Development of Educational Games for Fundamentals of Marketing Subject

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Abstract
This paper proposes a games platform known as Marketing Edu Game which is an educational game purposely made for UiTM Diploma students. It is used as a supplementary aid for students. The game incorporates curriculum content from Marketing (MKT243) subject. The game consists of 10 learning paths, representing 10 chapters. Each learning path has a combination of 10 multiple choices and True/False questions. The Marketing Edu Game is created due to students' hardship to study and revise their subject. This trusted conceptual platform assists students to revise their understanding towards Marketing subject using games as fun learning. This platform has the ability to provide convenient and friendly interface.
Keywords: Games, Education, Support Tool, Teaching, Learning, Marketing Subject

Introduction
Of recent, the rapid growing technological advancement provides a great chance to create new application to solve problems faced by students. Among the most popularly developed in helping the students is educational games that are used to enhance learning experience among students. Games that incorporate educational material and curriculum content are referred to as educational games (Michel, 2016). Similar to that definition, Houghton et al (2013) also outlined that educational games is the utilization of games to support the process of teaching and learning. Games can be used as a support tool to complement conventional

teaching methods to improve the learning experience of the learners. At the same time, the utilization of educational games also promotes skills that are required in every day's life such as following rules, adaptation, problem solving, interaction, critical thinking skills, creativity, teamwork, and good sportsmanship. An interesting study by Zirawaga et al (2017) has found that the learning should not just be a boring process where students have to memorize to be able to learn and grasp concepts through repetition or cramming of information. For instance, digital game-based learning is already accepted as an instructional method that has very encouraging outcome in adult education and learning (Anderson et al., 2009). This is because digital game-based learning combines useful information in educational content with the use of video games (Turner et al., 2018). A study by Granic and Lobel (2013) had proven that game-based learning increases various abilities related to cognition such as perception, reasoning, critical-thinking, spatial navigation, and memory retention . On top of that, Spires (2015) highlighted that game-based learning is not simply the act of developing games for students to play, but it is also known as the act of designing interactive learning activities that can gradually convey concepts and guide students towards achieving the goal. In short, game-based learning can be considered as a functional teaching method that empower students to explore different parts of games as a form of learning process to help them enhance their set of skills or achieve specific learning outcomes. However, in designing game-based learning at university level, it is important to ensure that digital games are aligned with the course content and course objectives to achieve the effectiveness of game-based learning (Moylan et al., 2015). Previous studies have discussed the impact of game-based learning in the digital era, where several number of contemporary researches have already acknowledged the potential of digital games to capture student's attention in motivating them to explore the edges of their competence, skills and knowledge (Fokides, 2020; Megagianni and Kakana, 2021). Research by Ding et al (2017) also explored the effectiveness of using digital games-based learning on traditional college students. However, it is unfortunate to note that although previous studies have proved the benefit gained through game-based learning, the use of it as supplementary aids at university level is still in the early stages of development (Herro and Clark, 2016; Holmes and Gee, 2016; Moylan et al., 2015). Research and observation have also found that students face difficulties in education and learning during recent pandemic COVID-19. Unfortunately, while many students all over the world are forced to switch to online learning during the pandemic, current system of teaching and learning does not fully utilize games through fun and effective learning. A study by Linehan (2011) had outlined that traditional mainstream education does not motivate all students but only a small minority of them. It has been found that students face hard time to study online during pandemic COVID-19. Based on the survey conducted among 100 UiTM students who take Marketing (MKT243) subject, 80% said that they have problems in concentrating when lecturers conduct the class using traditional method. The students actually prefer for their lecturers to use educational games as supplementary aid in the class. Hence, the main purpose of this study is to develop a platform that helps students to achieve better understanding in Marketing subject through games.

Methodology
This research carried out several activities, namely Literature Study, Survey, Application Making, Testing Application, and Post-Test. The research method carried out in this study can be seen in Figure 1.
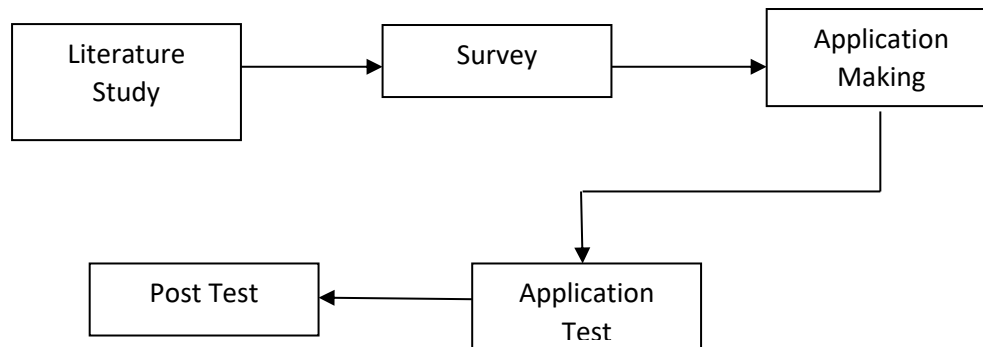
Figure 1. Research Methods Conducted
Adapted from Rachman, Purwanto and Nugroho (2019)

The first step in this study is the literature review. The researchers conducted a literature study during the initial phase. During this stage, researchers looked for information related to research methods that can be used to address questions and problems of students related to fundamentals of the Marketing subject. In the second step, the researchers conducted survey on diploma students from University of Technology MARA Malacca, Malaysia. The target of this study was 100 students who take Fundamentals of Marketing Subject. The researchers used WhatsApp to collect data from respondents. WhatsApp is chosen as a mean of data collection as it has been reported by Bernama (2017) that Malaysia is the largest user in the world at 51%. A URL link to the electronic survey is provided in the invitation message so that interested persons can participate in the survey by clicking on the URL link. The third step is to build an educational game application. To create this application, researchers use visual basic Microsoft. The fourth step is to test the application. This process is conducted after the completion of the application creation phase. After that, the application test was held with 5 students by using the electronic version. Students were required to play the game, and then give their feedback on the understandability, learnability, operability, attractiveness, and usability compliance. The fifth step is to do a post-test. During post-test, students' understanding on the subject was tested after they played the educational game for one week.

Result and Discussion
In this study, the researchers built an educational game on the chapter of Introduction to Marketing Subject. The game incorporates curriculum content from Fundamental of Marketing (MKT243) subject. The game consists of 10 learning paths, which represent 10 chapters. Each learning path has a combination of 10 multiple choice (Figure 2) and True/False questions (Figure 3).
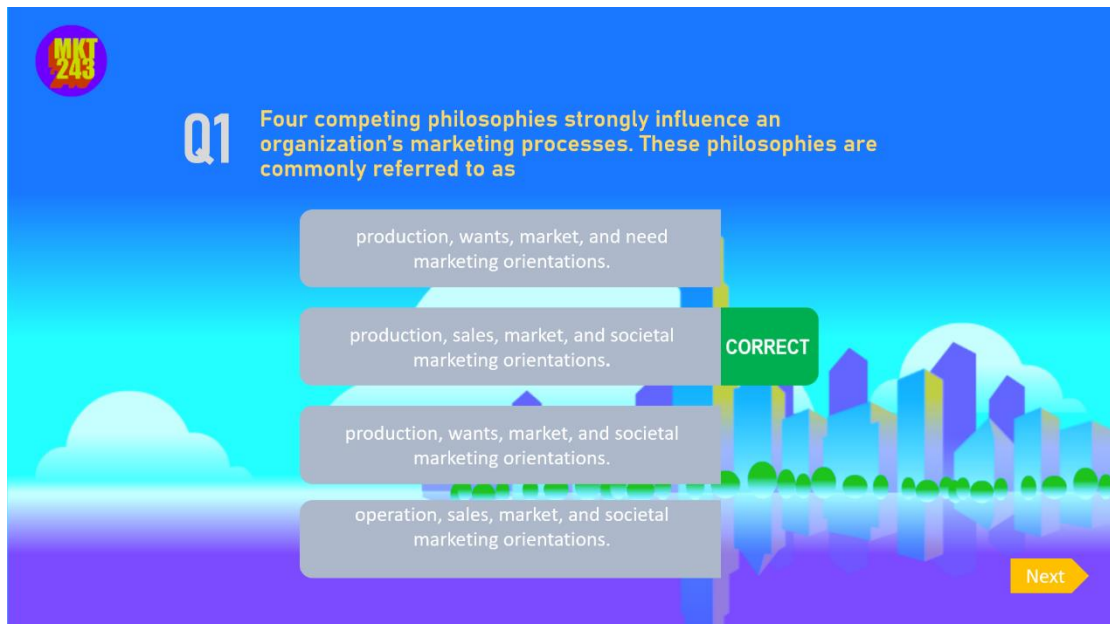
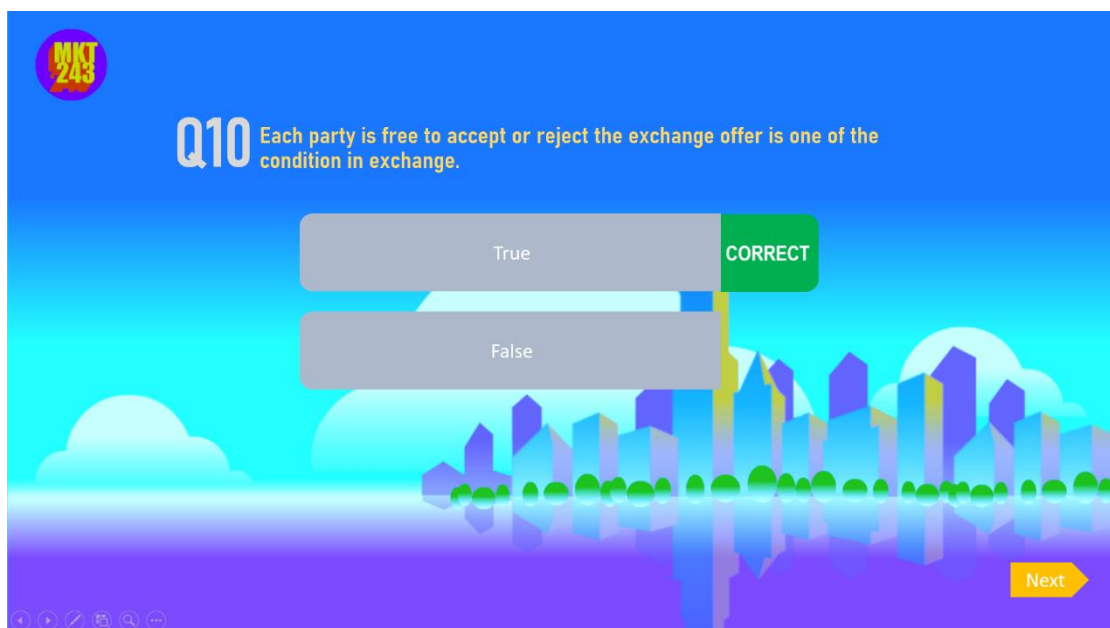Figure 2. Multiple Choice Questions
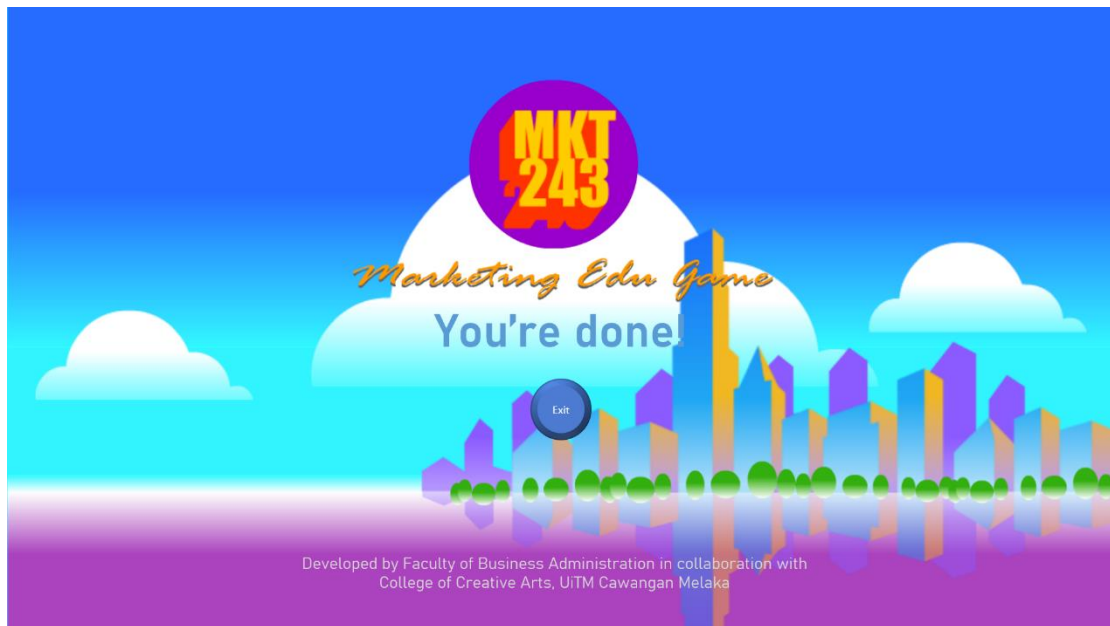

Figure 3. True and False Questions

Figure 4. End page

From the results of application test, the game achieved 81% on students' understandability. On the attributes of learnability, the game received a value percentage of 80%, while on the characteristic of operability, the game achieved 85%. On attractiveness characteristic, the result showed 70%; and on usability compliance characteristic, the game received a percentage value of 85%. Hence, overall, the game has good and positive feedbacks from the participating students.

Conclusion

In conclusion, it may be difficult for students to do their revision especially during COVID-19 pandemic. Therefore, the idea of developing a platform such as Marketing Edu Game is timely. The Marketing Edu Game platform provides benefits to students and educators as the game can be used as a platform for teaching and learning. Digital game-based learning method is an educational tool that can help to improve students' well-being and self-esteem. Apart from that, the use of such game can also assist to improve the students' soft skills, develop their critical thinking, decision-making and problem-solving skills, and maintain mental health and psychological balance. Hence it can be concluded that Marketing Edu Game is a functional means of promoting and improving the educational process. The use of the game can instill interest in educational issues, promote learning motivation and participation, while at the same time induce desire and active participation of the students in the curriculum.

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