Call for papers
Studying with digital study assistance systems

Editors: Maren Lübcke (Hannover), Johannes Schrumpf (Osnabrück), Katharina Schurz (Osnabrück), Funda Seyfeli-Özhizalan (Hannover), Tobias Thelen (Osnabrück), Klaus Wannemacher (Hannover), Felix Weber (Osnabrück)
Date of publication: December 2024

To the main topic

Advances in artificial intelligence (AI) and the increasing availability of data and processing capacities are leading to a growing range of assistance systems in all areas of life, including higher education (de Witt, Rampelt, & Pinkwart, 2020). Applications from the field of user-friendly generative AI are currently demonstrating the range of possibilities that arise for use in a higher education context (e. g. Gimpel et al., 2023; Mohr et al., 2023). Despite the continuously growing number of concrete applications, the current state of research on digital study assistance systems (DSA) based on rule-based AI methods and machine learning approaches is still limited. The aim of this special issue, therefore, is to examine the thematic area of digital assistance systems from a theoretical and practical perspective.

From a new perspective, higher education in the digital age can be understood as a comprehensive network of different educational programmes and opportunities that can potentially go far beyond the traditional curricular courses on offer. Searching for and finding adequate educational programmes is of central importance. Due to the enormous range of options available, digital assistants with their data processing capacities, which are far superior to human capacities in certain areas, have an important role to play. Data from heterogeneous data sources (e. g. learning management systems or online courses) can, for example, be analysed by AI algorithms and made available to learners with pinpoint accuracy.

Individualised study support services, some of commercial origin, are made available internationally in the form of mobile assistance systems, among other things, which are intended to provide students with guidance in various areas of everyday university life: lecture recording apps, to-do apps, learning activity tracker apps, revision apps, concentration trainers, exam preparation apps and many more. There are also corresponding initiatives at a national level, where the use of AI in higher education has been growing in importance for years (Wannemacher & Bodmann 2021), including the following, for example:

- Study assistance system gOPAL[1]
- HAnS – the intelligent university assistance system[2]
- DIAS – a digital helper for students[3]
- eDoer: AI-based personal learning tool from TIB Hannover[4]
- Siddata – a digital study assistant for the individualisation of study progression[5]

[1] https://tud.qucosa.de/api/qucosa%3A74305/attachment/ATT-0/?L=1
[2] https://www.th-owl.de/iwd/forschung/hans/
[3] https://ankit.hs-ansbach.de/das-projekt-dias-entwicklung-eines-digitalen-helfers-fuer-studierende/
[4] https://labs.tib.eu/edoer/
[5] Weber et al., 2022; Schurz et al., 2021.

In the context of higher education in German-speaking countries, numerous funding lines in the last decade show a clear reference to the use of data and AI-driven technologies in higher education teaching some of which may also include support services based on AI technologies. Relevant examples of this from Germany are the four Federal Ministry of Education and Research (BMBF) funding lines on the topics of "Effectiveness and impact of current approaches and formats – trends and new paradigms in didactics and technology"[6], "Innovation potentials of digital higher education"[7], "Discipline- and subject-related digital higher education"[8] and "Innovations in higher education through artificial intelligence and big data"[9].

In many cases, students want a few centralised tools to support their studies. However, only a few of these applications, which vary in sophistication, take a broader approach to supporting everyday student life. Study assistance systems that support the self-organisation of studies and encourage self-regulated learning can potentially promote the acquisition of competencies and meta-cognitive skills.

Digital assistance systems generally process user data, which is ideally made consciously available by a sovereign student data owner. In this context, there is also a great need for theoretical and practical approaches in the field of data ethics and the teaching of data protection skills in relation to data-driven AI in higher education (Ebeling, Koch, & Roth-Grigori, 2012).

The objective of this issue is to bring together practical and theoretical approaches that aim to support students digitally in the flexible organisation of their studies and the pursuit of individual educational goals. For example, one focus may be on the development of existing educational programmes for students using AI methods, study planning tools or educational chatbots.

In this call, we invite you to share empirical studies, case studies, theoretical considerations, field reports and presentations of ongoing projects in the field of digital study assistance systems with the professional community.

The following questions can be taken as suggestions, but are by no means exhaustive:

- To what extent do digital study assistance systems represent an opportunity for the development of novel learning concepts?
- How can digital assistants implement data sovereignty for users and sensitise them to this topic?
- How can organisational foundations be created for the use of relevant data in digital assistance systems?
- What hurdles, opportunities and questions arise from human-machine interaction in the context of higher education?
- What specific needs can be mapped using data- and AI-supported applications in the education sector?
- How can data and educational resources be exchanged in machine-readable form and made accessible to learners?

[6] https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2016/02/1152_bekanntmachung
[7] https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2017/08/1393_bekanntmachung
[8] https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2018/11/2082_bekanntmachung
[9] https://www.bmbf.de/bmbf/shareddocs/bekanntmachungen/de/2020/03/2873_bekanntmachung

Preference will be given to contributions with a strong reference to data and AI, a pronounced practical orientation and extensive evaluation measures. The assistance systems analysed should possibly go beyond individual courses or simple digital tools. We look forward to contributions that examine the topic of “Studying with digital study assistance systems” from as many different perspectives as possible – including in the sense of critical reflection – and thus shed light on their use, development and role in the context of the digital transformation at universities.

References

de Witt, C., Rampelt, F., & Pinkwart, N. (2020). *Künstliche Intelligenz in der Hochschulbildung. Whitepaper*. Berlin: KI-Campus. https://doi.org/10.5281/zenodo.4063722

Ebeling, J., Koch, H., & Roth-Grigori, A. (2021). *Data Literacy Education an deutschen Hochschulen. Kompetenzerwerb im kritischen Umgang mit Daten.* Essen: Stifterverband.

Gimpel, H., Hall, K., Decker, S., Eymann, T., Lämmermann, L., Mädche, A. et al. (2023). *Unlocking the power of generative AI models and systems such as GPT-4 and ChatGPT for higher education: A guide for students and lecturers*. Hohenheim: University of Hohenheim (Hohenheim Discussion Papers in Business, Economics and Social Sciences, No. 02-2023).

Mohr, G., Reinmann, G., Blüthmann, N., Lübcke, E., & Kreinsen, M. (2023). *Übersicht zu ChatGPT im Kontext Hochschullehre*. Hamburg: Hamburger Zentrum für Universitäres Lehren und Lernen (HUL).

Schurz, K., Schrumpf, J., Weber, F., Seyfeli, F., & Wannemacher, K. (2021). Towards a User Focused Development of a digital Study Assistant Through a Mixed Methods Design. In D. G. Sampson, D. Ifenthaler, & P. Isaías (Hrsg.), *18th International Conference on Cognition and Exploratory Learning in the Digital Age, CELDA 2021* (S. 45–52). IADIS Press.

Wannemacher, K., & Bodmann, L. (2021). *Künstliche Intelligenz an den Hochschulen – Potenziale und Herausforderungen in Forschung, Studium und Lehre sowie Curriculumentwicklung*. Berlin: Hochschulforum Digitalisierung (Arbeitspapier Nr. 59).

Weber, F., Schrumpf, J., Dettmer, N., & Thelen, T. (2022). A Web-Based Recommendation System for Higher Education: SIDDATA: History, Architecture and Future of a Digital Data-Driven Study Assistant. *International Journal of Emerging Technologies in Learning (iJET)*, *17*(22), 246–254. https://doi.org/10.3991/ijet.v17i22.31887

Guidelines regarding the journal

The ZFHE is a peer-reviewed online journal that publishes scientific contributions of practical relevance concerning current higher education development issues. The focus is on didactical, structural, and cultural developments in teaching and learning. Topics that are innovative and still regarded as open in respect of their design options are preferred.

The ZFHE is published by a consortium of European researchers and funded by the Austrian Ministry for Science, Research and Economics. For more information, see https://www.zfhe.at.

Submission information

German or English contributions may be submitted in two possible formats:

Research contributions should meet the following criteria. The paper:

- addresses a systemic question in transdisciplinary, interdisciplinary or subject-specific contexts;
- has a research gap as its starting point;
- is extensively embedded in current scholarly discourse;
- has a robust methodological approach;
- includes reflection on the author's own work;
- explains the research methodology;
- employs a method that is suitable for answering the research question;
- presents the scientific discourse in a reflective manner;
- makes a clearly recognizable contribution to answering the research question or to the research discussion;
- consistently follows relevant citation rules (APA style, current edition);
- comprises between 20,000 and 33,000 characters (with spaces, including cover page, bibliography and author information).

Research-driven development contributions should meet the following criteria. The paper:

- features a higher education development perspective with a sound research base;
- discusses and differentiates a systemic problem in teaching development;
- is an academically grounded "institutional research" contribution;
- is supported by a literature review;
- meaningfully addresses the interaction between science and praxis and/or the link between the two poles of "research and development"
- consistently follows pertinent citation rules (APA style, current edition);
- comprises between 20,000 and 33,000 characters (with spaces, including cover page, bibliography and author information).

Development contributions should meet the following criteria. The paper:

- deals with a concrete problem in higher education development in the (author's) higher education institution;
- addresses a practical need;
- is embedded in the scientific discussion and literature (without claiming to provide an overview of the literature);
- offers suggestions for teaching and university development, with recommendations for action (if applicable);
- offers a systematic and transparent discussion (e.g. no incomprehensible references to specifics or details in a field of practice);
- elaborates on generalisable aspects relevant to theoretical development;
- addresses considerations related to the transfer to practice;
- mentions possibilities for further research;
- consistently follows relevant citation rules (APA style, current edition);
- comprises between 20,000 and 33,000 characters (with spaces, including cover page, bibliography and author information).

Submission and review schedule

June 17, 2024 – Submission deadline for complete articles: Please upload your contribution(s) to the ZFHE journal system (https://www.zfhe.at) in the corresponding section (research contributions, research-driven development contributions, development contributions) of ZFHE 19/4 issue in anonymous format. To do so, you must first register as an author in the system.

September 2, 2024 – Feedback/Reviews: Scientific contributions and workshop reports are evaluated in a double-blind process (see below).

October 14, 2024 – Revision deadline: Where necessary, contributions may be revised according to feedback and recommendations from the reviews.

December 2024 – Online publication: In December 2024, the finalized contributions are published under https://www.zfhe.at and also made available in print.

Review Process

All submitted contributions will be examined in a double-blind peer review process to guarantee scientific quality. The editors of the current issue propose the reviewers for the respective theme and allocate individual contributions to the reviewers; they also determine which contributions will be accepted. The selection of reviewers and the review process for each thematic issue are always supervised by a member of the editorial board.

Formatting and submission

In order to save valuable time with the formatting of the contributions, we kindly ask that all authors work with the template from the beginning. The template can be downloaded from the ZFHE website under the following links:

https://www.zfhe.at/userupload/ZFHE_19-4_TEMPLATE_de.docx

https://www.zfhe.at/userupload/ZFHE_19-4_TEMPLATE_en.docx

Since we must be able to edit the texts, they must be submitted unlocked/unprotected in in Microsoft Word (.doc), Office Open XML (.docx), Open Document Text (.odt) or Plain Text (.txt) format. Please do not submit any PDF files! Submissions in the "Scientific Contribution" and "Workshop Report" categories must first be made in anonymous format in order to guarantee the double-blind review process. Please remove all references to the author(s) of the document (including in the document properties!). Upon a positive review result, this information will be re-inserted.

Questions?

If you have any questions regarding the content of the issue, please contact Maren Lübcke (lübcke@his-he.de), Johannes Schrumpf (jschrumpf@uni-osnabrueck.de), Katharina Schurz (katharina.schurz@uni-osnabrueck.de), Funda Seyfeli-Özhizalan (seyfeli@his-he.de), Tobias Thelen (tobias.thelen@uni-osnabrueck.de), Klaus Wannemacher (wannemacher@his-he.de) or Felix Weber (fweber@uos.de).
For technical and organizational questions, please contact Elisabeth Stadler (office@zfhe.at).

We look forward to your submissions!

Maren Lübcke, Johannes Schrumpf, Katharina Schurz, Funda Seyfeli-Özhizalan, Tobias Thelen, Klaus Wannemacher & Felix Weber