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The escape room: using a simple text-based game to promote business undergraduates' digital self-reliance

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Abstract

This case study aims to highlight the ease of use and effectiveness of an escape room game by describing how it was implemented in an undergraduate business course. The case study demonstrates the simplicity of a straightforward text-based game and how this was used in a large course of online students. Our case study aims to present our experience of implementing the escape room game from a practical perspective. We add to our narrative some descriptive statistics from a student survey conducted after the game. The case study builds on existing work in this field by extending its use beyond small face-to-face sessions to a technique suitable for far larger classes in an online format.

Keywords: escape room; games-based learning; digital self-reliance; business education; undergraduates.

Introduction

Escape room games can be used to familiarise players with aspects of technology in a fun and challenging way which avoids the anxiety or pressure of other teaching methods (O'Brien and Farrow, 2020). The escape room is a popular game genre in which puzzles are solved by participants to 'escape' a fictitious situation. The need for the game arose during the pivot online in 2020 when it became clear that assumptions about digital literacy in students had led to a lack of support for online integration (JISC, 2020). An escape room game was designed and implemented to promote digital self-sufficiency among 333 business undergraduates in an online session of one hour. The game was devised to encourage student engagement with digital resources in a playful way to overcome barriers to digital self-sufficiency.

This digital learning gap is significant since time lost due to online orientation could feasibly increase the risk of students failing courses. The technology itself is hoped to reach across the physical divide between student and teacher. Failure to integrate technology can therefore result in isolation and a lack of motivation. Students who find themselves unable to navigate the digital landscape become dependent on academics to help them adapt (Oliveira et al., 2021). This can drive up workloads, especially when students use email to solicit answers.

At our business school we adopted the use of an escape room game to promote the rapid assimilation of digital self-reliance focussing on MS Teams as a gatekeeper technology, but also incorporating a range of other technologies, including a mobile app. By gatekeeper we suggest that MS Teams allows responsive communication with the teaching team. It therefore mitigates the isolation and helplessness students may experience online. Once students are familiar with MS Teams, they can work with academics to improve their familiarity with other technologies and the layout of their course on the LMS. Although the game itself did not use MS Teams as a platform, all students were encouraged to join the course site and use Teams for communication through the game. This enabled some students who were unable to participate on Zoom (due to connectivity issues) to remain in communication throughout.

The escape room game is predicated on a fiction that the participants are trapped and must solve various problems to escape. Each solution allows the participants to escape to the next level, where they face another challenge, and so on until they can escape fully. In our game the challenges were based on finding physical facilities with a university app, finding digital artefacts on the LMS, using the university mobile app, and virtual group work (teamworking is considered an important business skill). The game was played early in the first semester of 2021 with 333 participants (the course has 355 students in total). 86 students also completed a survey about their experiences.

As the Covid-19 pandemic runs its course, there remains a requirement for at least some online teaching. There is also a strong possibility of retaining some elements of online teaching in future education, not to mention the implications for an expanding industry of 100% online programmes.

The Joint Information Systems Committee (JISC), a not-for-profit organisation supporting digital services in education, found that not enough was done to integrate students with the pivot online or to develop their confidence in virtual learning environments (JISC, 2020). Furthermore, JISC discovered that only a few students had the opportunity to collaborate online (JISC, 2020). Carrillo and Flores (2020) reviewed online teaching resulting from the pivot from the perspective of the Community of Inquiry (COI) and advised that students' previous experience and dispositions to online learning should be accounted for in the underlying pedagogy of remotely taught courses. An exploratory study of the pivot by Oliveira et al. (2021) pointed out that while the adoption of digital platforms was largely successful, the adaption experience of students was mostly negative. Raaper and Brown (2020) further point out the significance of dramatically dissolving the campus and the consequent need for robust student support networks. Bayne et al. (2014) challenge the prevalent narrative that distance courses are unlinked to the materiality of campus, which remains symbolically significant even when students never visit the campus. Online students still require some sense of connection afforded through technology.

The escape room game was successfully used by O'Brien and Farrow (2020) to introduce 20 educators to MS Teams. They argue that familiarising participants with new technology through traditional teaching is less effective and fun than playing a game. Escape rooms emphasise cooperative puzzle solving (O'Brien and Farrow, 2020), which serves business

courses particularly well and also promotes social support networks during the Covid crisis. Online escape rooms have also been shown to motivate students within an e-learning context by providing a novel active learning experience (Grāvelsiņa and Daniela, 2021). Originating in Japan at the turn of the century, these games are becoming increasing popular for both leisure and education (O'Brien and Farrow, 2020). Playful behaviour can promote creativity and innovation (Bateson et al., 2013), as well as developing skills associated with employability (Barr, 2019). However, despite interest in the pedagogical affordances of escape rooms, educators require guidance on developing such resources (Clarke et al., 2017). Furthermore, Veldkamp et al. (2020) note that educational escape rooms are often characterised by a misalignment between in-game goals and educational outcomes.

Our study involved invoking a sense of playfulness through a text-based escape room game – like that described by O'Brien and Farrow (2020) – for 333 students. We aimed to expand on their findings by employing the technique for students (rather than educators) and for a much larger group. By doing so, we demonstrated that running a game of this nature for large groups of undergraduates is not only possible but advantageous.

A case study format was selected to disseminate our findings to the learning and teaching community, as case studies focus on how and why questions, and are anchored in real-world contexts in which the researcher has little control (Yin, 2018). The project is framed as a bounded system (Ashley, 2021 pp.135) to which researchers can return in order to explore new aspects of the game. Here we describe the practical experience of implementation, although we draw on descriptive statistics from a student survey to highlight key areas. The aim of the case study is not to make statistical generalisations (Ashley, 2021) but to share the particularity of applying an escape room game to a large online cohort to support digital self-sufficiency.

The escape room

The game was developed to support a foundational management course for level one undergraduates studying in the Scottish Higher Education sector. In total, 355 students attended the 10-credit course (Scottish Credit and Qualifications Framework (SCQF)),

which is one of the early courses on business and management programmes. The course launched in Semester 1 of the 2021/2022 academic year, the second year to be affected by the Covid-19 pandemic. The pandemic strategy used by our business school was to conduct lectures online, with tutorials (small group teaching) on campus. All learning objectives were to be asynchronous to cater for students disadvantaged by time zones or connectivity (Honeychurch and Offord, 2021). This caused concern – based on experiences from the previous academic year – that some students may fail to thrive in an environment which was relatively unstructured and based largely on an assumption of digital self-sufficiency (see also Oliveira et al., 2021).

The escape room game was built on Microsoft OneNote (see O'Brien and Farrow, 2020) using text. Each OneNote page (apart from the first) was password protected with the answer from the previous challenge acting as a key to unlock the next. This created the sense that participants were passing through successive phases to achieve their 'escape'. MS OneNote was a rudimentary game engine while the challenge-password-challenge process was the game mechanic (Andrade, 2015). All of the challenges combined to spell a word which was required to complete the game. Figure 1 (below) shows one of the challenges on OneNote. Challenge 6 in the Escape Room game encourages students to use the Moodle reading list to find a specific journal article. Each challenge generates an answer, which also unlocks the next page. For example, the answer to challenge 6 unlocks challenge 7. The combined passwords reveal the answer to the final lock.

Figure 1. Challenge 6 in the Escape Room game.
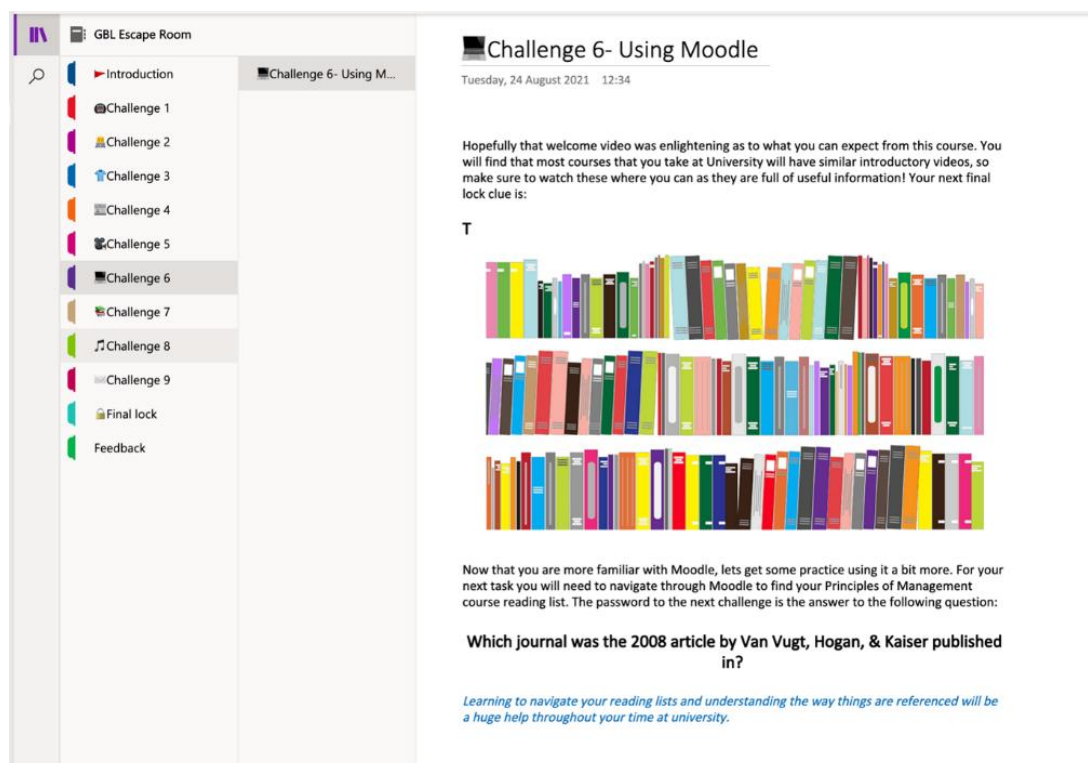
The aim of the game was to promote digital self-sufficiency in several areas. For example, the first challenge was to locate a subway station near to a campus facility. The challenge was to use the campus locator tool which is itself embedded in a university app that supports a wide number of other student activities. Further challenges required competence in MS Teams, Moodle (the LMS), MS OneNote and using the internet academically, as well as engaging with digital resources about teamwork. In fact, students learned about virtual teamwork while simultaneously working in teams online.

Preparation

Once the game was developed, it was transferred to an online version using the share function in OneNote. Prior to the event, students were asked to link to the Teams site and to make sure they had joined prior to the game. Posters were made up to advertise the game and create a sense of anticipation. A fictional and playful scenario was devised in which students had become trapped online and would need to access the escape room to find their way back to the real world. The use of games in business schools is quite widespread, but these games usually model some complex aspect of business as closely

as possible. These are known as Serious Games (SGs) or simulations (Lamb et al., 2018). The Escape Room game differs in having a more playful approach and the addition of a story to drive the game mechanic, characteristics usually attributed to Serious Educational Games (SEG) (Lamb et al., 2018). Additionally, SGs and simulations usually require the integration of a third-party provider and more complex set-ups. Although, some preparation was required, this coincided with actions which are necessary to achieve digital self-sufficiency. A Zoom meeting was set up using basic settings; there was no requirement to pre-assign breakout rooms.

Execution

The execution of the game was straightforward. Once the students assembled, a brief preamble explained the purpose and requirements of the game. Students were randomly assigned breakout rooms in Zoom allowing teams of four to five per room. Students were told simply to read the instructions on MS OneNote and then proceed with the game. Students were instructed to use the help function if they needed it and given one hour to complete the challenges. The session was run by a single lecturer without any problems and only one call for help was received.

Around 50 minutes into the game, teams began to declare that they had completed the task and most teams had done so after one hour. After the participants reassembled, it was discovered that one team had completed the task in 30 minutes, but the one-hour duration worked for the majority of students. To test whether the students had completed the task, they were asked for the final password. All teams responded correctly. An ongoing issue was dealing with participants who had failed to join MS Teams prior to the event. This generated quite a lot of chat requests and joining students had to be approved once they had requested to join. Although this could have been smoother, it was within the capabilities of a single facilitator, and it resulted in over 200 students joining MS Teams where previous announcements had failed.

Prior to winding down the session, the participants were asked to participate in an online survey after being briefed on the relevant ethics procedure and consent. 86 students (26%) of students complied with the request. The response rate is very similar to the

response to course evaluations experienced on the course in previous years and provided sufficient data for future research.

The escape room game (as described by O'Brien and Farrow, 2020) was straightforward to use in a teaching environment. This case study demonstrates the efficacy of the game in a larger student cohort and online. Provided the instructions are clear and the game is well prepared, it is very easy and effective to use.

First impressions – student experience and behaviour

Our aim has been to present the technical and professional aspects of using the escape room game from an educator perspective. However, in keeping with case study methodology, we incorporate other methods to explore the case in more detail (Ashley, 2021). We include the descriptive statistics from a student survey conducted after the game to compare the staff experience with the efficacy of the game, as well as other evidence. Further systematic research of the data set will follow once the data have been thoroughly analysed to explore the student experience in more detail. Case study methods allow researchers to return to a specific instance and explore different dimensions each time (Ashley, 2021).

Evidence of efficacy can be drawn from the successful migration of students to MS Teams. MS Teams was identified as a possible solution to the communication problems of leading a large cohort of students. Typically, students email questions to the course leader. With 355 students on the course, it is easy for email communication to become unmanageable. A chat function (such as that found on MS Teams) allows a quicker response and for communications to be managed by teams rather than individuals. Despite numerous messages, use of MS Teams was still below that desired. Within a few minutes of starting the game, however, 200 new students had joined Teams.

A student survey was administered using Likert scales and comment boxes to find out how students had experienced the game. 83% of students completed the game in the allotted hour and only one respondent stated that they did not enjoy the game. 79% found the game easy or were neutral about the difficulty. 21% found it difficult, and none of the

respondents found it very difficult. 80% of respondents claimed to have learned something from the game, while the remainder were either not sure or felt they had not learned much. 71% of respondents would play the game again, and 20% were unsure. 9% of respondents said they would prefer not to play the game again.

Students claimed to have learned about MS Teams and OneNote. However, some challenged the necessity of playing games instead of attending serious lectures. Others felt it was fun and asked if more lectures could be converted into fun experiences. The social aspect and meeting other students in breakout rooms were mentioned positively, although some students complained that breakout rooms were 'silent', requiring conversations to be conducted in the chat. Others felt the whole experience was worthwhile but thought it should be done before the course begins.

Although we have provided a range of responses for balance, the comments were overall very positive, as indicated by the breakdown. On the whole, the students enjoyed the experience and learned something from it. Its impact on course communications was quite noticeable.

Discussion

Our aim has been to demonstrate the ease of use of a simple text-based game on digital self-sufficiency. The evidence we have given in terms of a narrative shows that the time spent preparing the game paid dividends in terms of simple execution. We build on the findings of O'Brien and Farrow (2020), demonstrating the use of the escape room game for a much larger group of online students. Most students felt the experience to be positive and completed on time with a single facilitator. This shows how the game can be quickly and effectively used. The game is not specific to business and could be used in a wide number of subjects (O'Brien and Farrow (2020) used it in an educational context). The subject of the game can be adapted (as we did) to the context, although we think digital self-sufficiency capitalises on the game engine and mechanics being closely aligned to the objective of the game, addressing concerns raised by Veldkamp et al. (2020). We assess that the work rate of the facilitator is lower than delivering an online lecture and certainly less than using simulations and SGs, which can suffer from technical issues.

An intern was hired to develop our game independently, which led to a carefully considered and thought out set of challenges. The instructions were also very clear. This resulted in the lecturer simply setting up the game and allowing students to progress. Apart from getting students to join MS Teams at the beginning, there were no problems or challenges in using the game. The issue of joining Teams was not caused by the game but by the logistics of orienting 333 students to a new digital platform. But even this issue was more expedient in integrating students than previous communications.

Most students found the game straightforward, so it might be argued that we should have set more difficult challenges and that the game should be at least moderately challenging. However, most students required a full hour to complete the game, suggesting the degree of difficulty was about right. It was interesting to see that some students questioned the use of games in a serious business course, which is a common challenge in the use of games (Squire, 2011). The use of games clearly needs to be fully explained and balanced with other learning activities in the course design.

Conclusion

The use of the escape room game was straightforward and reliable. The simplicity and text-based game engine made it quite robust against connectivity issues and accessibility. The take up by students and lack of problems joining and completing the game, suggests that it was not only experienced video game players that found the process simple. From a facilitator perspective, the game is simple to run and can cope with large cohorts. This builds on the work by O'Brien and Farrow (2020) in introducing the escape room for larger classes.

While the aim of this case study is to share the specific practical experience of running the game as an educator, our high-level description of the student experience suggests it was largely positive (71% of our survey enjoyed the game). 81% of respondents learned something from the experience. 309 students switched to MS Teams from email communication as a direct result of playing the game.

Most students felt they had learned about the digital technologies featured in the game, and the migration of 200 students onto MS Teams was also beneficial for course communications. Preparation is key to using the game, so if the game design cannot be outsourced, academics must allow time to develop the game and consider the challenges carefully. The game should also be tested before use. This would take more time than preparing a lecture, but the game could be recycled numerous times after that. The construction of the game using OneNote is not especially difficult and does not require developer or coding skills. The timing of the game should be carefully considered, and it should be balanced with more traditional and, dare we say, serious activities.

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