

FROM KNOWLEDGE TRANSFER TO LEARNING SUPPORT: NEW ROLES FOR TEACHERS IN THE AGE OF AI

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Abstract

AI-supported learning environments are transforming continuing higher education at the structural and personnel levels. Instructors are taking on new roles as learning facilitators, providers of feedback, interpreters of data, and more. This shift requires new competencies, including a greater understanding of technology and ethics, as well as improved pedagogical reflection skills. Higher education institutions must proactively facilitate this transition by providing targeted training and recruitment.

Keywords: *AI, teaching role, learning environment, personalization, scientific continuing education.*

1. Introduction

The rapid development of AI-supported learning environments is bringing about fundamental change in academic continuing education: teachers no longer act solely as imparters of knowledge, but are increasingly taking on roles such as learning facilitators, feedback providers, and data interpreters. This profound change requires new skill sets – in particular, technological, reflective, and empathetic abilities – and places high demands on university teaching professionalism and recruitment. As Björn Ommer (2025) emphasized in the run-up to re:publica 2025: “To remain sovereign in the age of ‘artificial intelligence,’ a new mindset is needed [...]. Generative AI can become an ‘enabling technology’ to initiate the transition from an information society to a knowledge society.” This perspective makes it clear that AI (artificial intelligence) does not replace teachers, but opens up new avenues for academic continuing education.

2. AI-supported learning environments: status quo and technological foundations

AI in learning environments currently represents one of the most significant innovation drives in academic continuing education. While digital teaching and learning platforms have been part of university teaching for years, AI-based systems enable a new level of quality in learning process control and individualization.

Artificial intelligence in continuing education: AI in education refers to technologies that are capable of automatically analyzing, controlling, and adapting learning processes (Kamalov et al., 2023). These include systems that recognize learning behavior, dynamically generate content, and provide personalized learning paths. In the context of continuing education, this means that learners can receive real-time support that is individually tailored to their needs, knowledge, and learning progress (Ommer, 2025).

2.1. Technological foundations and modes of operation

The technological basis of AI-supported learning environments can be divided into several key components, including: adaptive learning systems, learning analytics, natural language processing (NLP), and automated content generation.

Adaptive Learning Systems (ALS): It describes the ability of a learning system to adapt the learning process to the individual needs of learners. Some platforms use these technologies to adapt content to learners' knowledge levels in real time. This means that learners only receive content that is relevant to their individual progress, while unnecessary repetition is avoided. In addition, biometric and sensory data are becoming increasingly important. Recent research shows that adaptive learning platforms use physiological feedback such as heart rate variability (HRV), eye tracking etc. (UNESCO UNEVOC, n.d.).

Learning Analytics (LA): It involves the collection, evaluation, and interpretation of learning data with the aim of optimizing learning processes. With the help of learning analytics, teachers can gain insight into the learning progress of their participants, plan interventions, or evaluate the effectiveness of didactic measures. In AI-supported systems, this analysis is usually automated (Zawacki-Richter et al., 2019).

Natural Language Processing (NLP): It enables AI systems to understand and process natural language and generate content independently. In continuing education, this can be used to create automated summaries, personalized exercises, or individual feedback texts. They enable automated assessment systems and chatbots that respond to learning questions in real time, reducing the workload for teachers and providing learners with more intensive support (Zawacki-Richter et al., 2019).

Automated Content Generation: A key area of application for AI in continuing education is the automated generation of learning content. Based on existing teaching materials, open educational resources etc. can be created in a short period of time. These systems enable adaptive explanation paths, interactive content, and automated feedback, which supports personalized learning support (Zawacki-Richter et al., 2019).

2.2. Personalization and individualization of learning processes

A key feature of AI-supported learning environments is the ability to customize the entire learning process. Based on learning analytics data and adaptive algorithms, learning systems can dynamically tailor methods, content, difficulty levels, and learning speeds to the needs of individual learners. This creates a learning environment that both supports learners in a targeted manner and responds flexibly to changes and fluctuations in learning behavior.

Specifically, by combining the technologies described above, learners can:

- define their own learning goals and set priorities,
- learn at their own pace and in a self-directed manner,
- request and receive continuous, personalized feedback on their progress and understanding,
- flexibly adapt learning paths, for example through automated suggestions for the next content,
- receive targeted support when learning gaps are identified – for example, through additional materials or individualized exercise sequences and additional tasks.

This form of personalization thus goes beyond mere content differentiation: it enables permanent adaptation to motivation, performance level, and learning style. Studies show that this can significantly increase learning motivation, self-efficacy, and learning success. At the same time, however, it places higher demands on the self-learning skills of participants and on the didactic planning of education providers, who must provide appropriate support (Merino-Campos, 2025; OECD, 2023). At the same time, however, it places greater demands on participants' self-learning skills and on the didactic planning of education providers, who must provide appropriate support structures and clear guidance.

3. Change in the role of lecturers in academic continuing education

With the increased use of AI-supported learning environments in academic continuing education, the job profile of lecturers is changing fundamentally. While traditional knowledge transfer can and will increasingly be taken over by intelligent systems, new areas of responsibility are gaining in importance. This applies to both didactic planning and interactive support for learning processes.

3.1. From knowledge transfer to learning process support

Traditionally, lecturers in academic continuing education have focused primarily on transferring specialist content. Using AI-based data allows us to analyze learning progress and provide automatic, personalized feedback. This transforms the role of lecturers, making it more characterized by guidance, reflection, and individual support. In the future, lecturers' central tasks will include promoting participants' self-learning skills, moderating and guiding learning processes, providing individual feedback in areas AI cannot cover, such as emotional aspects and critical thinking, promoting learning motivation and social interaction, and supporting ethical and legal issues when dealing with AI-generated content (Chan & Tsi, 2023).

3.2. New competency requirements for lecturers

The changed conditions brought about by AI-supported learning environments entail new competency profiles for lecturers in academic continuing education (see Table 2). These can be divided into the following key areas: *didactic competency* (designing AI-supported learning settings, orchestrating face-to-face and online elements), *technological competency* (basic understanding of how learning analytics, adaptive learning systems, and AI tools work), *data and information literacy* (interpretation and

use of learning data for individual support, *social skills* (promotion of motivation, collaboration, and reflective thinking), and *ethical and legal expertise* (critical reflection on ethical aspects of AI use in education, e.g., data protection, bias) (UNESCO, 2024).

3.3. New role models: From coaching to learning architecture

Parallel to the development of new areas of expertise, new role models for lecturers in academic continuing education are also emerging. The different roles overlap to some extent, but they are characterized above all by their dynamism and context dependency (Mollick & Mollick, 2024; EDTECH Hub, 2025).

Learning coach / mentor: In the role of learning coaches, lecturers provide individual support to learners in planning, implementing, and reflecting on their learning process. They promote self-learning skills, help with motivation problems, and accompany learners in clarifying their goals.

Moderator / facilitator: As moderators or facilitators, lecturers design social learning processes, especially in synchronous or asynchronous group phases. This includes initiating discussions, managing group work, and moderating reflection rounds.

Feedback provider: Although AI systems already provide automated feedback in the form of learning progress indicators or quiz evaluations, high-quality, differentiated feedback remains a uniquely human task. Lecturers primarily provide feedback on complex tasks.

Learning architect: As learning architects, lecturers are responsible for the overall didactic design of the learning process. They decide when and how AI systems are used, how learning activities are linked, and where human intervention is appropriate.

Data interpreter: In their role as data interpreters, lecturers analyze the learning analyses provided by AI systems. They identify learners who need support, recognize patterns or learning difficulties, and can initiate targeted support measures on this basis.

4. The new lecturer persona in academic continuing education

The introduction of AI-supported learning environments is not only changing the learning processes of participants, but also fundamentally challenging the traditional role of lecturers, as explained above. While the focus in traditional continuing education formats was and still is on imparting content, adaptive systems, chatbots, and learning analytics platforms will take over large parts of this task in the future.

As a result, the requirements profile for lecturers is shifting considerably. The previous selection criteria for teaching and continuing education staff—such as subject knowledge, presentation skills, and methodological competence—are no longer sufficient. The new understanding of the role requires a redefinition of the “lecturer persona”.

4.1. Description of the new lecturer persona

The new lecturer persona in academic continuing education is a learning coach/mentor, moderator/facilitator, feedback provider, learning architect, and data interpreter.

The following situation in continuing education is conceivable, for example: instead of holding a seminar on a specific topic, the instructor analyzes the individual learning progress of the participants in the morning using the learning analytics dashboard. Based on this data, she / he identifies learners who need support, prepares coaching interventions, and plans a moderated online discussion to promote critical thinking (Jung et al., 2025).

4.2. Key dimensions of the new persona

The complexity of the new role of lecturers can be systematized using several key dimensions. These dimensions describe both the required skills and the professional attitude and working methods

Competence profile: Didactic excellence, technological (basic) competence, high data and information competence, strong social skills, and ethical sensitivity.

Attitude and values: Learning-oriented attitude, openness to technological innovations, willingness to engage in continuous professional development.

Ability to intervene: Ability to intervene in automated learning processes in a targeted manner in order to support learners or to identify undesirable developments at an early stage.

Self-reflection: Continuous reflection on one's own role in the tension between automation and personal learning support.

Digital literacy: Ability to confidently integrate digital tools and AI systems into one's own teaching practice.

4.3. Implications for the selection and qualification of lecturers

The development of the new lecturer persona in AI-supported learning environments has substantial consequences for universities and other providers of academic continuing education. Two target groups must be distinguished here: existing lecturers, who must develop their skills to meet the new requirements, and new lecturers, for whom the recruitment criteria are changing fundamentally.

Existing staff: Further training and role development

Many teachers, especially in the freelance segment of academic continuing education, have excellent specialist knowledge and extensive experience in traditional classroom formats and standard online teaching formats. However, they often express uncertainty or skepticism about AI-supported technologies, changing role models, and data-supported interventions. The central challenge is therefore to engage in didactic reflection on one's own role. Continuing education providers need to support a transformation process that enables teachers to gradually evolve from imparting knowledge to facilitating the learning process.

- Recommended measures for continuing education providers:
- Modular qualification programs on role understanding, AI-supported didactics, learning analytics, and ethical and legal issues.
- Examine peer learning formats for collegial reflection on role change.
- Mentoring by experienced “digital teaching pioneers,” e.g., people with experience in AI-supported formats.
- Opportunities for practical application in protected testing environments – “didactic sandbox settings.”
- Anchoring of further development paths in fee contracts and/or cooperation agreements.

The goal should not be to release traditional teaching personalities from their contracts, but rather to expand their repertoire – geared toward the future needs of digital, individualized continuing education. Given the shortage of good lecturers on some topics, continuing education providers could hardly afford not to continue employing these individuals.

New lecturers: recruitment based on new criteria

The selection of new teaching staff in academic continuing education must take into account the changing competency requirements in AI-supported learning environments from the outset. In addition to subject-specific expertise, the areas of competence described in section 3.2 must be taken into account. These should be described and recorded during the recruitment process to ensure that applicants have the necessary foundations and do not need to be retrained in many key areas. UNESCO (2024) recommends that staff recruitment and development in higher education should be explicitly aligned with AI competency frameworks in the future.

Key elements of an adapted application process could include:

1. **Requirements profile:** Defining the required areas of expertise (e.g., didactic-technological integration, data and information literacy, social skills, ethics and legal expertise). / Description of the expected application scenarios in the context of AI-supported teaching.
2. **Application documents:** Creation of a teaching portfolio with AI-supported concepts. / Documentation of projects in which applicants have integrated learning technologies or used learning analytics. / Ethical dilemma: Discussion of a decision-making situation in which algorithmic recommendations conflict with pedagogical beliefs.
3. **Assessment components:** Video-based teaching demonstration: Evaluation of goal definition, didactic structure, and embedding of AI in the overall learning process. / Short written reflection.
4. **Interview guide:** Situational questions on realistic teaching scenarios with AI. / Reflection on own learning processes when dealing with new technologies. / Assessment of opportunities and limitations of AI-supported learning environments.

5. Conclusion and outlook

The pursuit of role clarity leads to strategic personnel development – including in academic continuing education. With the advancing automation of knowledge transfer through AI, the didactic focus is shifting to individual, socially embedded, and ethically sound learning support. Universities and their continuing education institutions are thus faced with the task of establishing systematic personnel development strategies for ‘Didactics 5.0’ – in a field of tension between technical innovation, pedagogical responsibility, and the organizational framework conditions of everyday university life.

But it should also not be forgotten that “learning is a constructive process. Learners are not passive recipients of knowledge, but active constructors of their understanding. Knowledge cannot simply be transferred from one person to another – everyone has to build it up themselves, based on what they already know and have experienced.” (Geyer, 2025) She has developed a model that makes it clear that learning is a constructive process, i.e., that “learners [...] are not passive recipients of knowledge, but active constructors of their understanding.” Better technology does not automatically lead to better learning. AI already excels in some areas, but humans remain irreplaceable.

“AI is revolutionizing what is on offer (materials, tests, feedback)” and thus also the role of teachers, “but learning itself remains human (thinking, understanding, motivation),” (Geyer, 2025) and that should give us cause for optimism. However, we cannot afford to rest on our laurels, otherwise others will come up with new ideas and turn them into business models.

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