



HOW TO 'ESCAPE' FROM EDUCATIONAL MANAGEMENT: INTEGRATING ONLINE ESCAPE ROOMS INTO HIGHER EDUCATION FOR CREATIVE LEARNING

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Abstract. The aim of this article is to explore the integration of an online escape room (OER) into a postgraduate course as a gamified tool for creative learning and student self-assessment. A deductive thematic analysis of anonymous written student feedback revealed that: 1) gamification increased motivation and engagement; 2) the alignment of tasks with learning objectives supported meaningful learning; and 3) the structured and interactive format enhanced study skills and encouraged creative problem-solving. This innovative approach not only redefines traditional learning strategies but also demonstrates the potential of gamified self-assessment tools to foster creativity, critical thinking, and the practical application of knowledge, particularly within online and hybrid learning environments.

Keywords: escape room, educational management, higher education, creative learning.

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1. Introduction

Creativity is increasingly recognised as one of the cornerstones of education in terms of 21st-century competencies, which include not only the mastery of knowledge, but also the ability to apply it in complex, flexible, and original ways. Creative thinking is considered an essential prerequisite for solving authentic problems, working in teams, and adapting to uncertain situations that are common in modern society and the labour market (Beghetto, 2021).

One of the creative solutions in higher education (HE) is the use of gamified learning environments, such as escape rooms. While not entirely new, escape rooms are an active learning method that continues to show promising potential in educational practice (Sanchez & Plumettaz-Sieber, 2019), both in face-to-face and/or distance-learning contexts through virtual platforms (Veldkamp et al., 2020), which makes them a versatile tool in today's HE. Escape rooms combine key elements of game design with contextualised content to enhance students' knowledge and skills (Subhash & Cudney, 2018).

Research highlights the versatility of OERs in supporting a wide range of educational goals. For instance, they have been used to develop information-seeking skills (Choi et al., 2017), teamwork and leadership (Warmelink et al., 2017), and engagement in distance education (Padilla Piernas et al., 2024). They have also supported project-based learning (Chiu, 2018), the development of generic skills such as critical thinking (Craig et al., 2019),

and specific competencies in professional fields such as healthcare (Rodríguez-Ferrer et al., 2022). Systematic literature reviews (Connolly et al., 2012; Subhash & Cudney, 2018) of existing research highlight the ‘educational game effect’ of escape rooms, which facilitates not only the acquisition of knowledge but also the mastery and application of familiar concepts.

Moreover, in the assessment process, it is becoming increasingly important to assess not only *what* students know but also *how* they are able to apply their knowledge to new and uncertain situations and to develop meaningful, contextual, and original solutions (Rabello-Mestre et al., 2025). Therefore, this paper explores the integration of an OER into HE as a gamified tool for creative learning and student self-assessment.

2. Gamified environments for creative learning: the educational potential of OERs

In this article, we adopt Beghetto’s (2016, p. 9) definition of creative learning as “a combination of intrapsychological and interpsychological processes that lead to new and personally meaningful understandings for oneself and others”. As Beghetto (2021) notes, this conception aligns with the classical definition of creativity, which includes two essential criteria: originality (novelty within a specific context) and usefulness (effectiveness in addressing a task). Therefore, creative learning is not about removing all constraints but about helping students discover new and different ways of meeting academic criteria and learning objectives.

Gamification in education has emerged as a promising strategy to support creative learning and is understood as the use of game elements, such as incentive systems, challenges, and point systems, in non-game contexts to motivate learners to engage in tasks they might otherwise find unappealing. As noted by researchers (e.g. Plass et al., 2015), gamified learning can enhance students’ engagement, motivation, and creativity. Escape rooms, as a form of gamification, integrate key elements of gamification, such as goal-oriented challenges, feedback, rewards, and narrative structure, to create dynamic and engaging learning environments. Whether delivered in physical or virtual formats, escape rooms are typically structured as team-based games in which learners discover clues, solve puzzles, and complete tasks to achieve a specific objective within a limited timeframe (Nicholson, 2015). Importantly, escape rooms allow students to actively apply theoretical knowledge in simulated yet meaningful contexts. Tasks are often designed to reflect real-world challenges and require critical thinking, problem-solving, and collaborative decision-making. These features not only support the development of cognitive and metacognitive skills but also foster students’ sense of responsibility and agency in the learning process (Veldkamp et al., 2020; Cain, 2019).

The narrative structure in escape rooms also plays a critical role in promoting creative learning. When puzzles and challenges are thoughtfully designed, they can align with course learning outcomes while simultaneously stimulating imagination and creative engagement (Manzano-León et al., 2021). Successfully completing escape room challenges through

problem-solving and creative thinking provides students with a sense of accomplishment and reinforces their confidence in their own creative capacities (Vidergor, 2021). The digital nature of escape rooms allows for the integration of diverse multimedia elements – videos, audio recordings, interactive puzzles, and branching narratives – that support differentiated learning and cater to various student preferences (Rodríguez-Ferrer et al., 2022). As Veldkamp et al. (2020) point out, OERs can lead to more engaging and effective learning experiences, promoting deeper understanding and retention.

OERs also provide opportunities for self-assessment. Unlike traditional forms of assessment, they enable learners to experiment, fail safely, and learn through feedback and iteration. This reflects Beghetto's (2019) view that creative learning is rooted in working within constraints to generate original and meaningful responses. By combining playful challenge with purposeful reflection, OERs transform assessment into a formative and creativity-enhancing process. Therefore, integrating OERs into HE can serve as a powerful pedagogical tool for fostering creative learning and equipping students with the skills necessary to navigate an increasingly complex world.

3. Methodology

The aim of this paper is to present and discuss the development, implementation, and evaluation of an OER designed for a postgraduate cycle of studies. This OER was created to support student self-assessment before the final exam.

Creation of the escape room

The OER was implemented in the postgraduate study course *Management of Education Organisations and Organisational Learning* (6 ECTS), delivered online. The OER, *Edukodas (Educode)*, was created by both authors of the article using the Genially platform (<https://genially.com>). The design of the OER followed the principles suggested by Tercanli et al. (2021) and Cain (2019): motivating students to participate; providing visual/emotional reinforcement after each task; ensuring a variety and increasing complexity of tasks; and providing positive reinforcement upon completion.

The OER was structured into thematic blocks of tasks (see Figure 1), each aligned with the main topics and learning outcomes of the course. Within each block, students encountered different formats of information presentation, requiring them to perform various actions such as recognising key information, viewing and interpreting video material, listening to audio content, reasoning with clues, and identifying alternative answers. The escape room was structured around a coherent and immersive storyline, which served as a unifying framework for all tasks. The narrative centred on an educational institution facing the threat of closure due to an upcoming external evaluation.

The OER was designed so that all tasks had to be completed correctly in order to proceed to the next stage. No time limit was set, and no formal assessment of learning achievements was carried out.

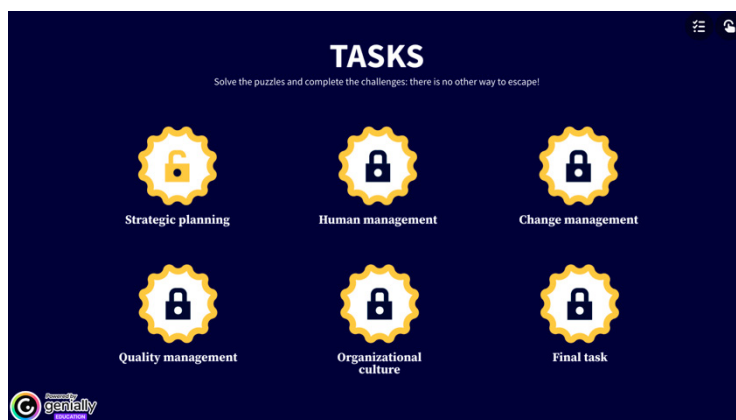


Figure 1. Content and structure of the OER (source: screenshot of the escape room developed by the authors)

Participants and data collection

The OER was tested and piloted with 113 first-year postgraduate students, 98% of whom were female. Among the students, 33% worked in educational institutions as school principals or vice-principals. The average age of the students was 39 years. The dominant age groups were 31–40 (28%) and 41–50 (38%), while the smallest age group was 51–60 (11%).

The research data were collected from the students' anonymous written structured feedback via the University's virtual learning platform. As Bryman (2016) highlights, anonymity can improve the reliability and validity of qualitative data. This method of data collection was deliberately chosen to allow the students to be as open as possible about their insights, thereby reducing the potential for social desirability bias. The data collection took place at the end of the course in January 2024, prior to the final exam.

Analysis of the research data

The data were analysed using a deductive approach to thematic analysis (Braun & Clarke, 2006), following these steps: reading, coding, extraction of primary themes, revision of themes, extraction of sub-themes, final identification and naming of themes and sub-themes, and writing the analysis. The analysis of the content of the written feedback focused on identifying meanings that support the proposed principles (Tercanli et al., 2021) for the creation of an educational escape room: gamification of content presentation, alignment of tasks with the intended learning outcomes, and the impact of content and structure on study skills.

4. Results

Data analysis revealed not only the main themes but also the sub-themes in each theme (see Figure 2), which are discussed below in this section.

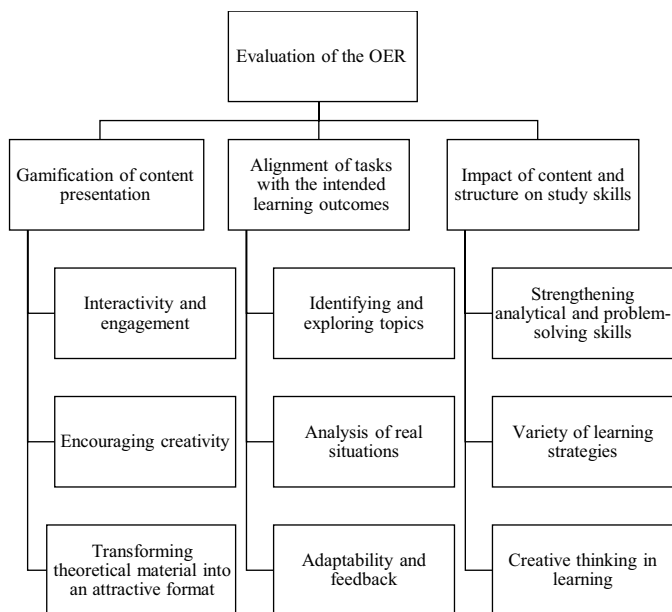


Figure 2. Map of the main themes and sub-themes (source: authors' own work)

Gamification of content presentation

Most of the students used this method of completing the assignments for the first time. They pointed out that the variety of tasks, the gamification of the process, and the opportunity to self-correct were very useful. The escape room was perceived as an innovation that should be integrated into practice.

The playful format of the OER was found to be innovative, engaging, and highly motivating. The participants highlighted that the interactivity, the use of different media, and the playful format of the activities encouraged active participation and deep learning. As one participant noted: *This is the first time I've done this kind of activity. I liked the fact that it was interactive, that the tasks were different, and that it was fun and not boring to talk about education.*

The participants also highlighted the engaging and motivating aspects of the OER. For example: *The escape room is very entertaining, interesting, and engaging. It's like a game, but at the same time, it's a way to extend your knowledge. Thank you very much for such an interesting way to test knowledge.*

The presentation of the content not only engaged the students but also stimulated creative thinking, turning theoretical knowledge into practical solutions. One participant stated: *I really liked how innovative and interesting it was to test and absorb information.* Another participant remarked: *Testing your knowledge while trying to 'escape the room' is a great and very interesting task. The given questions are essential; they test basic knowledge, and they are presented in an interesting and thought-provoking way. The module was very interesting and useful. I'm 'taking away' a lot of new information relevant to my profession. This way*

of presenting content not only helps students understand the information better but also enables them to actively make new connections between theory and practice. Creativity is stimulated by the opportunity to experiment and test unconventional solutions in both real and simulated situations.

The presentation of the content within the educational escape room showed that the principles of creativity, when integrated into the learning process, not only engage students but also give them more confidence to experiment and solve problems. As one participant noted: *It's a very good tool. It's not only very useful but also very attractive. It made me feel really emotional because I made mistakes, but I didn't feel frustrated at all because I was allowed to correct myself.*

The students pointed out that participating in this type of achievement assessment was a valuable and interesting innovation. The gamification of content presentation was perceived as an engaging and motivating way to transform theoretical learning into a creative and active experience.

Alignment of tasks with the intended learning outcomes

The research participants unanimously emphasised that the tasks were not only purposeful but also stimulated the deep application of knowledge in practice, which is an essential element of creative thinking. One participant stated: *You may think you know everything in theory, but these tasks help you understand what you know and reveal where you need to deepen your knowledge.*

Another participant added: *When getting out of the escape room, I brought together the main points of the course and found out what else needed to be revised and studied in more depth. In the escape room, the questions are presented in such a way that you can immediately see what needs to be revised.* This quote shows that the structure of the exercises was useful not only for testing knowledge but also for further creative development.

The creativity component was particularly apparent in tasks that were tailored to real-world scenarios. One participant reflected: *For me, the most meaningful tasks were the videos that showed simulated but common situations.* These situations encouraged the research participants to solve problems creatively, putting theoretical knowledge into practice. Another participant highlighted: *For me, the most meaningful tasks were the video recordings, which depicted simulated but common situations, and I was able to successfully identify them.* In addition, the variety of tasks (ranging from reading texts to watching videos) allowed a broader range of student needs to be met and reinforced a creative approach to management problems.

According to the research participants, the OER helped them increase their knowledge and strengthen their attitudes, both of which are important for educational management (*The escape room tool is just great. It's a concise guide to the essential things you need to know and understand after completing the course on the management of education organisations*). This process enabled the students to identify the topics they were less familiar with in the course. It should be noted that the tool helped highlight the key points of the study course.

This theme revealed that the creative presentation of tasks aligned with the learning outcomes encourages students to think both holistically and creatively. This, in turn, enhances

their ability not only to solve the given tasks but also to develop new ways and strategies to assimilate the learning content.

Impact of content and structure on study skills

The research participants noted that the escape room strategy not only deepened their knowledge but also improved their study skills. This experience helped some students to realise that they lacked the ability to understand context. Others mentioned that, although it was fun, the gamified process was challenging because it required the application of knowledge, analytical thinking, and orientation.

The research participants reflected on the fact that the structure of the OER enhanced their analytical thinking, problem-solving skills, and creative organisation of information. One participant commented: *I really liked how the tasks were presented in different ways, with neither too many nor too few tasks. The tasks were of moderate difficulty and required analytical thinking.* The interactive and varied nature of the tasks helped the students to explore new ways of learning. As one participant observed: *I tried it twice; I was very 'hooked'. It was very useful to revise the material and see how well I understood the given situations. The most meaningful tasks for me were the situational ones.* Such methods not only helped to structure the learning process but also encouraged independence.

Creativity in this context was manifested through the inclusion of multimedia formats (video, audio) and a variety of tasks. As one participant pointed out: *I really liked the escape room because there were a lot of different and varied tools. It allowed each sub-theme to be consolidated and the most important points to be defined.* Another participant noted: *The video and audio recordings, as well as the text-based tasks, were interesting and useful, and the variety of questions piqued my curiosity to move forward and see what would come next.* Yet another participant remarked: *It's really great to try out a non-standard tool and test my knowledge in a different way. The most meaningful tasks were those based on real-life situations.* This format not only fostered deep engagement with the content but also encouraged a flexible and creative approach to the organisation of the learning material.

The structure of the OER enabled the students to feel engaged and confident in their learning journey. One participant summarised their experience as follows: *It was a very interesting experience; it allowed me to test the knowledge I had acquired and revealed my weak spots. Now I'll have to revise the lecture slides and analyse the material related to the questions I answered incorrectly.*

The content and structure of the OER fostered deeper engagement with the material, helping the students identify their weak spots, enhance their study strategies, and develop a creative approach to problem-solving.

5. Discussion

The aim of this article was to highlight the subtleties of using an OER in HE as a self-assessment tool. The results of this study have confirmed that online escape rooms are an effective tool for fostering student engagement and creativity. As shown in the meta-analysis by Sailer and Homner (2020), gamification increases student motivation and learning outcomes. Our

findings revealed that well-designed gamified environments may also support the deeper dimensions of creative learning. This includes not only task completion but also reflective experimentation, real-world application, and personal meaning-making.

The data analysis revealed that gamified tasks, particularly those with a narrative structure, enhanced the students' motivation and inspired them to approach challenges in new, creative ways. This aligns with the ideas of Lopes et al. (2024), who argue that unexpected tasks and varied formats stimulate creative responses. The participants also noted that the escape room enabled them to self-assess their understanding and organise theoretical knowledge into applicable formats, demonstrating what Beghetto (2019) describes as working within constraints to develop original and contextually meaningful solutions. Rather than simply recalling the course material, the students had to use it to complete challenges that required abstraction, synthesis, and collaborative reasoning – core components of higher-order creative thinking. These insights echo the findings of Fotaris and Mastoras (2019), who suggest that escape rooms support not only cognitive skills such as decision-making and critical thinking but also foster creative engagement through teamwork and contextual problem-solving. Similarly, Veldkamp et al. (2020) point out that when game design is aligned with learning objectives, it can activate deep and lasting engagement, which is conducive to creative development.

The OER in our study offered not only a gamified revision tool but also a learning space in which the students could experiment, reflect, and generate their own understanding of the course material before the final exam. This perspective is reinforced by the findings of Petkari and Calvo (2024) on the use of virtual escape rooms in complex domains such as psychodiagnostics, where knowledge application and confidence-building are key learning outcomes.

The students valued the opportunity to adjust their responses based on immediate feedback, reflecting a process of iterative improvement that is central to creative learning. As noted by Sailer and Homner (2020) and Beghetto (2021), feedback loops embedded within playful, exploratory environments encourage learners to take intellectual risks and develop personal insights.

Limitations and future directions. The data collection method (anonymous written feedback) limited the scope of the socio-demographic analysis. Future research should focus on longitudinal studies and the collection of in-game player analytics (e.g. logins, time-on-task, etc.) to enable a more comprehensive evaluation of learning outcomes and engagement in OER environments.

6. Conclusions

Innovative and creative solutions are becoming increasingly important in the modern learning process. Gamification is an innovative and creative way to facilitate the delivery and assessment of knowledge and ideas in HE. The complexity of creative educational games, such as escape rooms, not only allows for the integration of interdisciplinary skills and competencies but also increases learners' motivation to learn and their engagement in the process of self-development and self-assessment. Although using escape rooms to gamify the assessment of learning outcomes is not a universal solution, it offers students opportunities to reduce assessment-related stress and revisit the content by engaging with a variety of task formats.

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