



Taibah University
Journal of Taibah University Medical Sciences

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Letter to the Editor

Unlocking knowledge or trapped in distraction? Use of escape room to enhance medical education

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Received 5 April 2025; revised 28 April 2025; accepted 3 May 2025; Available online 3 June 2025

Abstract

This letter discusses the innovative use of Escape Room Games (ERGs) in medical education, emphasizing their potential to enhance knowledge acquisition and cognitive engagement among students. Originating in 2007 in Kyoto, Japan, ERGs have evolved into interactive, team-based experiences that simulate real-life clinical scenarios, promoting essential skills such as teamwork, problem-solving, and critical thinking. The implementation of ERGs at institutions like Maidstone and Tunbridge Wells NHS Trust has demonstrated significant improvements in student engagement and confidence in clinical decision-making. However, while ERGs offer immersive learning opportunities, they also present challenges, including potential distractions and negative emotions such as anxiety. This letter advocates for a balanced approach to ERG design, ensuring alignment with educational objectives and addressing concerns related to assessment validity. By fostering a psychologically safe environment, ERGs can encourage active participation and deeper

learning, ultimately maximizing their educational value in medical training.

Keywords: Cognitive engagement; Escape room games; Knowledge acquisition; Medical education

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Dear Editor,

We write to you regarding the potential of using Escape Room Games (ERGs) in Medical Education and their impact on knowledge acquisition and cognitive engagement. ERGs were first introduced in Kyoto, Japan, in 2007 to bring the adventure of books and video games into the real world.¹ ERGs are “live-action, team-based games where players discover clues, solve puzzles, and accomplish tasks in one or more rooms to achieve a specific goal (usually escaping from the room) in a limited amount of time”.^{2,3} Vörös and Sárközi highlight that the emergence of ERGs led to the idea of incorporating these interactive experiences into science centers and classroom activities, provided that the necessary adaptations were made.⁴ Educational ERGs aim to encourage active learning, communication, creativity, collaboration, and critical thinking while ensuring alignment with the targeted knowledge areas.⁵ Unlike other games in medical education, ERGs simulate real-life clinical scenarios, fostering both technical and non-technical skills. This immersive approach engages medical students more effectively than traditional methods. In this letter, we review illustrative case studies, discuss challenges with design solutions, examine

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Peer review under responsibility of Taibah University.



Production and hosting by Elsevier

educational benefits versus assessment considerations, and propose future directions for ERGs in medical education.

Illustrative case studies

Several institutions have piloted ERGs in medical curricula:

Medical Education Fellows at Maidstone and Tunbridge Wells (MTW) NHS Trust created a simulation-based ERG for medical students in years 4 and 5 of their degree. This ERG allows students to practice complex clinical scenarios, such as managing acutely unwell patients, in a fun and engaging environment.⁶ The goal was to enhance medical and teamwork skills under time pressure. Participants reported improved engagement, communication, practical application of knowledge, and boosted confidence in clinical decision-making.

Similarly, the American College of Radiology (ACR) has established a virtual ERG to promote interest in radiology among their students.⁷

The Association of periOperative Registered Nurses (AORN) developed a virtual ERG that offers a comprehensive overview of how immersive, problem-solving activities allow learners to apply their medical knowledge and skills in simulated, high-pressure scenarios.⁸

Challenges, emotional dynamics, and design solutions

ERGs engage students through a series of time-limited, puzzle-based challenges, these same constraints and task complexities can provoke negative emotions—such as anxiety, frustration, and distraction—that may impede deeper understanding and long-term retention of educational content.^{9,10} When learners experience excessive stress or perceive the puzzles as unattainable, their focus may shift toward merely ‘escaping’ rather than connecting tasks to learning objectives, resulting in superficial engagement. However, James Gee’s concept of “pleasant frustration” and Sidney D’Mello’s work on productive confusion demonstrate that calibrating challenge to learners’ abilities can transform this stress into ‘pleasant frustration’ or productive confusion, which actually enhances motivation and deeper learning.^{11,12} To harness these benefits while minimizing risks, ERGs should be designed in accordance with students’ skill levels, include clearly defined goals, and provide structured debriefing sessions for participants to reflect on their emotional experiences and link puzzle-solving to clinical knowledge.

The ERG also creates a psychologically safe environment where players aren’t afraid to make mistakes, while simultaneously providing challenges that keep them actively involved and motivated throughout the activity.¹³ Providing opportunities for students to discuss their feelings, reflect on the game with educators and peers, and transition back to reality can enhance their overall perception of the experience.¹⁴

Educational benefits and assessment considerations

While negative emotions can obstruct effective learning, research has demonstrated the educational value of healthcare-themed ERGs through objective evaluations of students’ knowledge and skills.¹³ In a study by Molina-Torres et al., the ERG was found to result in lower levels

of anxiety and perceived stress compared to traditional evaluations for physiotherapy students.¹⁵ Despite these positive findings, questions remain about ensuring fairness and validity when using ERGs, especially for student assessment in medical education. To achieve educational goals and provide immersive experiences, it is necessary to balance engagement with rigorous evaluation methods.

Gaps and future directions

While ERGs have primarily been used as educational tools, they also hold potential for assessment. By incorporating stealth assessment techniques, ERGs can simultaneously evaluate and enhance students’ skills. For example, integrating psychometric principles into ERGs could ensure fairness, validity, and reliability in their use for student assessment. This dual-purpose design would allow educators to maximize the benefits of ERGs while addressing concerns about their educational value.

Conclusion

Designing ERGs as engaging, challenging activities aligned with learners’ knowledge and skills can create immersive experiences that promote active learning and skill development. Structured opportunities for reflection and discussion after gameplay can deepen understanding. As researchers, we should examine ERGs through a rigorous, evidence-based lens, considering not only their immediate appeal but also their broader implications for education and student assessment. By doing so, we can better understand how to maximize the potential of interactive experiences, such as escape rooms, while minimizing the risks of distraction and superficial engagement. Superficial engagement might involve learners focusing more on solving puzzles for their own sake rather than connecting them to the broader educational objectives. This lack of deeper interaction can lead to students feeling “trapped” in activities that are engaging on the surface but fail to reinforce critical learning goals, ultimately resulting in a distracted and unproductive experience.

Source of funding

This research did not receive any special grants from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest statement

All authors declare no competing interests.

Ethical approval

Reported as not applicable.

Author’s contributions

ET, MK has a substantial contribution to the conception or design of the work; drafting the work or reviewing it critically for important intellectual content; final approval of

the version to be published; and agreement to be accountable for all aspects of the work. SB, ET, MK, Sa.R has a substantial contribution to drafting the work or reviewing it critically for important intellectual content; final approval of the version to be published; and agreement to be accountable for all aspects of the work.

Acknowledgements

Not applicable.

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How to cite this article: Toofaninejad E, Bagheri S, Kalantarion M, Rahimi S-A. Unlocking knowledge or trapped in distraction? Use of escape room to enhance medical education. *J Taibah Univ Med Sc* 2025;20(3):332–334.