



## 2.2.458 - Generative AI in vocational education: development, analysis, and integration

Research project: Abstract

Oliver Nahm

Bundesinstitut für Berufsbildung  
Friedrich-Ebert-Allee 114 - 116  
53113 Bonn  
Telefon: 0228 107-2059  
E-Mail: [Oliver.Nahm@bibb.de](mailto:Oliver.Nahm@bibb.de)

**Mehr Informationen unter:**  
[www.bibb.de/](http://www.bibb.de/)

The rapid development of generative artificial intelligence (hereinafter referred to as “AI” for ease of reading) poses considerable challenges for vocational education and training. The special status of this technology stems from its wide range of applications and accessibility: both educators and learners have low-threshold access to free and paid models and can use them to create their own content.

Generative AI offers a wide range of applications that can provide long-term support for teaching and learning processes. Examples include bots for individual learning support, language adaptation for different target groups, the generation and adaptation of task material, and simulations and role-plays that depict practical scenarios and thus strengthen learners' skills. This creates more time for human interaction and individual support during the holistic learning process, which improves the quality of training in the long term.

Although AI has great potential (see MGI, 2024), there is a research gap regarding its effective integration into vocational education and training. These developments not only present educational staff with new pedagogical challenges, but also raise pressing structural and regulatory issues. It is therefore crucial to develop a sound understanding of where and how AI can be used most effectively in order to specifically promote the integration process and lay the foundations for necessary adjustments to the regulatory system of vocational education and training.

The research project “Generative AI in Vocational Education and Training” aims to close this gap. A mixed-methods approach (online surveys of education staff, semi-structured interviews) is used to assess the current status of AI integration. This initial survey marks the starting point of an iterative process that will be repeated every nine months to document and analyze the development of AI integration, acceptance factors, and effects on social interactions.

Based on the needs of the cooperation partners, practice-oriented materials will be developed using the design-based research (DBR) approach to support educational staff in the implementation of AI. For better integration and exchange, a webinar will be offered after each new material is made available, which will also serve as a feedback loop.

The partial results will be published during the project period to support vocational education stakeholders. At the end of the project, the findings will be compiled and recommendations formulated, including concrete recommendations for the optimal use of AI to improve the quality of education and starting points for further research.