Extended Abstract for the
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AI IN SCHOOLS: INSIGHTS AND APPROACHES FROM THE AI COMPETENCY CENTER OF THE HAMBURG STATE INSTITUTE FOR TEACHER TRAINING AND SCHOOL DEVELOPMENT

Britta Kölling
Gymnasium Allee, Hamburg, Germany, britta.koelling@gym-allee.de

Focus Topics: AI and Data Science Competencies

The AI Competence Centre of the Hamburg State Institute for Teacher Training and School Development (Kompetenzstelle KI, Landesinstitut für Lehrerbildung und Schulentwicklung Hamburg) presents insights and approaches on the topic of 'AI in schools'. Based on practical experience, it will highlight how teacher training and school development programmes on the topic of AI can be designed. The focus is on the contribution to the promotion of AI literacy, the productive use of AI in schools and its role in the transformation of learning and teaching processes.

Supporting teachers in the integration of AI in the classroom

With the establishment of the AI Competence Center in February 2023, LI Hamburg's training courses on AI aim to both strengthen subject-specific skills and promote media education approaches. Based on the Dagstuhl Triangle, the training courses for Hamburg teachers will cover the technological, application-related and socio-cultural perspectives. The aim is to provide teachers with the knowledge to use AI effectively as a tool and to enable students to critically analyze AI in a data-driven society.

The cooperation between the state institute and the Artificial Intelligence Center Hamburg (ARIC) was particularly beneficial. Various formats were launched as part of the collaboration, which was also supported by the Ministry of Vocational Education and School Development. Two of these formats will be explicitly discussed here. Firstly, the ARIC School Days, at which the ARIC's AI experts introduced teachers to the technological perspective of the Dagstuhl Triangle, while the AI Competence Center then outlined the impact on schools, concrete application options for teachers and the further training offered by LI Hamburg.

Secondly, the ARIC CoP AI and School (Community of Practice) was launched. This regular exchange format, which is supported by AI Experts of the ARIC, serves the purpose of bringing together teachers from Hamburg to network, share experiences and clarify specific questions about the integration of AI in the classroom. The CoP acts as a platform for inspiration, collaboration and the dissemination of best practice, enabling educators to explore innovative approaches to teaching and learning with AI.

Key topics discussed include the use of AI for individualized feedback and personalized learning pathways, illustrating how AI technologies can transform teaching practices to better meet the needs of diverse learners. The presentation will provide a brief overview of the implications of these developments for the future of teaching and highlight both the opportunities and challenges associated with the implementation of AI in school settings.

AI literacy as an integral part of school education

The presentation will discuss approaches to designing learning processes on topics such as data science, algorithmic systems and the social impact of AI, using the example of an interdisciplinary project in the upper school on the topic of "AI and disinformation" to present a practical approach that combines technical knowledge with critical reflection. They will learn how large language models (LLMs) and AI systems for image generation work, with the aim of developing an understanding of the underlying algorithmic processes and data structures.

In the second step, the acquired knowledge is applied creatively. Students use AI tools to create their own content such as texts and images that specifically simulate fake news. This practical part allows students to experience the possibilities and limitations of AI-supported media creation and at the same time develop a critical awareness of the role of AI in the manipulation of information and its potential misuse.

In S. Podworny & S. Schönbrodt (Eds.), *Towards Fostering AI and Data Science Literacy in Schools Across Disciplines. Proceedings of the 1st Symposium on Integrating AI and Data Science into School Education Across Disciplines (AIDEA1 2025)*, Salzburg, Austria.

Finally, the social and ethical implications of the content generated by AI are reflected on in a moderated discussion. The students deal with the following questions: What responsibility do AI developers bear? How does fake news influence social discourse? And what role do humans play in the control and use of these technologies? The combination of theoretical foundations, practical application and critical reflection enables students to understand how AI works and to consider its effects in a broader social and ethical context. This will enable them to take an active and responsible role in a world increasingly shaped by AI.

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