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Formulating a Game-Based Learning for Accounting Undergraduates as an Alternative Method of Learning

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ABSTRACT

Accounting undergraduates may find studying accounting rather challenging as there are many complex aspects in the Malaysian Financial Reporting Standards (MFRS) that need to be understood, hence resulting in poor academic results achievements. Moreover, most of the current teaching pedagogy is still following the traditional methods which is not interesting at all to the Generation Z group of students. Game-based learning (GBL) or gamification seems to be a possible alternative to attract their attention. However, previous researches in similar theme suggested that due care must be taken in designing the GBL module as there are many factors that could affect the effectiveness of GBL upon academic performance. Therefore, this research is aimed to design the best-suited GBL for accounting undergraduates as an alternative method of learning by means of inductive content analysis. It is expected that the undergraduates' understanding in accounting subjects will be improved due to their ability to study at their own pace in a more fun and engaging way.

Keywords: Game Based-Learning, Accounting, Academic Performance, Tertiary education.

INTRODUCTION

The number of students graduated on-time and employed within six months after their graduation are among key performance indices for tertiary level institutions in Malaysia. These indices are used to classify the merit of the universities and colleges which can be used to attract more student intake in the future. Although it is undoubted that there are many factors determine these two indices, academic performance is one of the most important reasons. Therefore, this paper will only focus on the students' technical knowledge and skills. As for Faculty of Accountancy, these two indices are considered as a challenge. Students may find studying accounting is challenging because the area of study must comply with accounting standards known as Malaysian Financial Reporting Standards. Students are encouraged to understand and master these standards in order to grasp the knowledge for financial accounting papers. Additionally, they may find studying accounting is boring due to traditional pedagogy used in teaching and learning activities as most of the teaching activities are lectures

and tutorials. Being the digital native who used the internet and IT, the pencil-and-paper approach seems less interesting.

Most of the previous researches in game-based learning used primary or secondary schools as their settings. And if there are studies carried out in tertiary levels, they were used in the pure science courses. In other words, the number of studies of game-based learning in the tertiary level of education is limited. Additionally, the number of similar studies in social settings is further scarce. This has led to the research questions of:

1) Can game-based learning motivate accounting students intrinsically?
2) What are the characteristics of the most suitable game-based learning for accounting students?

Due to the research questions above, this paper is aim to formulate the most suitable game-based learning for accounting undergraduates in order to motivate them intrinsically. By doing so, it is hoped that the students may complete their studies within the stipulated time. It must be noted that this paper is only conceptual based. Therefore, statistical data is not available as evidence in order to prove the validity of the outcome.

LITERATURE REVIEW

Teaching and Learning Accounting

For many tertiary education institutions, accounting course is offered at degree levels. However, some universities still offer this course at diploma level with the aim to prepare them for degree and master levels. Since the last few years, the syllabi have been revised and the diploma program has been reduced from six to five semesters. The use of IT has also been increasing; the use of i-learn system is involved. However, the function is to share slides, notes and exercises. Overall, the teaching and learning style is still mainly based on face-to-face lectures and tutorials. Online discussions are also used but only for several subjects that involve in Blended Learning (www.uitm.edu.my). Assessments are mainly based on quizzes, group projects and examinations. Overall, pencil-and-paper based approach is still widely used.

This approach has been used since years ago. It may also be widely used in other parts of the world. However, this approach may not be appealing to the younger generation whom are exposed to the use of IT in almost of their aspects of life. In return, their intrinsic motivation to learn accounting may be hampered and hence, their accounting performance is at stake. Based on this notion, an alternative is worth considered. Previous researches have shown that game-based learning can be used to increase the immersion and engagement of students in their studies. However, mixed findings are also available indicating that careful steps must be considered in order to avoid unfavourable outcome.

Previous researches of game-based learning

Game-based learning was normally used in the high-risk fields such as military and lab sessions. For instance, Potter and Tolson (2017) reported that game-based learning is being used in the health-care field. In this study, nurses learnt nursing concept, disease process, assessment skills and management via game-based learning as traditional classes might not be suitable. The military has been using game-based learning much earlier. Prensky (2001) reported that game-

based learning was used in the military training in order to train the individuals' minds in order to do the right thing when they were in battle fields. In both settings, health-care and military, are considered as high-risk because lives of patients and soldiers are involved. Other than health-care and military, game-based learning is also suitable for situations that involve trading. Ding et al (2017) reported that game-based learning was used to mimic a stock trading room. Finance undergraduates of a Singapore university traded stocks virtually in order to gain a real-life experience for five weeks after attending a course prior to the activity. In short, game-based learning are suitable to be used in any field which are high-risks and impractical to carry on an action in real world.

Mixed findings were reported from many studies with game-based learning. Barata (2013), Coller and Shernoff (2009) and Hamari et al (2015) found that game-based learning had positive impacts on learning via higher immersion and engagement. As game-based learning has element of fun inserted in the learning process, the students' intrinsic motivation increased and hence, they were willing to spend more time to learn more. Their level of concentration was also higher as compared to the non-gamified group. Similar findings were also reported to other studies performed by Sawyer et al (2017) where the academic results of students learning via game-based learning was better than those who learnt via traditional method. Other than academic performance, game-based learning can also be used in order to nurture soft-skills that may help in their employability. Qian and Clark (2016) reported that skills such as collaboration, able to create strategy and good communication could be achieved via game-based learning. These are among skills that graduates should possess in order to be employed as soon as they graduate. Hence, the researchers suggested that game-based learning may also be considered in non-academic activities as well.

However, not all studies on game-based learning reported positive outcome. For instance, Domiguez et al (2013) found that some common beliefs about the benefits obtained via gamification can be challenged. Their findings showed that students who used game-based learning in their learning process scored better in practical assignments and overall score. However, they performed poorly on written assignments and participated less during classes although their initial motivation was higher than their counterparts. On the other end, Hanus and Fox (2015) and Attali and Arieli-Attali (2015) reported unfavourable outcome on game-based learning. Hanus and Fox (2015) found that students in gamified course showed lower motivation, satisfaction and self-empowerment and finally poorer academic results as compared to their counterparts. Attali and Arieli-Attali (2015) who performed a study on the accuracy and speed of solving basic mathematics problem between the groups of adults and middle school students found that there was no difference outcome between these samples.

The mixed findings of game-based learning studies can be drawn from their designs and the selection of samples. Upon analysing the previous studies, those with positive outcome were game-based learning that are complex and challenging (Hamari et al, 2015; Ding et al, 2017). The game-based learning are also designed with a flow therefore students must complete one stage before proceed to another stage which normally more difficult than the previous one (Sawyer et al, 2017). In other words, students do not have the freedom to choose any stage with different level of difficulty. By having such design, the game-based learning keeps up the

students' learning ability which further motivates the students to be engaged in the activity. The elements of fun must be inserted in the design as well. A quiz-like task used by Attali and Arieli-Attali (2015) did not engage the participants in the desired behaviour and hence unfavourable outcome was obtained.

The use of rewards must be involved but sparingly. Leader boards, points, badges are among virtual rewards used in Hamari et al (2015) and Sawyer et al (2017). However, Ding et al (2017) had an additional reward which they used cash incentives to motivate students in taking part of the study. The findings were in line with Deci and Ryan (2000); intrinsic motivation will encourage the desired behaviour and extrinsic motivation may hamper intrinsic motivation. In all studies, the virtual rewards positively reinforced the students to learn. However, the cash incentives negatively affected the students motivation to learn as per reported by Ding et al (2017).

Finally, the selection of samples and time frame of study must be considered carefully. It is important that any study involving GBL should not involve the whole batch of students and should not consume a relative long period of time such as one semester. This is due to the fact that the fun element erodes faster when everyone involved in the activity. Only Hanus and Fox (2015) used the whole batch of students as their research samples while others only involved part of the population. Similarly, the fun element also reduced over time. The time frame used in the study by Hanus and Fox (2015) was 14 weeks which is relatively long as compared to GBL in other studies which were only at one point of time. Samples in the study by Ding et al (2017) only had to trade stocks virtually at the end of the course. Similar findings were reported by Dominguez et al (2013) and Hamari et al (2016) which their samples only used GBL for a point of time.

CONCLUSION

From the content analysis above, the model of best-suited GBL for accounting undergraduates is postulate as below:

- Participants must be selected from the whole populations, preferably those with low intrinsic motivation as most GBL use extrinsic motivators as performance indicators.
- The durations of GBL should be relatively short or only occur at a point of time.
- The design of GBL is based on any established learning theory, has different levels of challenge and involves a lot of fun elements such as role-play in order to result in the students' engagement of learning.
- Not all subjects benefited from GBL. GBL may be suited for task-oriented or practical subjects such as lab experiments but not writing subjects such as essay writings.
- GBL should be structured in which participants have to complete the previous stage in order to continue to the next stage.

As people learn through games, thus game-based learning can be used as an alternative for students in learning activities. However, the design of the game and the selection of players must be carried out carefully in order to obtain positive results. Note that the previous researches are not related to accounting at all, therefore, the impacts of game-based learning on accounting students cannot be ascertained as previous studies. Additionally, those studies

were also carried out in overseas universities. The outcome of game-based learning in local settings is still unknown.

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