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INNOVATIVE TUTOR TRAINING: THE DEVELOPMENT OF A GAMIFIED DIGITAL ESCAPE ROOM FOR ENHANCING TEACHING COMPETENCIES

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Abstract

This paper presents the ongoing development process of an innovative digital escape room for student tutors at the Dresden University of Technology, which aims to enhance teaching skills and streamline seminar preparation through immersive, game-based learning. Traditional training methods are often inflexible, time-consuming and offer limited opportunities for tutors to develop relevant competences. They also have limitations in meeting the needs of modern education systems. By further developing existing qualification formats into a digital escape room format, game-based learning technologies will be integrated to create an immersive and customisable learning experience that encourages critical thinking and collaboration by simulating university learn-teach scenarios. The interactive and hands-on learning environment provides a flexible, secure platform where student tutors can test teaching strategies and build knowledge through active problem solving. The approach combines digital education with problem-based and collaborative methods and contributes to the digital transformation of higher education. Future evaluations will assess the escape room's effectiveness compared to traditional formats, aiming to refine the approach and set new standards for tutor training at the Dresden University of Technology.

Keywords: *Digital-simulation-learning, game-based learning, student tutor training, higher education didactics.*

1. Introduction

The digital transformation process poses challenges for universities, but also offers opportunities for the innovative design of teaching and learning processes. As part of the university innovation strategy, Saxon universities are also increasingly focusing on the implementation of digital teaching methods in order to sustainably improve the teaching and learning culture and to promote knowledge and technology transfer (SMWK, 2024), with the use of game-based learning in particular proving to be an effective approach to increasing learning motivation and problem-solving skills (Pais et al., 2023). In addition to subject knowledge, such methods also promote cross-curricular skills such as solution-oriented thinking, creativity, use of digital tools and virtual communication. Tutors as student teachers play a central role in this changing landscape. At the Dresden University of Technology (TUD), around 600 student tutors lead tutorials, exercises or internships each semester, which corresponds to around 40 per cent of the teaching staff (TUD, 2022). They are of central importance, especially in the critical introductory phase of studies, as they provide orientation, ensure continuity and guarantee the quality of teaching (Netzwerk Tutorienarbeit, 2018; Zitzelsberger, 2015). However, traditional methods of tutor training are often time-consuming and do not adequately prepare for hybrid teaching environments, technical challenges or the diverse needs of students. This article presents the ongoing development of a digital escape room for student tutor training. It provides an overview of previous training formats, highlights theoretical and methodological principles, and looks forward to the technological innovations used.

2. From traditional methods to digital solutions: Challenges and needs in tutor training

Student tutors face a number of challenges in preparing and delivering their tutorials, including room organisation, implementing inclusive and accessible teaching methods, and the routine use of technical equipment. In addition, the heavy student workload makes it difficult for student tutors to acquire new skills and knowledge through further trainings. Traditional training methods, with their limited flexibility and interactivity, fall short in addressing these challenges. To bridge this gap, innovative solutions like a digital escape room offer a promising way to provide flexible, realistic, and engaging learning environments for modern student tutor training. An innovative approach to meeting these

challenges is the development of a digital escape room that provides a motivating and interactive learning environment through game-based learning. This escape room is based on the *Room of Horrors* training programme from medical simulation training, which uses an interactive training environment to make participants aware of the sources of error and risks in this environment (Zimmermann & Schwappach, 2019). This concept was adapted for the training of student tutors at TUD to simulate typical challenges of hybrid teaching-learning scenarios.

In order to gain insights into the challenges and professional development needs of tutors, a survey was conducted at TUD in June 2024 (TUD, in print). The results showed that 68% of the respondents expressed a need for further training, especially for key qualifications such as moderation, dealing with difficulties, course organisation, didactic design and personal development/soft skills. Given the dual role of tutors as both students and teachers, flexible training formats are preferred. Responding to the demand for flexible learning formats, the original "Room of Horrors" was reimagined as a mobile-friendly, interactive 360-degree environment. This immersive technology enables asynchronous participation and allows tutors to identify sources of error in a simulated classroom, such as locked laptops, misplaced cables or documents containing sensitive data. While the 360-degree application reduces the effort required for classroom training and increases accessibility, it does not offer direct collaboration with other participants and only limited simulation of error detection.

To bridge this gap, a digital escape room is being developed as a playful and adaptive learning format. Combining problem-based and collaborative learning (Deterding et al., 2011; Gee, 2003), it fosters teamwork, critical thinking, and practical problem solving through engaging puzzles embedded in a virtual narrative. Multimodal tasks – integrating text, audio and video – increase accessibility for different learning styles (Mayer, 2001) and create immersive flow experiences (Csikszentmihalyi, 1990). In addition, visual anonymity encourages creative and unconventional behaviour and reduces fear of judgement (Zimbardo, 1969; Joinson, 2001). Together, these elements create a motivating, flexible training environment tailored to the needs of modern student tutors.

3. Design, development and technological implementation of the digital escape room

The digital escape room is being developed to improve the flexibility and accessibility of student tutor training. By integrating playful and interactive elements, it aims to motivate tutors to pursue voluntary qualifications. Embedded in a fictional storyline, players solve practical tasks within a given timeframe, such as room and material preparation, technical equipment and increasing inclusion and accessibility. The interactive and narrative structure makes the learning process practical and motivating. There are also plans to integrate a chatbot that will act as an additional character in the game, providing a personalized and collaborative learning experience with real-time feedback. In order to reach an international audience, multilingual options will also be implemented. Extensive usability tests, including "*thinking aloud*" methods, are conducted iteratively to refine the user experience and identify potential design improvements.

Several factors are crucial for evaluating the usability of virtual games in educational contexts, particularly when aiming to foster engagement and learning outcomes. One key consideration is the design of an intuitive user interface, which allows users to navigate and interact with the environment seamlessly, enabling them to focus on the educational content without unnecessary distractions. Additionally, balancing cognitive load is vital; tasks should be challenging enough to stimulate learning without overwhelming the user, supporting an optimal learning process. Immersion plays a significant role in maintaining user motivation, as the extent to which learners feel immersed in virtual environments enhances their engagement and overall experience. Kavanagh et al. (2017) highlight that well-designed virtual learning environments can effectively combine these elements, creating an engaging and interactive space for learners. Technical stability is essential to ensure a smooth user experience and avoid frustration, while accessibility considerations accommodate diverse learners, including those with disabilities. By integrating these principles, the digital escape room creates a robust, inclusive learning environment tailored to the needs of modern student tutors. Combining technical innovations, practice-oriented design, and thorough usability tests, it serves as a motivating tool that supports tutor qualification and fosters interdisciplinary skills, collaboration, and creativity in an inclusive educational context.

4. Conclusion and outlook

The ongoing development of the digital escape room is specifically aimed at addressing existing gaps in tutor training, such as the need for greater accessibility, flexible learning opportunities and the development of interpersonal and technical skills. A detailed concept for the escape room has been developed, including learning objectives, narrative structures and task designs that are tailored to real-life

teaching scenarios. The escape room is intended to provide an initial qualification for the preparation of accessible seminar rooms to enable teachers to effectively support inclusive teaching environments.

The current focus is on developing a prototype and conducting beta testing with a small group of tutors. Feedback will help refine the platform's features and ensure an optimal user experience. Future iterations will focus on integrating advanced AI features, such as real-time adaptive feedback and dynamic problem-solving scenarios, to further enhance the escape room's interactivity and pedagogical value. In addition, scalability remains a key objective in order to adapt the escape room for wider use in higher education institutions.

The digital escape room combines gamification elements and mobile learning technologies to create a flexible and effective solution for tutor training, offering great potential for preparing tutors for the demands of modern higher education and digital change.

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