Chapter 10
Introducing an Online Escape Room to Enhance Students' Database Concepts

Sohail Iqbal Malik
Al Buraimi College, Oman

Ragad M. Tawafak
Al Buraimi College, Oman

Baidaa Hamza Khudayer
Al Buraimi College, Oman

Ghaliya Al-Farsi
Al Buraimi College, Oman

Mohammed Waseem Ashfque
Al Buraimi College, Oman

ABSTRACT

An online escape room can be used in learning processes to develop problem solving and critical thinking skills of students. Therefore, this study prepared and introduced the educational online escape rooms in the teaching and learning process of the database course. Each escape room consists of three puzzles related to the teaching topic of the course. A survey was administered with the students to collect their feedback about the escape rooms. Moreover, the final grades of the two groups of the database course were analyzed to determine the impact of the escape rooms on students' gain. Results show that students perceived that the escape rooms helped them in learning database concepts. The comparison of grades depicted the students' gain in all the three categories (high, medium, and low achievers) of the group who passed the course after offering the escape rooms as compared to the group who passes the course with the traditional approach. Moreover, the attrition rates (fail and dropout) were also decreased in the group who passed the course after offering the escape rooms.

INTRODUCTION

The twenty-first century witnessed an exponential growth in digital development (Magreñán et al. 2022). These digital developments also influence the way teaching -learning process is implemented in the classrooms. Moreover, the pandemic era during the recent years also emphasized that technology can play a vital role in the teaching-learning process. Furthermore, the current students are considered as 'digital natives' (Tran et al. 2020) and they tend to be very comfortable with technology-supported classrooms. Escape room activities, e-learning applications (Ghalia et al., 2022; Iqbal and Coldwell, 2017), chatbots (Ashfaque et al., 2023; Waseem et al., 2023; Sohail et al., 2022) and mobile devices-supported learning (Iqbal et al., 2013) can also play a vital role in this process.

Nicholson (2015) explained that "escape rooms are live-action team-based games where players discover clues, solve puzzles, and accomplish tasks in one or more rooms in order to accomplish a specific goal (usually escaping from the room) in a limited amount of time". Escape room activities were introduced in Japan in 2007 (Corkill, 2009) and with the passage of time, now it is popular all over the world. Ambrožová and Kaliba (2021) discussed that escape rooms should be collaborative, active, time-constrained, and problem-based to promote learning. Moreover, they argued that online escape games have a few limitations (in the sense of collaboration and direct contact) as compared to classical escape games.

This study prepared and introduced online escape rooms in the teaching-learning process of a database course. The purpose of these online escape rooms is to enhance problem solving skills, motivation, and engagement of database students. A survey was conducted with the database students to collect their feedback regarding the online escape rooms in their learning process. Moreover, final grades of two database groups were compared to assess the impact of online escape rooms on students' learning.

The remaining paper is divided into different sections. It starts with the literature review section and then research design and methodology. The educational online escape rooms are explained, and the results are presented. The next sections provide discussion and findings of the study.

LITERATURE REVIEW

Makri et al. (2021) discussed that escape room activities can be considered as an instructional strategy which enhances students' classroom learning experience and promotes learner-focused approach. Furthermore, Lopez-Pernas et al. (2019) mentioned that educational escape rooms also have the ability to foster creative thinking, leadership, teamwork, and communication among participants. Moffett

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