Experimental AI Lab in Journalism and Communication

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Abstract

In this project we are investigating how generative artificial intelligence (GAI) can be didactically integrated into teaching with the goal to strengthen students' AI literacy. The focal point is creating an AI lab in the form of a scenario-based game, where journalism and communication students use AI tools collaboratively to produce content in a realistic scenario.

Students must produce content using GAI programmes in the scenario. After the game they must reflect on the AI tools' relevance and ethical implications in the scenario and the profession as such. The students' experiences and critical reflections are essential in the project.

We also examine how we as educators can design the AI lab using GAI tools. In the making of the scenario and the tasks in the game, we have used ChatGPT and Midjourney to develop specific roles and situations of conflict during the game. The Gamemaster has also used ChatGPT during the games to develop the tasks for the groups. This makes the development of the scenario flexible and enables turning the story and the tasks in different directions.

The project is grounded in Reflective Practice-based Learning (RPL) and follows a Design-Based Research (DBR) approach.

Keywords
Reflective practice-based learning, Generative AI, AI Literacy, Scenario-based learning, Design-based research

Background

Generative Artificial Intelligence (GAI) is reshaping the professional landscape that the Danish School of Media and Journalism (DMJX) prepares students to enter. The growing influence of Large Language Models and other AI technologies is evident across every stage of the media value chain (cf. Newman et al., 2024; Zerfass et al., 2024; Caswell et al., 2024). As an institution responsible for educating future media professionals, we must actively respond to these major shifts.

This entails developing processes that equip students with a solid understanding of GAI, hands-on experience, and the ability to critically assess its implications and ethical dimensions within journalism and communication. This is what we regard as AI literacy (Ng et al., 2021).

GAI's huge influence on the education sector also opens a fundamental discussion of *whether, how* and *to what extent* GAI can and should be included in learning processes. A central question is how we as educators can navigate in these changes by enhancing the student's professional competences and promoting their critical reflection skills (Mioa et al., 2024). The speed with which GAI has entered the sector of education has created a research gap concerning learning processes involving GAI, and grounded in pedagogy and didactics (Bruun et al. 2024).

This project focuses also on the *opportunities* AI presents for educators. These opportunities must be systematically explored to build the critical foundation necessary for evaluating where and how AI can meaningfully enhance teaching and learning.

Our focus is on students' gaining AI literacy, but also on the possibilities for educators using GAI in designing the didactic framework for this.

This leads to our two-part research question in this project:

- How can GAI tools be used to design a practice-oriented AI laboratory?
- To what extent can an experimental, structured lab setup foster students' critical reflection on the professional application of GAI programmes and foster AI literacy?

The didactic design process using AI for the practice-oriented and interdisciplinary AI laboratory is making the framework for the students'

critical use and reflections on their use of AI programmes. In this way, we generate knowledge both on GAI in designing learning processes and on using GAI in a simulated practice.

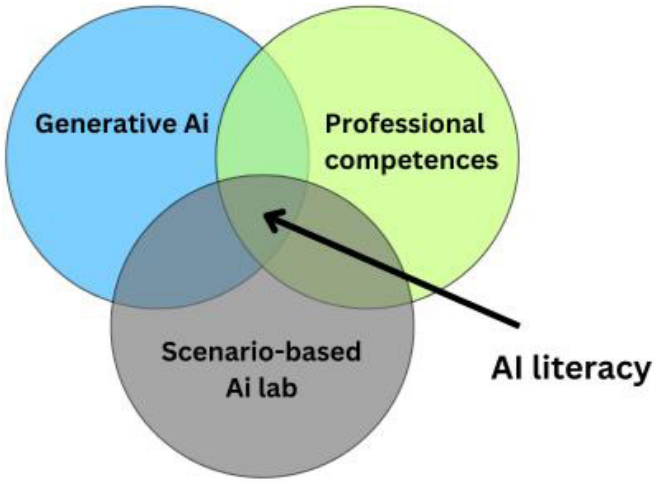
Learning Approach

Our understanding of learning in this project is based on Reflective practice-based learning (RPL) where experience, thinking, and action are key elements in the learning process (Horn et al.). By using game-based approaches (such as simulation, scenario-based learning, and role-play), we aim to create realistic *experiences* that students must act upon using GAI, drawing on both their subject-specific knowledge and their understanding of GAI. Hereby we draw upon experiential learning (Kolb, 1984) where the scenario-based approach allows us to conduct "appropriate disturbances" (Horn et al.) that the students must act upon. They are working in groups throughout the session (approx. three hours) and are encouraged to work collaboratively, both in relation to the tasks and to their critical reflection which are conducted during the game.

We also use GAI as a technology for developing and implementing the game itself, applying a constructionist approach (Wegerif, 2024), where students are encouraged to invite GAI in as a cognitive sparring partner in all decision-making processes throughout the game (Mollick, 2024).

As shown in figure1 below: our goal is to foster AI literacy skills (Ng et al., 2021) for students through our didactic design by combining the use of GAI tools with professional competencies in journalism and communication, and in a realistic set-up in form of the scenario.

Figure 1: AI Literacy: Author's own creation (2025)



Our hypothesis is that AI literacy is possible to foster with our didactic design based on the four aspects (Ng et al. 2021):

- *Know and understand* – basic knowledge about AI concepts and history
- *Use and apply* – practical skills in using AI tools and technologies
- *Evaluate and understand* – critical assessment of AI systems and outcomes
- *AI ethics* – understanding of ethical implications of AI

The four aspects can be seen as four taxonomic levels in addressing GAI in education (Ng et al., 2021) Our didactic design should not be seen as a stand-alone activity fulfilling all the four levels but rather as an experimental learning activity that makes it possible to address the four levels (Kolb, 1984).

Methodological Approach

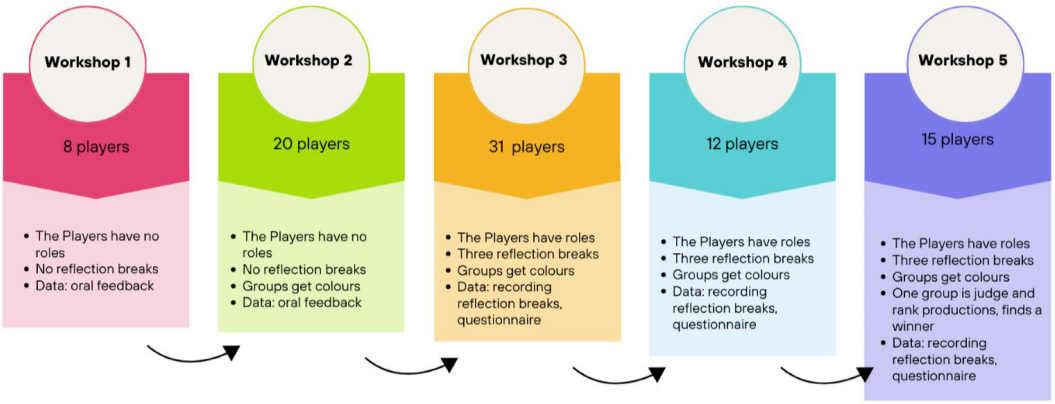
The research approach is based on a Design-Based Research (DBR) methodology, which intentionally integrates research and development to both generate theoretical insights and enhance educational practice. Consistent with DBR-principles, the approach in the project is collaborative, iterative, and closely tied to real-world practice (Gynther et al., 2012)

We seek to generate new knowledge about the use of GAI in communication and journalism education using an iterative approach and at the same time develop, test and improve a didactic design in the form of our AI lab. We work with the dual purpose of both understanding how GAI affects education and teaching and developing a didactic design that promotes AI literacy. This dual purpose is a distinctive feature of DBR. (Gynther et al., 2012). Our research question is therefore addressed through:

- A didactic game-based design that explores the potential for evolving students' professional AI-competence and literacy
- A process where we are developing, testing and improving the game design

In developing the didactic design, we have decided from the start to work with learning games, and thus not with a completely open starting point. A group of students participated in a workshop at the beginning of the project to develop the game design. Educators have participated in testing the game and contributed to improvements to the design in several iterations as shown in figure 2.

Figure 2: DBR approach in the project: Author's own creation (2025)



Data Collection Method

Our methodological approach is pragmatic, combining qualitative and quantitative methods to gain knowledge on the participants reflections during the workshop and after. The qualitative data was collected by three different methods:

Oral Evaluations: After Workshop 2 and Workshop 3, we conducted oral evaluations with participants. These were recorded on mobile phones, analysed, and summarized in note form.

Audio Recordings of Reflection Sessions: During the three subsequent workshops, we included reflection breaks where we recorded participants' discussions. The recordings were later transcribed.

Own Observations: Throughout all workshops, we took notes on participants' actions, behaviour, and interactions during the sessions and after each workshop.

The quantitative method for data collection was an online questionnaire to the participants in three of the workshops. A total of 45 participants responded to the 10 questions.

Data Analysis

The quantitative data has been analysed according to the questions asked and number of responses.

The qualitative data with the participants' reflections have been analysed in an open, inductive way (Kvale, 1996). The audio files were transcribed and the thematic analysis conducted by categorization and meaning condensation. This process involved identifying recurrent patterns and significant narratives, while remaining attentive to the context, ambiguity, and the subjective experiences of the participants (Kvale, 1996).

This mixed method has been useful as we get data from participants being in the workshop process, but also after the game is over (questionnaire). By combining the results of the data, we can validate the findings through triangulation, and thereby we get multiple perspectives on the topics.

Preliminary Observations

RQ1: How can GAI tools be used to design a practice-oriented AI laboratory?

A significant result of the data analysis is that all participants buy into the scenario and the story development, which have been created with AI programmes, mainly Chat Gpt 4.0. In a survey answered right after the game, around 90% of the participants answer that the setting to a great or some extent contribute to understanding the implications of GAI in a professional context.

The AI lab is set up as an interactive process with participants producing e.g. a press release or an article, for other groups to respond to. Therefore, the pace has always become an issue in the iterations so far. The pace in which we can develop the storyline in the scenario with GAI tools has been very useful as the Gamemaster quickly can create tasks during the game, with ChatGPT as a fast and creative assistant.

RQ2: To what extent can an experimental, structured lab setup foster students' critical reflection on the professional application of GAI programmes and foster AI literacy?

The most notable reflections are the pros and the cons for the students in using the AI programmes and the assistants in the AI lab versus in reality. "We had to be more critical to the answers and suggestions from the (AI) assistants if this really had to be published, but the AI suggested headline for this press release would be working fine" (Participant).

To some partcipants prompting in different ways for the tasks in the AI lab were a new learning experience: "*It was eye-opening to realize how much of a difference it makes to prompt properly.*" (Participant)

Some of the students who have been in internships, reflect on their professional use of AI assistants and how they need to feed it with information e.g. on the the company values, rules of communication etc. in order to be able to get more relevant answers. They don't get that type of information in the lab (so far) and therefore the students express a limit to the use of the AI-assistant in the AI lab. They use their professional competences from real world experiences to reflect on the usefulness of dialogues with GenAI. This could indicate that it is necessary for students to have acquired some professional skills in order to build AI literacy through the game as also theoretically assumed in Figure 1.

The time factor in the AI lab is essential to many of the participants, some find the pace that automatically occurs, stressful others get motivated. "*You can get caught up in the pace. And then you might find yourself facing all sorts of tricky ethical challenges*" (Participant).

Discussion and Perspectives

The following discussion is based on our preliminary observations and elaborate on RQ2. We discuss to what extent the three elements (figure 1), we combine to foster AI literacy, are successfully balanced in the project

Professional competencies

Using professional knowledge from journalism and communication is an important part of the scenario. From our preliminary observations we can see that the realistic setup in the scenario is working. This is underlined by both educators and practitioners from both professions who

have participated in the scenario. The question is how much experience and knowledge you need to have to be able to critical reflect on the methods and practices you are working with during the scenario. This is an important question we still must examine in coming iterations – even though the preliminary observations suggest it requires some professional experience and competencies to assess the value of AI. But what will happen if we let the scenario be a part of an onboarding activity for first semester students? We assume that professional competences are central in fostering AI literacy but have still not the answer regarding the extent of these competences.

Scenario-based AI Lab

We have confirmed what other studies examine (Hanghøj, T. et al., 2017) that scenario-based learning has a huge potential also when it comes to fostering AI literacy. We have noticed that the scenario tends to be so realistic that the participants forget all about critical reflection and produce a lot of AI-generated content without a human-in-the-loop approach (Mollick, E., 2014). From our data we know that the reflection sessions throughout the scenario were challenged by the dynamics of the game and some participants were more eager being in their roles than reflecting on their actions. Several participants also mentioned a high pace in the scenario as stressful and inhibiting. In the next iterations we must find a way to adjust the pace and balance between the scenario and critical reflection.

Generative AI

There are restrictions on the use of GAI when it comes to data protection, copyright and ethics that we can handle with the fictive scenario setup. The advantage is obvious since we can let the students play with different AI-programmes that are not allowed in a real context on the school. The downside is technical issues as licenses and the question about learning to handle the programmes. From our observations and the data we learn that some of the participants are confused about the purpose of the game because they think it is about handling the AI-programmes. Beside the technical knowledge about the programmes, we must consider if more basic knowledge about AI is needed before entering the scenario. Until now we have not introduced thoroughly to basic knowledge about AI

concepts and history which is an important part of fostering AI literacy (Ng et al., 2021). This must be considered in future iterations.

Next Steps

Based on our iterations so far, the right mix of the three elements above (figure 1) is essential when it comes to fostering AI literacy. As described in the discussion we must experiment with more adjustments in the coming iterations such as working with pace, reflection breaks and basic knowledge on AI and balancing it with the demand for and expectation of the participants to learn handling the programmes.

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