Charlotte Axelsson, Marcial Koch

# Learning and teaching with AI

## Fostering creative environments in the age of Generative Artificial Intelligences

This paper presents the concept of "AI[1] Encounter",[2] an innovative workshop held at the Zurich University of the Arts (ZHdK) in 2023–2024. Focussing on Generative Artificial Intelligence (GAI) in education, 'AI Encounter' immerses educators, students and curious minds in AI-powered creativity. It was designed to address gaps in the education system and offers creative ways to understand and experience this technology.

The following outlines the course structure along with the didactic methods employed, including Playification, Encountering and Critical Reflection. It further presents key outcomes such as participant survey results, a chatbot and associated outcomes. Through hands-on exploration, participants gained insight into the potential of GAI while reflecting on its ethical implications.

1 Why the name AI Encounter: AI is commonly used by most people to describe what is actually Generative AI. The course wants to attract all types of people who are interested in this field. Clarification of terminology is part of the course.

2 Koch, 2024b.

The workshop concept was also presented at the "EARLI Conference 2025" in Graz[3] as part of the demo session entitled "Generative AI in Education: A Workshop Concept to Foster Creative Environments".

## The role of AI in education

Machine learning and what is commonly[4] referred to as artificial intelligence (AI) – already play a role in creative learning and teaching environments, and their presence is set to grow. GAI-based tools offer new possibilities for educational methods. However, the integration of such tools appears far more advanced on the students' side than on that of the teachers. Similarly, staff and students at the Zurich University of the Arts (ZHdK) are experiencing growing uncertainty regarding AI. As in many other institutions, the role of teachers in the educational integration of AI-based tools has so far been largely overlooked.[5] To design appropriate learning environments that reflect the expanding presence of AI in education, it is essential to encourage engagement from both educators and students. In addition, careful consideration must be given to selecting AI-based tools that are suitable for teaching purposes.[6] It is crucial not only to utilise this technology but also to consider its background, ethical[7] issues and its impact on topics such as data protection and copyright.[8] This requires both sides to learn how to engage in a dialogue with artificial intelligence.[9]

As the University Board of the ZHdK states in its position paper, "Critical Curiosity: Artificial Intelligence at the ZHdK":

> Artificial Intelligence has long since arrived in our everyday lives – and yet the speed of development remains such that it presents us with new

3 European Association for Research on Learning and Instruction (EARLI) is an international scientific association for junior and senior researchers in education. EARLI 2025 conference, University of Graz in Austria, www.earli.org/events/earli2025.
4 Crawford, 2021.
5 Seufert et al., 2021.
6 Edwards et al., 2018.
7 Blume & Axelsson, 2024
8 Celik, 2023.
9 Guggemos & Seufert, 2021.

> questions and challenges on an almost daily basis. At ZHdK, we want to approach the topic with Critical Curiosity: with the openness and the joy inherent in artistic experimentation, but also with the courage and the determination to analyse and criticize.[10]

The E-Learning unit, which operates as a horizontal structure within the University and provides support in teaching methods and learning technologies to all departments and units, uses this position paper as a point of departure. The E-Learning team responds with a strategy known as "AI in teaching", which adopts the 'Critical Curiosity' mindset. This strategy aims to address the insufficient integration of artificial intelligence in university education by exploring new approaches to teaching and learning in collaboration with generative systems such as AI. This paper presents findings from the future media course format "AI Encounter", alongside relevant theoretical frameworks. Innovative teaching methods and collaborative creative processes involving GAI are currently being developed. Furthermore, it outlines strategies for applying and disseminating artistic, playful methodologies across a range of disciplines and sectors.

## 'AI Encounter' course design

To facilitate engagement between staff and students and artificial intelligence, the E-Learning unit launched a future media course entitled "AI Encounter"[11]. The five-week course was created in collaboration with the Continuing Education Centre at ZHdK and is open to both internal and external participants. As the title suggests, it is intended more as an initial encounter than an in-depth engagement aimed at training new experts. "AI Encounter" offers a spectrum of creative and novel perspectives – ranging from initial chatbot interactions to hands-on workshops and reflective podcast panels – providing an environment in which creative teaching and learning methods are developed and tested in collaboration with AI. The question of how creativity manifests and how the creative process is altered through new forms of collabora-

10 ZHdK Digitalrat, 2024.
11 Koch, 2024b, www.zhdk.ch/weiterbildung/ai-encounter.

tion with generative AI is a central theme in discourse and research at ZHdK. To date, three iterations of the course have taken place – in August/September 2023, January/February 2024, and August/September 2024 – with a total of 74 participants. Of these, 47 were internal to ZHdK and 27 external, representing a range of disciplines including university administration, art direction, design, photography, film, music, dance, and theatre. At the beginning of each course, approximately 50% of participants reported extensive prior use of various AI-based tools, while only 4% had not yet engaged with them at all. A total of 47 participants responded to the survey question, "What is your previous experience with AI/large language models?" While the responses suggest a reasonable level of familiarity, it must be noted that this was a non-representative impulse survey rather than a scientifically rigorous study. Nevertheless, the emerging trend reflects broader developments observable across universities and schools.

To provide a holistic view of the various layers that AI encompasses, and considering the differing levels of experience and backgrounds of each participant, a two-pronged strategy was devised:

1. A blended learning approach, combining synchronous and asynchronous learning paths, was employed to create a more personalised learning experience. Blended learning balances prior knowledge and supports each participant according to their respective disciplines.
2. A multi-perspective approach, engaging various areas of expertise through appropriate formats, was employed to address all the important facets of AI in a creative environment.

Blended learning, as implemented in the first strategy, refers to a combination of in-person classroom sessions and online learning experiences.[12] The course includes synchronous learning paths such as on-site podcast panels and online workshops. Podcast panels refer to audio-only recorded discussions between a moderator and invited guests, conducted in front of a live audience. Participants can engage in the discussions at any point. Asynchronous learning is facilitated through the conversion of the on-site panels into modcasts, small homework assignments related to the workshops, and the use of a chatbot, introduced in the 'Encountering' section. A modcast is a tool specifically developed by the ZHDK E-Learning unit and described as "a liaison

12 Alamri et al., 2020.

between sound recording and media mixing"[13]. It enables participants to listen independently to the recorded sessions, with access to further information at specific points. The second focus of the concept centres on three key elements – 'Playification', 'Encountering', and 'Critical Reflection' – which form the core of the methodology (see Fig. 1):

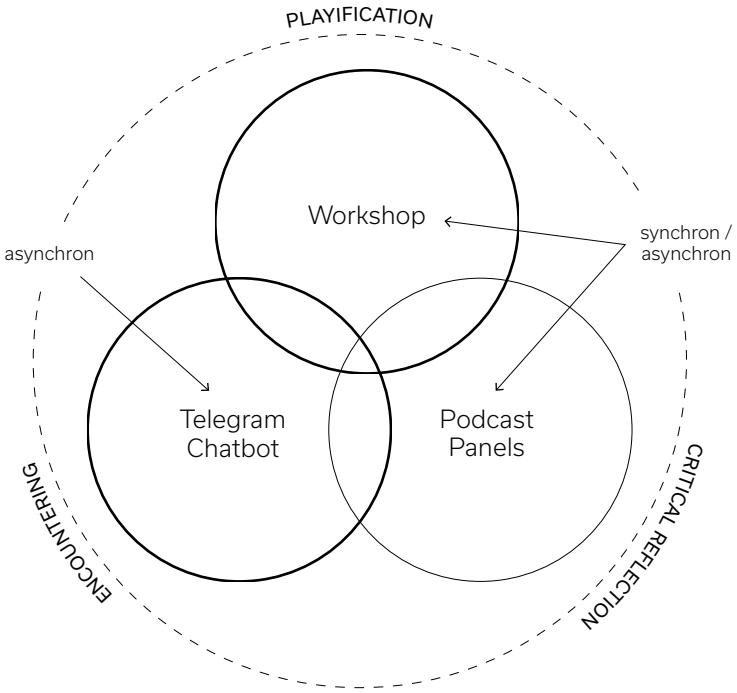


FIG. 1: Learning Design AI Encounter. Grey circles: elements of blended learning; outer dotted circle: multi-perspective methods in iterative and bouncing use

13 ZHdK E-Learning, 2024.

'Encountering' allows participants to experience technology by shifting roles, thereby creating an interactive learning environment.

'Playification' serves as a creative approach to creating a human sensibility in a technological environment.

'Critical Reflection' encourages participants to think deeply about the implications, benefits, ethical issues and challenges of GAI in educational and creative contexts.

The implementation of these elements is outlined in the following sections.

## Encountering uncertainties

The course introduces a direct encounter with an AI entity, supporting Celik's assertion that "teachers [and learners] must know not only to use but also to interact with intelligent machines".[14] Chatbots, already available as conversational agents, can be readily integrated into educational environments. 'ChaToni' was developed as a Node.js-based application using an API from a large language model (LLM) – in this case, ChatGPT-4 from OpenAI.[15] The chatbot is accessible via the messaging platform Telegram. It processes both text and image inputs and can respond with corresponding outputs to messages that include 'ChaToni'. On the web server front end, instructors can influence – though not entirely control – ChaToni's behaviour and schedule prompts or messages to be issued at predefined times. All participants and experts are invited to join the Telegram chat group and begin interacting with each other and with ChaToni. At the end of the course, they may choose to remain in the group and participate in future iterations as part of an ongoing AI community. The Encountering element, in the form of a chat, generally supports asynchronous peer learning. When combined with an AI chatbot, it further enhances learner motivation through surprising inputs and can assist teach-

14 Celik, 2023.
15 Ammon, 2023.

ers in maintaining course structure with customised reminders. Owing to its capacity to learn from each conversation, ChaToni embodies both the roles of teacher and learner. While its unpredictable nature opens up new possibilities, it also entails new challenges for how we interact in educational contexts. A chatbot is never entirely controllable. It can introduce new perspectives, but equally the risk of misinformation or even unethical content. Just as chatbots blur role boundaries, there is also a continuous shift in teaching and learning dynamics for both participants and instructors. During interactions with a chatbot, learners may find themselves adopting the role of teacher – manipulating the chatbot and posing strategic questions. Conversely, teachers relinquish control and are confronted with unforeseen situations, putting them in the position of learners. This Encountering element ensures that neither side loses sight of a crucial fact: constant adaptation is key when engaging with AI in learning environments. Direct interaction with AI reduces inhibitions and allows both sides to fully engage with all aspects of the learning path ahead.

## Playification in a transformative teaching style

Digitalisation requires change management in higher education and introduces diverse requirements for digital learning and teaching cultures.[16] AI amplifies this urgent need by introducing a transformative teaching[17] style. After all, these technologies operate through multidimensional analyses, modelling features in high-dimensional spaces to detect complex patterns and relationships[18]. Although we may attempt to conceptualise these high-dimensional spaces using mathematical analogies or visualisations, we cannot perceive them directly. This poses a distinctive challenge: how can we teach – or rather, work with – a system that functions within a framework we cannot fully visualise or comprehend?

The insights gained from the course "AI Encounter" provide valuable strategies for engaging with multimodal systems and addressing their complexities. One of the key methods explored is the concept of Playification,[19]

16 Getto & Kerres, 2023.
17 Cabrera et al., 2018.
18 Bishop, 2006.
19 Kocher, 2024.

which involves integrating playful elements into the learning process. Playification functions as a mindset that embraces playful subversion and creativity, a method that applies playful techniques in non-game contexts, and a phenomenon aimed at enhancing meaningful experiences through interventions, as Kocher explains.[20] This approach encourages creativity and exploration, enabling learners to navigate and interact with these sophisticated systems intuitively, playfully, collaboratively and empathetically.[21] By leveraging Playification, educators can cultivate an environment that encourages experimentation and deeper understanding, ultimately preparing students to thrive in an increasingly multimodal technological landscape.

The course structure of "AI Encounter" is based on the concept of Playification, employing a mixed-media, 'bouncing' format that combines reflection and interaction. Participants engaged in hands-on activities that encouraged experimentation and collaboration, resulting in a variety of outcomes that illustrate this mindset – two of which are presented here as examples. The first example features a video[22] of artist and researcher Kaspar König, who engaged with the content of ChaToni and the images created by participants throughout the course. The idea behind the video was to sample and play with the technology, using it to create a visual experience.

The second example highlights the interaction with artifacts produced during the course, where Robert Wettstein brought images of a chair created in Midjourney into the physical world (see Fig. 2). Through this intervention, he explored the meaning of AI-generated material, which consumes significant resources, using the image as a sketch to construct the chair – making a creative statement on sustainability.

These playful outcomes of technology-generated materials and interventions are crucial in demonstrating their potential as tools, underscoring the importance of learning to use them within creative environments. This approach reflects a transformative teaching style – recognising that in play, there is no defined outcome; rather, it acts as a method of exploration, allowing for the combination of tools and techniques while building meaningful relationships with those technologies.

20 Kocher, 2024.
21 Axelsson, 2024.
22 König & Koch, 2024.

To deepen the method of Playification, it is also important to focus on "(mis)using digital tools"[23] and "digital didactics"[24] – two areas described by Koch and Axelsson in the first volume of *Bildung, Praxistransfer und Kooperation* – as these can enhance the learning experience. Additionally, utilising the SMAR model[25] or the TPACK framework[26] can help educators reflect on their own use of technology. For a transformative teaching style, it is crucial to adopt a mindset that values experimentation and playfulness, enabling educators to create dynamic learning environments where students feel empowered to innovate, explore and engage with technology in transformative ways. Ultimately, this approach not only fosters creativity but also prepares learners to navigate and thrive in a rapidly evolving digital landscape.

23 Koch, 2024a.
24 Kocher & Axelsson, 2024.
25 Puentedura, 2006.
26 Koehler & Mishra, 2016.

FIG. 2.: Midjourney Prompt by Robert Wettstein: a red-and-white wooden chair in the style of asymmetric compositions, rustic futurism, trompe-l'œil compositions, Swiss style, weathered materials, inio asano, symbolic sculptures. While the two images on top and the one on the bottom left are results of this prompt, the chair on the bottom right was in fact handcrafted using the AI generated images as sketches.

## Critical reflection

Among the many possibilities that GAI introduces in creative environments, there is a need for critical perspectives. As Omran Zailuddin et al. state, the "indispensability of human mentorship and its role in nurturing creativity and fostering critical thinking must remain paramount".[27] As already mentioned, the course encourages critical discourse through podcast-panel formats featuring invited guests from diverse fields such as sound art, human-AI interaction research, machine and digital ethics, film direction, and law. A total of nine one-hour podcasts reflect on topics related to AI, including consumption, society, uncertainty, all-purpose machines, responsibility, afterlife, magical thinking, AI law, and manipulation. Participants in future iterations can access archived podcasts, while also being invited to join three live events and contribute their perspectives. The primary focus remains on AI-based tools and their use and impact within creative environments. Survey results indicate that 30% of participants listed the podcast panels as a course highlight, citing the broad range of topics and the evident expertise of the guests. The social gatherings following the panels are valued as opportunities for further discussion between participants and guests. Upcoming sessions reflect a shift in thinking – from 'anything is possible' towards a more cautious attitude. The intention is not to instil fear, but to foster respect and encourage thoughtful engagement with AI.

## Discussion

This analysis of the future media course highlights two key findings on distinct levels: the application of teaching methods involving AI, and the pressing need for clarification regarding its use and implications.

Educational institutions already have a range of methods and tools at their disposal for integrating GAI into teaching. Establishing a multidisciplinary approach through teaching strategies such as Encountering, Playification, and Critical Reflection – along with others discussed in this paper – can serve as valuable starting points for engaging with these generative technologies.

27 Omran Zailuddin et al., 2024, p. 293.

In other words, many traditional and modern teaching methods are easily adaptable as effective tools for AI education. The time has come to transform and adapt these methods to meet the demands of AI-driven, transformative learning environments.

The second key area of this analysis is the need for clarification. During preliminary meetings for an interdisciplinary course on AI in the Bachelor of Design programme, many teachers expressed fundamental confusion about the technology and its terminology. Some referred to it as AI, while others spoke of large language models and GAI. This layer of clarification emerged as a key finding of our analysis, highlighting a significant gap in the education system. To address these issues, we recommend focussing on the following:

- Defining and clarifying terms related to AI
- Teaching basic knowledge about the structure and functions of these technologies
- Engaging students and teachers in discussions about the social and ethical dimensions of AI, including its impact on ethics, sustainability and cultural contexts

By addressing these areas, educational institutions can foster a broader understanding of Generative Technologies (AI), equipping both students and teachers to navigate and critically engage with them.

To address the need for clarification, a key initiative at ZHdK is the introduction of a glossary covering nine essential AI-related terms: digital, digital data, artificial intelligence, machine learning, deep learning, GAI, large language model, prompt, and hallucination. These terms are arranged in a progressive sequence, designed to gradually build understanding and provide a holistic view of AI concepts.[28] Glossaries are widely used in educational settings, as they allow institutions to tailor explanations to their specific contexts and audiences. At ZHdK, a unique audiovisual glossary has been created, featuring short (1-minute) audio memos from AI experts across different disciplines within the institution. Each memo is paired with simple, looping animations to enhance engagement and accessibility. This hands-on approach aims to break down barriers to understanding AI, making it more accessible and relevant to teachers and students alike. By showcasing the insights of in-house AI experts, the glossary maximizes accessibility across disciplines

28 Koch & Santana, 2024.

while strengthening the institution's existing AI knowledge base. This initiative serves as an essential first step in building a shared, foundational understanding of AI in educational contexts, drawing on the three teaching methods discussed in this paper: Encountering, Playification, and Critical Reflection.

## Conclusion

The approaches discussed are just a few of the many needed to demystify AI and help educational institutions and their staff overcome feelings of uncertainty. They empower teachers not merely to follow the development of these technologies but to become active creators, engaging with AI as informed and aware users. While these methods originate from creative perspectives, they can also be applied in other environments.

## References



ALAMRI, H. A., WATSON, S. & WATSON, W. (2020). Learning technology models that support personalization within blended learning environments in higher education. *TechTrends, 65*(1), 62–78. DOI: https://doi.org/10.1007/s11528-020-00530-3.

AXELSSON, C. (ED.). (2024). *Tender digitality.* Karlsruhe: Slanted.

BISHOP, M. (2006). *Pattern recognition and machine learning.* New York: Springer Science+Business Media.

BLUME, D. & AXELSSON, C. (EDS.). (2024). *Ich, Wir & Digitalität. Ethik in der Lehre.* Karlsruhe: Slanted. DOI: https://doi.org/10.5281/zenodo.13993005.

CELIK, I. (2023). Towards intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education. *Computers in Human Behavior,* 138, Article 107468. DOI: https://doi.org/10.1016/j.chb.2022.107468.

CRAWFORD, K. (2021) *Atlas of AI.* New Haven: Yale University Press. DOI: https://doi.org/10.12987/9780300252392.

EDWARDS, C., EDWARDS, A., SPENCE, P. R. & LIN, X. (2018). I, teacher: Using artificial intelligence (AI) and social robots in communication and instruction. *Communication Education, 67*(4), 473–480. DOI: https://doi.org/10.1080/03634523.2018.1502459.

CABRERA, M., VUORIKARI R. & PUNIE, Y. (ED.). (2018). *The impact of Artificial Intelligence on learning, teaching, and education: Policies for the future.* Luxembourg: Publications Office of the European Union. DOI: https://doi.org/10.2760/12297.

GETTO, B., & KERRES, M. (2023). Mediendidaktik und ihr Beitrag zu Hochschulentwicklung. In R. Rhein & Wildt, J. (eds.), *Hochschuldidaktik als Wissenschaft*. Bielefeld: transcript. DOI: 10.14361/9783839461808-012.

GUGGEMOS, J. & SEUFERT, S. (2021). Teaching with and teaching about technology – Evidence for professional development of in-service teachers. *Computers in Human Behavior,* 115, Article 106613. DOI: https://doi.org/10.1016/j.chb.2020.106613.



KOCH, M. (2024a). (Mis)using digital tools. In C. Axelsson, D. Blume & B. Volk (eds.), *Bildung, Praxistransfer und Kooperation. Kompetenzentwicklung für die Hochschullehre in Netzwerken* (Medien- und Gestaltungsästhetik, Bd. 19) (pp. 177–190). Bielefeld: Transcript.

KOCHER, M. & AXELSSON, C. (2024). Digitale Didaktik. In C. Axelsson, D. Blume & B. Volk (eds.), *Bildung, Praxistransfer und Kooperation. Kompetenzentwicklung für die Hochschullehre in Netzwerken* (Medien- und Gestaltungsästhetik, Bd. 19) (pp. 327–348). Bielefeld: Transcript.

KOCHER, M., (2024). Playification. The recall on gamification. In C. Axelsson (ed.), *Tender Digitality* (pp. 16–23). Karlsruhe: Slanted.

KOEHLER, M. J. & MISHRA, P. (EDS.). (2016). *Handbook of Technological Pedagogical Content Knowledge (TPACK) for educators* (2nd ed.). New York: Routledge. DOI: https://doi.org/10.4324/9781315771328.

OMRAN ZAILUDDIN, M. F. N., NIK HARUN, N. A., ABDUL RAHIM, H. A., KAMARU-ZAMAN, A. F., BERAHIM, M. H., HARUN, M. H. & IBRAHIM, Y. (2024). Redefining creative education: a case study analysis of AI in design courses. *Journal of Research in Innovative Teaching & Learning, 17*(2), 282–296. DOI: https://doi.org/10.1108/jrit-01-2024-0019.

SEUFERT, S., GUGGEMOS, J. & SAILER, M. (2021). Technology-related knowledge, skills, and attitudes of pre- and in-service teachers: The current situation and emerging trends. *Computers in Human Behavior,* 115, Article 106552. DOI: https://doi.org/10.1016/j.chb.2020.106552.

## Online references



AMMON, A. (2024, January 1): *ZHdK AI Workshop Bot*. Retrieved October 1, 2024, from https://github.com/aurelianammon/zhdk-ai-workshop-bot.

KOCH, M. (2024b, October 1): *AI Encounter.* Retrieved October 1, 2024, from www.zhdk.ch/weiterbildung/ai-encounter.

KOCH, M. & KÖNIG, K. (2024, May 13): *AI Encounter.* Retrieved October 1, 2024, from https://youtu.be/02ySBlcaJHk.

KOCH, M. & SANTANA, M. (2024, August 27): *AI Glossar.* Retrieved October 1, 2024, from https://ella.zhdk.ch/tools/ki-glossar/.

PUENTEDURA, R. (2006, August 18): *Transformation, technology, and education*. Retrieved October 1, 2024, from http://hippasus.com/resources/tte/.

ZHDK DIGITALRAT (2024, March 13): *Critical curiosity: Artificial Intelligence at ZHdK*. Retrieved October 1, 2024, from www.zhdk.ch/en/digital/critical-curiosity-artificial-intelligence-at-zhdk-23024.

ZHDK E-LEARNING (2024, October 1): *Modcast*. Retrieved October 1, 2024, from https://modcast.zhdk.ch.

## Figures

FIG. 1: Charlotte Axelsson & Marcial Koch: *Learning Design AI Encounter,* 2023. © Charlotte Axelsson & Marcial Koch, 2024.

FIG. 2: Robert Wettstein: *From Midjourney to Physical Model,* 2024. © Robert Wettstein, 2024.