0.028	0.020	0.065	**-0.187***	0.044
	(0.034)	(0.080)	**(0.044)**	(0.048)	(0.034)	(0.103)	(0.036)	(0.074)	**(0.091)**	(0.032)
Weak organisational commitment	**0.143*****	0.115	0.104	**0.166****	**0.107****	**0.592*****	**0.110****	**0.200***	-0.129	**0.133*****
	(0.048)	(0.128)	(0.069)	**(0.078)**	**(0.048)**	**(0.192)**	**(0.051)**	**(0.105)**	(0.372)	**(0.047)**
Self-efficacy	-0.028	0.073	-0.028	0.026	-0.034	-0.067	0.046	-0.116	0.107	0.016
	(0.059)	(0.126)	(0.090)	(0.089)	(0.058)	(0.239)	(0.073)	(0.138)	(0.284)	(0.059)
Gender: female (base: male)	-0.022	-0.111	0.049	-0.080	-0.056	0.195			-0.085	-0.041
	(0.048)	(0.124)	(0.090)	(0.060)	(0.046)	(0.122)			(0.158)	(0.046)
Years of school tenure	**0.007*****	**0.014****	**0.006****	**0.009*****	**0.008*****	-0.001	**0.008*****	0.007	0.004	**0.008*****
	(0.002)	**(0.005)**	**(0.003)**	**(0.003)**	**(0.002)**	(0.012)	**(0.002)**	(0.005)	(0.009)	**(0.002)**
Work multiple jobs	0.029	**0.255*****	0.012	0.104	0.036	0.081	0.052	0.091	0.155	0.054
	(0.050)	**(0.077)**	(0.071)	(0.067)	(0.047)	(0.149)	(0.049)	(0.103)	(0.219)	(0.049)
Public school			**-0.173****	**0.147****	0.068	-0.220	-0.039	0.082		0.032
			(0.076)	**(0.063)**	(0.074)	(0.190)	(0.051)	(0.134)		(0.076)
Constant	0.227	0.772	0.295	0.208	0.351	-0.073	**0.504****	0.038	0.138	0.257

	(1) Public School	(2) Private School	(3) Leadership above	(4) Leadership below	(5) Permanent Contract	(6) Temporary Contract	(7) Female	(8) Male	(9) Small School	(10) Big School
	(0.267)	(0.543)	(0.373)	(0.380)	(0.265)	(0.686)	**(0.246)**	(0.506)	(0.968)	(0.267)
Observations	627	87	314	391	632	68	468	241	48	658
R-squared	0.465	0.727	0.499	0.478	0.482	0.819	0.515	0.548	0.869	0.478
Respondent Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Significance levels: ***1 %, **5 %, *10 %, Robust standard errors in parentheses.

Source: Cedefop EVTS pilot survey.

CHAPTER 6.

From policy ambition to practical support: a European priority

The EVTS pilot data shows a profession navigating multiple transitions at once – environmental, digital, demographic, but perhaps mostly social and cultural. To support IVET teachers effectively, Europe must move from broad strategic ambition to sustained investment in teachers' day-to-day realities. Encouragingly, many of the foundations already exist in EU policy; the challenge now is to scale and deepen their impact.

6.1. Strengthen the attractiveness of the VET teaching profession

Despite EU policy emphasis on raising teachers' status and appeal, IVET teachers still report low status and inadequate pay based on EVTS preliminary findings. Addressing such challenges will require bold policy action as follows:

(a) **Revise salary structures and career progression for VET teachers.** Member States could use EU Semester recommendations to review and upgrade salary scales, allowances and promotion pathways for VET teachers, reflecting their dual role as educators and industry connectors. Complementary measures could include performance-based incentives for innovation, mentoring and contribution to inclusive or green curricula.

(b) **Provide targeted funding for recruitment, mentoring and working conditions.** The Multiannual Financial Framework 2028-2034 could continue supporting Member States in implementing recruitment campaigns, induction mentoring schemes for new teachers and modernised, resource-rich working environments. Funding could also support flexible working arrangements and teacher wellbeing initiatives.

(c) **Promote VET teaching as a high-status, visible and rewarding profession through EU-level campaigns.** European campaigns could showcase teachers as innovators, industry-linked professionals and drivers of inclusion, skills development and lifelong learning. They could feature inspiring teacher stories and highlight diverse career pathways, targeting students, industry professionals and career changers. Complementary measures could include awards, recognition schemes and public engagement initiatives.

(d) **Strengthen initial teacher education and professionalisation pathways.** Improving the quality and accessibility of initial VET teacher education, including induction programmes and early-career support, is essential for increasing the attractiveness of the profession (Psifidou, 2025b). Recognition of prior professional experience, modular CPD pathways and integrated mentoring schemes ensure that new entrants feel supported, valued and prepared to succeed in a demanding yet rewarding teaching environment.

(e) **Foster stronger links between VET teachers and industry to enhance professional relevance and appeal.** Member States could implement structured industry immersion opportunities, partnerships and secondment programmes that allow VET teachers to maintain up-to-date practical skills and networks and position VET teaching as a dynamic, career-enhancing profession.

6.2. Reduce teacher shortages and workload pressures

Europe already recognises teacher shortages as a structural challenge. But shortages are particularly severe in IVET, where competition with industry is strongest. EVTS shows nearly half of teachers taking on extra tasks due to staff shortages. For Europe to mitigate such threatening teacher shortages, targeted policy actions are required, for instance:

(a) **Support 'industry-to-teaching pathways' to attract professionals into VET.** European policy could further support Member States in designing flexible pathways that enable industry experts to transition into teaching roles without compromising quality. This could include recognition of professional experience as partial credit toward teaching qualifications, targeted induction programmes and mentorship from experienced VET teachers.

(b) **Promote the hybrid teaching profession through legal frameworks and supportive policies.** European and national policymakers could formally recognise and create structured career pathways for hybrid teachers-trainers who divide their time between VET institutions and active industry roles. They should ensure that these dual-career positions are supported by clear legal and regulatory frameworks that define employment rights and responsibilities and social security coverage, while formalising hybrid pathways within national career frameworks and qualification systems.

(c) **Develop targeted recruitment and retention incentives.** A mix of financial and non-financial incentives could be deployed to attract and retain VET teachers. Beyond the offer of competitive salaries, relocation support, housing allowances, recognition awards and career progression opportunities can make VET teaching more appealing compared with industry roles. Incentives could also address the retention of early-career teachers, mid-career professionals transitioning from industry and teachers in high-demand subjects or regions, helping stabilise the workforce over the long term.

(d) **Expand continuing professional development focused on workload management and pedagogical support.** Workload pressures are compounded by a lack of structured support and time to adapt to evolving pedagogical requirements. Targeted CPD programmes could be designed on classroom efficiency, blended learning, time management and collaborative teaching. Peer learning networks and mentoring can help teachers share best practices for managing administrative and teaching responsibilities.

(e) **Promote AI and digital tools to reduce administrative burden and streamline assessment.** Generative AI and other digital platforms can automate routine administrative tasks, track learner progress and provide easy access to teaching resources, potentially allowing VET teachers to dedicate more time to high-quality instruction, mentoring and personalised support. Teachers must receive structured

training to use these technologies effectively and responsibly and the tools should be made widely accessible across schools and regions. Schools should ensure that such tools are adopted in line with EU and national legislation on AI in education, prioritising ethical use, data protection, transparency and fairness.

6.3. Prioritise teacher wellbeing as a strategic agenda

Teacher well-being is essential for sustainable teaching and student outcomes, yet EVTS data reveal widespread stress, exhaustion, and burnout. To change such negative outcomes, European policy could:

(a) **Adopt whole-school wellbeing strategies to create safe and inclusive environments.** European policy could encourage Member States to implement comprehensive, whole-school and community-based approaches that prioritise psychological safety, inclusion and supportive work cultures and embed preventive measures against burnout and teacher ill health (Psifidou, 2025c)[11].

(b) **Fund national wellbeing programmes via ESF+ and Erasmus+.** Targeted funding can enable practical, scalable interventions (e.g. psychological counselling, resilience training, workload audits and leadership coaching) to support teachers' mental or physical health and workload management.

(c) **Integrate wellbeing into quality assurance frameworks.** Policymakers could incorporate wellbeing indicators into existing quality assurance mechanisms such as EQAVET (European Commission, 2009), recognising that sustainable student outcomes rely on motivated, healthy and supported educators.

(d) **Embed wellbeing strategies in school culture and leadership.** Wellbeing must be part of the everyday culture of schools and VET institutions, embedding it in school routines, leadership practices and organisational policies.

(e) **Co-design professional development and policies with teachers.** Policymakers could ensure that VET teachers are actively involved in co-designing CPD offerings, wellbeing programmes and school policies, aligning support structures with actual classroom realities.

6.4. Boost skills for inclusion and managing learners' diversity and behaviours

As classrooms and other learning environments become more diverse (involving learners with diverse needs, abilities and social vulnerabilities) and industry demands evolve, IVET teachers require new competences that go beyond traditional subject or technical expertise. EVTS pilot findings reveals that teachers increasingly require competences to manage vulnerable students and challenging behaviours and foster inclusive and safe learning environments.

(11) Building stronger communities to keep learners engaged and Intervention approaches: community involvement

Possible European action on this front can take into account the need to:

(a) **Strengthen targeted support for teachers' diversity competences and trauma-informed teaching, including prevention of and response to school violence and (cyber)bullying** ([12])**.** This could be done by expanding the use of Erasmus+ Teacher Academies as transnational professional learning communities, complemented by structured continuing professional development focused on inclusion, social integration, mental health, and psychosocial support. and safe, respectful learning environments.

(b) **Promote rapid upskilling in inclusion competences through micro-credentials and digital tools.** Member States could be encouraged to adopt micro-credentials for targeted training in managing challenging behaviours, identifying leaners at risk, supporting diverse learners and designing inclusive learning environments, including via the use of assistive technologies and adaptive learning tools.

(c) **Integrate inclusion into teacher preparation and mentoring networks.** Policies could aim to further embed inclusive pedagogy, differentiated instruction and accessibility approaches in initial VET teacher education. Pre-service training could be strengthened with additional peer mentoring and coaching networks.

(d) **Leverage research, evidence and Cedefop VET toolkits to strengthen teachers' capacity to prevent early leaving**. Teachers could be connected to evidence-based resources, such as Cedefop's VET toolkit for tackling early leaving, and supported by Cedefop's European network of ambassadors for tackling early leaving to address the root causes of disengagement.

(e) **Strengthen collaboration and recognition for inclusive practices by fostering structured partnerships** between general education, VET providers, companies, research centres, and local communities. Initiatives such as *Pathways to School Success* and the EU Action Plan on Integration and Inclusion 2021–2027 demonstrate the value of coordinated, multi-stakeholder support for students navigating multiple educational pathways, particularly those at risk of early leaving ([13]).

6.5. Accelerate support for green skills and sustainable teaching

The Green Deal, the Pact for Skills, and the EU industrial and ecological transition pathways all rely on a workforce equipped with green competences – but teachers often feel unprepared. EVTS pilot results shows low preparedness among them to integrate environmental and sustainability content into lessons.

European policy action to facilitate VET teachers' readiness for the green transition could aim to:

(a) **Develop EU-wide sustainable VET pedagogy modules via Erasmus+ teacher academies.** Offer structured training aligned with the GreenComp framework (European

([12]) Psifidou et al. (2025). Tackling violence and bullying at school to prevent dropout and facilitate school success and Papazoglou (2025). Embracing digital skills in vocational education

([13]) Comprehensive support to tackle complex needs.

Commission, Joint Research Centre., 2022) to equip teachers with consistent, high-quality skills in sustainability-focused pedagogy, while fostering cross-country peer learning, professional growth and a European community of green VET educators.

(b) **Strengthen and systematise existing efforts to integrate sustainability and green competences into teacher education.** Embed environmental, circular economy and energy-focused competences across all initial teacher education and CPD frameworks, facilitating direct engagement with green industry and empowering teachers as agents of systemic change.

(c) **Develop and fund regional 'Green VET Hubs' to strengthen teacher capacity in sustainable vocational education.** These hubs could provide VET teachers and trainers with access to specialised equipment, hands-on training and collaborative networks connecting research centres, industry and social partners. They would serve as spaces for co-designing curricula, experimenting with innovative green teaching methods and sharing best practices, complementing or becoming part of initiatives such as Centres of Vocational Excellence (CoVEs) (European Commission, 2023a). Coordination with CoVEs, eTwinning, and the European School Education Platform would amplify long-term teacher networks and innovation.

(d) **Recognise and reward VET teachers' contributions to sustainability and green skills development.** To reinforce the uptake of sustainable practices in VET, European policy could establish recognition mechanisms – such as micro-credentials, awards, or career progression incentives- for teachers who integrate environmental and circular economy competences into curricula, lead innovative green projects, or actively participate in Green VET Hubs and CoVE collaborations.

6.6. Equip teachers for digitalisation and ethical and effective use of AI

Europe has already set a clear strategic direction to promote the digital transition in the teaching profession through the Digital Education Action Plan (European Commission, 2021) and published European guidelines on the use of AI and data in teaching and learning (European Commission, 2024). Yet, many IVET teachers still feel they lack advanced digital skills or confidence in using AI responsibly, including AI literacy and ethical awareness. VET must keep pace with rapidly evolving technology and industrial standards. Teachers need both the skills and the tools to teach modern, future-oriented competences. Innovation also makes teaching more stimulating and relevant, helping attract new entrants.

Several actions may facilitate the transition of VET teachers towards a future AI era, for instance to:

(a) **Strengthen and scale up Erasmus+ support for AI literacy among educators.** Ensuring sustainable, systematic development of knowledge, skills, and ethical understanding of AI to support teachers across Europe, while promoting international collaboration and peer learning.

(b) **Promote sectoral digital competence frameworks through the Union of Skills strategy.** To ensure VET teachers remain at the forefront of technological and industry developments, digital competence frameworks should be customised to different sectoral and occupational applications and embedded within the Union of Skills strategy. This would support teachers in aligning curricula with evolving digital trends, integrating AI and advanced technologies into their specific pedagogies and preparing learners for sector-specific demands. Teachers would also benefit by being connected to large-scale skills partnerships and sectoral intelligence.

(c) **Encourage adoption of blended, hybrid and digital-based teaching methods.** VET teachers should benefit from hands-on experience with virtual/augmented reality, simulators, online platforms and e-learning, by embedding such tools in systematic, high-quality CPD programmes.

(d) Strengthen existing digital self-assessment tools for teachers by incorporating VET-specific dimensions. Expand with IVET-specific modules existing tools such as SELFIE for Teachers (European Commission, 2023b), which provides schools with a self-assessment framework for digital competence.

6.7. Build long-term European cooperation and knowledge sharing

VET is inherently cross sectoral and globally connected. Mobility and networks foster continuous learning, innovation transfer and alignment with labour market changes may strengthen teaching quality and system resilience. Cross-border collaboration is one of Europe's strongest tools, but IVET teachers need more sustained platforms for learning from one another.

Facilitating long-term European cooperation and knowledge sharing can be achieved via the adoption of several policy actions, including those that:

(a) **Scale up European VET teacher mobility through Erasmus+ by funding longer placements in partner schools and companies**. Moving beyond short exchanges toward longer, structured placements, with the active support of teacher unions and employer associations, will allow job shadowing, placements in enterprises, international peer learning, exposure to different pedagogies and systems.

(b) **Expand the Vocational Excellence Platforms and support institutional participation in transnational VET innovation hubs** (e.g. CoVEs). While CoVEs and Vocational Excellence Platforms play a key role in driving innovation, skills relevance, and transnational cooperation in VET, the role of teachers within these structures remains largely implicit. Including teacher-specific communities within Vocational Excellence Platforms that share curricula, digital innovations and wellbeing strategies, with the possible participation of teacher union and employer associations in their governance and strategic planning, would be beneficial for teachers' professional growth.

(c) **Foster communities of practice and networks of VET practitioners** across countries to exchange good practices, co-develop materials, and collectively address common

challenges. The different European Associations of VET providers should be strengthened as a distinct, visible European ecosystem for vocational professionals.

CHAPTER 7.
Conclusions

Europe's labour market transformation – green, digital, and demographic – cannot succeed without a strong VET teaching workforce. Despite dedication and resilience among IVET teachers, they face clear systemic pressures. The EU has already laid much of the strategic groundwork; the next step is to translate these frameworks into consistent support at school level. By elevating the status of the profession, investing in wellbeing, strengthening training in inclusion and sustainability and leveraging EU cooperation instruments, Europe can ensure that IVET teachers remain the driving force behind a competitive, forward-looking skills ecosystem.

This paper presents first empirical evidence from the pilot phase of the European Vocational Teacher Survey (EVTS), the first EU-wide survey specifically designed by Cedefop to capture the experiences, working conditions and professional development of teachers in initial vocational education and training (IVET). Drawing on data from 735 teachers across 23 Member States, the analysis combines descriptive findings with multivariate econometric evidence to explore key factors associated with teachers' professional development in a context of rapid economic, technological and social transformation.

The descriptive findings highlight a profession operating under growing pressure. Many IVET teachers report feeling undervalued, facing high workloads and administrative burdens and experiencing significant strain on their wellbeing. At the same time, they are expected to respond to increasingly complex learning environments, strengthen links with workplaces, and integrate new digital, green and inclusive practices into their teaching. While commitment to teaching remains strong, the pilot evidence points to clear risks for recruitment, retention and long-term sustainability if current challenges and shortages remain unaddressed.

The econometric analysis reinforces and sharpens these insights. Across a wide range of model specifications, teachers' professional development is found to be more strongly associated with the use of digital tools, informal and self-directed learning, supportive organisational environments, favourable working conditions and a sense of professional accomplishment than with participation in formal training alone. CPD quality, organisational commitment and school-level learning cultures emerge as particularly important correlates, while indicators of burnout and adverse working conditions are consistently associated with lower engagement in professional learning. By contrast, formal training participation and structural school characteristics play a limited role once institutional and organisational heterogeneity is considered.

Taken together, the findings suggest that strengthening IVET teachers' professional development requires more than expanding formal continuing professional development provision. Embedding professional learning in everyday school practices, improving working conditions, supporting teacher wellbeing and fostering supportive leadership and organisational cultures appear central to sustaining teachers' capacity to adapt to evolving demands. The results also point to potential gaps between policy expectations- particularly in

relation to digitalisation and the green transition – and the support currently available to teachers at school level.

Several limitations should be acknowledged. The analysis is based on pilot data and is not (yet) intended to provide population-representative estimates at country level. The cross-sectional design precludes causal interpretation, and the findings should be read as exploratory. Nevertheless, the consistency of results across specifications and robustness checks provides confidence in the relevance of the identified patterns and supports the analytical framework adopted for the EVTS mainstage.

Looking ahead, the EVTS main survey will offer a unique opportunity to deepen and extend this analysis to a representative scale across Europe. By generating comparable, high-quality evidence on IVET teachers' skills, working conditions and professional development, EVTS can inform targeted policy responses at both EU and national level.

Ultimately investing in IVET teachers is investing in Europe's future. EVTS evidence, combined with ongoing European policy initiatives, demonstrates that improving teacher recognition, professional development, well-being, and fostering digital and green competences, while empowering teachers to promote inclusion, is essential for a resilient and future-ready VET system. Integrating inspiring national practices and EU frameworks can help ensure that teaching in VET is a rewarding, attractive and sustainable career.

Abbreviations

AI	Artificial Intelligence
AMO	Abilities, Motivation and Opportunities
ATEE	Association for Teacher Education in Europe
Cedefop	European Centre for the Development of Vocational Training
CoVEs	Centres of Vocational Excellence
CPD	Continuing Professional Development
DG EMPL	Directorate-General for Employment, Social Affairs and Inclusion (European Commission)
DVS	Department for VET and Skills
EEA	European Economic Area
EFEE	European Federation of Education Employers
EQAVET	European Quality Assurance in Vocational Education and Training
ETUCE	European Trade Union Committee for Education
EU	European Union
EUCEN	European University Continuing Education Network
EUProVET	European Providers of Vocational Education and Training
EURASHE	European Association for the Applied Sciences in Higher Education
EVBB	European Association of Institutes for Vocational Training
EVTA	European Vocational Training Association
EVTS	European Vocational Teacher Survey
FE	Fixed Effects
GDPR	General Data Protection Regulation
ISCED	International Standard Classification of Education
IVET	Initial Vocational Education and Training
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
SELFIEforTEACHERS	Self-refection tool for teachers' digital competence
TALIS	Teaching and Learning International Survey
VET	Vocational Education and Training

References

Andersson, P., Hellgren, M., & Köpsén, S. (2018). *Factors influencing the value of CPD activities among VET teachers. International Journal for Research in Vocational Education and Training, 5*(2), 140–164. https://doi.org/10.13152/IJRVET.5.2.4

Andersson, P., & Köpsén, S. (2018). *Maintaining competence in the initial occupation: Activities among vocational teachers*. *Vocations and Learning, 11*(2), 317–344. https://doi.org/10.1007/s12186-017-9192-9

Andersson, P., & Köpsén, S. (2019). *VET teachers between school and working life: Boundary processes enabling continuing professional development*. *Journal of Education and Work, 32*(6–7), 537–551. https://doi.org/10.1080/13639080.2019.1673888

Antera, S., & Nilsson, S. (2025). *Competence profiles of vocational teachers in Sweden*. *International Journal for Research in Vocational Education and Training, 12*(3), 410–432. https://doi.org/10.13152/IJRVET.12.3.5

Antera, S., & Teräs, M. (2024). *Discovering and developing the vocational teacher identity*. *Education + Training, 66*(5), 524–540. https://doi.org/10.1108/ET-09-2023-0363

Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (Eds.). (2000). *Manufacturing advantage: Why high performance work systems pay off* (1st ed.). Cornell University Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control* (pp. ix, 604). W. H. Freeman/Times Books/Henry Holt & Co.

Cattaneo, A. A. P., Antonietti, C., & Rauseo, M. (2022). *How digitalised are vocational teachers? Assessing digital competence in vocational education and looking at its underlying factors*. *Computers & Education, 176*, 104358. https://doi.org/10.1016/j.compedu.2021.104358

Cedefop. (2013). *Benefits of vocational education and training in Europe for people, organisations and countries*. Publications Office of the European Union. https://data.europa.eu/doi/10.2801/18161

Cedefop. (2022). *Teachers and trainers in a changing world building up competences for inclusive, green and digitalised vocational education and training: Synthesis report*. Publications Office of the European Union. https://data.europa.eu/doi/10.2801/53769

Cedefop. (2023). *Stemming the tide: Tackling early leaving from vocational education and training in times of crises: Synthesis report of Cedefop/ReferNet survey*. Publications Office of the European Union. https://data.europa.eu/doi/10.2801/757603

Cedefop. (2026 forthcoming). *Progressing beyond skills development to unleash human potential: first findings of Cedefop's European Training and Learning Survey*.

Cook, J., & Wall, T. (1980). *New work attitude measures of trust, organisational commitment and personal need non-fulfilment*. *Journal of Occupational Psychology, 53*(1), 39–52. https://doi.org/10.1111/j.2044-8325.1980.tb00005.x

Council of the European Union. (2020a). *Council conclusions on European teachers and trainers for the future 2020/C 193/04*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2020_193_R_0004

Council of the European Union. (2020b). *Council recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience: 2020/C 417/01*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2020_417_R_0001

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer US. https://doi.org/10.1007/978-1-4899-2271-7

DeVellis, R. F., & Thorpe, C. T. (2022). *Scale development: Theory and applications* (5th ed.). SAGE.

European Commission. (2009). *Recommendation of the European Parliament and of the Council of 18 June 2009 on the establishment of a European Quality Assurance Reference Framework for Vocational Education and Training (Text with EEA relevance): 2009/C 155/01*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009H0708(01)

European Commission. (2020a). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: European Skills Agenda for sustainable competitiveness, social fairness and resilience.* COM(2020) 274 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0274

European Commission. (2020b). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on achieving the European Education Area by 2025.* COM/2020/625 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0625

European Commission. (2020c). *Pact for skills*. https://pact-for-skills.ec.europa.eu/index_en

European Commission. (2024). *Ethical guidelines on the use of artificial intelligence and data in teaching and learning for educators*. https://education.ec.europa.eu/node/2285

European Commission. (2025). *Union of skills*. https://commission.europa.eu/topics/competitiveness/union-skills_en

European Commission, Joint Research Centre. (2022). *GreenComp, the European sustainability competence framework*. Publications Office. https://data.europa.eu/doi/10.2760/13286

Felstead, A., Fuller, A., Unwin, L., Ashton, D., Butler, P., & Lee, T. (2004). *Better learning, better performance: Evidence from the 2004 Learning at Work survey*. National Institute of Adult Continuing Education. https://eprints.soton.ac.uk/63871/

Fuller, A., & Unwin, L. (2004). *Expansive learning environments: Integrating organisational and personal development*. In *Workplace learning in context, 126-144*. Routledge.

Geijsel, F., Sleegers, P., & van den Berg, R. (1999). *Transformational leadership and the implementation of large-scale innovation programs*. *Journal of Educational Administration, 37*(4), 309–328. https://doi.org/10.1108/09578239910285561

Goe, L., & Stickler, L. M. (2008). *Teacher quality and student achievement: Making the most of recent research*. TQ Research & Policy Brief. https://files.eric.ed.gov/fulltext/ED520769.pdf

Jong, J. P. J., & Den Hartog, D. (2010). *Measuring innovative work behavior*. *Creativity and Innovation Management, 19*(1), 23-36. https://doi.org/10.1111/j.1467-8691.2010.00547.x

Kennedy, A. (2005). *Models of continuing professional development: A framework for analysis*. *Journal of In-Service Education, 31*(2), 235–250. https://doi.org/10.1080/13674580500200277

Kokkinos, C. M. (2007). *Job stressors, personality and burnout in primary school teachers*. *British Journal of Educational Psychology, 77*(1), 229–243. https://doi.org/10.1348/000709905X90344

Kunst, E. M., van Woerkom, M., & Poell, R. F. (2018). *Teachers' goal orientation profiles and participation in professional development activities*. *Vocations and Learning, 11*(1), 91–111. https://doi.org/10.1007/s12186-017-9182-y

Margaryan, A., Littlejohn, A., & Milligan, C. (2013). *Self-regulated learning in the workplace: Strategies and factors in the attainment of learning goals*. *International Journal of Training and Development, 17*(4), 245–259. https://doi.org/10.1111/ijtd.12013

Margaryan, A., Milligan, C., Littlejohn, A., Hendrix, D., & Graeb-Koenneker, S. (2009). *Self-regulated learning and knowledge sharing in the workplace* (Conference paper). Organizational Learning, Knowledge and Capabilities Conference, Amsterdam. https://oro.open.ac.uk/42286/

Mårtensson, Å. (2022). *Creating continuity between school and workplace: VET teachers' in-school work to overcome boundaries*. *Journal of Vocational Education & Training, 74*(4), 682–700. https://doi.org/10.1080/13636820.2020.1829009

Ng, D. T. K., Leung, J. K. L., Su, J., Ng, R. C. W., & Chu, S. K. W. (2023). *Teachers' AI digital competencies and twenty-first century skills in the post-pandemic world*. *Educational Technology Research and Development, 71*(1), 137–161. https://doi.org/10.1007/s11423-023-10203-6

OECD. (2018). *TALIS Starting Strong 2018 technical report*. https://doi.org/10.1787/0921466e-en

Oude Groote Beverborg, A., Sleegers, P. J., & van Veen, K. (2015). Promoting VET teachers' individual and social learning activities: The empowering and purposeful role of transformational leadership, interdependence, and self-efficacy. *Empirical Research in Vocational Education and Training,7*(1),5. https://doi.org/10.1186/s40461-015-0018-4

Papazoglou, M. (2025, June 10). *Embracing digital skills in vocational education*. European School Education Platform. https://school-education.ec.europa.eu/en/discover/expert-views/digital-skills-vocational-education

Psifidou, I. (2025a). *Cedefop's European Vocational Teacher survey (EVTS)*. European Sectoral Social Dialogue in Education plenary meeting. https://doi.org/10.5281/zenodo.18432000

Psifidou, I. (2025b). *Strengthening initial teacher education for VET teachers*. European School Education Platform. https://school-education.ec.europa.eu/en/discover/expert-views/strengthening-initial-teacher-education-vet-teachers

Psifidou, I. (2025c). *Building stronger communities to keep learners engaged*. European School Education Platform. https://school-education.ec.europa.eu/en/discover/expert-views/building-stronger-communities-keep-learners-engaged

Psifidou, I., Ledermaier, S., & Toskidou, M. (2025, January 15). *Tackling violence and bullying at school to prevent dropout and facilitate school success*. https://www.cedefop.europa.eu/en/blog-articles/tackling-violence-and-bullying-school-prevent-dropout-and-facilitate-school-success

Psifidou, I., Papazoglou, M., & Pouliakas, K. (2025, November 17). *Europe's first survey for VET teachers: Listening, learning, acting*. https://www.cedefop.europa.eu/en/blog-articles/europes-first-survey-vet-teachers-listening-learning-acting

Psifidou, I., & Symeonidis, V. (2025, November 17). *Zooming in on Europe's new push to empower VET teachers*. https://www.cedefop.europa.eu/en/blog-articles/zooming-europes-new-push-empower-vet-teachers

Rigotti, T., Schyns, B., & Mohr, G. (2008). A short version of the occupational self-efficacy scale: Structural and construct validity across five countries. *Journal of Career Assessment, 16*(2). https://doi.org/10.1177/1069072707305763

Runhaar, P. (2008). *Promoting teachers' professional development*. https://research.utwente.nl/en/publications/promoting-teachers-professional-development/

Sancar, R., Atal, D., & Deryakulu, D. (2021). *A new framework for teachers' professional development. Teaching and Teacher Education, 101*, 103305. https://doi.org/10.1016/j.tate.2021.103305

Serafini, M. (2018). *The professional development of VET teachers in Italy: Participation, needs and barriers. Statistical quantifications and benchmarking in an international perspective. Empirical Research in Vocational Education and Training, 10*(1), 3. https://doi.org/10.1186/s40461-018-0064-9

Sfard, A. (1998). *On two metaphors for learning and the dangers of choosing just one*. *Educational Researcher, 27*(2), 4–13. https://doi.org/10.2307/1176193

Van Der Vegt, G. S., Emans, B. J. M., & Van De Vliert, E. (2001). *Patterns of interdependence in work teams: A two-level investigation of the relations with job and team satisfaction. Personnel Psychology, 54*(1), 51–69. https://doi.org/10.1111/j.1744-6570.2001.tb00085.x

Zhou, N., Tigelaar, D. E. H., & Admiraal, W. (2022). *Vocational teachers' professional learning: A systematic literature review of the past decade*. *Teaching and Teacher Education, 119*, 103856. https://doi.org/10.1016/j.tate.2022.103856

Annex

Table A1. Construction and validation of composite variables

Variable label	Definition (questionnaire-based)	Cronbach's
Professional development index	Composite measure capturing the extent to which VET teachers developed professionally since the beginning of the previous academic year across 13 areas: developing further understanding of subject content; learning new content; improving teaching methods; monitoring and assessing students; using digital tools; managing classroom behaviour; teaching diverse learners; teaching vulnerable learners; addressing bullying and harassment; stimulating students' curiosity; collaborating with colleagues; working with parents; supporting student wellbeing	0.91
Low frequency of formal training participation	Low participation in organised formal training activities, including seminars/workshops, conferences, courses leading to a qualification and courses not leading to a qualification, undertaken either inside or outside the school, offline or online	0.85
Low frequency of workplace-based learning activities	Low engagement in learning activities involving other schools or companies, including visits to other schools, visits to companies, and workplace-based learning placements	0.85
Low frequency of own learning activities	Low engagement in self-initiated formal or non-formal, offline or online, learning activities, including attending seminars, attending courses, reading professional literature and preparing own learning materials	0.74
Low engagement in informal learning practices	Low engagement in informal learning practices, including experimenting with new teaching methods, reflecting on teaching, trying new approaches, observing colleagues, exchanging practices, preparing lessons collaboratively, interacting with students and receiving feedback	0.82
Low quality CPD	Low perceived quality of continuing professional development, capturing whether training involves instructors with high expertise, is applicable to teaching practice, addresses digital competences and leads to a recognised qualification, diploma or certificate	0.75
School support for training	Institutional support for teachers' professional development, including adjustment of duties, provision of leave and coverage of training expenses or materials	0.67
No CPD: No consequences	Absence of consequences if one does not attend education or training activities, such as reduced pay, slower career progression, job insecurity and loss of peer recognition	0.92
Use of digital technologies	Extent to which digital technologies are used for lesson preparation, classroom teaching, work-based learning, supporting vulnerable learners, monitoring student progress and communication with peers or students	0.78
Bad working conditions	Adverse working conditions, including workload, large class size, administrative burden, discipline problems, poor motivation of students, lack of recognition, inadequate salary, loss of control over work and lack of opportunities for professional development	0.81

Variable label	Definition (questionnaire-based)	Cronbach's
Bad health	Poor self-reported physical and mental health, including anxiety, depression, breathing problems, blood pressure, heart problems, stomach problems, physical exhaustion and sleep problems	0.81
Autonomy	Degree of autonomy over teaching content, organisation of content, teaching methods, assessment practices and choice of equipment	0.73
Transformative leadership	Extent to which school leadership is participatory, supportive, attentive to teachers' needs, promotes innovation and supports professional development	0.93
Innovation in school	School climate supportive of new ideas, learning from experience and continuous improvement of teachers	0.90
Weak organisational commitment	Low organisational attachment, capturing pride in the school, participation in school activities and willingness to make extra effort	0.83
Self-efficacy	Teachers' perceived ability to cope with job demands, feel prepared, meet goals, handle challenges and act proactively	0.77

NB: All composite variables used in the analysis are constructed using internally consistent item batteries from the EVTS questionnaire; internal consistency is assessed using Cronbach's alpha, and scale structure is examined using principal component and factor analyses.

Table A2. Definition of non-composite variables used in the analysis

Variable label	Definition (questionnaire-based)	Measurement
Gender (female)	Indicator identifying whether the respondent is female (base category: male)	Binary (1 = female, 0 = male)
Years of tenure in current school	Number of years the teacher has been working at their current school	Continuous (years)
Multiple job holding	Whether the teacher holds more than one job in addition to their main teaching position	Binary (1 = yes, 0 = no)
Public school	Whether the respondent works in a public VET school (base category: private)	Binary (1 = public, 0 = private)

NB: Country and school identifiers are included in the empirical models as fixed effects or random intercepts, depending on the specification, and standard errors are clustered at the school level.

VET TEACHERS AT A TURNING POINT

Pilot evidence from Cedefop's European Vocational Teacher Survey

This paper presents first empirical evidence from the pilot phase of the Cedefop European Vocational Teacher Survey (EVTS), the first EU-wide survey examining experiences, working conditions and professional development of teachers in initial vocational education and training (IVET).
Drawing on responses from 735 teachers across 23 EU Member States, the analysis identifies key factors shaping professional learning and wellbeing. Findings point to a profession under growing strain, marked by heavy workloads, limited recognition and heightened risks of burnout. Teachers report rising expectations linked to classroom diversity, digitalisation, the green transition and stronger cooperation with workplaces. Professional development is driven less by formal training alone and more by informal and self-directed learning, supportive organisational environments, favourable working conditions and a sense of professional accomplishment. By shedding light on everyday realities of VET teachers, the EVTS demonstrates strong potential to inform EU and national policies aimed at strengthening and sustaining the teaching profession.

6229 EN - TI-01-26-014-EN-N - doi:10.2801/1254726

CEDEFOP | European Centre for the Development of Vocational Training

Europe 123, Thessaloniki (Pylaia), GREECE
Postal: Cedefop service post, 570 01 Thermi, GREECE
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu
www.cedefop.europa.eu

Publications Office of the European Union