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“Optimizing Innovation in Knowledge, Education and Design”

EXTENDED ABSTRACT



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Assalamualaikum warahmatullahi wabarakatuh,



First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services. By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality. I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said
RECTOR
UiTM KEDAH BRANCH



WELCOME MESSAGE (i-SPIKE 2023 CHAIR)



We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPIKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPIKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Ismail

Chair

3rd International Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023)

MFRS 140 INVESTMENT PROPERTY LEARNING THROUGH GAMIFICATION – “PROPQUEST GAME APP”

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ABSTRACT

Gamification and game-based learning (GBL) may be applied as effective teaching and learning strategies to meet the requirements in various educational settings. This study aims to investigate gamification-based learning through the lens of students in the context of understanding MFRS 140 Investment Property. MFRS 140 PropQuest Game Challenge App is an accounting game-based learning that provides a revolutionary new way of quickly and easily understanding specific financial accounting reporting standards in one day. This game integrates the whole context of the MFRS 140 Investment Property from recognition, measurement, disposal and the presentation in the financial statement. This study also provides information on how the learning theory can be leveraged to understand gamification-based training programs. Survey has been conducted to obtain students' perception towards gamification type of learning. From the survey, this study found that “meaningfulness” played an important role in engaging the students, thereby, leading to improved learning outcomes. Therefore, game-based learning is believed to be more effective, faster and easy to use as compared to lengthy accounting standards or printed handouts. The game is accessible at no time thus does not limit its use and encourages the students to learn no matter where you are. MFRS 140 PropQuest Game Challenge App surely will become one of the choices among the students to learn accounting subject.

Keywords: gamification, investment property, point, badges, redemption of points.

INTRODUCTION

Investment property can be define as a property (land or a building—or part of a building—or both) held (by the owner or by the lessee under a finance lease) to earn rentals or for capital appreciation or both, rather than for: (a) use in the production or supply of goods or services or for administrative purposes; or (b) sale in the ordinary course of business (MFRS 140). This chapter were included in the Financial Reporting 4 and the standard has been widely used worldwide. The standard cover on the definition, recognition, measurement at recognition & after recognition, transfer, disclosure and disposal of the assets.

Research Problem

This MFRS 140 Investment Property were a core subject in Financial Reporting Four and has been highlighted as one of the tough subject. This subject were also a preliminary subject to the Financial Reporting 5, which a students may not graduate on time if they fail this subject and need to carry this subject to the future semester. Introducing the “PropQuest Game Apps is one of option to tackles the common struggles that the students face when learning about Investment Property. Traditional learning method often fail to provide engaging and practical experiences that facilitate the students to grasp the complex topic. Table 1 below shown the analysis of test result for two previous consecutive semester.

Table 1: Result Test of Financial Reporting Four

Semester	Number of students	Percentage of fail (%)
February – August 2023	82	51%
October 2022 – January 2023	48	31%

Based on the result above, it can highlighted that this subject were one of the tough core subject which 51% of the students fail their test for the current semester and 31% of the students were fail in the previous semester. Gamification learning is one the innovation in teaching and learning that hopes to improve the student performance in the future semester.

Research Objective

Many studies have recognized that gamification research is largely concentrated in the domains of education and learning (Seaborn and Fels, 2015; Kasurinen and Knutas, 2018; Koivisto and Hamari, 2019). Indeed, as recently noted by Bayuk and Altobello (2019, p. 953), “academic research has only begun to explore what characteristics of the new technologies, including game features or incentives, are most effective in motivating the students to embark a new methodology of learning. This game will facilitate the learning process of students in higher learning institution through the adoption of gamified learning using MFRS 140 Investment Property. The participants of this gamification study were the students in the age group 19-20 years among accounting undergraduate students of UiTM Perak Branch. Indeed, Bayuk and Altobello (2019, p. 953), “academic research has only begun to explore what characteristics of the new technologies, including game features or incentives.

LITERATURE REVIEW

Previous generations preferred learning through lectures, faculty contact, relating learning to personal experiences and considered assignments as being essential to acquire the degree (Johnson and Romanello, 2005). Since millennials prefer learning in collaborative environments, enjoy the use of technology (Alexander and Sysko, 2013) and like class activities to be experiential as well as entertaining, the traditional pedagogies do not find favour with millennials (Gupta and Goyal, 2018). New pedagogies like gamification have been used in several environments such as commerce, health/sports, data gathering, sustainable consumption, innovation, work and education/learning (Koivisto and Hamari, 2019). Thus, for achieving learning outcomes, the educators' pedagogies should resonate with millennials' learning styles.

Gamification applies motivational design to persuade individuals to behave in certain ways. The Technology Acceptance Model (Davis, 1989) proposed that individuals' attitudes toward specific technologies are predicted by two key variables: perceived usefulness and ease of use. Perceived usefulness relates to the user's belief that a system will boost his or her performance, while perceived ease of use refers to the user's belief that using a system will not require extra effort (Davis, 1989). Previous research has shown that perceptions of ease of use and usefulness are influenced by users' motivations to use systems (e.g. Sun and Zhang, 2006). When users enjoy operating technology and find it entertaining and motivating, they tend to perceive it as easy to use and to find it useful (Laumer et al., 2012).

Gamification

Educators have integrated game-like in the form of simulations and gamification in their pedagogies and virtual learning environments (Rigby and Ryan, 2011). Gamification and learning outcomes. Studies that investigate the impact of gamification on learning reveal contradictory results (Dicheva et al., 2015). Some find a positive effect of gamification on learners' performance (Groening and Binnewies, 2019; Koivisto and Hamari, 2019). Gupta & Goyal (2021) study suggest that the group that underwent the course with the game based pedagogy had better learning outcomes. In the game design, this study found that the addition of "meaningfulness" to the game elements improved the engagement with the gamification process for the learners. Consequently, this study found that "meaningfulness" played an important role in engaging the students, thereby, leading to improved learning outcomes.

Game elements

In gamification, numerous game elements have been applied in the context of games. Point, badges, leader boards and redemption of point are the important element integrate into gamification. Points are quantifiable rewards that can be collected by doing certain activities. They have been implemented in gamified settings to reward achievements (Zichermann and Cunningham, 2011), to quantify a player's advancement and for comparison with competition and to get feedback on participant performance (Sailer et al., 2017). Badges are different from points as they are not quantifiable but are more of a status symbol. Players can earn badges on demonstrating some degree of task proficiency (Koivisto and Hamari, 2019) leading to increased self-worth. Leaderboards are a visual representation of the relative position of the students vis-a-vis their classmates. Leaderboards motivate as they provide social competition, give a chance to lead, garner attention and achieve status (Zichermann and Cunningham, 2011). Redemption of points observed that certain people do not value points or badges highly over

time and that they eventually expect to redeem them for some tangible benefits. Studies, although mostly in the non-education context, have found redeemable points to be a highly engaging gamification mechanic. In an education context, instructors could integrate redemption of points into the game design by making them redeemable for course material, items, toys and game software as this may enhance course participation (Chang and Wei, 2016).

HYPOTHESIS OF GAMIFICATION OF MFRS 140 INVESTMENT PROPERTY

In designing course gamification, it is essential to map learning activities and game elements to specific psychological needs as only then will gamification have the desired effects. This MFRS 40 Investment Property games has integrated all points, badges, leather boards and redemption of points. As points and badges are earned by players after completing a certain activity, it is expected that the player would have developed a competence in the subject matter of that activity. Leader boards and badges communicate the player's competence level relative to that of the entire group thus linking this game element competence of the subject. The shared experiences of doing activities together can create fun memories and stories further fostering the experience of relatedness (Sailer et al., 2017). Millennials like to choose what they learn (competence), when they learn (autonomy) and how they learn (autonomy/relatedness). We hypothesise that:

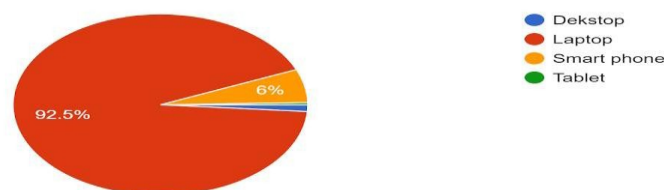
H1. The use of gamification addressing psychological needs leads to better learning outcomes.

RESULT FROM THE SURVEY

One survey was conducted to identify the adaptability of the students to embark into another style of learning. As per Figure 1, the majority of accounting students (92.5%) preferred to learn through digital devices such as laptops followed by smartphones. MFRS 140 Propquest Game Apps was found to be the right tool to match students' preferences in learning courses since this GBL can supported effectively using laptop and smartphones.

Figure 1: Devices choice for online learning

Devices that you use for online learning.
252 responses



According to Table 2, most accounting students (39%) favoured learning through educational games followed by videos. Students favour this type of learning tools most probably because it is easier for them to digest, memorize all the learning objectives of accounting such as classification, recognition, measurement, presentation, and disclosure through utilization of interactive features.

Table 2. Analysis of Preferred Learning Tools

Preferred learning tools	Frequency	Percentage
Game-based learning	356	39%
Videos	296	32%
Digital Flashcards	268	29%

CONCLUSIONS

The MFRS 140 Propquest Game Apps has been proposed as an interactive medium for teaching and learning accounting subjects. This app facilitate the students understanding by providing visually way to grasp the practical complexities of the topics especially on the recognition and measurement of investment property. The apps will beneficial the students in term of ability to understand the principal used in the accounting standard and the apps will became the choices among students to learn on MFRS 140 Investment Property.

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We would like to express our special thanks of gratitude to our students who participated in the survey.

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