VET Pulse

The EfVET Magazine

Issue 37. June 2026

VET in the Age of AI

AI TRANSFORMING VOCATIONAL EDUCATION

HUMAN-CENTRED INNOVATION IN LEARNING

DIGITAL SKILLS FOR THE FUTURE WORKFORCE

INCLUSION, ACCESSIBILITY AND NEURODIVERSITY

POLICY, PRACTICE AND REAL-WORLD VET IMPACT

EfVET European Forum of Technical and Vocational Education and Training

What's

Editorial

From the President: Stop Preparing for AI, Start working with it! 04

Institutional Perspectives

Skills and VET: turning Europe's momentum into a movement 08

Ensuring digital transformation works for every learner 12

VET occupations in the era of automation 14

Experiences

The AI debate has a blind spot. It is called VET 16

VET's Greatest Opportunity Is Called AI 20

AI Is Already in the Classroom. What Comes Next? Vocational Teachers as AI Directors 24

Assessment That Fits: AI and Neurodiverse Learners in VET 28

AI, Inclusion and Neurodiversity in VET: reflections from a OECD Report 30

Taking advantage of the new AI Tools in vocational training of software developers: A practical view from VET 32

Training for Professions in Transformation: The Challenge of AI in Vocational Education 34

Building the plane while flying it: Estonia's national approach to AI in education 36

inside?

Practical approaches

Impact of artificial intelligence (AI) on skills competitions 38

How fictional AI avatars are training real-world empathy in VET 40

AI in Automotive Training: ANFA's Progressive Approach to Supporting Its Network 44

Bridging the Skills Gap in the Age of AI: Labour Intelligence for Inclusive VET 46

Using AI to Support Teachers' Learning Designs for Facilitating Social Innovation Competence and Democratic Education 48

Keeping teachers at the centre: the EU's humancentred vision for AI in VET 51

What VET really needs from AI: critical thinking, not just tools 52

AI as a Co-Teacher in VET: How Intelligent Tools Can Strengthen the Professional Identity of Teachers. 54

Developing AI-assisted Communication Skills Training in Vocational Education and Training – Practical Experience 56

Artificial Intelligence in VET Physics Education: Enhancing Learning and Critical Digital Competences through ChatGPT and Immersive Technologies 60

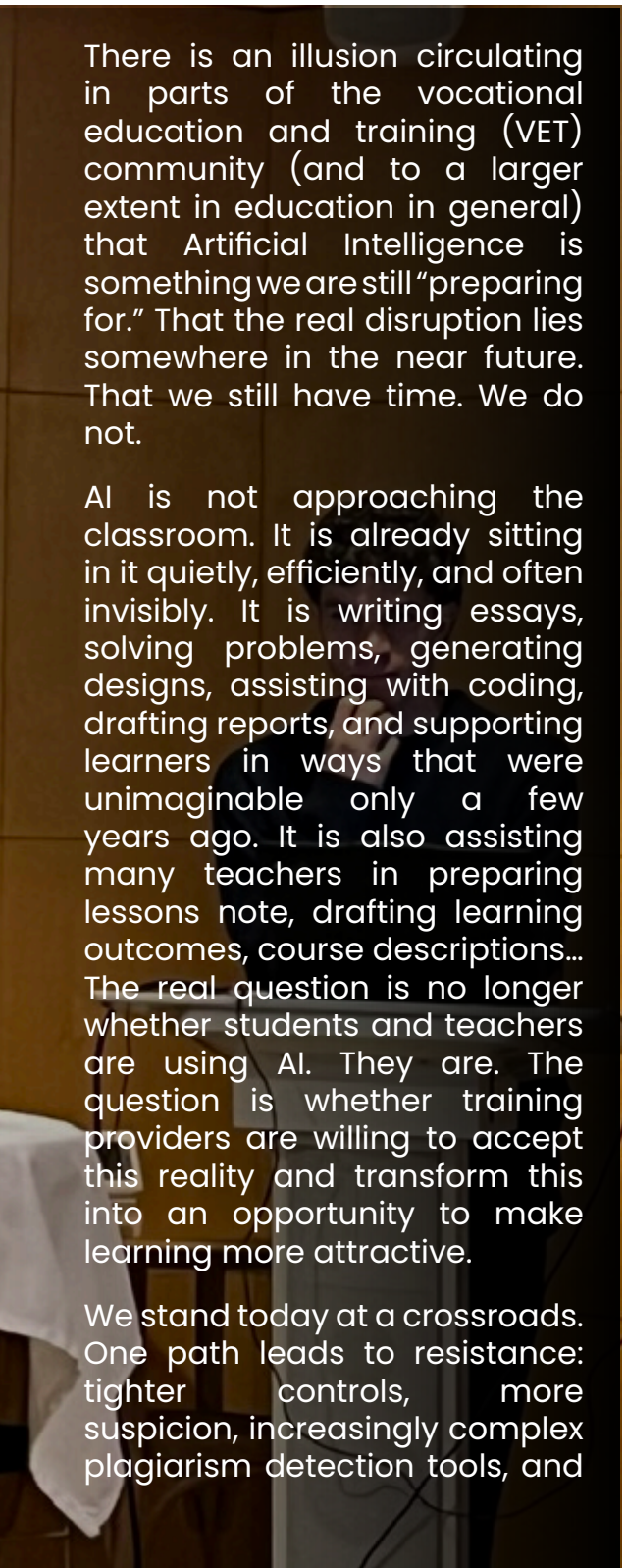
From recommendations to practice: Testing humancentred AI in TVET 62

Beyond Digitalisation: Building agile VET ecosystems for the AI era 64

From the President

Joachim James Calleja, EfVET President

Stop Preparing for AI. Start working with it!



There is an illusion circulating in parts of the vocational education and training (VET) community (and to a larger extent in education in general) that Artificial Intelligence is something we are still "preparing for." That the real disruption lies somewhere in the near future. That we still have time. We do not.

AI is not approaching the classroom. It is already sitting in it quietly, efficiently, and often invisibly. It is writing essays, solving problems, generating designs, assisting with coding, drafting reports, and supporting learners in ways that were unimaginable only a few years ago. It is also assisting many teachers in preparing lessons note, drafting learning outcomes, course descriptions... The real question is no longer whether students and teachers are using AI. They are. The question is whether training providers are willing to accept this reality and transform this into an opportunity to make learning more attractive.

We stand today at a crossroads. One path leads to resistance: tighter controls, more suspicion, increasingly complex plagiarism detection tools, and a growing disconnect between what we assess and what learners actually do in the real world. The other path leads to transformation and embracing AI as a core pedagogical tool, redesigning learning experiences, and rethinking what it truly means to demonstrate competence. The choice is ours. But neutrality is no longer an option.

Let me begin with a simple but uncomfortable truth: banning or ignoring AI is not only ineffective it is educationally irresponsible. In the world of work, AI is already embedded in workflows across sectors. From healthcare to engineering, from business administration to creative industries, AI tools are augmenting human capability. If VET is to remain true to its mission and preparing learners for real occupations then it must integrate AI into the learning process, not exclude it.

AI offers unprecedented opportunities for personalised learning. It can adapt content to the pace and needs of individual learners. It can provide instant feedback and information. It can simulate complex scenarios. It can support learners with language barriers, learning difficulties, or limited access to traditional resources. Properly used, AI can enhance inclusion rather than undermine it. To my mind AI stands for Augmented Intelligence and not artificial intelligence. It is there to support and not replace human intelligence!

But this requires a shift in mindset. Teachers are no longer seen as the sole source of knowledge. They become facilitators, mentors, and critical guides helping learners navigate, question, and use AI responsibly. To my mind, this is not a loss of authority. It is an evolution of any learning process.

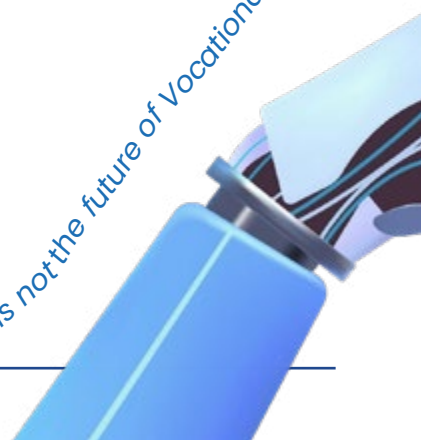
But if there is one area where AI has truly shaken the foundations of education, it is assessment. Traditional assessment models, particularly written assignments, take-home projects, and even some forms of coursework are increasingly unreliable as indicators of individual competence. Not because learners are dishonest, but because the tools available to them fundamentally change how work is produced. Using AI to transform your original ideas into an attractive, readable and critically correct narrative is not a crime at all! This is because if a task can be completed entirely by AI, then perhaps it was never a valid measure of human competence to begin with. This is not a crisis of integrity. It is a crisis of design.

For too long, assessment in VET has leaned heavily on outputs rather than processes, on products rather than performance. AI exposes this weakness. It forces us to confront a difficult but necessary question: what exactly are we trying to assess? If the goal is to evaluate a learner's ability to think, apply knowledge, solve problems, and communicate effectively, then we need assessment methods that capture these abilities authentically.

The solution is not technological. It is profoundly human. Oral examinations which I recall facing when studying in Italy in the late 1980s at the University of Padua, face-to-face assessments, practical demonstrations, and real-time problem-solving must regain their central place in VET. These methods are not new. In fact, they are among the oldest forms of assessment. Paradoxically, in the age of AI, they are becoming the most relevant and secure forms of assessment. When a learner explains their reasoning in person, defends a decision, demonstrates a skill, or engages in dialogue, we see something that no algorithm can replicate: authentic understanding.

Face-to-face assessment allows educators to probe deeper, to ask follow-up questions, to test adaptability, and to evaluate not just what a learner knows, but how they think. It transforms assessment from a static event into a dynamic interaction. This does not mean abandoning all written work. Rather, it means repositioning it. Written assignments can become part of the learning journey supported by AI, enriched by it but not the sole basis for certification. In this model, AI becomes a tool for preparation, exploration, and practice. The final validation of competence, however, remains human.

However, from my experience with VET teachers, there is a temptation among institutions to respond to AI with control mechanisms: detection software, strict policies, and punitive measures. While some level of regulation is necessary, an over-reliance on policing creates a culture of mistrust. Instead, we must shift our focus from controlling behaviour to designing better learning and assessment environments. If tasks are meaningful, contextualised, and require personal engagement, the incentive to misuse AI diminishes. If assessment is interactive and process-oriented, the opportunities for substitution disappear. If learners are guided to use AI ethically and transparently, it becomes part of their competence rather than a threat to it. This requires investment not only in technology, but in teacher development. Educators need time, training, and



support to redesign curricula, experiment with new methods, and build confidence in using AI tools. This could be a valuable niche for EfVET's online and face-to-face CPD teacher training academy. We cannot expect transformation without equipping those who must lead it.

While much of the debate focuses on teaching and assessment, there is another dimension of AI that is often overlooked but equally transformative: administration and institutional management. AI has the potential to streamline a wide range of operational processes such as student records, financial management, scheduling, reporting, quality assurance, and communication. It can reduce administrative burden, minimise errors, and provide real-time insights for decision-making. Imagine an institution where attendance patterns are analysed automatically, identifying at-risk learners early. Where financial systems predict budget trends and optimise resource allocation. Where documentation is generated efficiently, freeing staff to focus on strategic and pedagogical work. This is not science fiction. These capabilities already exist.

By embracing AI in administration, training providers can enhance efficiency, transparency, and sustainability. More importantly, they can redirect human energy towards what truly matters: teaching, mentoring, creativity and supporting learners.

Of course, embracing AI does not mean ignoring its risks. Issues of data protection, algorithmic bias, digital inequality, and ethical use must be addressed proactively. Not all learners have equal access to technology. Not all AI systems are neutral. Not all uses are appropriate. This is precisely why VET institutions must take an active role. By integrating AI into structured learning environments, we can teach not only how to use these tools, but how to question them, challenge them, and use them responsibly. AI literacy must become a core competence and not just technical, but ethical and critical. In this sense, VET has a unique opportunity. With its strong links to the labour market and its emphasis on practical skills, it can lead the way in shaping a responsible and human-centred approach to AI.

One must recognise that the transition we are facing is not easy. It challenges deeply rooted practices, long-standing assumptions, and professional identities. It creates uncertainty and, at times, discomfort. But it also offers an extraordinary opportunity. VET training providers can choose to react defensively, trying to preserve systems that are rapidly losing relevance. Or we can act with courage, reimagining VET for a world where human and artificial intelligence coexist and collaborate. This is not about replacing teachers but empowering them. It is not about diminishing learning but about deepening it. It is not about surrendering to technology but mastering it critically, ethically, and creatively.

AI is not the future of vocational education and training. It is its present reality. The institutions that recognise this and act accordingly, will not only remain relevant; they will lead. The others risk becoming obsolete. Now is the time to act and the time for EfVET to make this its mission with training providers to critically embrace AI in VET.

Skills and VET: turning Europe's momentum into a movement

Jürgen Siebel
Executive Director of Cedefop (European Centre for the Development of Vocational Education and Training)

Europe is living through a period of profound transformation. The digital revolution, the green transition, shifting demographics and geopolitical instability are reshaping our economies at a pace that is difficult to match. The urgency is undeniable.

But in the rush to talk about transitions and competitive positioning, we must not lose sight of something fundamental: all of it comes down to people. People who need the opportunity to retrain and the confidence to do so.

People whose skills are the engine of every business that innovates, every public service that functions, every community that grows together. When we invest in learning and skills, we are deciding what kind of society we want to be, and we better make sure that everyone gets a fair chance to thrive in it.

That conviction sits at the heart of the new European Skills & VET Week, a joint initiative of the European Commission and Cedefop, arriving this year at an exceptional juncture.

A RARE CONVERGENCE

In recent years, something significant has happened: skills and vocational education have moved from the margins of Europe's political conversation to centre stage. And that shift did not happen by accident.

The Osnabrück and Herning Declarations committed Europe's VET community to a shared reform agenda. The Pact for Skills united social partners, VET providers and public authorities around a common workforce development effort. The Draghi report made the case — forcefully and with data — that the gap between Europe's ambitions and its workforce capabilities threatens our future prosperity. Executive Vice-President Roxana Mînzatu has placed people, skills and preparedness at the heart of the Commission's priorities, confirming that the human dimension of Europe's transitions is a prerequisite, not an afterthought. The Union of Skills and the forthcoming VET Strategy are translating that political will into policy action and implementation.

We have not seen this depth of policy convergence around a single topic in a generation. The signals are aligned. The evidence is strong. The partnerships are forming. What we need now is a movement.

Policies and strategies do not change lives on their own. They need energy, resources, advocates and a shared sense of purpose that reaches far beyond Brussels — into classrooms, training centres, factory floors and the conversations families have about their futures. The European Skills & VET Week is the catalyst: the point where policy momentum becomes public commitment, and European ambition connects with the reality of the people it is meant to serve.

THE GAP WE CANNOT AFFORD TO IGNORE

Skills shortages are not an abstraction. They are the nurse missing from a ward, the engineer absent from a construction site, the technician missing from a factory floor. Across the EU, employers in critical sectors report they cannot find the people they need, costing us growth, innovation and resilience.

Too many people also remain on the wrong side of the learning divide: workers without a pathway to reskill, young people who chose a vocational route and felt they settled for less, adults whose skills are not keeping pace with a digital and greener economy. These gaps can be closed through quality learning, better-designed pathways and investment in quality jobs that allow people to learn and grow.

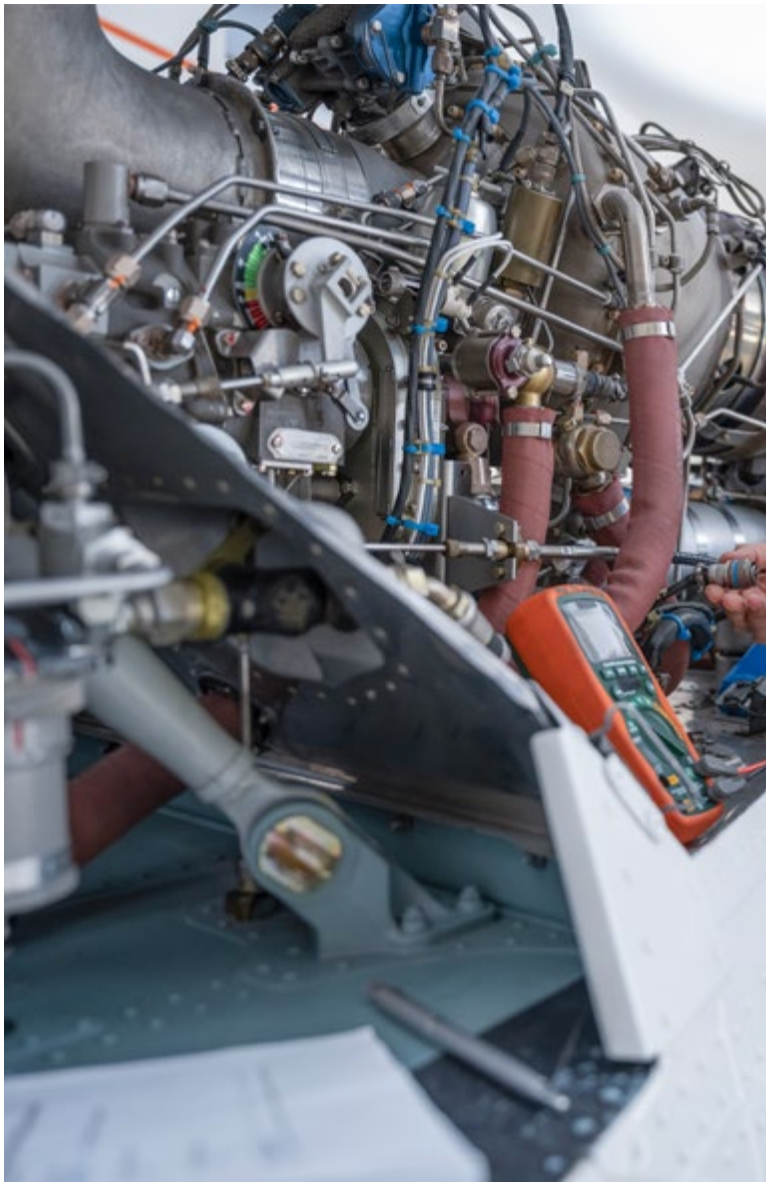
> **Every conversation about skills, transitions and competitiveness must ultimately come back to people, and the future they deserve to shape. The strength of Europe's economy, society and sovereignty depends on how well we prepare, protect and empower people.**

Jürgen Siebel,
Executive Director of Cedefop

A PUSH TO CHANGE THE POLICY AGENDA

The European Skills & VET Week is not a calendar of conferences. Its purpose is to shift perceptions, actions and investments — nationally, regionally and at EU level — and to sustain that shift long after the Week is over.

We want policymakers to strengthen their commitment to what vocational education and training can deliver. We want employers and social partners to treat workforce development as the most productive investment they can make, not a compliance exercise. We want young people and families to understand that a vocational pathway is not a consolation prize, but a first-class route to a fulfilling, well-rewarded working life.
Structured as a pan-European umbrella where top-down and bottom-up meet, the Week invites contributions from training providers, social partners, public authorities and learners. The richness of that conversation across languages, sectors and national traditions is itself a demonstration of what European cooperation looks like at its best.



VET IS DELIVERING

VET graduates are already building Europe's future with their expertise and hands-on knowledge. They install the solar panels of the green transition, maintain the data infrastructure of the digital economy, provide the healthcare ageing societies depend on, and the precision manufacturing that keeps European industry competitive. In every sector that matters to Europe's resilience, vocational skills are making the difference.

Cedefop's research shows that people with strong vocational qualifications achieve good labour market outcomes, high job satisfaction and meaningful opportunities to grow. The system works where it is properly resourced, where pathways are clear, and where the culture around vocational learning is one of respect and ambition rather than seeing it as a second choice. The challenge — and the opportunity — is to make that true everywhere, for everyone.

THE MOMENT TO ACT

The policy groundwork has been laid. The partnerships are in place. The evidence is unambiguous. What remains is the harder, more human work: building a skills movement, broad enough to carry change from political declaration to the person in a training centre wondering whether this system will work for them.

For institutions, employers, social partners and public authorities, this is a call to step forward and share what is working, learn from peers, and commit publicly to doing more. For policymakers at every level, it is an opportunity to close the distance

between strategy and reality, and to translate evidence into decisions that last.

I invite you to join the action: visit the Week's website and check the events coming up, subscribe to the newsletter and register your own initiative.

The strength of Europe's economy, society and sovereignty depends on how well we prepare, protect and empower people. The conditions for that work have rarely been better. Let us not waste them.

Ensuring digital transformation works for every learner

Irene Psifidou
Cedefop (European Centre for the Development of Vocational Education and Training)

Digital technologies and artificial intelligence (AI) are rapidly transforming vocational education and training (VET). From personalised learning pathways to immersive simulations, these tools offer new ways to engage learners and better prepare them for the labour market. Yet, their integration across Europe remains uneven – and without careful implementation, digitalisation risks reinforcing existing inequalities.

At the same time, digital transformation brings new risks for well-being. Excessive screen time, online isolation, and increased pressure on both learners and teachers can lead to stress, anxiety, and reduced motivation. For learners with special educational needs or neurodivergent profiles, poorly designed digital environments may create additional barriers rather than remove them. Issues such as cyberbullying, privacy concerns, and algorithmic bias further complicate the picture.

To ensure that digitalisation supports inclusion rather than undermines it, VET providers need a balanced, human-centred approach.

TURNING DIGITAL POTENTIAL INTO INCLUSIVE PRACTICE

Digital tools can play a powerful role in making VET more inclusive, if used purposefully. They can help learners overcome barriers related to language, learning difficulties, or social disadvantage, while offering flexible and engaging learning pathways.

For example, AI-powered translation tools and multilingual platforms can support migrant learners by making content more accessible and improving participation. Adaptive technologies can assist neurodivergent learners by breaking down complex tasks and offering personalised guidance. Immersive environments, such as virtual simulations, can provide "safe-to-fail" spaces where learners build confidence and practical skills.

However, the impact of these tools depends on how they are integrated into teaching and learning. Technology alone does not guarantee better outcomes.

WHAT VET PROVIDERS CAN DO

To harness the benefits of digitalisation while safeguarding well-being, several priorities stand out based on Cedefop VET toolkit for tackling early leaving:

- **Strengthen digital skills and confidence:** Both learners and teachers need support to move beyond basic tool use and develop digital and AI literacy.
- **Invest in teacher training:** Effective integration depends on pedagogical approaches, not just technology. Teachers need time, training, and support to adapt. Based on Cedefop's European Vocational Teacher Survey pilot findings, nearly 30% of IVET teachers report a strong need for digital upskilling. While 29% already use AI tools regularly, around one-third feel they need to improve their ability to identify relevant tools and assess ethical risks, biases, and potential harms.
- **Promote blended learning:** Combining digital tools with face-to-face teaching can enhance flexibility while maintaining engagement and social interaction.
- **Monitor well-being:** Schools should track not only learning outcomes but also indicators such as stress, motivation, and digital fatigue.
- **Create supportive environments:** A positive school culture, where experimentation is encouraged and

support is available, is essential.

- **Ensure ethical use of technology:** Data protection, transparency, and inclusion must guide the use of digital tools and AI.
- **Foster digital citizenship:** Learners should be equipped to critically understand and responsibly use digital technologies.

FROM INNOVATION TO INCLUSION: A COLLECTIVE EFFORT

Digital transformation in VET is not just about innovation - it is about equity. Technology should expand opportunities, not limit them. By placing inclusion and well-being at the centre, VET providers can turn digitalisation into a force for empowerment. Achieving this requires collaboration, with partnerships ensuring that digital tools are accessible, relevant, and aligned with real learning needs.

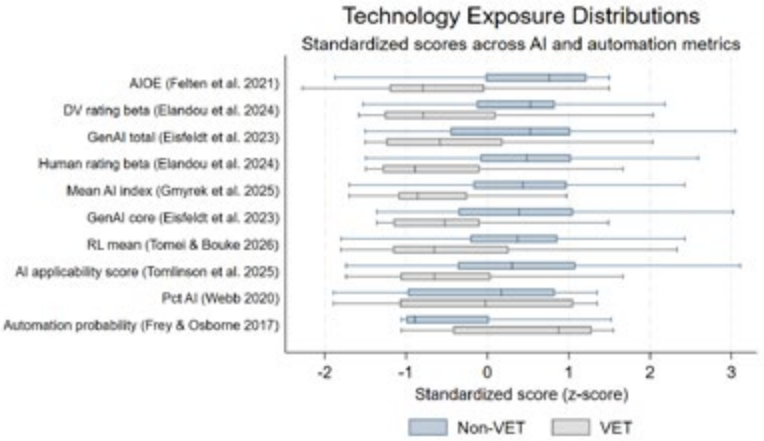
VET occupations in the era of automation

Joanna Napierala
Cedefop (European Centre for the Development of Vocational Education and Training)

Debates surrounding the impact of artificial intelligence on the labour market have intensified to the point that hardly a day goes by without new contributions on this topic in academic, policy, or media discourse. While many Europeans remain concerned that robotics and AI could lead to job losses[i], important questions are also emerging for vocational education and training (VET): are VET occupations[ii] more resistant to AI disruption, and will VET continue to represent an attractive and future-oriented career pathway?

Recent evidence[iii] based on a range of AI exposure and automation indicators suggests that VET occupations are, on average, less exposed to generative AI than non-VET occupations (Cedefop, 2026). Although some VET occupations, such as telemarketers or typists and word-processing operators, display relatively high AI exposure, the overall picture reveals a clear structural divide between the two occupational groups. Occupations typically associated with VET education tend to show significantly lower exposure to generative AI systems. At the same time, however, traditional automation continues to affect many vocational and manual occupations more strongly than non-VET jobs (Chart 1).

CHART 1. TECHNOLOGY EXPOSURE DISTRIBUTIONS BY VET AND NON-VET OCCUPATIONS

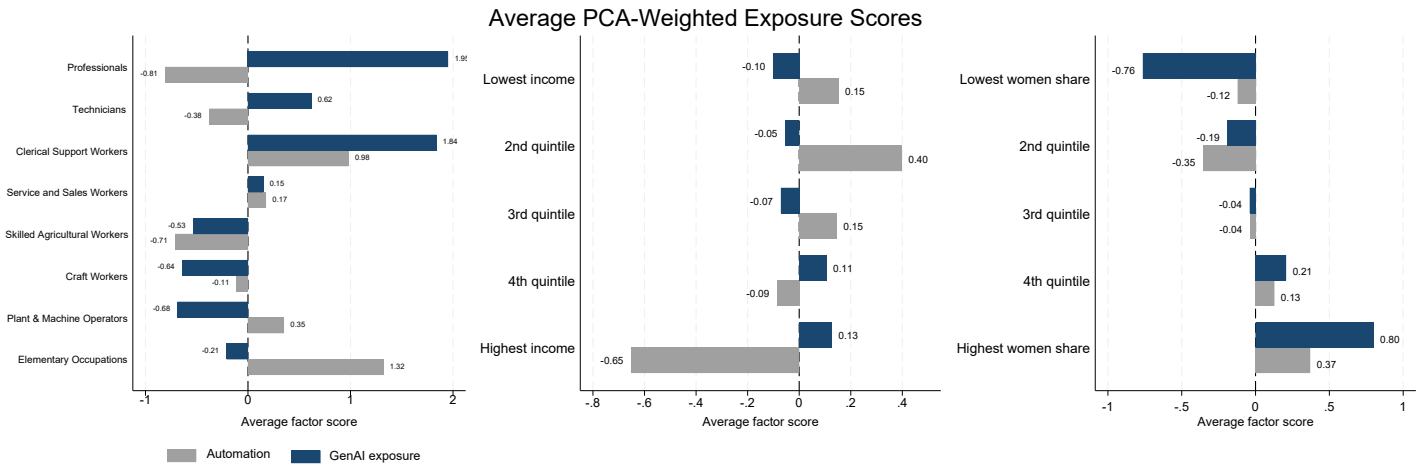


Source: own elaboration

The analysis also shows that generative AI and automation affect very different parts of the labour market (Chart 2). Traditional automation remains concentrated in lower-income, manual, and routine-intensive VET occupations. The highest automation exposure is found among elementary occupations and plant and machine operators, including jobs such as postal service mail carriers or meter readers. By contrast, professionals and clerical occupations tend to display relatively low automation scores. Automation exposure is also more pronounced in occupations with lower shares of women (e.g. locksmiths).

Generative AI exposure follows almost the opposite pattern. VET occupations involving cognitive, communicative, analytical, and digitally mediated tasks, such as professional, clerical support, and technical occupations, show the highest exposure to generative AI systems. Exposure is also substantially higher in occupations with larger shares of women, for example medical secretaries, as well as in higher-income occupational groups (e.g. sales representatives).

CHART 2. EXPOSURE OF OCCUPATIONAL GROUPS TO GENERATIVE AI AND AUTOMATION



Source: own elaboration

Importantly, these measures only show what AI can do right now in relation to tasks performed in different jobs. They do not reflect what AI may be capable of in the future, especially as the technology continues to advance rapidly. It is also unclear whether companies will adopt AI, whether doing so will be cost-effective or commercially viable, and how jobs and day-to-day work may change once AI becomes integrated into the workplace.

The relative resilience of many VET occupations should therefore not lead to inaction or complacency. On the contrary, it points out the growing importance of strengthening digital and AI-related competences within VET systems. Employers increasingly expect workers not only to use digital tools, but also to understand how AI can support productivity, problem-solving, and innovation within their occupational fields. Ensuring that VET learners develop these capabilities will be essential for maintaining the attractiveness and long-term relevance of vocational pathways in Europe's evolving labour market.

REFERENCES

i. Special Eurobarometer 554, Artificial Intelligence and the future of work, https://europa.eu/eurobarometer/surveys/detail/3222%20

ii. By VET occupations, I refer to occupations classified at the ISCO 4-digit level in which more than 50% of workers in Europe hold vocational education and training (VET) qualifications

iii. To capture potential impact of automation on VET occupations we used two distinct technological dimensions: an automation exposure dimension capturing vulnerability to traditional forms of mechanization and routine-task automation, typically associated with industrial robotics, algorithmic process automation, and repetitive task substitution; and a generative AI exposure dimension reflecting susceptibility to newer AI systems capable of performing cognitive, linguistic, analytical, and creative tasks. Following the approach developed by Gimbel et al. (2026), principal component analysis (PCA) was applied across multiple AI exposure indicators to derive a two-dimensional structure. Following metrics were included in analysis: rl_mean by Tomei & Bouke (2026); dv_rating_beta and human_raiting_beta by Elandou et al. (2024); genaiexp_estz_total and genai_exp_estz_core by Eisfeldt et al. (2023); AIOE by Felten et al. (2021); ai_applicability_score by Tomlinson et al. (2025), pct_ai by Webb (2020); a refined global Index of Occupational Exposure by Gmyrek (2025); probability of computerisation by Frey and Osborne (2017). Principal component analysis (PCA) was applied to derive a two-dimensional solution. The first dimension, interpreted as automation exposure, was primarily defined by the probability of computerisation and pct_ai measures. The second dimension, interpreted as generative AI exposure, was defined by the remaining AI exposure indicators.

Cedefop. (2026). Vocational education and training (VET) occupations in shortage: from evidence to coordinated policy responses. Cedefop policy brief. Publications Office of the European Union. DOI: 10.2801/6410696 https://www.cedefop.europa.eu/en/publications/9209

Eisfeldt, A. L. Schubert, G.,Zhang, M. B., Bledi, T.(2023). Generative AI and Firm Values, Journal of Finance forthcoming, Available at http://dx.doi.org/10.2139/ssrn.4436627

Felten, E., Raj, M., & Seamans, R. (2021). Occupational, industry, and geographic exposure to artificial intelligence: A novel dataset and its potential uses. Strategic Management Journal, 42(12), 2195–2217. https://doi.org/10.1002/smj.3286.

Frey, C. B., Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation?, Technological Forecasting and Social Change, Volume 114, Pages 254-280, ISSN 0040-1625, https://doi.org/10.1016/j.techfore.2016.08.019.

Gmyrek, P., Berg, J., Kamiński, K., Konopczyński, F., Ładna, A., Nafradi, B., Rosłaniec, K., Troszyński, M. (2025). Generative AI and Jobs: A Refined Global Index of Occupational Exposure, ILO Working Paper 140 (Geneva, ILO). https://doi.org/10.54394/HETP0387

Eloundou, T., Manning, S., Mishkin, P., Rock, D. (2024). GPTs are GPTs: Labor market impact potential of LLMs. Science 384,1306-1308. .https://arxiv.org/abs/2303.10130.

Tomei, P.& Klein Teeselink, B. (2026). What Jobs Can AI Learn? Measuring Exposure by Reinforcement Learning. 10.48550/arXiv.2605.02598.

Webb, M. (2020). The Impact of Artificial Intelligence on the Labor Market (last revised: 11 Jan 2020). Available at SSRN: https://ssrn.com/abstract=3482150 or http://dx.doi.org/10.2139/ssrn.3482150

The AI debate has a blind spot. It is called VET

David Mekkaoui
CEO of All Digital

David Mekkaoui, CEO of All Digital, a European network working on digital inclusion and skills across 30+ countries. © All Digital.

For years, the question was whether VET would survive the digital economy. Then came AI, and it changed the debate. What the data shows across Europe is not what people expect. It reframes who VET is for. It changes how VET should position itself for the decade ahead.

I was ten years old when I first understood what it felt like to make something with your hands.

Every Wednesday afternoon, I crossed Brussels to another school for a woodworking class mine did not offer. I cut, shaped, sanded. I still have the puzzle I made. I remember the feeling of seeing a form emerge from nothing, of turning an idea into something real you could hold. I was good at it, and I loved it.

But I was better at maths. So I followed the path everyone expected, and woodworking became a memory.

The wooden puzzle I made at age ten in a woodworking class in Brussels. © David Mekkaoui.

I never questioned that choice at the time. It just seemed obvious: the future was in STEM, in offices, in screens. Vocational training was for people who had not quite made it into the other track. That belief was never stated out loud. It did not need to be.

Forty years later, I run a European network of organisations working on digital skills and inclusion across thirty countries. And I have come to think that one of the most consequential mistakes Europe has made is the one embedded in that belief.

AI IS NOT ERASING VOCATIONAL WORK. IT IS EXPOSING HOW WRONG WE WERE ABOUT IT.

The fear is legitimate. Since 2022, AI tools have accelerated fast enough to genuinely disrupt knowledge work. Copywriters, coders, legal researchers and junior analysts: roles that spent two decades at the top of the desirability ranking are now seeing their share of job postings fall across the EU. The anxiety is real, and VET institutions feel it too, wondering what it means for the skills they teach.

But Cedefop's 2026 analysis of EU job vacancy data tells a different story. Since the broad adoption of generative AI in late 2022, demand for vocational skills has been quietly recovering. Engineering technicians, machinery mechanics, construction trades, and transport workers have all seen their share of vacancies grow. The VET share of EU job postings, which had

been falling steadily since 2019, reversed course and climbed back above 36% by early 2025. The timing is not a coincidence. AI is replacing what it can automate. What remains is precisely the work that requires human hands, physical presence, and applied expertise in the real world.

Cedefop's conclusion is direct: VET equips workers with capabilities that retain their value in a changing technological environment, particularly for occupations involving hands-on expertise and in-person service, which are not easily replicable by AI.

This is not a consolation prize. It is a structural advantage. And most VET systems have not yet understood what to do with it.

THE REAL OPPORTUNITY IS NOT DEFENDING VET. IT IS MAKING IT DESIRABLE.

Here is what keeps me up at night: a generation that grew up more connected than ever yet more lost, more ambitious yet more anxious. VET could be their answer. But only if it shows up in a world they recognise. If it does not, we do not just lose workers. We lose the social mobility that VET has always made possible, and we deepen the very digital divide we are trying to close.

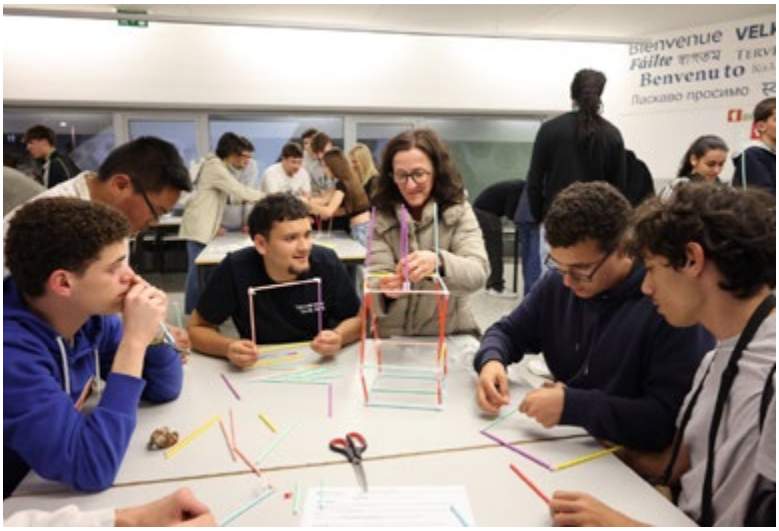
Show them something different, and the story changes.

Aeres, in the Netherlands, is the only institution in the country offering green VET programmes at every educational level, from pre-vocational to master's degree. Precision agriculture and robotics are not elective add-ons there. They are core to how students learn. Students train with weeding robots, autonomous navigation systems, and AI-driven crop monitoring tools. The profession is the same. The image is unrecognisable from a generation ago.

That image is what changes a young person's mind. Not a brochure. Not a careers fair. An actual encounter with what modern vocational work looks like when it is honest about the technology inside it.

"AI is not erasing vocational work. It is exposing how wrong we were about it."

VET students at the Eco-Digithon 2026 in Foligno, Italy. Armed with tablets and VR headsets, they had one brief: prototype a digital solution to a real problem in their community. © ENNE+ Project / Ylenia Cariani



Participants from across Europe build together at the Eco-Digithon. The wall behind them says welcome in twelve languages. The project is funded by the EU and co-led by All Digital and EfVET. © ENNE+ Project / Ylenia Cariani

A VET student at the wheel of a professional driving simulator. The profession is the same. The classroom is not. © ENNE+ Project

This is what All Digital's ENNE+ project is building across Europe, together with EfVET and partners in Italy, Spain, Portugal, and Austria. Its Eco-Digithon challenges VET students to prototype real digital solutions to environmental problems in their own communities, working alongside companies, policymakers and researchers. The goal is not to teach technology as a subject. It is to make students feel, perhaps for the first time, that their training belongs to the future.

THE WINDOW IS OPEN. BUT NOT FOR LONG.

VET has a once-in-a-generation opportunity. AI is making the knowledge economy nervous. Labour markets are signalling that physical, applied, human expertise matters again. And a generation that defines itself through technology is, for the first time, potentially reachable.

But the window closes if VET systems respond too slowly. If AI is treated as a module to add to the curriculum rather than a shift in identity, young people will not notice. The profession will stay invisible. The puzzle I built at age ten will stay a nostalgic memory rather than the beginning of a story someone else gets to live.

The question for every VET provider reading this is not whether AI is coming to your sector. It already has. The question is whether you use it to become visible and attractive to all.

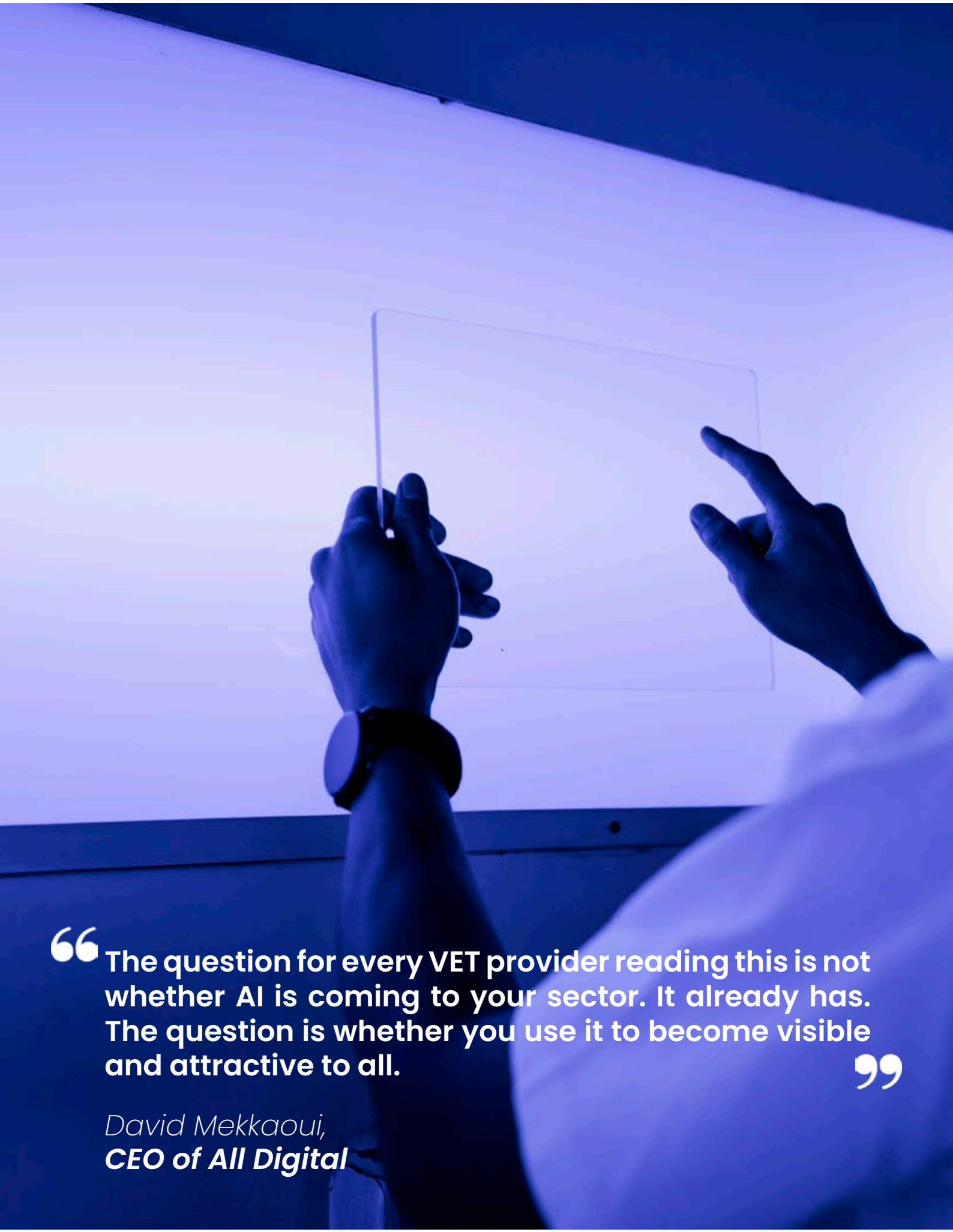
all-digital.org

If this resonates, drop us a note, a like or a comment:
All Digital LinkedIn: https://www.linkedin.com/company/all-digital-aisbl

All Digital Instagram: https://www.instagram.com/alldigitaleu/

ENNE+ LinkedIn: https://www.linkedin.com/company/enne-plus

ENNE+ Instagram: https://www.instagram.com/enneplus/



> **The question for every VET provider reading this is not whether AI is coming to your sector. It already has. The question is whether you use it to become visible and attractive to all.**

David Mekkaoui,
CEO of All Digital

VET's Greatest Opportunity Is Called AI

Ola Kukkasniemi
CEO & Founder, Wooden Oy Partner, Erasmus+ MOSAIC Project
www.wooden.fi

THE FIRE IS ALREADY BURNING

I am a former VET student who has run his own furniture business for over 32 years. When the conversation turns to artificial intelligence in vocational education, I do not approach it as a theorist – I approach it as someone who has spent years trying to understand why talented young people, fresh from vocational school, so often arrive at the factory door without the skills that a real workplace actually demands.

The OECD is clear: one in three European firms reports a skills gap, and a third of workers are mismatched – overqualified for the job they do or underqualified for the job they need. Additionally, more than a quarter of all existing jobs will be significantly affected by the green transition – including cabinet makers, bus drivers and construction workers.

AI is not waiting. It has already changed the way we design, manufacture, sell and make decisions. In businesses, this is visible every day.

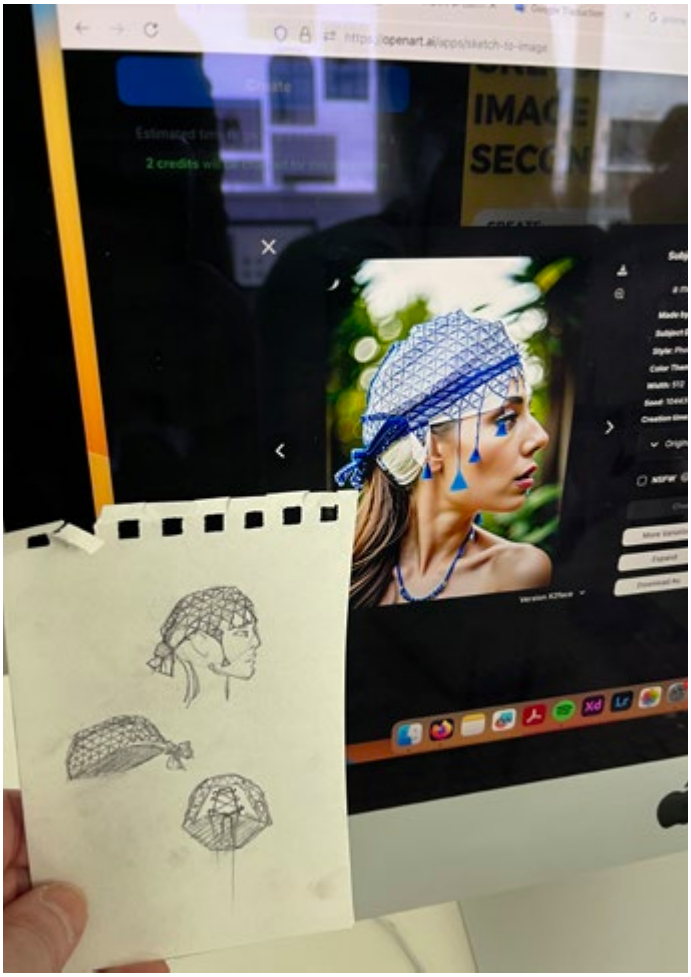
The question is whether vocational education will take ownership of it – or remain a bystander.

AI IN CLASS

Over the years, I have facilitated a series of The Future of Making hackathons across Europe. The format is the same every time: students of woodworking, graphic design and product design are mixed into multidisciplinary teams. They are given a real brief, a real deadline and real tools. And AI. Every time, the amazing results have surprised everybody.

Students adapt to AI faster than institutions do. Within hours, teams were using it for ideation, design and presentation. Nobody needed a separate course. They needed a challenge, a context and permission to experiment.

But here lies the paradox. In European vocational institutions, AI integration is minimal – systematic embedding is rare. Not because teachers are unwilling. But because they have not had the time, the mandate or the support to develop genuine AI fluency. Without that, AI becomes a threat to dismiss or a novelty to demonstrate – never a tool to master.



THE TRAP

I needed to travel to Canada to see how vocational education can work differently.

In Québec, the CTTC network embeds legally mandated applied research centres within vocational colleges. They serve around 6,000 organisations annually – mostly SMEs. Teachers and students work alongside researchers and companies on real innovation projects. Curricula evolve continuously. The model has operated for over 40 years.

The contrast with Europe was striking. Collaboration between vocational institutions and businesses in the EU is largely limited to internship placements. Applied research is project-based: it starts with EU funding and ends with it.

OECD data confirms it: nine out of ten firms address skill gaps by training their own staff – not by waiting for education to change. Curricula change in years. Businesses change in months. AI has made this gap impossible to ignore.

But whose fault is it? Nobody's – and everybody's. Policymakers, leaders, teachers – and entrepreneurs like me. Change does not come from the system. It comes from people who decide to act differently.

AGILE VET

The Future of Making hackathon format proves it: learning and doing become the same thing.

Students do not wait for permission to use AI – they use it because the task demands it. They do not ask whether a student from another discipline may help – they help because the team needs it.

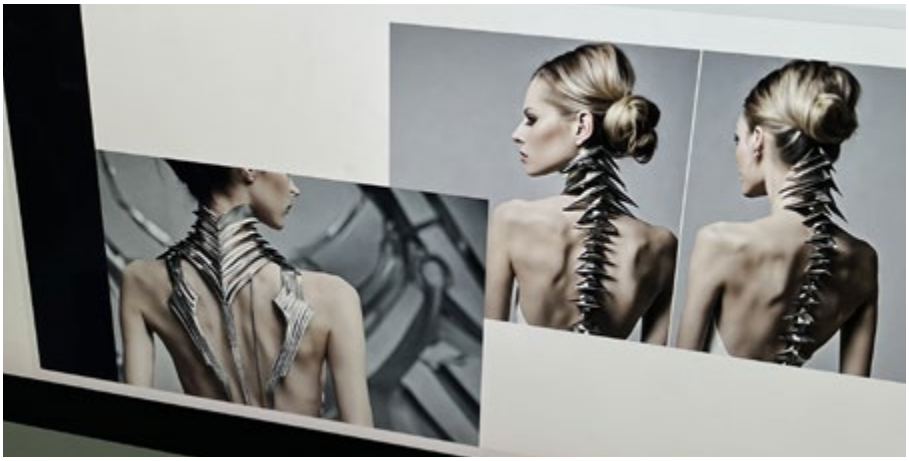
The CTTC model scales this up. SMEs get support without bureaucracy. Teachers stay current through real projects. Students learn what their future employer actually uses – AI included.

3 E'S

At the beginning of this article, I asked whether vocational education would take ownership of the change brought by AI – or remain a bystander. The answer depends on whether we believe in three things at the same time.

Education

Not every teacher needs to be an AI specialist – but institutions must have structures that enable learning by doing. The goal: graduates who renew businesses, not just fill their old roles. Future-proof, from day one.



Economy

Over 99% of European businesses are SMEs – the core of employment and regional vitality. Yet they are precisely the ones left without continuous innovation support. EU funding is designed for large organisations. SMEs need access to knowledge when the problem is at hand – not after a six-month application process. Green and digital transitions need SMEs. Or they will not happen at all.

Enterprises

Businesses cannot wait. Education without connection to the economy produces qualifications without meaning. Businesses without partnership with education train their own people – and pay for it.

ADAPT OR DISAPPEAR

A VET system that is searching for its direction risks making itself partly unnecessary. If this gap continues to grow, businesses will build their own training pathways – not because we want to, but because we have no alternative.

But if vocational institutions took the lead on AI right now, they would have a competitive advantage in every field – attracting new students and giving graduates a genuine employment guarantee.

Education, Economy and Enterprises need each other. The question is not whether to partner: it is whether to start now, before the gap becomes unbridgeable.

In writing this article, Ola used two AI applications to analyse and synthesise the source material listed below.

REFERENCES

OECD (2025). OECD Skills Outlook 2025: Learning for Life. OECD Publishing, Paris. https://doi.org/10.1787/26163cd3-en

OECD (2024). OECD Employment Outlook 2024: The Net-Zero Transition and the Labour Market. OECD Publishing, Paris. https://doi.org/10.1787/ac8b3538-en

OECD (2024). Understanding Skill Gaps in Firms: Results from the PIAAC Employer Module. OECD Skills Studies. OECD Publishing, Paris. https://doi.org/10.1787/b388d1da-en

OECD (2024). Do Adults Have the Skills They Need to Thrive in a Changing World? Survey of Adult Skills 2023. OECD Skills Studies. OECD Publishing, Paris. https://doi.org/10.1787/b263dc5d-en

OECD (2025). Empowering the Workforce in the Context of a Skills-First Approach. OECD Skills Studies. OECD Publishing, Paris. https://doi.org/10.1787/345b6528-en

OECD (2023). Survey of Adult Skills 2023: Country Notes — United States. OECD Publishing, Paris. https://doi.org/10.1787/427d6aac-en

Ferretti, C. & Mäenpää, K. (2026). From Skills to Applied Research Ecosystems: Strengthening Competences for Productivity and Economic Growth. MOSAIC Erasmus+ Project (Mastering Job Oriented Skills in Arts and Crafts thanks to Inclusive Centres of Vocational Excellence). January 2026. https://mosaiceuproject.eu/cttc-model/

European Digital Education Hub (EDEH)

Click here to join the Hub now!

The European Digital Education Hub is a community that it set to overcome the current fragmentation in digital education. EfVET acts as a strategic partner of the Hub, which has already reached 7000+ members, 150+ publications and +70 webinars and workshops.

Scan the QR code to get more insights on AI in the age of VET:

EfVET European Forum of Technical and Vocational Education and Training

EUROPEAN DIGITAL EDUCATION HUB

AI Is Already in the Classroom. What Comes Next? Vocational Teachers as AI Directors

Xavier Olivella
VP of Educational Innovation at K-tuin and Co-founder of IDAHES

A few years ago, the debate in education revolved around whether Artificial Intelligence would eventually enter our classrooms. Today, that question has become obsolete.

AI is already here.

Students use it to search for information, generate content, solve problems, prepare assignments and support their learning. Employers are integrating AI into workflows across sectors ranging from healthcare and manufacturing to marketing, logistics and software development. The technologies that vocational learners will encounter in their future workplaces are evolving faster than most curricula.

Against this backdrop, vocational education and training (VET) faces a challenge that is both urgent and profound. The question is no longer whether we should use AI in education.

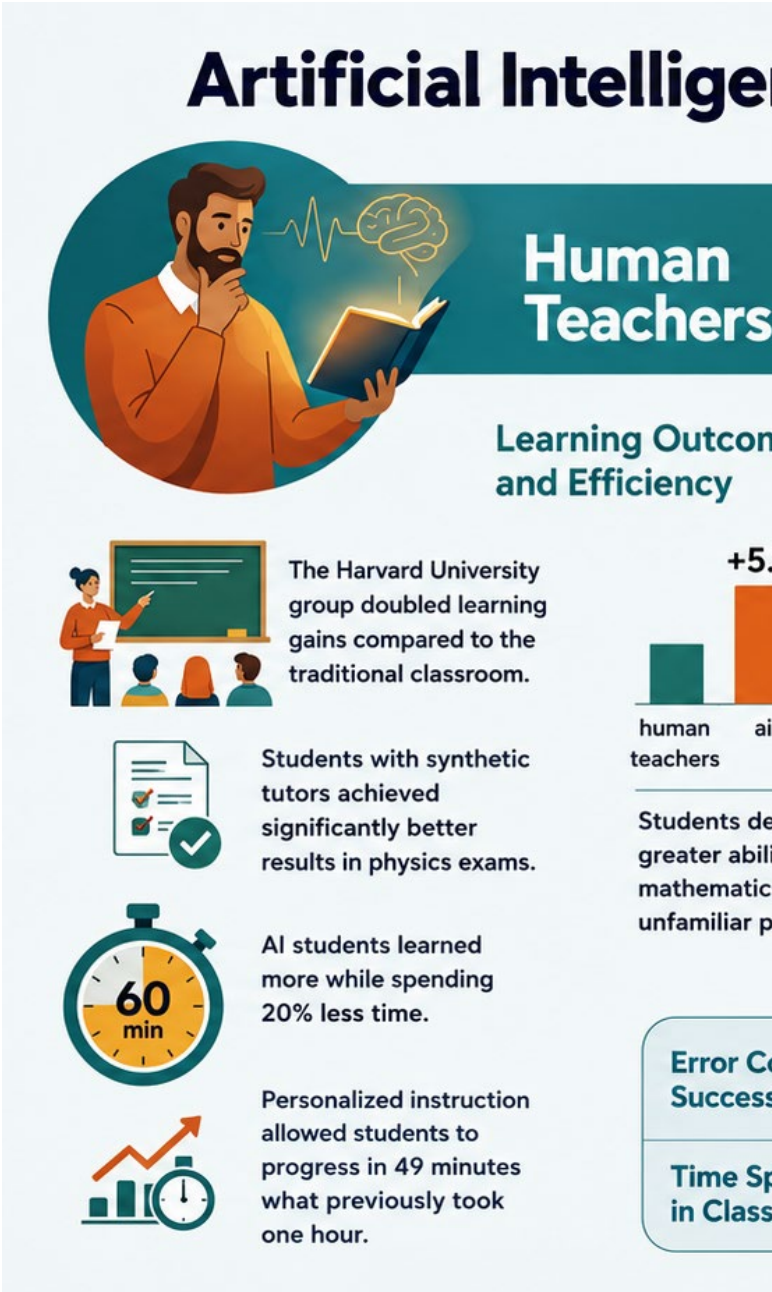
The question is: are teachers prepared to lead it?

THE END OF AN EDUCATIONAL ERA

For centuries, education has been built around a simple assumption: knowledge is scarce, and teachers are the primary gateway to it. Artificial Intelligence changes that assumption.

For the first time in history, learners have access to systems capable of explaining concepts, generating examples, translating information, creating simulations and providing personalised support in seconds. Whether we welcome it or not, this reality changes the educational landscape.

However, a common misunderstanding persists. Many discussions about AI focus on what technology can do. Far fewer focus



on what educators should do differently because of it.

This distinction matters. The future of education will not be determined by the capabilities of AI. It will be determined by the decisions teachers make about how those capabilities are used.

FROM CONTENT EXPERTS TO DIRECTORS OF LEARNING

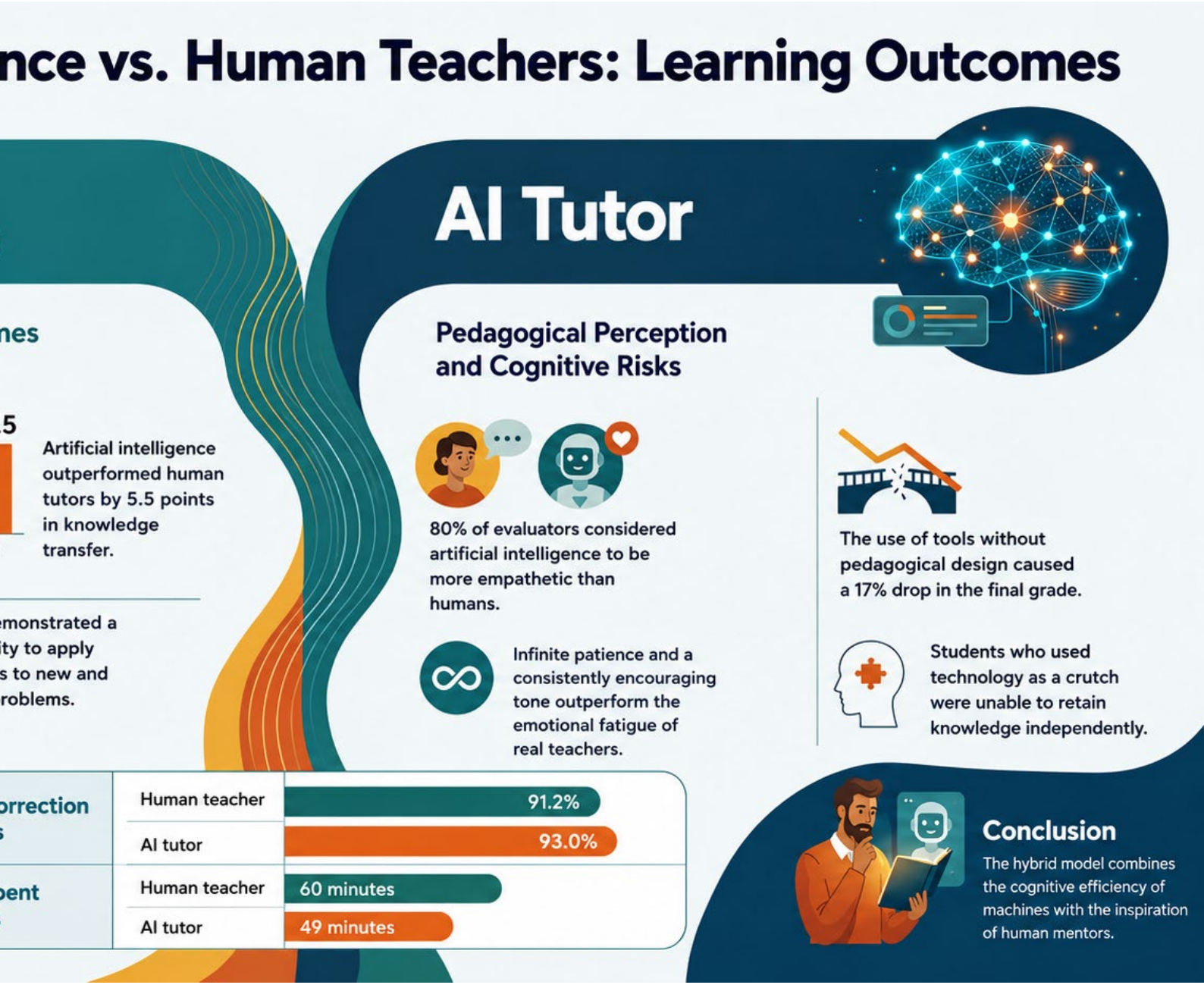
The rise of AI does not make teachers less important. It makes their uniquely human contribution more important than ever. When information becomes abundant, the value of education shifts. Success no longer depends primarily on remembering information. It depends on interpreting it, questioning it, applying it responsibly and using it to solve real problems.

These are precisely the areas where vocational teachers create the greatest impact.

Teachers provide context. They develop professional judgement. They model ethical behaviour. They build confidence. They challenge assumptions. They help learners distinguish between what is technically possible and what is professionally appropriate.

In short, teachers are no longer simply transmitters of knowledge.

They are becoming directors of learning.



Just as an orchestra conductor does not play every instrument but ensures that every element works together harmoniously, teachers must learn to orchestrate human intelligence and artificial intelligence in ways that produce meaningful learning.

LEADING AI RATHER THAN FOLLOWING IT

Across Europe, many teachers feel overwhelmed by the speed of technological change. New tools appear every week and new models emerge every month. Predictions about the future of work become increasingly dramatic.

Yet effective AI leadership does not begin with mastering every new technology. It begins with asking better educational questions.

- How can learning become more personalised?
- How can feedback become more immediate?
- How can students spend more time solving authentic problems and less time memorising information that is instantly available?
- How can technology strengthen inclusion rather than widen inequalities?
- How can AI support learning while preserving human agency?

These questions place pedagogy before technology, exactly where it belongs.

When used thoughtfully, AI can help vocational teachers personalise learning pathways, reduce administrative workload, provide continuous support outside classroom hours, create richer learning materials and offer more timely feedback. It can make learning more accessible for students with diverse needs and backgrounds. It can even create realistic simulations that bring workplace scenarios into the classroom.

But none of these benefits emerge automatically. Technology without pedagogical leadership rarely produces meaningful educational transformation.

THE HUMAN ADVANTAGE

One of the most common fears surrounding AI is that it may eventually replace teachers. The evidence suggests the opposite. The more capable AI becomes, the more valuable distinctly human capabilities become.

- Empathy cannot be automated.Trust cannot be automated.
- Mentorship cannot be automated.
- Ethical judgement cannot be automated.
- Professional wisdom cannot be automated.

Vocational education has always been about more than technical skills. It prepares people to participate responsibly in professional communities and society. It develops character as well as competence.

These human dimensions become even more important in a world where intelligent machines can perform many cognitive tasks previously considered uniquely human.

The challenge for VET is therefore not technological adaptation alone. It is ensuring that technological progress remains aligned with human development.

A HUMAN-CENTRED VISION FOR AI IN VET

The institutions that will succeed in the age of AI will not necessarily be those with the most technology.

They will be those that invest most effectively in their teachers.

Teachers need opportunities to develop AI literacy, understand ethical implications, experiment safely and share emerging practices with colleagues. They need frameworks that help them decide not only how to use AI, but when not to use it.

Most importantly, they need confidence. Confidence to move beyond fear. Confidence to move beyond hype. Confidence to lead.

Artificial Intelligence represents one of the most significant transformations education has experienced in generations. Yet its ultimate impact will depend less on algorithms than on the people who guide their use.

For vocational education, the path forward is becoming increasingly clear. Do not ask whether AI belongs in the classroom. Ask whether teachers are being equipped to direct it.

Because AI does not replace great teachers.

It empowers them.

Assessment That Fits: AI and Neurodiverse Learners in VET

Stuart G. A. Martin
Founder, George Angus Consulting

It is estimated that about one in five people worldwide is neurodivergent. That figure means every classroom, worksite and assessment room in TVET already includes people who think, learn and work in a way that is not neurotypical. The question is not whether these learners are there, but whether the system around them is built to let them succeed.

In *Appreciating and Supporting Neurodiversity*, a 2024 report I wrote for New Zealand's Construction and Infrastructure (ConCOVE) and Food and Fibre (FFCoVE) Centres of Vocational Excellence, the picture was one of good intentions held back by money and habit. Neurodiversity sits under the banner of disability in New Zealand, and that framing lets some employers quietly opt out. One large construction firm told me plainly that its disability action plan barely mentioned neurodiversity, and that it had no intention of changing that, because it didn't have to.

The harder problem is that many never get the chance to ask for support, because they do not know they need it. In one national survey, 63% of neurodivergent workers said their workplace had no idea they were neurodivergent. Many have no idea themselves that they are neurodiverse: King's College London estimated that 89-97% of autistic adults aged 40+ in the UK have never been diagnosed. Education and employers cannot wait to be told. They have to build environments that are neuroinclusive by default, because they will rarely know the full needs of those they serve.

My 2024 report pointed to a fix that is cheap in theory and expensive in practice: better assessment. Assessment cannot be a one-size-fits-all approach. The catch is scale. Adapting assessments learner by learner is slow, costly and dependent on the training providers, the qualification standards, as well as the confidence of individual assessors.

In a second piece of research, Karl Hartley and I carried out an 18-month study with ConCOVE, ending in late 2025, that asked a blunt question, could AI design assessments good enough to pass New Zealand's national moderation system? After rigorous testing, Anthropic's Claude was selected and trained to build a baseline/standard assessment for a trades micro-credential, which we put before the moderation bodies to get their feedback. Both bodies told us that if it was a real moderation, it would have failed, citing levels pitched incorrectly and too much reliance on written tasks.

Then we tried something different. Rather than asking the AI to create, we asked it to adapt. Karl designed two learner profiles, one a learner with autism and one a learner with English as a second language, and tasked the AI with personalising its baseline assessment to suit each. The verdict from subject matter experts was near unanimous: "Loved it"; "I don't have any criticism"; "Way beyond minimum viable product". One reviewer said simply that if this was the assessment they had been handed, they could follow it and action it there and then.

The most useful surprise was not in the questions at all. It was in the guidance the AI wrote for the assessor. Unprompted, it produced instructions such as "Present one task at a time with clear beginning and end points" and to allow 30-50% more processing time for verbal instructions. For the autism assessment it suggested visual aids and a quiet space for sensory breaks. One assessment expert said that the standard of guidance would give a new assessor the confidence that they could do the job and make sure that it supported the learner appropriately too.

This is where for me, the two studies connected. The neurodiversity study set itself two tasks: to understand how best to support neurodiverse learners, as well

as how best to support the people around them: the assessors, learning designers, and employers. Nearly all our tools, training and attention go to the former. The latter is the harder, quieter half, and it is the one that can drive real societal change. Rather than forcing neurodiverse learners to adapt to a neurotypical environment, the environment itself has to become more inclusive, and that cannot be left to the neurodiverse alone. What our study found, almost by accident, was that AI was strongest on exactly that overlooked half. Karl called the wider idea 'double personalisation': shaping the experience around the individual learner and the individual assessor at once.

This is reinforced in my neurodiversity report in which I kept returning to one reframing: the question is never "what does this learner have to do differently?" but "what does the system have to do around them?" Used well, AI makes that adaptability and personalised approach affordable. Our study was clear that fully autonomous assessment design is not yet possible, and probably never should be. Karl framed it as keeping a human not just in the loop but over the loop: setting the standards, steering the course, holding visibility of the whole. Useful automation sat at perhaps 70-80%, with people still needed for structure, judgement and oversight. With that in place, adaptation stops being a luxury for a few and becomes something many can have, quickly and consistently.

The work has to be governed properly, quality assurance documentation has to become clearer for the sake of humans as much as machines, and funding still decides who actually benefits. None of this is unique to New Zealand, which is rather the point. The research was written to be shared: every prompt used in the study is included in there and freely available, so that other countries, sectors and providers can adapt it for themselves.

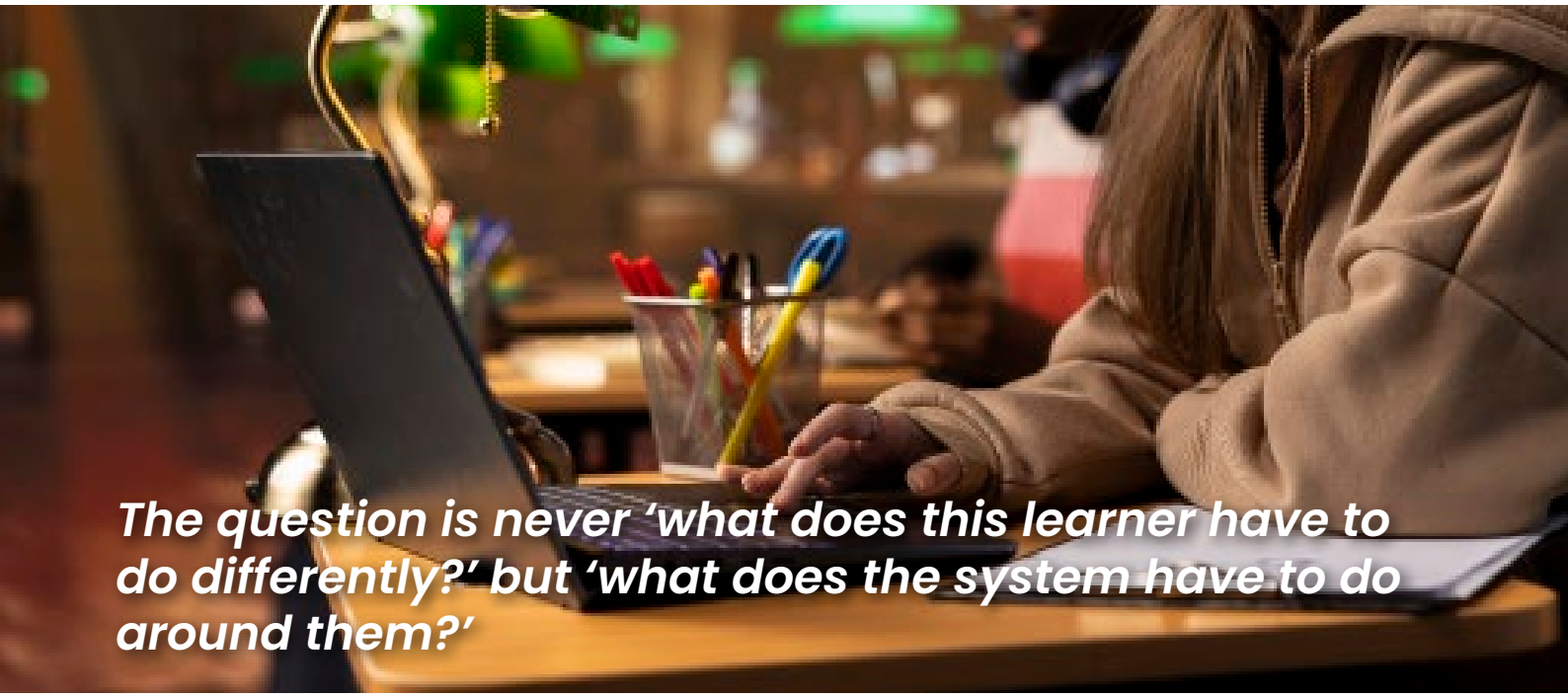
This is not abstract thinking but a real opportunity. Supporting learners to demonstrate their understanding in a way that suits them could change their lives, giving them the opportunities and recognition that they deserve, while also helping industry close the skills gaps it faces. For the first time, I believe the tools to do that at scale are within reach. The task now is to ensure that everyone can benefit.

REFERENCES

Martin, S. G. A. (2024). Appreciating and Supporting Neurodiversity. Construction and Infrastructure Centre of Vocational Excellence & Food and Fibre Centre of Vocational Excellence. https://georgeangusconsulting.com/wp-content/uploads/2025/11/appreciating-and-supporting-neurodiversity-_final.pdf

Martin, S. G. A., Hartley, K. (2025). AI-Generated assessments for vocational education and training. Construction and Infrastructure Centre of Vocational Excellence. https://georgeangusconsulting.com/wp-content/uploads/2025/11/ai_final_report.pdf

Stewart, G. R., Happé, F. (2025). Aging Across the Autism Spectrum. Annual Review of Developmental Psychology. 7:461–84. https://doi.org/10.1146/annurev-devpsych-111323-090813



The question is never 'what does this learner have to do differently?' but 'what does the system have to do around them?'

AI, Inclusion and Neurodiversity in VET: reflections from a OECD Report

Paolo Nardi
EfVET Executive Director

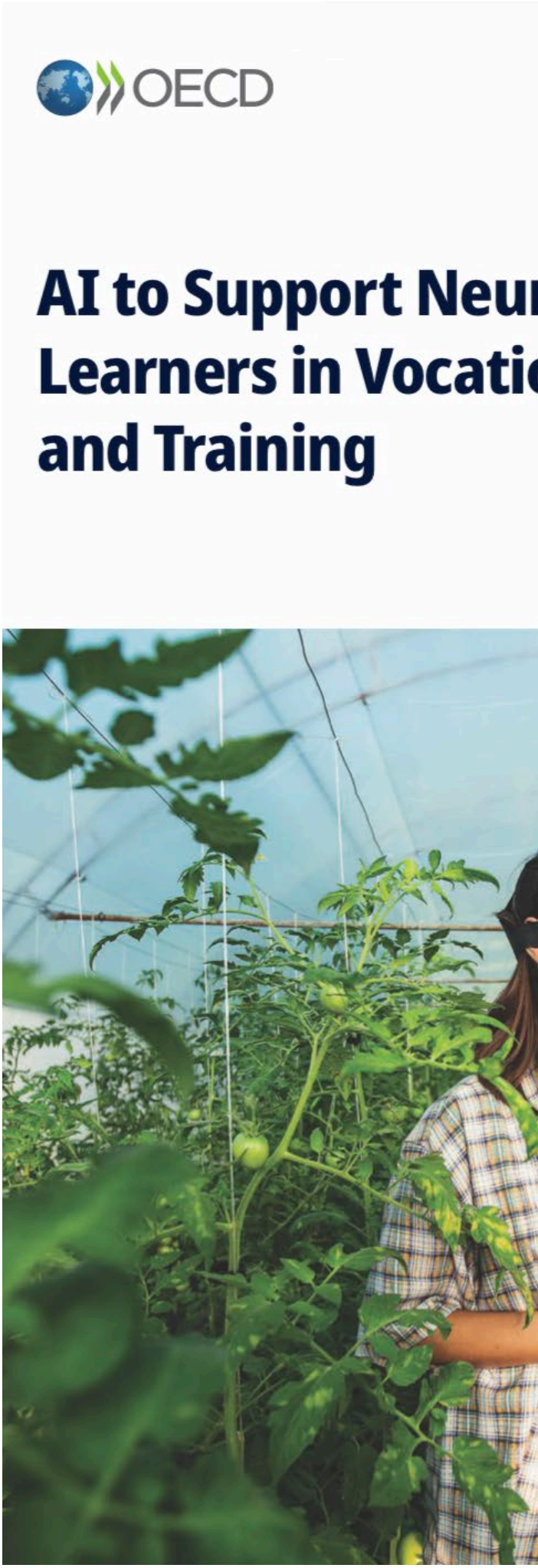
As part of the activities of the EfVET Inclusive Vocational Excellence & Wellbeing Working Group, EfVET hosted a webinar dedicated to one of the most relevant and emerging discussions in education and training today: how Artificial Intelligence can support neurodivergent learners in VET.

The session focused on the presentation of the recent OECD report *"AI to Support Neurodivergent Learners in Vocational Education and Training"*, bringing together researchers, practitioners and VET stakeholders to reflect on how AI can contribute to more inclusive, personalised and learner-centred educational environments.

The webinar highlighted how neurodivergent learners — including learners with autism, ADHD, dyslexia and other cognitive profiles — often face barriers in education systems that are not built for neurodiversity and still rely heavily on around standardised learning pathways. AI, however, offers opportunities to rethink these approaches by adapting learning processes to individual needs, preferences and rhythms.

One of the key messages emerging from the report is that AI should not be seen as a replacement for teachers, tutors or support staff, but rather as a complementary tool capable of enhancing inclusion and accessibility. The report presented several examples of how AI-powered systems can support learners through personalised feedback, adaptive learning environments, communication support, planning and time-management tools, and more flexible assessment methods.

Marguerita Lane, labour market economist for the OECD's Skills and Future Readiness Division, highlighted the importance of shifting the discussion from "deficits" to diversity in learning approaches, underlining that neurodivergence should be recognised as part of the natural diversity of human cognition rather than as an obstacle to participation. As she explained



rodivergent
onal Education

during the webinar, "the objective is not to make learners adapt to rigid systems, but to make systems more responsive to learners."

Patricio Ruedi, policy analyst for the OECD Centre for Skills, also stressed that the potential of AI lies not only in technological innovation itself, but in the pedagogical choices behind it. "Technology alone does not create inclusion," he noted, "it is the intentional, ethical and well supported use of technology that can create more equitable learning experiences."

The report also raised important ethical and practical considerations. Participants discussed the risks connected to algorithmic bias, privacy, over-reliance on technology, assesment, and unequal access to digital infrastructures. The speakers emphasised that inclusive AI in education requires strong ethical frameworks, transparency, teacher training and the active involvement of learners themselves in the design and testing of educational solutions.

Another important aspect discussed during the webinar was the relevance of VET environments for neurodivergent learners. VET can be an important setting for neuroinclusive learning, as it combines practical, job-specific and employability skills and can appeal to learners who prefer hands-on approaches. AI tools can further strengthen these environments by helping trainers adapt materials, support organisation and communication, and reduce unnecessary barriers to participation.

Participants also reflected on the broader cultural shift needed in education systems. Inclusion cannot be reduced to a technical solution or a single digital tool. Instead, it requires a systemic approach where wellbeing, accessibility, flexibility and learner empowerment become central pillars of vocational excellence.

The webinar strongly aligned with the broader vision promoted by EfVET through its Inclusive Vocational Excellence & Wellbeing activities: a vision where VET is not only a pathway to employment, but also a space where learners can develop confidence, belonging and personal growth.

The recording of the webinar presentation is available online.

Taking advantage of the new AI Tools in vocational training of software developers: A practical view from VET

Maria Pilar Pérez Quílez
Telecommunication engineer, teacher of software programming for the Spanish public administration and founder of Skills Divers

Dr. Gregorio Cañavate Cruzado
Telecommunication engineer PhD and CEO of Skills Divers

After 16 years working in software architecture and programming across sectors such as banking, public administration and defence for Spanish and Swiss corporations, I decided to move into education. Teaching had always been one of my passions, together with new technologies. The rapid emergence of generative AI was one of the reasons that encouraged me to take this step.

In software development, the change is already visible. Code can now be produced much faster than before. Professionals with limited coding experience, but a strong understanding of AI tools, can create prototypes in just a few hours. At the same time, software developers who do not upskill risk being replaced by those who can work effectively with AI. However, programming fundamentals remain essential. AI can generate code, but human knowledge is still needed to ensure quality, scalability and cybersecurity.

This reality is already influencing education and training. As a teacher in the Advanced Technician in Web Application Development programme, I have tested several classroom strategies that use generative AI not as a shortcut, but as a learning tool. Although my examples come from software development, many of them can be adapted to other VET families.

AI for motivation and initial discussion

At the beginning of a new topic, teachers often need to identify students' previous knowledge and possible misconceptions. This is becoming more difficult because students frequently turn directly to ChatGPT or similar tools instead of sharing what they really know.

One useful approach is to start with a short quiz using tools such as Kahoot or Quizizz. The results can be displayed and discussed with the whole class. AI can also help analyse answers and compare individual responses with the most common ideas in the group. This creates a useful starting point for discussion.

At this stage, it is more effective to discuss responsible AI use than to ban it. Students need clear rules. AI may be useful for researching topics, finding instructions or correcting difficult errors. However, it should not replace their own creativity, problem-solving process or individual work in assessment tasks.

AI AS A LEARNING TOOL

Traditional guided discovery activities are also changing. In the past, students could be asked to solve a problem step by step, with teacher support. Today, a single prompt can produce a complete answer, whether correct or incorrect.

Blocking internet access may seem tempting, but it does not reflect the reality students will face in the workplace. A better option is to compare different ways of finding a solution. For example, students can first search for answers using traditional search engines, forums or official documentation. Then they can compare these results with the answer generated by an AI tool. This helps them evaluate reliability, accuracy and source quality.

AI can also support the preparation of learning materials. Tools such as Gamma, Napkin, Articulate AI or NotebookLM can help generate presentations, summaries, flashcards, visual resources or interactive content. These tools do not replace the

teacher, but they can reduce preparation time and make materials more engaging.

For consolidation activities, AI can support the creation of small interactive exercises or single-page applications. In software development, for example, students can reorder jumbled code until it becomes executable. In other sectors, similar activities could involve matching concepts, completing missing steps, arranging processes or solving practical scenarios.

Another valuable activity is asking students to identify mistakes in AI-generated answers. The teacher can present a response produced by a tool such as Gemini, Claude or ChatGPT and explain that it contains an error. Students must then compare it with reliable sources and identify what is missing, incorrect or poorly structured. This encourages critical thinking and helps students understand that AI outputs must always be checked.

Mª Pilar Pérez Quílez teaching fundamental concepts of software programming

AI AND ASSESSMENT

AI also affects assessment. Platforms such as Moodle or eXeLearning, combined with AI tools, make it easier to generate quizzes and learning checks. However, the same technology can also help students complete tests with very little knowledge. For example, students could install web browsers add-on that completes questionnaires in a matter of seconds, such as Test Bro. Or sharing their screen via remote desktop so an AI tool, such as Google Studio, can solve the problem for them. In this case, to restrict the access to all available web pages is advisable (allowing only those sites specified by the teacher), user permissions (to operative systems) should also be restricted and devices that the students use during the test should be monitored. In particular, mobile devices, wearables and nano earpieces—which are barely detectable—should be prohibited. It is entirely legal to use devices that detect whether a frequency, which should not be in use, is being utilised during an assessment activity. However, the use of these detection devices would require more intensive training for teaching staff.

For this reason, assessment design needs to evolve. Teachers may need to restrict access to non-authorised websites during tests, limit user permissions on computers and monitor the use of mobile phones, smart devices or other external tools. In some contexts, more secure assessment environments may be required.

However, the answer is not only technical control. Assessment should also focus on reasoning, explanation, practical application and the ability to justify decisions. If students can explain why a solution works, identify errors and compare sources, they are demonstrating real learning.

A RESPONSIBLE WAY FORWARD

Generative AI is now part of the professional software development lifecycle, and it is also becoming part of students' daily learning habits. Ignoring it is neither realistic nor useful.

The challenge for VET is to integrate AI responsibly. Students must learn when AI can support their work, when it should not be used, and how to evaluate its results critically. Used well, AI can make teaching more dynamic, practical and connected to the labour market.

AI is not here to replace teachers. It is a tool that can help us improve learning, save time and prepare students for the professional environments they are about to enter.

Training for Professions in Transformation: The Challenge of AI in Vocational Education

Teresa Damásio
CEO Grupo ENSINUS

Artificial Intelligence is profoundly transforming the labour market, reshaping not only existing jobs but also the skills required of future professionals across every sector. Today, companies seek individuals with high levels of digital literacy, technological adaptability, critical thinking skills, and the ability to work confidently with smart tools that enhance productivity and innovation while responding effectively to the evolving demands of the workplace. In this context, vocational education plays a decisive role in preparing students for an increasingly digital, automated and data-driven professional reality.

As CEO of a large Group of vocational schools, I believe that artificial intelligence should not be viewed as a threat to the educational process, but rather as a strategic tool for pedagogical transformation. The real challenge does not lie in replacing teachers or automating learning, but in using AI to enrich teaching methodologies, personalise learning pathways and bring schools closer to the genuine demands of the labour market, preparing students for the realities they will encounter beyond the classroom. Our schools must reflect the world students are about to enter; this is the true strength and potential of vocational education. But as Pope Leo says in his Encyclica Magnifica humanitas[1], we must always put the human being before everything we do or want to do with Artificial Intelligence. This is the biggest challenge for educators and schools.

Across our schools, the integration of AI has been implemented in a practical way and closely aligned with growing professional sectors. Through the Specialised Technological Centres funded under Portugal's Recovery and Resilience Plan (PRR), we have been able to modernise laboratories, workshops and technological learning environments in areas such as industry, information technology, renewable energy and digital technologies. These investments allow students to engage directly with intelligent equipment and software similar to those currently used by companies, narrowing the gap between education and real professional practice.

However, the goal extends far beyond simply acquiring new equipment. Our focus is on developing skills that are genuinely relevant for the future. Students learn how to use AI-supported tools, but they also develop the ability to interpret data, solve complex problems, collaborate effectively and make critical and responsible decisions. AI should enhance human capabilities, not replace them.

Another essential aspect of this transformation concerns teacher development. The effective integration of Artificial Intelligence within educational settings requires continuous investment in teacher training, ensuring that educators are able to use these new tools in pedagogically sound, ethical and student-centred ways. Technology alone does not transform education. Meaningful impact depends on schools' ability to create innovative and sustainable pedagogical models in which these emerging technologies are fully embedded.

Artificial Intelligence has also demonstrated significant advantages in terms of personalised learning. Today, several educational platforms can adapt content to each student's pace, identify specific learning difficulties in real time and provide immediate feedback, enabling a more individualised and efficient learning experience. As Rosyadi et al. (2023) state, "Through data analysis, AI optimizes the learning journey by deciphering student learning patterns and furnishing bespoke recommendations."

Beyond the technological dimension, vocational education must continue

1 https://www.vatican.va/content/leo-xiv/en/encyclicals/documents/20260515-magnifica-humanitas.html

investing in transversal skills. International projects such as Skills 4 Future!, in which our Vocational School Escola Profissional Almirante Reis (EPAR)[2] participates alongside partner schools from Germany, Iceland and Turkey, clearly demonstrating this integrated vision for the future of vocational education. The Project aims to strengthen digital skills, communication, teamwork, problem-solving, sustainability and entrepreneurship through innovative methodologies such as gamification, Web 2.0 tools, interactive learning and Artificial Intelligence.

I firmly believe that vocational schools today have a responsibility not only to train students capable of working with technology, but also to help them critically understand the impact of that technology on society and organisations, encouraging ethical and responsible use as well to put their soul in everything they create.

In an economic context where jobs are evolving at an unprecedented pace, integrating Artificial Intelligence into vocational education is no longer optional. It has become a strategic necessity in order to ensure competitiveness, employability and training that is genuinely aligned with the challenges of the future. This is precisely what we must achieve together by strengthening the growth and development of VET across Europe, making the system more resilient, innovative and robust.

REFERENCES

Rosyadi, I., Hidayat, N., & Suyitno, S. (2023). The role of AI in vocational education: A systematic literature review. Journal of Vocational Education Studies, 6(2), 244-263. https://doi.org/10.12928/joves.v6i2.9032

Azizah, N., Hanafi, I., & Yusro, M. (2024). Artificial intelligence in vocational education: Perspectives and practices from a literature study. Global Scientific in Education Journal, 1(2), 37-45. https://doi.org/10.61667/w0efrt90

2 www.epar.pt

Building the plane while flying it: Estonia's national approach to AI in education

Mari Suviste
Responsible for training materials and training environments, AI Leap

When colleagues from other European countries ask how Estonia has moved so quickly on artificial intelligence in education, I usually start with a confession: a lot of it has been building and learning as we go. AI arrived, we decided we had to deal with it, and we ran. Not everything has worked. But the direction has, and the reasons why are worth sharing with the VET community, because much of it transfers.

A SMALL COUNTRY WITH A HEAD START

Estonia is small, and here that is an advantage. We do not have many regions, agencies or specialised bodies each owning a slice of the problem. National initiatives are led by the government in close cooperation with the private sector, and they reach the whole country at once.

The deeper head start is digital. We have spent two decades as an e-governance society, so teachers already live in multiple digital environments every day: student information systems, learning management systems, and a long list of tools for specific parts of learning. Almost everything connected to a student is already logged somewhere, from enrolment data to grades to lesson plans and study materials. That matters more than it first appears, because using AI well depends on context, and context has to be digitalised before a machine can use it. For us, AI is not a new world, it is one more tool on a foundation that already exists.

TWO PARALLEL TRACKS

The visible flagship is the AI Leap programme (TI-Hüpe, https://tihupe.ee/en/). It was initiated by President Alar Karis, announced in his Independence Day speech on 24th of February 2025 and launched on the following September. It began with around 20,000 students in grades 10 and 11 and their teachers, limited to those grades mainly by budget. From September 2026 it expands to vocational schools and younger students.

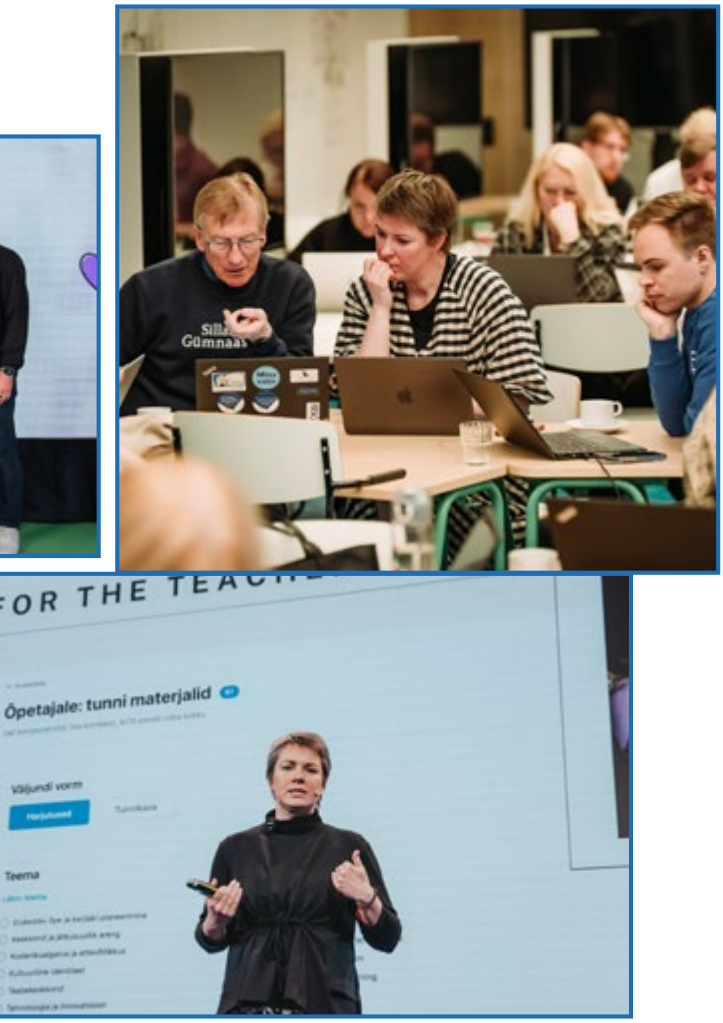
AI Leap provides access to leading tools through partnerships with OpenAI and Google, but its focus is not the tools. The central question of its first year has been how AI affects thinking and learning.

The second track is less visible, but just as important. In parallel, the Ministry of Education ran on-site basic AI literacy training for every school that wanted it, and it reached over 70 percent of Estonian teachers. Two design choices made the difference in this training programme. First, the content was built by educational technologists working in real schools, so it spoke directly to what teachers face each day rather than to what a policy team imagines they experience. Second, it was delivered on-site. Many countries run this kind of training online, which is understandable because it costs far less, but from everything I hear from colleagues abroad, online does not produce the same effect. The combination, real tools plus genuine literacy, is the actual story.

WHY TEACHERS PICKED IT UP

Estonian teachers adopted AI quickly, and not only out of digital habit. They have a lot of autonomy. The national curriculum sets the content and the expected outcomes, but how to get there is largely each school's and each teacher's decision. Teachers are used to creating and sharing their own

learning materials, so a more flexible new tool fits a culture that already exists. Trust helps too, though it is a specific kind of trust. We do not simply trust AI tools themselves. What we trust is that when the government provides these tools, they have been made safe, and years of e-governance have taught us to expect exactly that. That



distinction matters, and it keeps privacy and security quietly in mind even as we move fast.

NONE OF THIS IS CLEAN

AI use varies a lot between schools. It is higher in upper secondary and noticeably lower in basic and elementary schools. The strongest cases follow the same recipe: a school leadership that accepts AI as a topic to deal with, combined with one or two enthusiasts on staff who are given space to experiment. One structural help is that many Estonian schools have an educational technologist, sometimes part-time, sometimes full-time, separate from the IT person who keeps the computers and Wi-Fi running. The educational technologist's job is to help teachers adopt digital tools, AI now included. Having a named person responsible helps a lot.

We have also tried things that did not work. One approach trained a few people from each school at regional sessions, expecting them to return and train colleagues on-site. For several reasons it did not deliver fully, yet I still believe on-site support for every school is the right goal and we are looking into improving this format. In a genuinely new field, accepting some failures is part of the process, and that startup mindset, familiar to Estonia, is part of why we keep moving.

WHAT AI IS REALLY SHOWING US

My personal view is that AI mostly amplifies problems we already had. Social media has reshaped how students, and adults, consume content, and in VET we train both. Over the past ten years I have watched attention spans shorten and training formats change in response. AI did not cause this, it is exposing it.

If I had to name the most promising idea for what comes next, it is this: AI Leap is starting to take the burden of tool safety off individual teachers. Most AI guidance still asks each teacher to judge which tools are safe and lawful. AI Leap is doing something more ambitious as well, working with these tools so they are built for education and grounded in the Estonian context rather than left generic. The aim is not a general-purpose chatbot but tools shaped around how our schools actually teach. By vetting and shaping tools centrally, and increasingly differentiating training by subject and school level, the system lets teachers focus on teaching while someone else owns compliance.

For VET institutions anywhere, that may be the most useful lesson Estonia offers: invest in literacy on-site, give the work an owner, fund it together with the private sector, and be willing to build the plane while you fly it.

Impact of artificial intelligence (AI) on skills competitions

Tapio Kattainen
Lead Skill Advisor, WorldSkills Europe

I wrote this article using Microsoft Word. I planned the overall structure, read information from various sources, and wrote the text. I could have used ChatGPT or Claude, prompting them to: "Write an article about the impact of AI on WorldSkills Europe and EuroSkills Competitions".

So, why didn't I use AI? It would have been much faster, and the result possibly more professional. The truth is I wanted to challenge myself and test if I still have the skills to write an accomplished article, without calling on AI to help.

AI is an increasingly common topic of debate in TVET schools and colleges across the continent. What skills should students study? Is using AI a new general skill, like problem solving or communication? How can AI skills be assessed, and when should the use of AI be permitted (or not)? The same debates have also been taking place across the WorldSkills community. What skills should the Competitors at EuroSkills and WorldSkills Competitions be learning? What skills should the assessors measure to find the best performing Competitors? And how and when is it acceptable to use AI tools in a skills competition?

WORLDSKILLS EUROPE'S POSITION ON AI

As an organisation, WorldSkills Europe is committed to embracing artificial intelligence, driven by a fundamental desire to ensure that EuroSkills Competitions accurately reflect the world of work, and seeking continuous innovation and improvement across our activities. This year, we created the first WorldSkills Europe AI Strategy, which will be ratified by Member Countries at our General Assembly in June 2026.

We recognise that AI is not a current trend, but a present reality, already woven into the fabric of countless industries and daily lives. Rather than shying away from its transformative power, our strategy actively seeks to harness AI's potential for significant value with the need to agree clear guiding principles for its safe and fair implementation into our work.

We aim, therefore, to foster an environment where experimentation and the integration of cutting-edge AI technologies are not just permitted, but embraced, ensuring that WorldSkills Europe remains at the forefront of excellence in skills.

At the same time, safety, transparency, ethical conduct, and accountable use of AI technologies remain paramount. As our strategy highlights: "The use of AI systems by WorldSkills Europe and within EuroSkills Competitions, its preparation and side events will respect the WorldSkills Europe Code of Ethics and Conduct and ensure that all Competitors are treated with fairness and equity."

THE USE OF AI IN SKILLS COMPETITIONS

For EuroSkills Competitions, our AI Strategy sets out that each skill competition must clearly specify within its Technical Description[1] the permitted scope and boundaries for using AI tools during competition activities. This scope must directly correspond to the elements outlined in the Occupational Standards[2] that identify where knowledge, understanding, and specific skills related to AI are required to demonstrate competency in that particular skill area.

EuroSkills Competition Test Project documentation and the associated marking scheme must explicitly indicate whether:

1 Each skill competition has a Technical Description that specifies the name of the skill competition, associated work role or occupation, Occupational Standards, Assessment guidance, Marking Scheme, format/structure of the Test Project, procedures for the development, selection, validation, circulation and 30% change of the Test Project, conduct of the skill competition, any skill-specific Health, Safety, and Environment requirements, materials and equipment to be supplied by Competitors and Experts, Materials and equipment prohibited in the workshop, and reference for industry consultation.

2 https://worldskills.org/what/projects/wsos

- AI tools are permitted for use by Competitors
- The process of using AI is assessed as part of the competition
- The outcomes produced with AI assistance are assessed
- Whether AI tools can be used in the assessment of Competitors either automatically or by the Expert marking teams.

When AI tools are used in assessment (e.g. automated scoring or assisting Experts), their role must be clearly defined in the marking scheme. Competitors must be informed of AI involvement in assessment prior to the competition, and Experts must retain final authority over scores to ensure human oversight.

The specific boundaries and limitations regarding AI use within each skill competition must be precisely defined as part of the skill-specific rules established for that competition area. These rules should provide clear guidance to Competitors and Experts about appropriate AI implementation.

Furthermore, in competitions or activities where AI is to be used, we will ensure there is an adequate level of AI literacy among all parties involved.

Any concerns or complaints regarding the use of AI during skills competitions will be processed through our robust Competition Issue Resolution procedures, which provide a structured approach for addressing and resolving all competition-related matters.

FUTURE-PROOFING

We realise that this is just the beginning. As the AI landscape continues to evolve, we will review our AI Strategy periodically to address emerging AI technologies and their impact on our work.

We will consult industry experts, AI specialists, and Competitors to ensure our framework remains relevant to current and future professional practices. In particular, the WorldSkills Europe Approved Tools Register and the requirements governing Test Project confidentiality for EuroSkills Competitions will be subject to more frequent review to ensure that we keep up with the constantly shifting AI environment.

Until then, it could be interesting to ask Claude, "Will there be an AI technician skills competition at EuroSkills in the future?"

Tapio Kattainen
Lead Skill Advisor, WorldSkills Europe

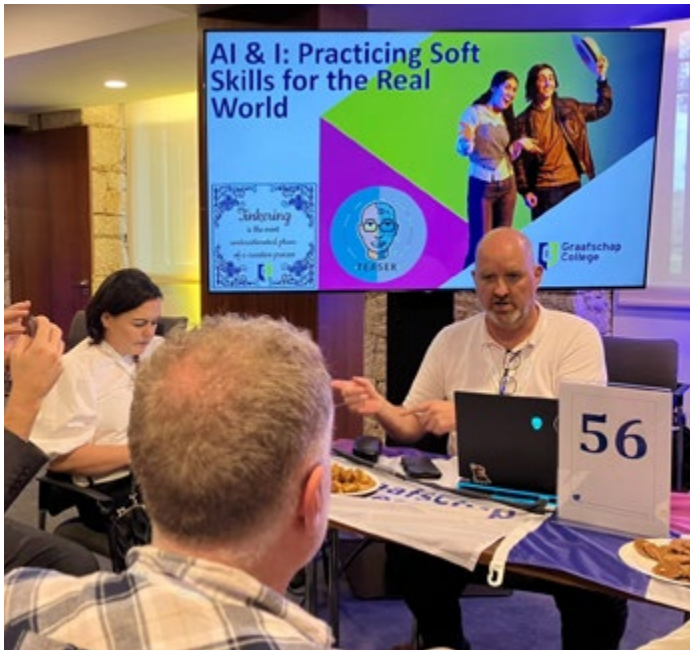
How fictional AI avatars are training real-world empathy in VET

Joop van der Horst
Graafschap College

Artificial Intelligence is moving incredibly fast, but we should not look at it as just one giant, scary programme. In vocational education, the real trick is finding the simple tools that help our teachers build what they need for their specific lessons. By using AI avatars to simulate real-life conversations - like lonely elderly ladies or angry parents - we are giving our students a safe place to practice their soft or profession related skills, make mistakes, and learn to think critically before entering the workforce.

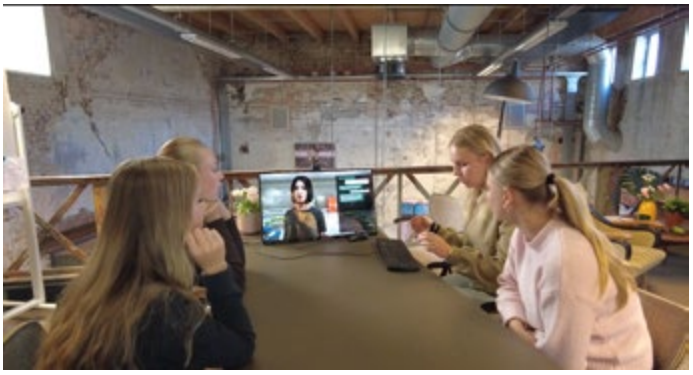
FROM STATIC PHOTOS TO REAL CONVERSATIONS

A while back, we started an Erasmus+ project at our school called "TEASER". Back then, our idea of an avatar was quite basic. It was just a static photo/video that we programmed to talk linearly. You would type in some text, choose a language, and it would spit out a little film. But we are way further down the road now. Today, it is not just a linear movie. Students can actually talk to an avatar, get live responses, and have a proper conversation.



Presentation at the EfVET conference

What we are doing now at Graafschap College is building fictional people for our students to train with. As a social work student, for example, you might practice with one of our famous avatars: an elderly lady who is getting quite lonely. Your exact task in the simulation is to talk with her and eventually get invited in for a cup of coffee or to help her out in the garden. The student talks, and the AI woman replies naturally, asking: "But who are you? What are you doing? Why would I talk to you?" The student must earn her trust using the communication models they learned in class. When they hit "stop chat", the AI evaluates the whole conversation based on those exact classroom criteria.



Students are trying out Avatar for their training

We built that specific scenario directly in Generative AI tool. It is not a commercial party tool. We just sat down with the teacher and built the persona together. And the beautiful thing about AI today is that once you show a teacher how to do it, they can do it themselves. They do not need our technical team to make follow up actions and create their own training characters. Of course, we are always here to support if needed.

SIMULATING TOUGH REAL-WORLD SCENARIOS

We also use more advanced visual tools. For our students-kindergarten care takers, we have the mother of Jano, which is a typical Dutch boy's name. The setup is simple: you are working at the daycare, the mother walks in, looks at you, and says: "Can I talk to you about yesterday?" That is all the info you get. Then she unloads. Her son was bitten by another kid, nobody told her, and she found out at home. She is very

angry.

The students have to react and manage that difficult conversation right then and there. It is highly intense, much more like a game they want to win. When students do peer-to-peer roleplay in class, they give you about ten seconds of a good conversation, and then they immediately start chatting about boys, girls, bus times, or what they did over the weekend. Distracting and not productive. With the AI avatar, they stay completely focused. They can even intentionally go the wrong way just to see what it takes to make her completely blow up. That is a great way to learn, and it happens in a completely safe environment. Having a safe failure option.

Students are trying out Avatar

To create a customised interactive avatar, we found a programme called Convai (Convai.com) to do the visual avatars. There are probably technically better avatar-making programmes out there, but this one is so simple that we can teach it to any teacher in no time. That is what people need to realise. AI is not just one big programme. It is thousands of different programmes, and you just must find the right tool for the right solution for the right user.

EMPOWERING STUBBORN TEACHERS

To a teacher, the only truly right tool is the one that is user-friendly and can support in creating tailor-made content. If a tool is even a little bit off, they won't use it. But when they build it themselves, they become the ambassadors of their own tool. They get enthusiastic, and they actually use it.

When we introduce these tools to our staff, we look for internal motivation. We do not push; we just show a few related examples. If people do not react, no problem. But if a teacher gets excited and says, "Hey, can you help me to use it?", then that is the person we need. We started with one or two teachers, and now we have a dozen avatars running across the school. You just have to find the right rock to throw first, and then the bigger ones will follow.

Of course, our school management has to provide the freedom, space, and time to try and fail. At our innovation hub – STRAX, we intentionally buy the first licences and put in the initial money so teachers can experiment without stress. Sometimes we drop into heavy curriculum team days as an educational intermezzo. We introduce the avatars, and suddenly the teachers change their approach and attitude because they just want to be creators.

CATCHING UP WITH THE FUTURE

Looking ahead, people ask me how we will scale AI smoothly over the next ten or twenty years. I always look back at how Microsoft Office or PowerPoint was introduced. In the beginning, VET schools had to create separate courses just to teach kids how to use Word. Then primary schools started teaching it. Today, we do not teach Word or PowerPoint because students learn it from young to old. It is just embedded in daily life. We are restarting that exact same trajectory now, but the name of the course is "AI". Right now, it feels like a separate subject, but eventually, it will just be another standard tool.

If we want to train the workers of tomorrow, using AI is not a question of "if" or "but". The truth is, we are already behind. The workforce and companies are moving faster and faster, and schools are lagging behind. Even some of our students are moving quicker than the teachers. We have to catch up.

Naturally, we have to think about safety, privacy, and where our data goes. On a practical school level, we stay safe by keeping everything fictional. The names are fictional, the cases are fictional, and we intentionally choose to keep the cameras turned off so we don't collect student biological data. We do not focus on what is forbidden; we focus on what we can do wisely.

As educators, our job is to raise critical citizens who understand the dangers of this technology. If you get a phone call from an unknown number today, it might be an AI voice speaking flawless Dutch or English, not a scammer with broken language in a distant corner. It is getting fast and scary. But raising critical citizens is a very old task for educators. In that sense, nothing has changed.

When I give presentations, I always close with a picture of a massive, roaring crowd at a live music concert. If you listen to Spotify today, there is a huge chance an AI generated the background music you are hearing. That is fine for the background. But AI can never replicate the raw emotion, excitement, and human power of a real crowd connecting with a real artist. AI is a fantastic tool for training, but high-tech should never replace the high-touch human connection that vocational education is really about.

Listen to the project's podcast here.

TEASER Podcast „Me, my avatar and the AI" Talk with Joop

EfVET Annual Conference 2026:

"Global Citizenship Empowered by VET"

European Forum of Technical and Vocational Education and Training

Click here to access the conference website!

Scan the QR to register now

EfVET Conference Brussels 2026

Brussels, Belgium

October 21-23

AI in Automotive Training: ANFA's Progressive Approach to Supporting Its Network

Emeline Rateau
ANFA (French National Association for Automotive Training)

ANFA has adopted a step-by-step strategy to integrate artificial intelligence into automotive training, starting with understanding its impact on jobs and skills. It is testing practical solutions like an AI-powered adaptive learning platform while raising awareness through webinars and workshops. The organization also supports trainers and directors in adopting AI tools. Overall, ANFA aims to use AI as a way to improve training and prepare the sector for future changes.

In response to the rapid development of artificial intelligence (AI), the French National Association for Automotive Training (ANFA) has implemented a progressive approach to support training organizations within the automotive services sector (cars, trucks, motorcycles, and bicycles, which together represent all vehicle types in the sector).

The objective is to help institutions and their teams understand these developments, test new tools, and integrate them into their practices.

UNDERSTANDING THE IMPACT OF AI ON JOBS

Before rolling out concrete actions, ANFA first sought to better understand the impact of AI on jobs in the sector. To achieve this, ANFA's Observatory conducted a study on the uses and challenges of these technologies.

This study helped identify changes in work, evolving skills, and new training needs. It also highlighted concrete examples of how AI is used in the sector's professions. These findings provide a foundation for adapting training programs and anticipating future developments.

PREPARING INTERNALLY

ANFA has also worked internally to gradually integrate AI into its own activities. A dedicated working group was created to analyze the impact of these tools on daily tasks and explore ways to use them to improve efficiency.

Awareness-raising activities have been organized for staff, with support from external experts. This dynamic is notably led by an internal expert, Myriam Serhane.

TESTING IN PRACTICE WITH AN INNOVATIVE PLATFORM

In 2023, ANFA launched its first concrete initiative with the creation of an adaptive learning platform incorporating AI. Initially called AAI Auto, it is now known as Apprentiz Auto.

This platform is tested by around 1,600 learners across 60 institutions. It allows training pathways to be tailored to individual needs, improving the learning experience and outcomes.

This project, led by Ekaterina Lavocat, has also helped introduce AI in a practical way across the network, demonstrating its benefits in real-life contexts.

RAISING AWARENESS ACROSS THE NETWORK

To support this transformation, ANFA has organized numerous webinars on artificial intelligence. These sessions cover a wide range of practical topics, such as analyzing documents with AI, creating visual materials, designing educational content, and interacting more effectively with AI tools.

Broader topics are also addressed, including the impact of AI on assessment and its role in promoting inclusion in training. All these webinars are available on ANFA's YouTube channel, making them easily accessible to everyone.

ENGAGING TRAINING CENTRE DIRECTORS

Training center directors are also fully involved in this process. For the past three

years, AI-focused workshops have been organized during the network's annual seminar; and they are the most popular sessions.

The two most recent workshops focused on the use of AI in managing training centers and on AI in teaching. These sessions provide opportunities to share practical experiences and spread best practices among institutions.

SUPPORTING TRAINERS IN THEIR PRACTICES

ANFA also works directly on teaching practices. In its trainer training catalogue, some courses are now designed using AI, particularly for generating copyright-free images and enriching training materials.

A new training course is also being developed. It will focus on the use of AI in automotive technical professions and will be aimed at trainers. The goal is to help them integrate these tools into their teaching and professional practices.

A COHERENT AND PROGRESSIVE APPROACH

ANFA follows a clear approach: first, understanding the challenges, then testing solutions, and finally supporting the entire network in using them.

This strategy ensures that AI is not something to be passively endured but rather used as a tool to improve training. By supporting teams, trainers, and management alike, ANFA is helping to prepare the future of training in the automotive services sector.

Bridging the Skills Gap in the Age of AI: Labour Intelligence for Inclusive VET

Roberto Boselli
University of Milan-Bicocca

Borja Pulido Orbegozo, Eugenia Atin
Prospektiker

Ciprian Panzaru, Gabriela Negoita
West University of Timisoara

Christa Larsen, Jesper Rodewald
Johann Wolfgang Goethe-Universität Frankfurt am Main

Laetitia Hauret, Blandine Lejealle
LISER – Luxembourg Institute of Socio-Economic Research

The transformation of job roles, occupations, and skills across Europe is accelerating under the combined pressure of digitalisation and the rise of artificial intelligence. AI is no longer a future-oriented concept; it is already redefining entry-level roles, task compositions, and recruitment practices. While these advancements offer significant opportunities for personalised learning and curriculum innovation, they also present urgent questions regarding inclusion and the risk of deepening digital inequalities. For VET providers, the challenge lies in navigating a world where AI is increasingly integrated into both workplaces and daily life.

THE LMI4VET MISSION

The "Labour Market Information for Vocational Education and Training" (LMI4VET) project, an Erasmus+ cooperation partnership, addresses the structural challenge of aligning vocational training with real labour market needs. Third Sector Education and Training Service Providers (TS-ETSPs) - non-profit organisations often working with the most marginalised learners - frequently lack the analytical capacity and resources to systematically use labour market information (LMI). These challenges were further explored through a 2025 survey conducted as part of the project among TS-ETSPs from five European countries (Italy, Germany, Luxembourg, Romania, and Spain). Respondents identified lack of time and resources as the main obstacle when working with LMI (58%), followed by difficulties in accessing relevant content (44%). LMI4VET project seeks to bridge this gap by equipping these practitioners with methodological guidelines and digital resources that enable evidence-based decision-making regarding course design and skills prioritisation. By doing so, the project ensures that individuals from vulnerable backgrounds receive training that genuinely enhances their employability in an increasingly automated world.

THE METHODOLOGICAL GUIDE: EVIDENCE-BASED PLANNING FOR VULNERABLE GROUPS

The core output of the project is a Methodological Guide designed to support VET providers in adapting their training offer to the needs of the labour market. Research across the five EU Member States highlighted a scarcity of direct data on labour demand specifically for vulnerable groups, necessitating a refined analytical focus on low- and unskilled individuals. It also suggests that TS-ETSPs may have limited awareness of available data sources. To bridge these gaps, the Methodological Guide provides a framework that helps TS-ETSPs identify relevant information by combining quantitative indicators—such as instructions to find sectoral hiring trends and mismatch indicators—with qualitative validation from employers and job coaches. This evidence-based approach

ensures that training planning reflects both statistical trends and the lived realities of an AI-driven workplace, enabling practitioners to make informed choices about curriculum adjustments and skills prioritisation. To support the uptake of this Guide by TS-ETSPs, it has been developed through a co-creation process involving TS-ETSPs. In addition, a series of training materials has been produced to guide users step by step and facilitate engagement with its content.

HARNESSING DIGITAL TOOLS AND AI FOR INCLUSION

A central pillar of the LMI4VET project is the development of digital helpers designed to support the routine use of labour intelligence. Recognising that VET professionals often face a lack of time and limited knowledge of complex data sources, the project has developed a set of targeted lessons, complemented by a video version and an interactive chatbot. This chatbot serves as a digital assistant, allowing practitioners to resolve specific doubts or difficulties encountered during labour market diagnoses. By providing friendlier, more visual materials and real-time support, these tools ensure that even non-specialists can operate independently to update curricula in response to technological shifts. By transforming labour market intelligence into accessible learning materials, the project enables practitioners to build the competences needed to continuously adapt curricula to technological change and the labour market transformations driven by AI.

STRATEGIC RECOMMENDATIONS

To effectively navigate the current structural transformations, VET systems must rely on user-friendly and accessible labour market intelligence to adapt their training programmes to the challenges of digitalisation, automation, and the green transition. Data providers should focus on delivering simplified dashboards and forward-looking forecasting and foresight models that anticipate the impact of digitalisation, the green transition and overall structural disruptions.

Furthermore, closer collaboration between VET providers and industry stakeholders is crucial. By involving employers in curriculum design and aligning training with region-specific labour demand, the VET community can ensure that the AI revolution becomes a landscape of opportunity for everyone, preserving a human-centred and inclusive mission.

CONCLUSION

The future sustainability of VET depends on its ability to integrate labour intelligence into daily operations. Through the tools developed by LMI4VET, including its methodological guide and interactive digital helpers, European VET providers are better equipped to turn the challenges of the AI era into a catalyst for social inclusion and professional growth.

"The future sustainability of VET depends on its ability to integrate labour intelligence into daily operations".

Using AI to Support Teachers' Learning Designs for Facilitating Social Innovation Competence and Democratic Education

Anne-Maria Korhonen
Principal Research Scientist and Teacher Educator, Häme University of Applied Sciences

Satu Niittylahti
Senior Lecturer, Häme University of Applied Sciences

Marko Susimetsä
Principal Lecturer, Häme University of Applied Sciences

This article introduces the Learning Design AI Mentor, a customised AI tool developed to support teachers' learning design work in vocational education and beyond. The tool helps teachers reflect on and improve their draft learning designs in relation to social innovation competence and democratic education. Rather than replacing teachers' professional judgement, the tool acts as a pedagogical sparring partner that supports participation, collaboration and socially innovative action.

DEMOCRATIC EDUCATION IN THE AGE OF AI

Dewey (1930, p. 94) argued that a society seeking change needs different educational standards and methods from one seeking merely to preserve its customs. This democratic view of education remains highly relevant today: education should support people in developing themselves while also contributing to the development of others (Ozmon & Craver, 2003, pp. 147–148). These aims are closely connected to social innovation competence: the capacity to identify social challenges, collaborate with others, and develop responsible ways of addressing them in a world facing complex challenges (cf. OECD, 2025).

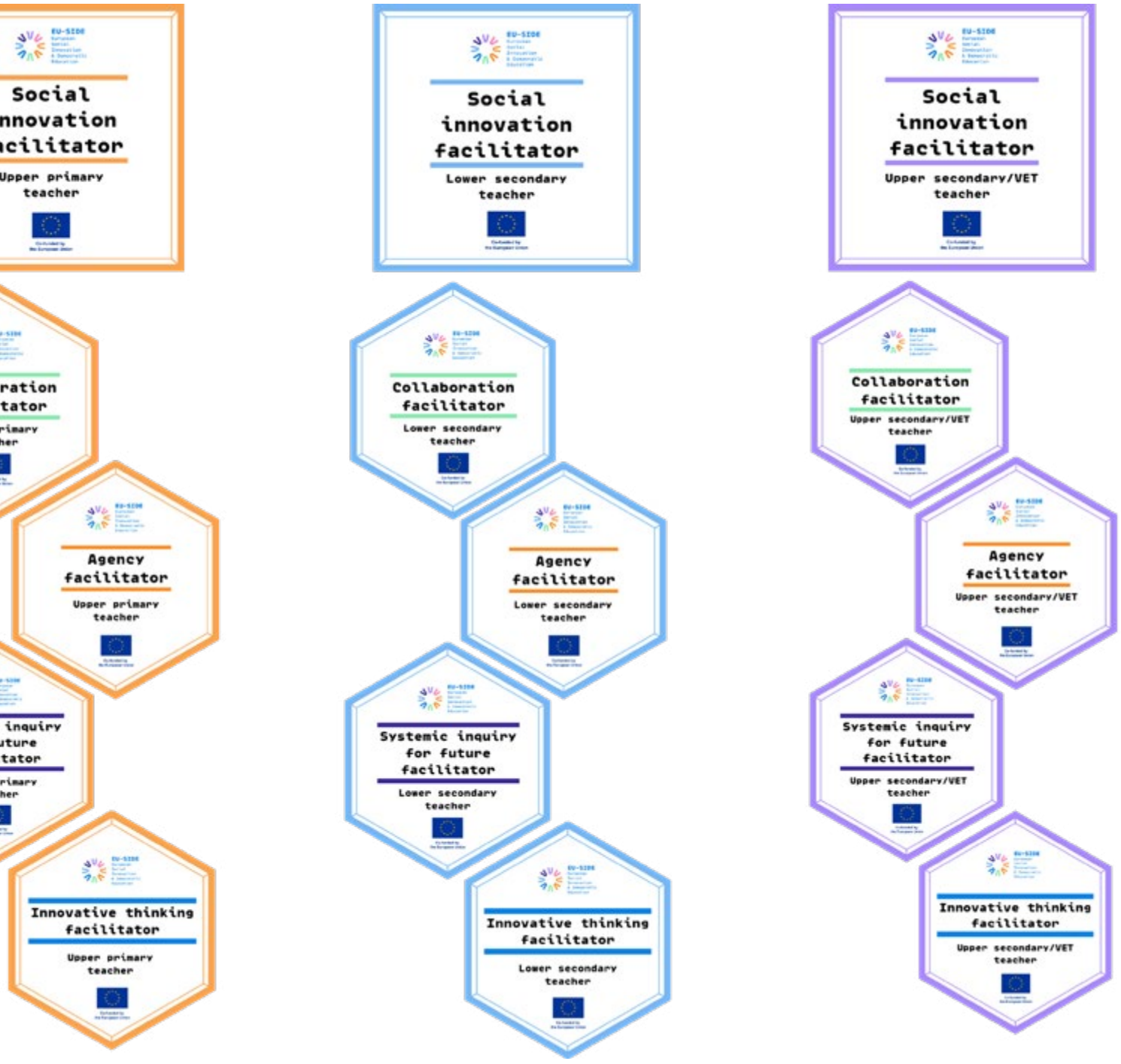
The age of AI adds a further dimension to this task. Teachers and students need human-centred, ethical and pedagogically informed AI literacy, so that AI strengthens teachers' professional judgement, learners' participation and inclusive digital futures rather than narrowing them (UNESCO, 2024). This article introduces the Learning Design AI Mentor, a tool designed to support teachers' pedagogical thinking without replacing it.

The social innovation competenc
Four school levels (squares) with
school level to another

THE EU-SIDE PROJECT: DEMOCRATIC EDUCATION FOR SOCIAL INNOVATION

The EU-SIDE (European Social Innovation and Democratic Education) project responds to a growing educational need: teachers and students require concrete ways to address complex societal challenges through democratic, participatory and socially innovative pedagogies. Bringing together higher education institutions, teacher education providers and schools from six European countries, the project is developing a Teacher Academy for pre-service and in-service teachers across educational levels, from primary to vocational education. Its broader aim is to strengthen teachers' capacity to design learning environments in which students can practise civic engagement, critical thinking, collaboration and responsible action in relation to real-life social issues.

A central starting point for EU-SIDE has



e framework produced in the EU-SIDE project showing teachers' facilitation competences. n four competence areas (hexagons) for each, all aligned to form a continuum from one r. (Teachers can demonstrate their competence through digital open badges.)

been the recognition that social innovation competence requires a pedagogically grounded framework connecting democratic values, agency, inquiry, collaboration, creativity and systemic understanding. Therefore, the project first developed two foundational resources, a social innovation competence framework and pedagogical design principles. The competence framework clarifies what kinds of knowledge, skills and dispositions learners and teachers need when they identify societal challenges, work with diverse others, develop ideas and test possible solutions. The pedagogical design principles translate this framework into practical orientations for teachers' learning designs.

BUILDING THE LEARNING DESIGN AI MENTOR

The social innovation competence framework and pedagogical design principles form the knowledge base for the Learning Design AI Mentor. The tool was developed to help teachers connect the competence framework and pedagogical principles with their own practical learning designs. Its purpose is not to create learning designs on behalf of teachers, but to support teachers in improving their existing drafts through guided reflection.

The Learning Design AI Mentor asks questions based on the teacher's draft learning design, helping the teacher consider how well the design supports participation, collaboration, democratic agency and socially innovative action. Through this dialogue, teachers can make their learning designs more concrete, coherent and aligned with the EU-SIDE framework.

The tool was created as a custom Gemini Gem: a shareable, task-specific version of Google Gemini. The tool was instructed to act as "a consultative discussion partner and pedagogical sparring companion for teachers", not as "an evaluator, inspector or authority". The instructions guiding its behaviour emphasised that the teachers should first be encouraged to think through their own pedagogical choices while the AI tool would support this reflection with carefully framed suggestions and practical ideas for activities. Its overall purpose was to support teachers in understanding, articulating and developing their pedagogical practice in relation to different educational levels and the EU-SIDE framework.

To make the dialogue useful, teachers were guided to approach the tool with an existing draft rather than an empty request. The instructions to teachers were: "After you have created a draft of a learning design, bring it to the Learning Design AI Mentor and discuss how to improve and edit it in line with the competence framework and pedagogical design principles. Remember to include the school level and the theme you are teaching in the prompt." This ensured that the Learning Design AI Mentor's feedback was connected to a real teaching context and supported the teacher's own pedagogical decision-making.

SUPPORTING VET TEACHERS' LEARNING DESIGNS

The Learning Design AI Mentor is currently being tested with the project partners, and it will be piloted with VET teachers in the following academic year. For vocational education and training, the tool offers an example of how teachers can use AI to develop and contextualise their own teaching. It may be particularly useful when ready-made materials for a specific vocational field are limited. Whether created independently or with organisational support, such a tool can help teachers connect broad competence frameworks and pedagogical principles with their own professional domain, student groups and learning context.

Acknowledgments

Project Name: EUropean Social Innovation and Democratic Education (EU-SIDE)
Project Website: https://eu-side.eu/

Funding Statement: This work has been co-funded by the European Commission under the Erasmus+ Teacher Academy call, Grant Agreement reference 101196213 (EU-SIDE project).

Co-funded by the European Union. Views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

References

Dewey, J. (1930). Democracy and education. Macmillan. https://dn710102.ca.archive.org/0/items/democracyandeduc00deweuoft/democracyandeduc00deweuoft.pdf

OECD (2025). Starting, scaling and sustaining social innovation. OECD Publishing.

Ozmon, H. A., & Craver, S. M. (2003). Philosophical foundations of education (7th ed.). Merrill.

UNESCO (2024). AI competency framework for teachers. https://unesdoc.unesco.org/ark:/48223/pf0000391104

Keeping teachers at the centre: the EU's human-centred vision for AI in VET

Elene Gauna
Communications and Projects Intern, European Forum of Technical and Vocational Education and Training

The Council of the European Union approved conclusions on an ethical, safe and human-centred approach to AI in education in May 2026, proposing a human-centered approach to AI in education. The project offers an updated regulatory framework for the Vocational Education and Training (VET) sector that protects the essential role of teachers, inclusion and learner well-being while guiding the ethical and successful integration of AI.

Artificial intelligence is quickly becoming an important part of teaching, learning and institutional management; it is no longer just a new trend in education. AI applications are rapidly assisting with administrative procedures, career counseling, assessment and personalised learning throughout Europe: indeed, AI offers potential to improve quality and flexibility for VET, where adaptability to changes in the labor market is essential. But the use of AI in education also brings up important issues related to professional autonomy, ethics, equity and the role of educators in the future. Therefore, the Council issued conclusions supporting an ethical, safe and human-centered approach to AI in education, acknowledging both the benefits and the challenges: this is the first time that European education policy has specifically addressed the connection between AI and education. Perhaps, the most important message emerging from the document is that the integration of AI should reinforce, rather than replace, the professional role of teachers.

Dr Athena Michaelidou, Minister for Education, Sport and Youth of the Republic of Cyprus, emphasised that teachers help learners in using an increasingly complicated digital world by acting as guides, experts and critical thinkers as well as to their roles as AI users. Making AI in education successful requires providing them with the proper tools, training and protections. Within the VET community, this statement resonates profoundly: vocational teachers and trainers perform a range of tasks that go well beyond imparting knowledge. They coach students, promote work-based learning, cultivate professional identities and assist in the development of interdisciplinary abilities that are still uniquely human, such as ethical judgment, communication and teamwork.

As a result, the Council invites Member States to improve teachers' skills with digital and artificial intelligence, particularly through initial teacher education and ongoing professional development. It also encourages VET educators' professionals to increasingly include AI literacy.

The Council acknowledges AI's high potential to improve educational procedures and results. Such possibilities are especially important in the context of VET: AI-enabled systems can provide personalized learning pathways, allowing learners to advance at different levels and in accordance with individual needs. Adaptive assessment tools and intelligent tutoring systems may promote more inclusive methods while improving learning outcomes, particularly for students who need extra help. Additionally, through speech recognition, automated translation, and adaptable interfaces, AI technologies can improve accessibility and promote more equal learning environments. Also, administrative automation has the potential to reduce repetitive work, freeing up teachers' time for instructional activities and learner support.

From a strategic point of view, AI can help VET providers recognise new skill gaps and modify curricula to meet the quickly changing demands of the labor market: as AI continues to change industries including manufacturing, healthcare, logistics and commercial services, VET schools must make sure that students are prepared to use AI technologies and collaborate with them in an ethical and productive way.

The Council also pointed out the need to include stronger precautions with the introduction of AI, especially in educational contexts, issues with algorithmic bias, disinformation, data security or even an excessive dependence on technology. They also warned that if access to technology and digital networks remains unequal, AI could worsen already-existing disparities and digital division, which means that VET institutions have two responsibilities: fostering students' critical AI literacy while also assuring fair access to AI-enhanced learning possibilities. Students must be able to comprehend how AI systems work, identify their limitations and assess AI-generated results critically: that is why these skills are becoming more and more necessary for both job opportunities in AI-driven companies but also for an active citizenship.

Above all else, the Council confirms that "technology supports human agency and democratic values" by promoting a strategy based on digital humanism. As a result, teachers ought to be actively involved in the creation, application and assessment of instructional AI technologies.

The Council's proposals offer Europe's VET sector a strategic path. They underline that human-centered education and technical innovation are complementary goals rather than conflicting priorities: adopting AI in ways that improve educational quality, encourage inclusivity while empowering students and teachers is a clear challenge for VET providers.

Success in Europe's increasingly AI-driven educational systems will depend on institutions' ability to maintain human connections, professional knowledge and democratic principles at the core of education rather than solely catching up with technology's level of complexity. The Council's initiative provides more than just policy recommendations in this regard: it offers an original, inclusive and, most importantly, deeply human vision for VET in the era of AI.

What VET really needs from AI: critical thinking, not just tools

Raquel López
Founder of Ethiceye

Raquel López Hernández is the founder of Ethiceye, a consultancy and training firm specialising in ethical and responsible AI integration, based in Valencia, Spain.

She can be reached at raquel@ethic-eye.com

Website: www.ethic-eye.com/raquel

LinkedIn: www.linkedin.com/in/raquel-lopez-ia

Something is missing from most AI training programmes in vocational education and it is not another app or tutorial.

I have been working in education for over a decade. Eight years as a teacher in Spanish public schools, then as a digital strategy adviser for regional educational centres in Valencia, working with frameworks such as DigCompOrg and DigCompEdu. I later spent almost two years training teachers from across Europe at the Europass Teacher Academy in Florence, within an Erasmus+ programme. One pattern repeated itself across all those contexts: institutions rushed to adopt new technologies, but rarely paused to ask whether they should or under what conditions or what responsibilities came with that choice.

That gap is why I founded Ethiceye.

WHAT ETHICEYE IS DOING

Ethiceye is a consultancy and training firm specialising in ethical and responsible AI integration. But the distinction from a standard AI training provider matter: we do not teach people which AI tools to use, we build the capacity to decide for themselves.

Our methodology, the Ethiceye Framework, guides organisations through five steps — Question, Understand, Detect, Decide, Respond — aligned with the EU AI Act,

UNESCO's AI Competency Frameworks for teachers and students (2024), and the OECD-EC AILit Framework (2025-2026). The regulatory context is not background noise: article 4 of the EU AI Act, which establishes the obligation of AI literacy across organisations, has been in force since February 2025.

Our tagline is: "When Ethiceye leaves, the criteria remain." That is not a slogan. It describes the only outcome worth measuring: whether a centre or organisation can make informed, responsible decisions about AI once we are no longer in the room.

WORKING IN VET: FROM AWARENESS TO EMBEDDED PRACTICE

In Spain, vocational education and training is known as Formación Profesional (FP). Most of our work to date has been rooted in the Valencian FP ecosystem and the depth of what is possible there continues to surprise me.

At CIPFP Ausiàs March, we began with student awareness sessions covering how AI systems work, the role of algorithms in shaping information, social media dynamics, bias and disinformation. These are not just lectures. Students leave each session with a personal, documented protocol: a practical guide for what to do before, during and after using an AI system. Something they own and can adapt. These sessions will continue into the next academic year, alongside a full teacher training programme covering the entire Ethiceye methodology.

Within the Programa Llançat, a student entrepreneurship initiative funded by the Valencian regional government (Generalitat Valenciana, Conselleria d'Educació), Ethiceye mentors young people who are already building real businesses, helping them integrate AI responsibly from the very start of their projects.

The most ambitious initiative currently in development is Asistente IA FP, presented to the tenth call of the CaixaBank Dualiza programme (2026–2027). Co-ordinated by CIPFP Ausisàs March, with Institut TIC de Barcelona and CIPFP Mislata as participating centres, and with Digital Value and Ethiceye as expert collaborators. The project is developing a self-hosted, GDPR-compliant AI assistant for use across the entire VET community — students, families, teachers and administrative staff. The assistant handles secretarial queries, quality management documentation and educational support, all processed locally with no data sent to external servers.

Ethiceye's role within this project focuses on the ethical dimension: developing critical thinking, auditing for commercial and gender bias and ensuring every member of the educational community understands the limits and responsibilities of the system they are using. The final deliverable is designed to be a replicable model, a methodology other VET centres across Spain and Europe can adopt and adapt.

A EUROPEAN DIMENSION IN THE MAKING

This work does not happen in isolation. Conversations are already under way with VET professionals in Estonia, exploring collaboration that would include visits to centres in Valencia. And my participation in the European Digital Education Hub (EDEH) in Brussels has made one thing clear: the questions being asked in Valencian classrooms are the same questions VET institutions across Europe are grappling with, often without a clear framework to guide them.

WHAT COMES NEXT

The young people currently in VET will be making decisions with AI in the workplace within a few years. They need more than prompting skills, they need the capacity to question a system's outputs, to detect when something is off, to decide responsibly when AI is appropriate and when it is not. Their teachers need the same.

That capacity does not arrive with a tool subscription. It has to be built, practised and owned by each institution. That is the work Ethiceye is committed to in Spain and beyond.

AI as a Co-Teacher in VET: How Intelligent Tools Can Strengthen the Professional Identity of Teachers.

Cinzia Perniola
FNISM (National Federation of Teachers) Taranto

Artificial intelligence is entering vocational education and training at a pace that challenges traditional teaching roles and expectations. For teachers and future teachers, this shift is professional, not simply technological. It requires new competences, new forms of judgement, and a renewed understanding of what it means to guide learners in complex, human-centred environments.

In VET, where learning is **practical, relational and tied to real workplaces**, AI can support simulations, adaptive feedback and personalised learning. Yet these functions are meaningful only when educators possess the professional skills needed to interpret, mediate and transform AI-generated information into pedagogical action. The question is not whether AI can teach, but how teachers can use AI to strengthen their own professionalism and help students grow with confidence.

International TCA in Liechtenstein, 4-7 May 2027

Across my professional experience, as a teacher, trainer, evaluator and Erasmus+ Ambassador, I have seen how educators are navigating increasingly complex classrooms. Students present diverse needs: disabilities, Specific Learning Disorders (SLD), linguistic barriers, fragile self-esteem, and rapidly changing expectations from the labour market. AI can help address some of these complexities.

The introduction of AI in VET requires teachers to develop a set of professional competences that go far beyond technical familiarity.

- **Pedagogical design in hybrid environments:** teachers must be able to integrate AI tools into coherent learning pathways, ensuring that technology supports, not replaces, human interaction.
- **Ethical and critical digital competence:** educators need to understand bias, data protection, transparency and the limits of AI systems.
- **Assessment literacy:** AI can support formative assessment, but teachers must know how to validate outputs, interpret analytics and maintain fairness.
- **Inclusive communication strategies:** AI offers multimodal support for students with special needs, but teachers must know how to choose and adapt tools responsibly.
- **Soft-skills facilitation:** AI can simulate scenarios, but only teachers can guide reflection, emotional understanding and interpersonal growth.

These competences are essential not only for in-service teachers but also for future teachers, who must enter the profession with a clear understanding of how AI reshapes learning environments.

The professionalisation of teachers has deep roots in Italy. Founded in 1901 by Giuseppe Kirner and Gaetano Salvemini, FNISM was the first national federation of teachers. It united educators from different school levels in a bond of solidarity, cultural responsibility and commitment to public education. Salvemini described it as “the party of the school”: a community

defending inclusion, pluralism and the constitutional value of state education.

This historical mission remains relevant today. FNISM continues to promote the enhancement of the teaching profession, gender equality and inclusion, training for teachers and future teachers, collaboration with universities and experts, support for vulnerable groups (disabled learners, migrants, sick or marginalised individuals), professional dialogue between in-service and retired teachers. This tradition of professionalisation aligns naturally with the challenges introduced by AI. Teachers need structured, research-informed training to use AI ethically, inclusively and effectively. FNISM's role is to ensure that educators are not passive recipients of technology, but active, critical and confident professionals.

In VET scenarios, AI can support teachers in several ways:

- **Simulating workplace situations** that allow learners to practise communication, teamwork and problem-solving.
- **Providing adaptive feedback** that helps students understand their progress.
- **Offering multimodal communication** for students with special needs.
- **Supporting teachers in monitoring learning patterns** in assessment.
- **Creating safe environments** where learners can make mistakes and try again.

However, AI cannot replace the relational, ethical and cultural dimensions of teaching. It cannot interpret emotions, mediate conflicts, build trust or foster a sense of belonging. These are professional responsibilities that remain firmly in the hands of educators. Teachers, and future teachers, must therefore be trained not only to **use AI, but to govern it:** to decide when it is appropriate, how it should be adapted, and how it can support the development of human skills.

Soft skills are central to VET and increasingly demanded by employers. AI can help create environments where these skills are practised, but teachers remain the ones who guide reflection, support emotional understanding, encourage collaboration, interpret behaviour, promote ethical reasoning. Professionalisation in the age of AI means preparing teachers to facilitate these processes with clarity and confidence.

In conclusion, AI can act as a co-teacher in VET, but only if teachers possess the professional competences needed to integrate it meaningfully. Intelligent tools can support communication, simulate scenarios and provide feedback, but they cannot replace the relational, ethical and cultural dimensions of teaching. Strengthening the professional identity of teachers, and preparing future teachers to navigate AI-rich environments, is essential. FNISM's long history of defending the profession, promoting inclusion and supporting public education offers a clear path forward: **equip educators with the skills, confidence and ethical grounding needed to use AI wisely, critically and creatively, so that every learner, especially the most vulnerable, can grow with dignity and confidence.**

Here is a link to a series of 20 videos created with an AI application to address educators in Europe about the use of collaborative AI in education. It is a pilot programme within an Erasmus+ project.

Developing AI-assisted Communication Skills Training in Vocational Education and Training – Practical Experience

Leena Törmälehto
Project Manager, Educational Consortium OSAO

Suvi Kuivala
Project Specialist, Educational Consortium OSAO

PRACTISING COMMUNICATION SKILLS AS A CHALLENGE IN VOCATIONAL EDUCATION AND TRAINING

Feedback from working life, teachers and students repeatedly point to the same challenge: many students, especially young people, find workplace communication situations difficult. Meeting customers and dealing with different social situations can feel intimidating, even though these skills are central to functioning effectively in working life.

Practising these skills in an authentic way within an educational institution is not straightforward. Traditional simulations and role-play exercises can be useful for some students, but for others they may also feel too demanding. They also do not always offer sufficient opportunities for repetition.

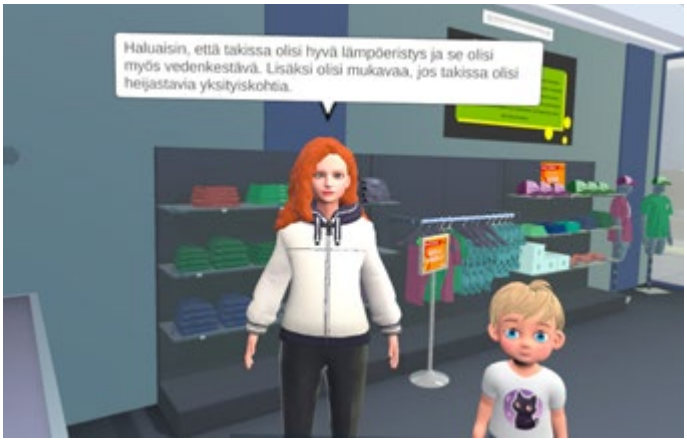
This need led to development work in the EU co-funded projects DigiCampus and Digital Capability to Vocational Education at Educational Consortium OSAO. The aim was to create a realistic, repeatable and pedagogically meaningful way to practise communication skills in everyday teaching though virtual reality.

BUILDING AN AI-ASSISTED VR LEARNING SOLUTION

The project developed two VR training applications containing independent, work-based communication exercises. The applications include both business sector-specific customer service scenarios and more general workplace communication situations, such as job interviews, introductions, and negotiation exercises. In both applications, speaking aloud and engaging in dialogue are at the centre of the learning experience.

AI had not been included in the original project plan. However, during the project, generative artificial intelligence developed rapidly, and the decision was made to make use of the opportunities it offered. AI made the VR exercises more interactive. It allows the system to respond to the student's speech during the conversation and provide feedback on the interaction afterwards.

Generative AI changed not only the technological solution, but also the nature of the learning experience. Instead of repeating predetermined lines, the student can engage in conversations where the responses depend on their own actions. This brings a new level of unpredictability and authenticity to the practice, while enabling more individualised learning and immediate feedback.



A virtual customer service situation in a clothing store, where a customer describes what kind of jacket they are looking for

DESIGNING THE LEARNING EXPERIENCE THROUGH AGILE AND MULTIDISCIPLINARY COLLABORATION

The key development task was not merely to build a VR application, but to design a complete learning experience. This meant continuously defining which skills can

and should be practised using VR and AI, what kind of context should be created, what successful practice means, and how success is made visible to the student. It involved pedagogical scripting, gradually increasing the level of challenge in the exercises, and ensuring that the experience feels authentic yet manageable for the student.

A VR learning environment showing a virtual clothing store where students can practise customer service.

The project required close collaboration between pedagogical experts, software developers and project management. Individuals who were able to translate between pedagogical needs and technical implementation played a particularly important role. Building a shared language between pedagogical and technical experts was initially challenging and it took some time to find suitable ways to collaborate. Collaboration improved significantly once learning situations could be recorded and reviewed together.

The development work was carried out iteratively over a period of two years, applying agile development methods. Content was planned, implementations were tested, feedback was collected and solutions were continuously refined. Integrating AI proved to be the most time-consuming and challenging part of the project.

KEY CHALLENGES FROM THE PERSPECTIVE OF AI

Generative AI brought valuable variation to the exercises: the customer no longer reacts in the same way every time, which makes the situations feel more natural. At the same time, clear limits had to be set for AI. One of the key challenges was balancing authenticity and control. AI made interactions more adaptive and realistic, but excessive freedom risked irrelevant conversations and tweaker alignment with qualification requirements. Too much control, on the other hand, reduced the adaptability that made AI valuable in the first place.

Although AI can identify, for example, the structure of a conversation, response speed or the use of professional language, assessing more subtle communication skills, such as empathy, building trust or situational awareness, is considerably more challenging. This forced the development team to define carefully the role of AI-generated feedback. It was not seen as an objective measure of the student's competence, but above all as a tool for initiating learner reflection and supporting teacher-guided discussion. In this way, AI does not replace pedagogical assessment. Instead, it helps make interaction visible and opens new opportunities for feedback.

FROM DEVELOPMENT TO IMPLEMENTATION

Introducing AI into a learning environment raised questions that extend beyond technical implementation. Implementation must take account of information security, data protection, licence costs and how feedback produced by AI can be used in a pedagogically meaningful way as part of learning and assessment. Transparency is particularly important: students and teachers must be able to understand when AI is involved in a learning situation, what it observes, how feedback is formed and where its limitations lie.

Pedagogically meaningful use of AI therefore requires more than technical functionality. It calls for clarity, open communication and an organisational readiness to address questions concerning the reliability of AI.

ORGANISATIONAL CHALLENGES IN ADOPTING VR AND AI

The experience from the project suggests that AI may have an important role in the future of vocational education and training by creating new opportunities for practice, personalised feedback and learner reflection. The key question for VET organisations is not simply whether AI should be adopted, but how it can be designed and used in a pedagogically meaningful and human-centred way. This requires organisations to combine pedagogical expertise, user experience thinking and technological development into a shared and continuous development process.

Project Manager Leena Törmälehto

Project Specialist Suvi Kuivala

Artificial Intelligence in VET Physics Education: Enhancing Learning and Critical Digital Competences through ChatGPT and Immersive Technologies

Slavica Bernatović
Physics Teacher / VET School
Tehnička škola Slavonski Brod

This article describes a classroom project in VET physics where I explored the use of Artificial Intelligence and virtual reality with my students. The focus was on using ChatGPT to help students understand more complex physics concepts, but also to encourage them to think critically about what AI gives them. Alongside this, we used VR tools and also discussed "AI detox" as a way to help students balance AI use and independent thinking.

1. CONTEXT AND RATIONALE

Artificial Intelligence is becoming part of everyday life quite quickly, and this naturally affects education as well. In VET, this is especially important because we are preparing students not just to use digital tools, but to understand them and work with them responsibly.

In my teaching practice, I noticed that students already use AI tools such as ChatGPT, but often without really questioning the answers they get. This raised an important question for me: how can we use AI in a way that actually supports learning, rather than replacing thinking?

That is why I designed a small classroom project to explore this in a structured way within physics lessons.

2. PROJECT IMPLEMENTATION

In the project, students worked with ChatGPT during physics lessons. At first, we simply explored how they were already using AI in their learning. Then we moved into more structured tasks where students:

- discussed the advantages and disadvantages of AI in education
- used ChatGPT to help explain physics concepts
- solved physics problems with AI support
- checked whether AI answers matched textbook knowledge
- reflected on when AI is helpful and when it is not

One part that worked particularly well was what we called "AI detox".

We also used VR headsets connected to mobile phones to visualise physics phenomena in 3D. This helped students who usually struggle with abstract concepts to see what is actually happening in a more concrete way.

3. FINDINGS AND OBSERVATIONS

What I noticed quite quickly was that students initially trusted AI answers too much. Many of them assumed that if something comes from ChatGPT, it must be correct.

Over time, this changed. Through comparison with textbooks and discussion in class, they started to question answers more. Some even began to spot when explanations were too general or slightly inaccurate.

ChatGPT turned out to be useful as a kind of "supporting explanation tool", especially for students who needed things explained in different ways. But it also became clear that without guidance, students can easily become passive users.

From a teaching perspective, I found that AI works best when it is not the final answer, but part of the thinking process.

4. BROADER EDUCATIONAL RELEVANCE

This project also connects well with the eTwinning initiative *Artificial Intelligence for Generation Z: AI through Physics*, which explores how AI and VR can be used in STEM education.

What I find particularly interesting is that this approach is not limited to physics. Similar ideas could easily be used in Biology, History, Geography or Mathematics. The tools are flexible; what matters is how we use them pedagogically.

5. CONCLUSION

From my experience in the classroom, AI tools like ChatGPT can be very helpful in VET education, but only if they are used carefully and with clear learning goals.

They can improve understanding and motivation, but they should never replace thinking or problem-solving done by students themselves.

The most important outcome of this project, for me, was not the technology itself, but the discussion it created. Students started to think more about how they learn, when they should use AI, and when they should not.

That balance is, in my opinion, one of the key skills in the age of AI.

SUPPLEMENTARY MATERIALS

Visual documentation of student activities is available via *BookCreator*, where VR-based physics activities are shown. Students are visible but not identifiable, so privacy is protected.

We also used Padlet for student reflections. These responses were anonymised and showed how students experienced using ChatGPT, especially in terms of how it helped them learn physics and how they think about using AI responsibly, including the idea of AI detox.

A screenshot (PrtSc) of a Padlet activity in which students participated, as a supporting visual element

From recommendations to practice: Testing human-centred AI in TVET

Dr Cassandra Sturgeon Delia
Dr Ivan De Battista
MCAST

The rapid rise of generative artificial intelligence (GenAI) has created both opportunities and tensions within Technical and Vocational Education and Training (TVET). While AI tools are increasingly accessible to educators and students, many institutions are still grappling with questions surrounding ethical use, assessment integrity, digital literacy, and institutional readiness.

In response to these emerging challenges, UNESCO's Atlas of Emerging Trends in New Qualifications and Competencies in TVET (2025), particularly the article European insights: adoption of AI in TVET institutions – challenges, opportunities and recommendations (2025), highlighted the need for human-centred, ethical, and critically informed approaches to AI integration within vocational education.

At The Malta College of Arts, Science & Technology (MCAST), we sought to move beyond policy discussions and test how these recommendations could be implemented in practice in a real educational setting. As part of allocated institutional research hours dedicated to an AI-focused project, we designed this initiative to critically examine how UNESCO's recommendations could translate into the day-to-day realities of vocational education.

Our positionalities as researchers shaped both the design and interpretation of the project. Dr Cassandra Sturgeon Delia brings a background in Technology-Enhanced Learning, having completed a PhD in E-Research and Technology-Enhanced Learning and E-Research, with research interests centred on ethical and human-centred approaches to GenAI in education. Dr Ivan De Battista brings a background in marketing and psychology, having completed a PhD in Marketing, contributing perspectives linked to consumer behaviour, AI technologies, cognition, and ethics. Together, our interdisciplinary perspectives allowed us to approach AI integration not solely as a technological issue, but as a pedagogical, ethical, and human-centred challenge within TVET.

Our aim was not simply to promote AI adoption, but to critically explore how educators and students engage with AI when ethical considerations, pedagogical realities, and institutional constraints are taken seriously.

Throughout the academic year, we designed and facilitated a series of practical workshops focused on the ethical and responsible use of AI in TVET. Two workshops were delivered for vocational educators, and two additional workshops were conducted with vocational students from different disciplines.

The sessions introduced participants to GenAI tools while simultaneously foregrounding issues such as transparency, academic integrity, bias, authorship, critical evaluation of AI outputs, and the importance of maintaining human oversight. Rather than approaching AI as a purely technological solution, the workshops positioned AI literacy as part of wider professional and vocational competence. Educators explored how AI could support lesson planning, assessment preparation, feedback generation, and resource creation, while also discussing concerns regarding overreliance, authenticity of student work, and the absence of clear institutional guidance. Students similarly demonstrated enthusiasm for AI tools, particularly for study support and idea generation, yet many expressed uncertainties about ethical boundaries and what constituted acceptable use within academic settings.

One important aspect of the project was that the workshops were not treated as isolated training activities. Instead, they became part of an ongoing practitioner inquiry (PI) through which we critically

Presentation delivered at the MCAST EXPO Conference (October 2025), showcasing the practitioner inquiry design underpinning the study exploring ethical and human-centric AI integration within TVET education.

reflected on our own experiences as educators navigating AI integration within TVET.

Drawing from participant interactions, field notes, reflective discussions, and observations gathered during the sessions, we analysed how UNESCO's recommendations translated into day-to-day educational practice. This PI revealed several important insights.

First, ethical AI integration requires far more than technical training. Both educators and students needed opportunities to discuss uncertainty, negotiate boundaries, and critically question the role of AI within vocational learning. Many participants were less concerned about using AI itself and more concerned about whether their use aligned with institutional expectations that often remained unclear.

Second, the inquiry highlighted the tension between innovation and institutional readiness. While educators were increasingly expected to engage with AI, many still lacked formal guidance regarding assessment design, disclosure practices, or governance structures. This created situations where educators were attempting to promote ethical AI practices without having the authority, policies, or institutional frameworks necessary to fully support them.

Third, the project reinforced the importance of contextualising AI within the specific realities of TVET. Unlike traditional academic settings, TVET is intrinsically linked to professional practice, applied skills, and workforce preparation. As a result, our focus shifted from reductive concerns regarding academic integrity towards a more holistic examination of AI's role in shaping employability, critical judgment, professional accountability, and the future competencies required in an evolving labour market.

The project culminated in the organisation of the conference "AI in Education: Ethics, Practice and TVET Transformation", held at MCAST in June 2026. The conference brought together educators, researchers, policymakers, and professionals from different sectors to discuss the evolving role of AI within education and vocational training.

The event provided an important platform to extend conversations that had emerged during the workshops and PI, particularly regarding ethical implementation, staff development, and the future direction of AI within TVET institutions. This initiative is guided by the principle that sustainable and ethical AI integration cannot rely solely on policy documents or technological enthusiasm.

It requires continuous dialogue, critical reflection, and opportunities for educators and students to collaboratively make sense of rapidly changing digital realities. UNESCO's recommendations provided an important starting point, but their implementation ultimately depends on how institutions translate them into situated educational practices.

For TVET institutions across Europe, this work demonstrates the value of small-scale, practice-based initiatives that allow educators to test, question, and refine AI integration strategies within their own contexts. In a field increasingly shaped by technological disruption, PI may offer one of the most valuable approaches for ensuring that innovation remains grounded in human-centred educational values.

Beyond Digitalisation: Building agile VET ecosystems for the AI era

Maria Nakova
Strategic Development Manager at Cleantech Bulgaria, Project leader of the BuildSkills Academy CoVE

Digitalization in general, but most of all the artificial Intelligence, are rapidly transforming the way we work, learn and collaborate across Europe. For vocational education and training (VET), the challenge is no longer simply how to introduce digital tools into classrooms, but how to continuously adapt skills systems to a rapidly evolving labour market.

This transformation is particularly visible in the construction ecosystem. The sector is experiencing an unprecedented combination of pressures and opportunities: the green transition, digitalisation, workforce shortages, evolving sustainability regulations, and the increasing use of smart technologies, data-driven processes and automation. AI is accelerating this change by reshaping how buildings are designed, managed and maintained, while also influencing how learning itself is delivered and updated.

In this context, Centres of Vocational Excellence (CoVEs) have an increasingly important role to play. Beyond delivering training, they act as innovation ecosystems that connect VET providers, industry, policymakers and learners to anticipate future skills needs and create more agile learning pathways.

The BuildSkills Academy CoVE initiative was created precisely with this ambition: to support the modernisation of VET in the construction sector and help training providers respond to the twin transition. Coordinated by Cleantech Bulgaria, the CoVE combines 17 partners from 10 European countries aiming at developing practical tools and methodologies that allow VET providers to review, adapt and enrich training offers in line with changing labour-market demands because curricula can no longer remain static for years while industries evolve at digital speed.

To address this challenge, BuildSkills Academy developed **the BuildEnrichedSkills Methodology (BESM)**, a practical framework designed to help VET providers integrate emerging green and digital competences into existing learning programmes or create new VET courses equipped with all the sector-specific but also with the respective green and digital skills needed for each occupation. The methodology supports institutions in analysing skills gaps, evaluating current training offers and identifying opportunities to enrich curricula with future-oriented competences. The overall process is embedded within a dedicated digital platform allowing VET providers to easily self-assess their trainings and receive tailor-made practical recommendations on further course enrichment steps.

Importantly, the approach is not centred solely on technical expertise but also on adaptability, interdisciplinary thinking, collaboration and the ability to navigate continuous change. Construction professionals increasingly require a combination of technical, environmental and digital competences that cut across traditional occupational boundaries.

The BuildSkills Academy ecosystem therefore combines methodology development with collaborative learning, capacity building and European-level exchange. Through its digital platform and **training resources: https://buildskillsacademy.com/courses/**, the initiative supports VET providers in modernising educational content while strengthening their connections with industry.

This broader perspective is essential because not only jobs are transforming and becoming more digital, but also the relationship between education and work. For this reason, BuildSkills Academy places strong emphasis on creating skills ecosystems where innovation can be discussed collectively and translated into practical educational solutions. One of the most

important instruments supporting this exchange is the **series of BuildSkills Academy Masterclasses.**

Designed as high-level European learning and networking events, the three forthcoming masterclasses will bring together policymakers, VET providers, industry representatives, construction professionals and skills experts to discuss the future of construction skills in the context of the twin green and digital transition. Organised in hybrid format and co-hosted with leading European organisations, the masterclasses aim to create spaces where education, innovation and industry can work together to address emerging skills needs.

The first masterclass, "The Pact for Skills

and what new skills will drive the twin transition?", took place **on 18–19 June 2026 in Brussels** in cooperation with the European Construction Industry Federation (FIEC) as part of the EU Green Week. The event explored how collaborative approaches such as the Pact for Skills can help VET systems and the construction sector respond to rapid technological and environmental transformation. In the context of AI and digitalisation, this discussion is particularly relevant as European industries increasingly require more flexible and future-oriented approaches to upskilling and reskilling.

The second masterclass, organised in **Berlin on 17–18 September 2026** together with the German Energy Agency (dena) via the Climate-neutral Building Forum project, will focus on **"How sustainable construction will impact the construction sector in the future?"** and generate new demands for skills and training. The programme will address themes such as circular economy principles, lifecycle thinking, digitalisation and decarbonisation in construction, workforce transformation and future sector trends. By combining interactive sessions, panel discussions and site visits, the event will demonstrate how the green and digital transitions are increasingly interconnected within the built environment.

The **third masterclas**s, hosted in **Bologna on 8–9 October 2026** in cooperation with Formedil during SAIE Bologna 2026, has an extremely important topic: **"How to stimulate the interest of young people for taking career in construction?"**. As automation, smart technologies and sustainability redefine the sector's image and opportunities, the event will examine how innovation and inclusive workplaces can help make construction careers more attractive to younger generations. Discussions will include digital technologies, green building careers, diversity and inclusion, entrepreneurial perspectives and strategies for attracting and retaining talent in a rapidly evolving labour market.

Together, these masterclasses reflect a broader understanding of vocational excellence in the age of digitalization and AI. The BuildSkills Academy Masterclasses aim to strengthen the resilience and adaptability of the European construction skills ecosystem while fostering a shared vision for a more sustainable and future-ready sector.

As Europe continues navigating the twin green and digital transition, vocational education will remain central to ensuring that workers, learners and institutions can adapt successfully to changing realities. Digitalization and AI may transform the tools we use, but the core mission of VET remains the same: preparing people with the skills, confidence and adaptability needed to contribute to resilient and sustainable societies.

EfVET Magazine Submission Guidelines

Issue 38. September 2026
Theme: «Global VET: Skills for a Changing World»

VET Pulse - EfVET Magazine will be gathering items regarding the theme **"Global VET: Skills for a Changing World",** in the context of the increasing role of vocational education and training in responding to global challenges, international transformations and emerging innovations across the world.

Today, VET systems are operating in a rapidly changing global environment. Technological acceleration, green and digital transitions, demographic shifts, geopolitical instability, migration dynamics, skills shortages, new industrial strategies and the reconfiguration of global value chains are transforming the way people learn, work and participate in society. These changes are not limited to Europe. Across the world, TVET systems are developing new strategies, partnerships and practices to strengthen resilience, competitiveness, inclusion and sustainability.

For this issue, EfVET wishes to explore how VET systems are responding to international and global challenges. How are VET providers, networks, companies and policymakers adapting to global transformations? What strategies are emerging to connect local skills ecosystems with international cooperation? What practices from Europe and beyond can inspire the future of VET? How can VET contribute to more inclusive, sustainable and globally connected societies while remaining rooted in local communities and labour markets?

We welcome contributions that present concrete practices, institutional strategies, case studies, research, reflections or critical perspectives on the global dimension of VET. In this issue, we are particularly interested in contributions that show how VET can act as a bridge between local needs and global challenges. We invite authors to share experiences that demonstrate how vocational education and training can strengthen cooperation, anticipate change, promote mutual learning and support learners, teachers, institutions and communities in a world defined by interdependence.

Manuscript Deadline: 20th of August 2026 to be sent to the Publications Team (publications@efvet.org).

VET Pulse - The EfVET Magazine is an official publication of the European Forum of Technical and Vocational Education and Training. It is issued four times per year. EfVET Magazine is available to EfVET members as part of their dues and to other interested stakeholders. It is published digitally on the EfVET website. EfVET readers are professionals in the domain of Technical and Vocational Education and Training, Adult Education, Lifelong Learning, representatives from different economic sectors, all with one common interest: learning about what is happening in the VET world, at different levels.

Editorial Guidelines (read carefully, articles should respect all directives).

Article submissions should be:

- No less than 500 words and no more than 1000 words
- Submitted as attachment in a .docx format - No PDF is accepted.
- Written in English (British)
- Original work by the Authors or Co-Authors

Images submissions should be:

- Please enclose at least one high-resolution picture pertinent to the article content (not the author's portrait picture) to your email, instead of including in your document
- Formatted as a .jpg or .png file
- Please give a short description of the picture, if it is not yours, please include the credits
- Please ensure that all photos submitted have been approved by the individuals who appear in them.

Your submission email article should include the following information:

- Title & 3-4 lines of summary/introduction to the subject
- Your Name [the name under which you would like to be published] and Name of your organisation. Only the name of your organization is not sufficient.

Editing

- All submissions will be reviewed by the VET Pulse - EfVET Magazine Editorial Committee
- If any of the above mentioned elements are missing, the Editorial Committee can decide not to proceed with the publication.

As we continue upgrading the Magazine's quality and experience, contributors are welcome to submit, on a voluntary basis, a **complementary multimedia asset** that could strengthen their article, which includes:

- Videos & Short Videos
- Larger Pictures (one-paged or two-paged)
- Links
- Charts
- Social Media Links (if relevant)
- Captions

While these assets can enhance the visibility and engagement of the magazine, as well as strengthen the storytelling of the article, please note that their inclusion is not guaranteed. The Editorial Committee will assess all the materials received individually and determine the feasibility of their publication based on quality, relevance and overall coherence.

About EfVET

The **European Forum of Technical and Vocational Education and Training (EfVET)** is an EU nonprofit umbrella organisation, established in 1991, with the purpose of building a network of VET stakeholders, to secure a voice across Europe in European policymaking and practice arenas. EfVET represents 450+ members from 60+ countries (including Africa and Asia), reaching 5K+ VET providers, 200K+ VET practitioners and 2M+ learners.

Published electronically on EfVET website.

- **Editor:** Joachim James Calleja, EfVET President
- **Co-Editors:** Paolo Nardi, EfVET Executive Director and Emilio Dogliani, Advocacy and Project Manager
- **Editorial Committee:** Essi Ryymin, Justina Pluktaite & Sanna Ryökkynen
- **Coordinator & Graphic Designer:** Jaime Rivas, Communications Officer
- **Pictures:** EfVET Members, EfVET Flickr, Unplash, Freepik

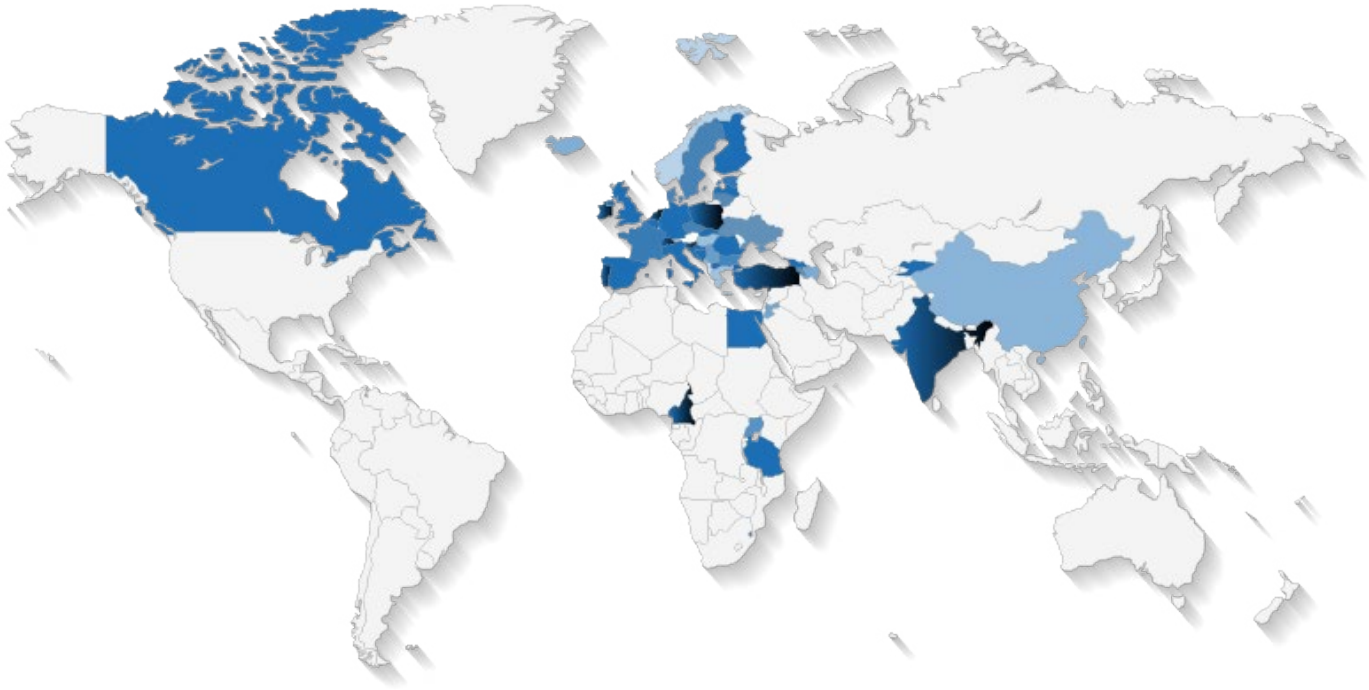
Follow us on social media:

The views or perspectives shared in this content are solely those of the author and do not necessarily reflect the views, policies, or positions of EfVET.

visit our website www.efvet.org

Contact us:
contact@efvet.org
+34 (0)2 721 90 74

European Forum of Technical and Vocational Education and Training



Co-funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.