



Integrating AI into teaching and learning in TVET



Innovation and Learning Practice

Bridging Innovation and Learning in TVET (BILT) Project

Submitted by Koblenz Chamber of Skilled Crafts, Germany

The Integrating AI into teaching and learning in TVET initiative uses AI to reduce workloads for trainers and improve learning for trainees. Using a digital platform and specifically programmed chatbots, it reduces learning inequalities and strengthens future employment opportunities in skilled trades.

Start date: October 2024

Type of implementing institution: Self-governing, non-profit corporation

Target group: Trainees, Masters of crafts students, trainers across multiple professions



**Handwerkskammer
Koblenz**

Koblenz Chamber of Skilled Crafts, Germany

The Koblenz Chamber of Skilled Crafts is a self-governing, non-profit that represents northern Rhineland-Palatinate's craft sector. It offers vocational qualifications, inter-company and advanced training, and supports technology integration. The Koblenz Chamber of Skilled Crafts became a member of the UNEVOC Network in 2024.

Description of activities

Within Germany's dual training system, apprentices receive education in TVET centres as well as practical in-company training. The Koblenz Chamber works with its network of over 8,000 training companies to identify skills gaps and provide training that supports industry developments. A key focus is the integration of new technology, specifically artificial intelligence (AI), into TVET provision. Through a digital platform and bespoke chatbots, the initiative supports both trainers and trainees.

Relevance

What issues is Integrating AI into teaching and learning in TVET designed to address?

The challenges for TVET training centres in the region include limited industry collaboration and restricted opportunities for personalized training. This creates inequalities, particularly for trainees with learning difficulties, language needs or educational backgrounds outside Germany, who often fall behind in their studies or drop out.

What strategies has the initiative employed to address these challenges?

The initiative aims to make inter-company training more efficient and equip learners with the digital skills needed for future employment, with a focus on personalized learning, through:

Support for trainers: Versatile tools and resources designed for schools and training institutions enable trainers to create customized learning materials, digitize documents, and structure and research content with chatbot assistance. This saves time and enables them to focus more on teaching.

Support for trainees: User-friendly tools for all learning and language levels provide tailored resources, translate content, answer questions and guide learning in a manner similar to that of a teacher. This promotes equal opportunities, reduces the risk of dropout and prepares trainees for work in an increasingly digitalized sector.

By modernizing training and presenting skilled trades as innovative, the initiative also enhances the sector's image and attractiveness to future participants.

Is the initiative part of a wider goal?

The initiative aligns with Germany's goal of creating a '**digitalized working environment**', ensuring trainees acquire digital skills across all professions.

Added value

What is new about the initiative and how does it differ from similar programmes?

The initiative makes real-time use of AI within and beyond the classroom. As well as providing language and learning support, its chatbots interact directly with trainees, enabling them to tailor learning to their individual needs.

The initiative embraces the benefits of AI – whilst also addressing its potential risks – ensuring students learn to use it responsibly and safely. By using the initiative's chatbots, trainees receive guidance without instant answers, learning to ask questions effectively and deepening their understanding of the content.

What stage of implementation is the initiative currently at?

The wider platform is in use and the chatbots are undergoing testing by trainees with diverse educational needs before they are rolled out across all departments and education levels.

What positive outcomes has the initiative achieved since inception?

Initial feedback and observations confirm a lighter trainer workload and positive support from trainees. The initiative is particularly beneficial to migrant trainees who may require additional support and aims to ensure all trainees, regardless of background, have the same opportunities. It should, therefore, boost future regional employment rates.

Transferability

Is this initiative transferrable and what advice can you offer those wishing to replicate it?

Key elements could be adapted across other sectors and regions including chatbot development and the principle of positioning AI as a supportive learning tool, rather than a threat to learning.

Key advice for those wishing to replicate include:

Platform adaptation. Platforms must be tailored to users' needs and aligned with local and occupational contexts. Collaboration with experienced software providers with good regional knowledge to develop customizable chatbots and adhere to privacy-compliant learning, is therefore recommended.

Acceptance and infrastructure. Trainers should be equipped and trained in basic digital skills and AI concepts to address digital skills limitations, unequal access to devices and fear of using AI.

Integrating AI into teaching and learning in TVET is one of the BILT project's Innovation and Learning Practices that addresses systemic challenges within the five work streams of the project.

Specifically, this initiative addresses digitalization in TVET.



Digitalization in TVET

Providing response to new skills demands, as technology has permeated the world of work and is changing the profile of jobs.

Additional Innovation and Learning Practices cover the following areas:



New qualifications and competencies in TVET



Entrepreneurship in TVET



Greening TVET



Migration and TVET

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More information about this practice

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About the BILT Project

UNESCO-UNEVOC's Bridging Innovation and Learning in TVET (BILT) project is a reference point for innovation and learning in TVET. It fosters global policy dialogue and peer learning among TVET stakeholders while promoting innovation and inclusive excellence in TVET. BILT complements developments at the national level in supporting innovative, market-oriented and attractive modes of learning and cooperation in TVET.

The BILT project explores the process of identifying, integrating and implementing new qualifications and competencies in TVET. This is known as the 'three I's process'.

In addition to the broad focus on new qualifications and competencies, BILT addresses four complementary themes: Digitalization in TVET, Greening TVET, Entrepreneurship in TVET, and Migration and TVET.

For more information, please visit
www.unevoc.unesco.org/bilt

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New qualifications and competencies in TVET

- **Identifying** new qualifications and competencies in a timely manner;
- **Integrating** them into appealing and flexible curricula and training regulations; and
- **Implementing** them in innovative training approaches

Entrepreneurship in TVET

Unlocking the potential of innovative entrepreneurial activities and fostering entrepreneurial culture

Greening TVET

Responding to new development paradigms for sustainability and reduced environmental impact

Digitalization in TVET

Providing response to new skills demands, as technology has permeated the world of work and is changing the profile of jobs

Migration and TVET

Accelerating the integration of migrants into their host communities, and allowing them to become productive members of the workforce

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