

Student perspectives on podcast production as an opportunity for deeper learning in higher education

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Abstract

The digitalisation of higher education has shifted the focus from using digital tools to the design of learning activities that promote deeper learning. This study examines master's students' perceptions of learning through podcast production in teacher education, using a deeper learning framework. Based on qualitative focus group interviews with students who participated in a peer-to-peer podcasting project on artificial intelligence (AI) in school, the findings suggest that producing podcasts can serve as a complex learning task that supports active knowledge construction, collaboration, self-regulation, and meaningful transfer. Beyond teacher education, the study demonstrates how pedagogically designed, product-oriented tasks can promote deeper learning processes in higher education more broadly.

Keywords: *Deeper Learning; podcast production; teacher education; higher education.*

1. Introduction

The increasing digitalisation of higher education has led to a growing diversity of flexible teaching and learning formats (Nazyrova et al., 2025). At the same time, it has intensified discussions about how digital media can improve the quality of students' learning processes (OECD, 2025; Thomas et al., 2025). Recent research therefore increasingly focused on learning outcomes that go beyond surface-level engagement. Meta-analytic evidence suggests that, when implemented systematically and supported instructionally, digital technologies can positively influence deeper learning outcomes (Wu, 2024). Consequently, current debates in higher education pedagogy emphasise the potential of digital media to foster deep, understanding-oriented, and sustainable learning rather than their mere use (e.g., Zou et al., 2025).

Deeper learning focuses on in-depth understanding, active knowledge construction and meaningful transfer (Biggs & Tang, 2011; Sliwka & Klopsch, 2020). From this perspective, attention shifts from digital tools to the design of learning activities that actively engage students (e.g., Zou et al., 2025). Although podcasts are a common format in higher education, existing research

has largely focused on their use as instructional resources rather than as student-centred learning activities (Engzell, 2025; Hernández-López & Mendoza-Jiménez, 2025). As a result, little is known about how students perceive podcast production as a means of supporting deeper learning. Addressing this research gap, the present study explores master's students' perceptions of learning through podcast production in teacher education based on the research question: How do master's students perceive a creative peer-to-peer podcasting project in higher education in terms of its contribution to deeper learning? For this qualitative group interviews were conducted with teacher education students enrolled in master's-level seminar with the focus on AI in schools. The aim of this paper is to reconstruct how students perceive the creation of podcasts as fostering deeper understanding, reflection and sustainable knowledge construction, and to derive didactic implications for teaching in higher education.

2. Deeper learning

The concept of deeper learning refers to learning processes that aim to foster a deep understanding of specific disciplines, encourage active knowledge construction, and develop the ability to apply knowledge in new, complex, and ill-structured contexts (Turner & Baskerville, 2013; Sliwka & Klopsch, 2020). Rather than focusing on reproducing information or routinely applying procedures, deeper learning emphasises understanding core concepts, systemic and interconnected thinking, flexible knowledge transfer, and engaging reflectively with complex problems. Unlike more narrowly competence- or method-oriented approaches, deeper learning does not primarily target the isolated performance of individual skills, but rather the deep integration, reflection and further development of knowledge across contexts. It enables learners to integrate, reorganise and critically transform knowledge in order to make well-reasoned judgements in situations characterised by uncertainty, ambiguity and conflicting demands and fosters intrapersonal competencies such as self-regulation and metacognition. However, deeper learning does not imply a reduction of disciplinary content. In fact, intensive engagement with disciplinary concepts, methods, and modes of enquiry is considered a prerequisite for meaningful transfer and reflective judgement (Sliwka & Klopsch, 2020).

Smith and Colby (2007) showed that many instructional tasks primarily target the reproduction or classification of information, or the practice of simple procedures, which predominantly results in surface-level learning outcomes. Such surface-level learning should therefore not be understood as an individual deficit, but as an outcome of didactic and structural conditions, particularly task design and implicit learning goals. Higher education research supports this relational perspective. Findings suggest that students are more likely to experience deeper learning when tasks are perceived as authentic, relevant and personally meaningful, and when learning processes are supported by continuous formative feedback (Turner & Baskerville, 2013). Deeper learning emerges when students are required to actively explain, reflect on, and collaboratively develop knowledge within cognitively demanding learning environments (Ferenc,

2015). More recent empirical work highlights the role of learning environments and professional beliefs. Deeper learning occurs more frequently in secondary school settings characterised by cognitive challenge, autonomy support and a strong focus on meaning-making. However, structural innovations alone do not automatically lead to deeper learning without corresponding pedagogical practices (Murphy et al., 2025). Kikas et al. (2024) argue that the use of deep-level learning strategies is influenced by prior knowledge, perceived value and motivational beliefs, rather than general interest. Deeper learning depends on learners' capacity and willingness to engage in meaningful, effortful strategies in specific learning situations. Against this background, deeper learning is increasingly being discussed in the international educational discourse as a response to societal complexity, uncertainty and the rapid changes in knowledge demands.

At this point, Sliwka and Klopsch (2020) synthesize these strands of research into a systemic framework for school and instructional development. The added value of their approach lies in their conceptualisation of deeper learning as a systemic orientation framework, integrating instructional design, organisational conditions, and professional mindsets. They conceptualise deeper learning as an intentionally designed learning process rather than an individual learning approach. Key criteria include productive knowledge construction, transferability, co-constructive learning, self-regulation and societal relevance. From a didactic perspective, deeper learning is realised through learning architectures that emphasise cognitively demanding tasks, iterative cycles of exploration and reflection, and assessment practices that focus on feedback and revision. Assessment focuses less on reproducing knowledge and more on learning products, reasoning processes, and learners' ability to justify decisions and solutions. At the same time, this perspective highlights a central research gap: further empirical studies need to explore how deeper learning processes can be systematically fostered, supported and demonstrated in practical learning scenarios (Sliwka & Klopsch, 2020).

3. Podcasts in Higher Education

Podcasts have been used in higher education to promote knowledge for around 20 years. Podcasting in higher education, and particularly related research, has focused on uses involving learners as consumers of teacher-generated or published podcasts (e.g., Engzell, 2025). In this context, podcasts can either substitute or supplement in-person lessons (McGarr, 2009; Thomas et al., 2025). However, student-produced podcasts have recently gained importance in higher education, but there is still limited research on creative usages of podcasts and their impact on student learning (Hernandez-Lopez & Mendoza-Jimenez, 2025; Thomas et al., 2025).

Studies focussing on student-generated podcasts generally point to positive effects, particularly, raising learner motivation. They show that podcast creation can support student engagement, calls on students' creativity, and can foster interactive dynamics in the teaching and learning

process. Producing their own podcasts can support students in gaining a deeper understanding of subject-matter and in critically engaging with ideas as well as foster students' communication confidence and skills (Hernandez-Lopez & Mendoza-Jimenez, 2025; Wakefield et al., 2023). However, these benefits depend on intentional pedagogical design (Thomas et al., 2025).

In the present study, we used student-created podcasts as the major learning task for teacher education students in a master's programme course (3 ECTS-credits). In small groups, students produced educational podcasts on self-chosen topics related to AI in schools (including AI in classroom teaching, AI and inclusion, or discrimination) with their peers as target audience. The podcasts were developed throughout six sessions, providing an ongoing opportunity to connect theoretical insights with practical applications. In this context, podcasts were defined as digital audio media files that could be accessed remotely, even though access was restricted to students enrolled in the specific course. Thus, they were characterised by mobility and downloadability (Thomas et al., 2025). Additionally, the absence of visual stimuli contributed to the aural, cultural quality sometimes used to define podcasts, which helps to "build more intimate connections between speaker and listener" (Thomas et al., 2025, p. 5). The podcasts were educational as they were "specifically designed as learning tools" (McNamara & Drew, 2019, p. 300) serving a twofold instructional purpose: first, as a learning experience for the students while producing their respective podcast episode; second, as an instructional medium for them as peers listening to podcasts generated by other groups.

4. Research Design

In the seminar, after completion of the podcasts, students' perspectives on the learning process were captured in qualitative focus group discussions, which followed a semi-structured interview guide reflecting relevant dimensions of deeper learning based on the conceptualisation by Sliwka and Klopsch (2020). In total, 19 students participated in five group discussions, each group consisting of students from different podcast-production teams. They are referenced in the results section as FGD-1 to FGD-5 (mean length: 01:01:45; range [00:50:03; 01:12:34]). The group discussions form the basis for the analyses in this paper.

The discussions were recorded, transcribed and then analysed in MAXQDA using qualitative content analysis based on Mayring's (2023) approach. The main categories were derived deductively based on the model of deeper learning, so that they assisted in reconnecting student answers to the underlying theoretical model; on the level of subcategories, inductive strategies enabled to identify and organise specific realisations of the different dimensions.

5. Findings

The results refer to both the students' engagement with the topic of AI in schools and the podcast production. Overall, the interviews suggest that the students viewed the podcast project very positively. They described it as an innovative and varied format that clearly differed from typical university tasks. Students also found the seminar topic timely and relevant, highlighting its strong connection to their everyday lives and future profession. This was partly because they perceived that AI was underrepresented in other parts of their studies: 'The current topic of AI comes up too little in my studies otherwise' (FGD-1). The combination of self-chosen topics, independent work, and small-group collaboration was therefore described as particularly meaningful and engaging.

Familiarity with AI and school contexts. Students entered the seminar with varying degrees of familiarity with AI in school contexts. Participants reported that AI is increasingly used for practical purposes, such as lesson preparation and adapting materials to meet different learning needs. At the same time, however, AI was not only framed as an opportunity but also as a challenge, particularly with regard to text production, homework, and assessment practices. One participant questioned traditional homework formats: 'How meaningful is it to let pupils write texts at home at all?' (FGD-1). Students also observed that learners often accept AI-generated outputs unquestioningly, which makes critical evaluation and media literacy increasingly important: 'They think it's the best possible output and don't question it at all' (FGD-2).

Knowledge(-development). Throughout the interviews, students reported that their understanding of AI had developed significantly during the seminar. Their initial perceptions were broadened through reading academic literature, participating in seminar discussions and designing the podcast. They became more aware that AI-related issues in education extend beyond 'cheating' and include questions of data protection, curricular implications and broader educational debates. Additionally, students developed a stronger awareness of the limitations of AI, particularly the risk of incorrect or fabricated information. This contributed to a more reflective stance: 'AI outputs should be checked and contextualised rather than being treated as automatically reliable' (FGD-1). At the same time, however, some participants continued to describe AI as complex and difficult to fully grasp: 'I still haven't understood one hundred percent how these generative AIs work' (FGD-1).

Collaboration. Working together in small groups was evaluated very positively. Students described the group work as straightforward and productive, citing peer exchange, shared responsibility and the opportunity to independently organise tasks as key factors in its success. However, organisational constraints were still evident, particularly with regard to finding suitable meeting times. One student identified scheduling as the main difficulty, although the time slots provided within the seminar helped to address this issue.

Podcast production. The podcast production process was perceived as both practical and demanding. Students reported that the process required them to make a variety of decisions and demonstrate a range of competencies, including organising roles, planning the conversation and managing the technical aspects of the recording process. They also described personal challenges, such as feeling nervous, finding it difficult to speak freely and listening to their own voice. Support was provided through peer feedback and coaching conversations with the seminar instructor, which students said helped them to find their feet and build their confidence. Throughout the process, students realised the importance of simplifying their content to fit the format and time constraints of a podcast episode. This often required them to adapt their work strategies and learn to summarise information more clearly: ‘I have so much information, and I can’t get it to the point’ (FGD-3). At the same time, students reported a sense of accomplishment because the podcast resulted in a tangible product that remained available after submission. ‘It’s a great feeling to submit a real final product outside of these written assignments’ (FGD-4).

Students also linked the podcast project to their future teaching practice, describing it as a method they could implement in the classroom. One participant stated that they would ‘use the podcast itself as a learning resource in the classroom’ (FGD-2). Others highlighted that the project reduced their hesitation: ‘I definitely have less fear of carrying it out later’ (FGD-3). Students also emphasised that the format ‘can be used directly in school’ (FGD-3).

Motivational Aspects. Students were particularly motivated by the creative nature of the task, its novel format, and the opportunity to produce a tangible learning outcome. One participant explicitly linked motivation to the fact that the project differed from writing-based tasks: ‘What motivated me primarily was the format ... finally not writing’ (FGD-5). Demotivating experiences were mentioned less frequently and were mainly connected to technical difficulties, nervousness, or the perceived complexity of the topic of AI.

Feedback. Peer feedback was described as an important component of the learning process. Listening to other groups’ podcasts broadened students’ perspectives and helped them pay closer attention to quality and implementation. Especially the feedback during the coaching session with the seminar teacher helped a lot for the students. One student noted that structured feedback supported more focused listening: ‘giving feedback helped me while listening, because I paid more targeted attention to certain things’ (FGD-1).

6. Discussion and Conclusion

In this study, we examined the learning processes of prospective teachers engaging with a complex subject matter, namely AI in the school context, through a learner-for-learner podcast project grounded in principles of deeper learning. The findings show that podcast production is well-suited to enable the essential characteristics of deeper learning. The development of the

podcasts involved a range of cognitive, social and organisational demands, including transforming complex content for a specific audience, coordinating group roles and managing technical aspects of production. These demands required students to actively structure knowledge, negotiate meaning and make pedagogical decisions, thereby moving beyond the reproduction of information. Collaboration and peer feedback as well as formative instructor feedback were identified as central components. The core characteristics of deeper learning – reflective knowledge construction, realisation of real products, co-constructive learning, self-regulation (Sliwka & Klopsch, 2020) – can therefore be clearly identified in the students' reports. While reflection on the learning process itself was reported less frequently during podcast production, it was addressed more explicitly in subsequent seminar phases.

This study builds on previous research into student-generated podcasts by considering podcast production as a complex learning task that implements principles of deeper learning in higher education, rather than merely as a motivational or technological intervention. By explicitly linking students' perceptions to a deeper learning framework, the findings provide qualitative insights into how deeper learning can be fostered through intentionally designed learning activities, rather than through digital media itself.

The findings of this project support earlier research on the effects of student-generated podcasts in higher education, including increased student motivation, deeper understanding of the subject matter, articulation of complex ideas, and improved communication skills (Hernandez-Lopez & Mendoza-Jimenez, 2025; Wakefield et al., 2023). Additionally, the present study reveals that the specific requirements of the podcast format, such as conveying complex ideas in a concise manner, structuring arguments for an audience, and creating tangible learning outcomes, are particularly conducive to deeper learning processes. The demands of the podcast format require students to explain things simply, reduce complexity, and get to the point. While this is particularly relevant for the teaching profession, it is also transferable to other fields in higher education, where communicating complex knowledge clearly and reflectively is essential.

Summing up, students' perceptions of the podcast project can be described as positive – challenging, motivating and different to what they are used to at university. While the novelty effect may diminish if podcast production is used too frequently, the findings suggest that creating a podcast can serve as a powerful learning opportunity when implemented selectively and designed in line with principles of deeper learning, supporting sustained understanding and self-determined learning processes in higher education.

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