Escaping the Assessment Maze: Navigating Policies through an Interactive Fictitious Experience

J. C. Lubbe

Central European University, Vienna, Austria; Yehuda Elkana Center for Teaching, Learning and Higher Education Research, lubbei@ceu.edu/ irenelubbe@icloud.com, http://orcid.org/0000-0003-0683-7234

J. E. Wolvaardt (corresponding author)

School of Health Systems and Public Health, University of Pretoria, liz.wolvaardt@up.ac.za, https://orcid.org/0000-0002-3157-8863

A. C. Turner

School of Health Systems and Public Health, University of Pretoria, astrid.turner@up.ac.za, https://orcid.org/0000-0002-8391-6238

M. van Wyk

Directorate Comprehensive Online Education Services, University of Pretoria, mari.vanwyk@up.ac.za, http://orcid.org/0000-0001-6142-1608

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J. C. Lubbe, J. E. Wolvaardt, A. C. Turner, and M. van Wyk

Abstract

Misinterpretation or ignorance of institutional policies in higher education can lead to inconsistencies and legal risks, particularly concerning assessments. In response, we introduced an innovative approach to engage faculty and administrative staff in understanding the institution's policies related to assessments. We implemented a Ludic pedagogical strategy by transforming assessment-related policies into an interactive escape-room challenge. This themed workshop applied adult-learning theory, was developed based on recommended escape-room guidelines, and immersed staff in multiple policy documents, encouraging cognitive, behavioural, affective, and sociocultural engagement. Assessment policies were integrated into a fictitious narrative with puzzles to promote self-directed (heutagogy) and cooperative learning. The escape-room challenge was conceptualised as a single intrinsic case study that used postcards written by participants as data after successfully 'escaping' the room. These postcards served as reflective tools containing participants' insights regarding the experience. Thematic analysis was conducted on the postcards, supported by visual data. The workshop yielded a central theme of 'A Whole-Body Human Experience,' reflecting cognitive, affective, and behavioural engagement. The escape room harnessed the interactive nature of games to ensure teamwork, motivation, communication, and problem-solving skills. The workshop, rooted in adult learning principles and designed according to accepted guidelines, effectively engaged participants in learning about assessment policies through an immersive escape-room experience. The diverse expressions of newfound knowledge, emotional engagement, and intentions to alter practices and processes confirm escape rooms as a suitable strategy for faculty development.

Keywords
Game-based learning, Ludic pedagogy, faculty development, escape room, cooperative learning

Key contributions
- This study provides practical guidance on designing game-based learning for faculty development.

- The Ludic pedagogical approach ensured cognitive, behavioural, and affective engagement with policy documents, with intentions to bring about positive changes in assessment practices.
- The exploration of all policies that include any reference to assessment revealed contradictions and potential assessment dilemmas, highlighting the need for institutions to align policies regularly.
- This study contributes to the literature on the use of escape rooms in adult learning.

Introduction

Assessment is an essential and inescapable aspect of academic life, and while faculty assess students' work, they are also evaluated and held accountable by their managers (Leathwood, 2005). The scientific literature contains limited information on why students take legal action against universities, but one frequently cited reason in the popular press is related to assessment (Edwards, 2015; Esaki-Smith, 2020; Khan, 2016; Sapolin, 2022). Consequently, universities have established policies to guide assessment practices, ensuring fairness, transparency, and consistency to protect both the institution and its stakeholders, and to guard against legal scrutiny from students and external bodies. A lack of knowledge of policies and procedures can create opportunities for staff to create their own rules (Rethore, 2021). Turnpenny et al. (2008) explain that the lack of integrating policy assessment in practice is often due to the lack of staff training. It is against this background that the Teaching and Learning Committee (TLC) at the School of Health Systems and Public Health (SHSPH) at the University of Pretoria, saw the need to train staff on the assessment policies. Since reading policies might be a tedious process for staff to fit into their busy academic life, the Committee decided to use a game-based approach. The choice of using an escape room was guided by the known benefits of escape rooms, for example, teamwork, collaboration, and engagement.

Literature review

Adult learning

Many authors have written about adult lifelong learning principles (Collins, 2004; Knowles, 1970; Pallis & Quiros, 2014). These authors stress that adults have life experience and need to apply what they have learned practically in their real-life environment. Therefore, adult learners are perceived as autonomous, self-directed and goal-orientated. They are both intrinsically and extrinsically motivated and regarded as active participants, making learning informal and personal. In particular, adult learners thrive on timely and appropriate feedback and should have opportunities to reflect on their learning (Collins, 2004; Knowles, 1970; Pallis & Quiros, 2014).

Based on adult learning principles, Brown et al. (2020) claim that learning experience for adults, or andragogy, is constantly changing and reflects the dynamic interplay between relevance, emotion, and stress. Adult learners gain maximum value from activities if the

Lubbe, Wolvaardt, Turner, & van Wyk: Escaping the Assessment Maze: Navigating Policies through an Interactive Fictitious Experience

3

learning can be used or applied in their immediate work environment. Also, adult learners pay better attention if they are emotionally engaged and moderate levels of stress can enhance their performance (Brown, et al., 2020).

Game-based learning for adults

Renowned educational theorists such as Piaget (1926), Froebel (1891), Dewey (1956), and Vygotsky (1976), have emphasized the importance of play and playfulness in learning, leading to the evolution of game-based learning as a facilitative approach across various audiences and contexts (Hellerstedt & Mozelius, 2019). In particular, experiential learning theory suggests that learning is most effective when it is active, engaging, and relevant to the learner's experience (Kolb, 1984).

Adapting games to simulate real-life situations is not a new concept, dating back to board games in 3500 BC (Clarke et al., 2017), and continuing using video and serious games in 2023 (Rhayami et al., 2023). Play, according to Shapiro et al. (2014), benefits players by stimulating real-life experiences on physical, emotional, and intellectual levels. This form of play, based on LARPing principles (Live Action Role Playing), unfolds in a safe environment, allowing experimentation without concern for winning or losing. Players are immersed in the game, actively involved, and focused on goals, rules, and voluntary participation (Cheng & Su, 2012; Karagiorgas & Niemann, 2017; Kim, 2015; McGonigal, 2011). Immediate feedback, challenges, curiosity, and fantasy (Cheng & Su, 2012; Malone, 1983) are inherent characteristics of games that contribute to their educational benefits. These characteristics are closely linked to learning outcomes (Cheng & Su, 2012; Karagiorgas & Niemann, 2017; Kim, 2015; McGonigal, 2011) and skill development (Qian & Clark, 2016). Additionally, games facilitate the development of portable skills such as problem-solving, critical thinking, and communication.

Adult learning principles are closely related to the game-based learning principles of active learning, engagement, immediate feedback (Pho & Dinscore, 2015), and motivation (Gee, 2003). A meta-analysis by Clark et al. (2012) concluded that game-based learning is an effective way to teach a variety of skills and knowledge to adults. Game-based learning aligns with adult learning principles as it encourages active participation, develops skills such as communication, critical thinking, and problem-solving, and fosters communication and motivation while providing emotional engagement (Ritvanen, 2021). Researchers (Koivisto et al., 2017; Lookadoo et al., 2017; Metha et al., 2017; Nietfeld et al., 2014; Severengiz et al., 2018; Shapiro et al., 2014) have described numerous benefits that align with adult learning, namely: engagement in complex topics, constant interaction with material, fun and enjoyment, the simulation of real-life experiences, promotion of self-regulated learning, active engagement, immediate feedback, personalized learning, collaboration, and knowledge retention.

Game-based learning offers numerous benefits for faculty development in higher education, including increased engagement and opportunities for research and development (Dittman et al., 2022). Despite the obvious benefits for faculty development, there is little that has been published on the topic (Whitton, 2017). These games also function as social systems, which makes them ideal for team-based faculty development as players must respond to challenges posed by others within the framework of the game's rules.

Game-based learning and engagement

Game-based learning environments enhance the learning experience and engagement of players (Sawyer et al., 2017). Engagement and challenge in educational games positively affect learning outcomes, and further, players do not necessarily need to be skilled in the game, but immersion and engagement drive learning (Hamari et al., 2016).

Motivational elements in game-based learning include enjoyment, fantasy, interest, self-efficacy (Shu & Liu, 2019), rewards, built-in learning tools, and offline help tools (Abdul Jabbar & Felicia, 2015). These features support meaningful learning and scaffold the educational process.

Game-based learning can also occur on digital platforms, often involving serious games (Clarke et al., 2017; Makri et al., 2021;). However, it can also thrive in blended environments, offering the advantages of live human interaction and observation of behaviour. Over the past decade, the interest in digital games for education has surged (Hummel et al., 2017; Zhonggen, 2019), extending to fields like language learning (Klimova & Kacet, 2017), mathematics (Best, 2019), medical science (Gorbanev, 2018) and programme orientation for new students (Roos & Lubbe, 2021).

The distinct advantage of games for faculty development lies in their separation from reality, creating a safe environment for failure and learning from mistakes. The more players engage in a game, the fewer mistakes they make, leading to increased confidence and competence (Zolotaryova & Plokha, 2016). Escape rooms, a type of game-based learning format, offer this type of environment, where participants actively engage with challenges, collaborate with others, and apply their knowledge and skills to solve problems in real time.

Escape rooms for adult learning

Escape rooms use game design principles, logic puzzles, board games, props, game show tactics, and interactive theatre (Wiemker et al., 2015). Escape room-style games have gained significant popularity in recent years, as an andragogical tool (Bolchinova, 2023; Wargo & Garcia, 2023). These immersive, team-based activities require participants to solve puzzles and complete challenges within a locked room within a set time limit. The engaging nature and

collaborative element of escape rooms offer a unique platform for learning and development (Veldkamp et al., 2020).

Veldkamp et al. (2020) conducted a systematic review of escape rooms in education, highlighting their potential to enhance motivation, engagement, and learning outcomes. The systematic review identified positive impacts on critical thinking, problem-solving, collaboration and communication (Veldkamp et al., 2020), which aligns to other studies (Cohen et al., 2020a; Cohen et al., 2020b; Diemer et al., 2019; Makri et al., 2021; Wiemkeret al., 2015). Escape rooms are particularly beneficial for interdisciplinary learning (Taraldsen et al., 2019), enhancing teamwork and collaboration (Cohen et al., 2020b; Makri et al., 2021), and increasing creativity and innovation (Makri et al., 2021; Taraldsen et al., 2022).

Health professions education has used escape rooms effectively for undergraduate education and continuing development for adult learning, as gaming allows for errors to be made without any real-life consequences. For example, Diemer et al. (2019) explored the use of a patient safety escape room as a graduate medical education simulation for reporting adverse events. The study showed that escape rooms offer a safe and engaging environment for healthcare professionals to learn and practice essential skills and participants reported increased confidence in event reporting and improved teamwork skills. This practical aspect of utilising a simulated escape room provides significant advantages to improve the performance of medical professionals on a task-based assessment, compared to traditional training methods where the potential outcomes of each decision or action are not known (Miller & Regan, 2008). The use of escape rooms in health professions education is a natural match as the game can create a sense of urgency and risk which is similar to that in clinical cases. Taraldsen et al. (2019) emphasise creating all escape room games with this sense of urgency and risk to motivate players and deepen their learning.

An escape room can be a new experience for participants and there are 'literacies' of escape rooms - or the specific skills and knowledge - required to successfully navigate these immersive environments. Wargo and Garcia (2022) identified three key literacies: spatial literacy, information literacy, and social literacy, and suggested that these needed to be taken into consideration when designing effective escape room-based learning experiences.

Irrespective of the mode, every escape room involves a challenge, a solution, and a reward (Wiemker et al., 2015). Challenges must align with the room's theme and story, balancing complexity with clarity to keep players engaged. All necessary tools should be provided to players for physical escape rooms (Clarke et al., 2017; Wiemker, et al., 2015).

Methods

Research Design

This study employed an intrinsic case study approach, which involves selecting a case to investigate a unique phenomenon (Stake, 1995). The chosen case was a single intrinsic case study that focused on using a blended escape room to engage faculty and administrative staff in familiarizing themselves with the institution's assessment policies.

Context of the study

The study was conducted at the university in South Africa within the SHSPH. This postgraduate school is home to 23 full-time staff members who support approximately 250 residential and 1,200 fully online students.

This study was one of several research studies conceptualized as an umbrella curriculum transformation project in 2019. The executive committee of the school approved the project before submission to the Faculty of Health Sciences Research Ethics Committee (REC) at the University of Pretoria. All academic and administrative members of staff were invited, and participation was voluntary. Workshop participants gave verbal consent for the use of their data for research purposes. Ethical approval was granted by the REC (research ethics number 363/2019).

Characteristics of the escape room

The SHSPH-TLC adopted a Ludic pedagogical approach, incorporating all assessment policies into an engaging and interactive fictitious escape room challenge for staff members. Ludic pedagogy is a teaching philosophy that values fun, play, playfulness, and humour without compromising academic or intellectual rigour (Lauricella & Edmunds, 2022). The workshop aimed to engage and expose administrative and academic staff to multiple policy documents, fostering cognitive, behavioural, affective, and sociocultural engagement with these documents to bring about positive changes in assessment practices. The strategy employed was one of constructivism, heutagogy, and cooperative learning. Heutagogy, also known as self-determined adult learning, focuses on participants' ownership and accountability for their lifelong learning, emphasizing self-discovery (Blaschke, 2012).

The workshop designer has previous experience in escape room design and facilitation and started by mapping the content into a game to create scenarios for learning in line with the advice given by Lubbe and Politis (2023). The digital component of the escape room was then storyboarded on paper and created using the free platform, Microsoft GoogleForms https://www.google.com/forms/about/). The workshop was advertised and planned (Figure 1) based on Davis et al.'s planned (2022) twelve tips, to create a relaxed and conducive atmosphere (https://youtu.be/s6YMWMHCPCs ; https://youtu.be/T6BF2j_TGEk).

Although it is a good principle to start a workshop where participants introduce themselves and get to know one another better, there was no need for this, since all the participants have been working together as a team in the SHSPH for many years. The photo-booth activity (Figure 1) replaced the "Introduction" and contributed to a relaxed and playful start. However, we purposefully scheduled adequate time for debriefing at the end of the day as this is an important, albeit often overlooked, facet of escape rooms.

Figure 1

Workshop Programme and Photobooth

Cohen et al. (2020b) suggest seven developmental considerations when designing an escape room: theme, location and size, financial considerations, room characteristics, puzzles and challenges, prototyping, and hints. The development of this workshop is therefore reported based on these considerations.

1. *Theme*
The theme of the escape room workshop centred around a cruise (Figures 1 and 2), where teams had to solve a series of puzzles or challenges related to a fictitious student named Lightning Jack. Various teasers (https://youtu.be/s6YMWMHCPCs) were sent via email to create the 'vibe' or interest for the workshop. Platforms such as PowToon (https://www.powtoon.com/) and Renderforest (https://www.renderforest.com/video-maker) were utilised (since the authors had access to them).

Figure 2

Themed Workshop: "The Cruise"

MSC Escape vacation

It was September 20-something and you were once again in a departmental meeting at the SHSPH....you'd forgotten why you're there as you painstakingly count down the days to your December leave....

But your ears picked up on a TLC (not Thomas Cook) cruise ship "conference-on-the-water" that ALL staff are invited to!! And now a month later, on Friday 25 Oct, you find yourself on a cruise liner, sitting in a conference room with a wave-view, sipping a cool refreshing drink and wearing your beachwear! https://youtu.be/x3kJ1LpWOMQ?t=12

To escape the conference room and start enjoying the cruise with all the sun, water, food, free drinks and live music, you need to ring the bell that will open the door!

However, the sadistic organizers of the conference (TLC-team) has built a lock as tight as your budget around the bell. Solve the riddles and you will get the secret code to unlock the DOOR!

Fortunately you're not alone! You have your colleagues and friends, umbrella drinks and snacks, policies for the riddles and the TLC crew.

First, you will need to find a few accomplices for your team.
Now send someone to fetch a laptop. With a power-cable (trust me on this one!)
Now, as a team, you need to crack the secret code to ring the bell!

PS: Only the team that rings the bell, get to leave the conference room. The rest of the group will remain for an in-depth discussion on the rational for changing the lecture-room's blinds from a pale-blue to a grey-blue.

GO! GO! GO! The clock is ticking!!!!

The physical environment was set with island music, decorated with props, and cruise-theme refreshments were served (Figure 3). Each participant received a flower lei and was welcomed with a non-alcoholic playful beverage after doing a limbo dance under a foam pool noodle.

Figure 3

Examples of Props and Refreshments

2*. Location and size*

The escape room was held in one of the mid-sized lecture rooms. The room was prepared the afternoon before the workshop, which entailed rearranging the desks and chairs and positioning the prompts (i.e. clues and QR-codes), decorations, and documents (the folders with policy documents). Many of the props were borrowed from the team members' homes (to limit the costs). Creative thinking regarding suitable clues and props that reflected the theme, rather than effort, was required.

On the day of the workshop, participants had the option to self-select into one of two teams, each comprising both academic and administrative staff. The room was big enough for the team members to move freely to be able to access the tables with the numeric clues and perform any movement exercise that was required of them (to 'bribe' the facilitators for clues to unlock the next challenge).

3. *Financial considerations*

The only substantive cost was the use of an external facilitator. The props were lent by staff members and refreshment costs were paid by the university. There was a low-tech solution for the final lock - the team had to run to the front, present the correct number combination and ring a bell.

4. *Room characteristics*

Each team had a table (see Figure 3) with flipchart paper, pens, the programme, a set of handouts, a shared laptop with internet access, and one set of hard copies of the four

documents. Water was also provided. The workshop facilitator used the main podium and the large screen to project.

5. *Puzzles and challenges*
Four institutional policy documents related to assessment served as source materials for the puzzles and challenges:

- Assessment policy
- Examination and related matters
- General academic regulations and student rules
- Escalation policy

These assessment policies and guidelines were the source of two crossword puzzles and eight branching scenario challenges that had to be solved. Participants had to find the answers in the policies to address the ever-evolving scenario of the student, and feedback was immediate (i.e., correct responses led to the next scenario and puzzle, while incorrect answers blocked progress). The sweets provided the numeric clues that had to be noted in the correct order to unlock the final challenge (Figure 4). Each clue station had a person responsible for handing over the clue and ensuring that the additional movement activity, e.g., hula hooping or dancing was done to 'satisfaction'.

6. *Prototyping*
The research team rehearsed the digital component of the escape room to estimate what time would be needed. The instructions to move from one activity or puzzle to the next were written out in the digital component of the game and were therefore available as they progressed to that stage. This standardisation of instructions was repeated in the in-class activities as the workshop facilitator activated a pre-recorded video or text when the team was led, via the solution of clues, to engage with the facilitator for the next instruction.

7. *Hints*
The workshop facilitator observed the teams' progress and provided hints to particularly problematic puzzles, e.g., when the same aspect of assessment was in more than one document and contradictory.

The digital component of the escape room (with answers provided to enable progress) can be viewed here, at this Link to Escape Room:
https://docs.google.com/forms/d/e/1FAIpQLSf9cOm806lObkO17onMYDeM2NhHYQqZ4xhvp0gSmh-N_ceJuA/viewform

Figure 4

Numeric Clues for some of the Challenges

Data collection and analysis

After completing the escape room, participants engaged in a reflective activity during the debriefing. They wrote postcards (provided) to a friend, colleague, or themselves, reflecting on personal insights gained through the experience. Postcards were submitted in groups without names included. The postcards were photographed, and the reflective writings were thematically analysed using Tesch's eight steps for data analysis (Tesch, 1992). Analysis was done manually, with two researchers independently coding the data and resolving any coding differences through discussion. Participants were identified using alphanumeric codes (e.g., P7) in the text. Visual data, including photographs and video recordings, were collected to triangulate the findings.

Findings and discussion

Ten participants, including seven full-time academic and three administrative staff members, took part in the study.

One overarching theme was developed: 'A Whole-Body Human Experience,' supported by three categories (Table 1).

Table 1

Categories, Codes, and Types of Engagement

Category	Codes	Type of Engagement
I Learn	Learning as an outcome	Cognitive
I See	Importance, Insight	Cognitive
I Feel	Emotional response as an outcome, Intention to change practice as an outcome	Affective, Behavioural (intent)

I Learn

Participants uniformly reported learning from the activities, materials, and interactions during the workshop, expressed in general terms such as, "we learned a lot" (P1), and specific details like understanding that the "Utility Factor must be Reliable, Valid [spelling], Acceptable by all stakeholders, Consistent and must have Educational Effect. Formula [is] Effect $U = R \times V \times E \times A \times C$" (P5).

This finding, that staff learned, is in line with what has previously been reported (Brown et al., 2020). The evolving scenarios created academic challenges and dilemmas that made players curious (Cheng & Su, 2012; Malone, 1983), thereby contributing to the experience.

A specific fact, that the minimum mark required to be eligible for an exam is 40% and not 50% as previously believed, provided an 'aha' moment during the workshop and was considered important enough to share, "Did you know that students do qualify for admission with 40% from their assessment? Yeah!" (P4). The escape room met the criterion of problem-solving as the only means of 'escape' (Cohen et al., 2020a; Cohen et al., 2020b; Diemer et al, 2019; Makri et al., 2021; Ritvanen, 2021; Veldkamp et al., 2019; Wiemker et al., 2015), including challenging what players thought to be true.

I See

Participants gained a new perspective on assessment after engaging with the policies. They recognized the significance of adhering to policies and staying up to date. They noted that, "it is important to refresh your knowledge about the General Academic Regulations every now and again to stay on top" (P2). The use of common assessment dilemmas ensured that the players could get maximum value from the activities as they were immediately applicable to their work environment (Collins, 2004; Knowles, 1970; Pallis & Quiros, 2014) and were rooted in their lived experience (Kolb, 1984).

Lubbe, Wolvaardt, Turner, & van Wyk: Escaping the Assessment Maze: Navigating Policies through an Interactive Fictitious Experience

13

Participants also realized that assessment policies were embedded in multiple documents, with one participant stating, "All the information about assessments is everywhere" (P2). This recent insight, coupled with the awareness of multiple inclusions regarding assessment in each document, was previously unknown to them.

I Feel

Participants expressed excitement and high engagement during the workshop, describing it as "fun" (P8), "enjoyable" (P7), "insanely exciting" (P2), and "phenomenal" (P5). This emotional engagement was an expected outcome as it has been widely reported (Brown, Roediger & McDaniel, 2020; Ritvanen, 2021; Shapiro et al., 2014) and was also evident in the photographic evidence. This emotional component is an integral component of escape rooms, and the photographic evidence supports the notion that emotion and stress (Brown et al., 2020) drove the teams' performance. The sense of urgency and risk that was inherent in the game clearly motivated the players (Gee, 2003; Ritvanen, 2021; Shu & Liu, 2019; Taraldsen et al., 2019; Veldkamp et al., 2019). Two of the most outstanding aspects of the game were communication and engagement. The players collaborated intensely and communicated ideas and strategies to solve the problem – both of which are well-known benefits of escape rooms (Cohen et al., 2020a; Cohen et al., 2020b; Diemer et al., 2019; Makri et al., 2021; Ritvanen, 2021; Wiemker et al., 2015; Veldkamp et al., 2019). As facilitators we noted deep participant engagement – and enjoyment – with one another and the scenario, which are known benefits of the immersive experience (Dittman et al., 2022).

The workshop appeared to reinvigorate academic participants, leading to an intention to change their educational practices, for example, "I am looking forward to more creative ways and also to ensure that I assess them in more ways ..." (P7).

In summary, this experience provided for several of the known benefits of escape rooms that align with adult learning, namely: engagement in a complex real-life topic, constant interaction with material, fun, and enjoyment, active engagement, immediate feedback, and collaboration (Lookadoo et al., 2017; Koivisto et al., 2017; Metha et al., 2017; Nietfeld et al., 2014; Severengiz et al., 2018; Shapiro et al., 2014). The application of the advice of Cohen et al. (2020b) and Davis et al. (2022) in the design of the escape room clearly resulted in a positive learning experience and the opportunity to reflect (Collins, 2004; Knowles, 1970; Pallis & Quiros, 2014) and debrief (Davis et al. 2020), and provided some insight into the experience. The post-workshop reflections show participants' commitment to applying what they had learned, their further development needs, and that the intended purpose of enabling allowing active cognitive and emotional engagement with the policies was achieved.

Limitations

Our initiative (escape room workshop) had some limitations. The most important limitation was that we only included the members of the SHSPH in this workshop and therefore the results cannot be generalised to other populations. It is however our recommendation to pilot such a new initiative (workshop) initially with a small cohort of willing participants. Ideally, this workshop can now be repeated in the Faculty of Health Sciences, including the four schools and Basic Sciences as well.

Conclusion

The escape-room style workshop delivered the known benefits of escape rooms aligning with adult learning principles and also demonstrated the successful application of the design advice from Cohen et al. (2020b) and Davis et al. (2022). The post-workshop reflections indicate participants' commitment to applying their newly acquired knowledge, emphasizing the workshop's effectiveness in achieving its intended purpose of enabling active cognitive and emotional engagement with assessment policies. The positive learning experience, coupled with the opportunity for reflection and debriefing, confirms escape rooms as a valuable model for faculty development. This study provides practical guidance for developing game-based learning for faculty development. The study also confirms the Ludic pedagogical approach as a suitable approach to ensure cognitive, behavioural, and affective engagement among faculty. Finally, the study recommends that each design team should have at least one team member who is experienced in escape room design and facilitation. Research is needed to determine which topics are suitable for the use of escape rooms in professional development.

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Disclosures and Declarations

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