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BTM HIGH TECH MARKETING

2018

UTeM

THE KEY SUCCESS FACTOR OF GAME-BASED
LEARNING (GBL) IN THE EFFECTIVENESS OF
LEARNING SYSTEM OF HIGHER EDUCATION

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This Report Submitted In Partial Fulfillment of The Requirements For The Award
Bachelor of Technology Management (High Tech Marketing) With Honors

Faculty of Technology Management and Technopreneurship
Universiti Teknikal Malaysia Melaka

MAY 2018

DECLARATION

“I declare that this thesis is my own work except the citation and excerpts of each of which I have mentioned in the references”

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DEDICATION

This final year project is dedicated to my beloved parent which are Nazar Hussin Shah bin Shah Mariff and Adnazylla binti Adnan, for their endless love, support, encouragement and prayers in order to complete this research. Thanks also to my supervisor, family and my friend for always support and help me in conducting this research.

ACKNOWLEDGEMENT

Assalamualaikum w.b.t,

Alhamdulillah, thanks to ALLAH SWT, whom His willing giving me the opportunity to complete this final year project. I would like to express my deepest appreciation and thanks to my supervisor, Sir IR Budiono Hardjono and my panel as well, Dr. Murzidah binti Ahmad Murad for guiding me throughout this semester (2016/2017), for the attention and motivation that has helped me in completing this research. I am truly honored and enjoy with my supervisor.

In the same time, I would like to express highest appreciation to all the lecturers and staff in Faculty of Technology Management and Technopreneurship. I would also like to thank my friends, particularly BTMM in my batch for their support, encouragement and constructive suggestion from beginning we meet till the end. Also million thanks to all my beloved family and friends in UTeM, those have been contribute supporting my work and willing to help me during my final year project progress till it fully completed.

ABSTRACT

Game-based learning (GBL) is a type of game play that contribute to learning outcomes. It is designed to balance subject matter with how we play the game and the ability of the player to apply and implement said matter to the real life situation. GBL describes a new way of teaching where students explore relevant aspect of games in a learning context created by teachers. This study aims to investigate The Key Success Factor Of Game-Based Learning (GBL) In The Effectiveness Of Learning System Of Higher Education. The quantitative research approach by questionnaire survey is conducted to achieve the objective of the study. The questionnaire was distributed to the targeted respondents and the data collected was analyzed using descriptive analysis, correlation analysis and multiple regressions to define the objective of study and results. Results showed that usefulness, perceived intention to use and architectural design have positive significant to the relationship towards the effectiveness of learning system of higher education. As a conclusion, the outcome indicates that the usefulness is the most influencing factor that influences the effectiveness of learning system of higher education. In addition, the suggestion of further study is to use the qualitative method and respondents must consist in various age and ethnics. Since the study only focused in Melaka, the larger area should be cover in the future study to get the actual data of the effectiveness of learning system of higher education.

Keywords : Game-based learning, Usabilty, Usefulness, Perceived Intention to Use, Architectural Design and The Effectiveness Of Learning System Of Higher Education

ABSTRAK

Pembelajaran berasaskan permainan (GBL) adalah sejenis permainan yang menyumbang kepada hasil belajar. Ia direka untuk menyeimbangkan perkara dengan cara kita bermain permainan dan keupayaan pemain untuk memohon dan melaksanakan perkara tersebut dalam keadaan kehidupan sebenar. GBL menerangkan cara mengajar baru di mana pelajar meneroka aspek permainan yang relevan dalam konteks pembelajaran yang dibuat oleh guru. Kajian ini bertujuan untuk menyiasat Faktor Kejayaan Utama Pembelajaran Berbasis Permainan (GBL) Dalam Keberkesanan Sistem Pembelajaran Pendidikan Tinggi. Pendekatan kuantitatif kajian melalui tinjauan kuesioner dilakukan untuk mencapai objektif kajian. Soal selidik diedarkan kepada responden yang disasarkan dan data yang dikumpul dianalisis menggunakan analisis deskriptif, analisis korelasi dan pelbagai regresi untuk menentukan objektif kajian dan hasil. Keputusan menunjukkan bahawa kegunaan, tujuan penggunaan dan reka bentuk seni bina mempunyai hubungan positif dengan hubungan ke arah keberkesanan sistem pembelajaran pendidikan tinggi. Sebagai kesimpulan, hasil menunjukkan bahawa kegunaan adalah faktor yang paling mempengaruhi yang mempengaruhi keberkesanan sistem pembelajaran pendidikan tinggi. Di samping itu, cadangan kajian lanjut adalah menggunakan kaedah kualitatif dan responden mesti terdiri daripada pelbagai umur dan etnik. Memandangkan kajian ini hanya tertumpu di Melaka, kawasan yang lebih besar perlu meliputi kajian masa depan untuk mendapatkan data sebenar keberkesanan sistem pembelajaran pendidikan tinggi.

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LIST OF ABBREVIATIONS AND SYMBOLS

FYP	=	Final Year Project
UTeM	=	Universiti Teknikal Malaysia Melaka
GBL	=	Game-Based Learning
NGO	=	Non-Government Organization
IV	=	Independent Variable
DV	=	Dependent Variable
PC	=	Personal computer
RPG	=	Role-playing Game
H0	=	Null (rejected)
H1	=	H one (accepted)
SPSS	=	Statistical Package for Social Science
%	=	Percentage
<	=	Greater than
>	=	Less than

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CHAPTER 1

INTRODUCTION

1.1 Background Study

Students are not motivated or want to engage themselves in a class when the subject itself are boring. To be precise, they are not even learning. When we are learning, it is not effective to memorize the subject that we learn but it's the skill acquisition and the process of thinking needed to be able to handle pressure in a lot of situations (Trybus, 2014). In the era of technology, students need to be involve in the learning process which offers effective and an interactive understanding that enable them to feel much more motivated and active. This is where game-based learning come in.

Game-based learning (GBL) is a type of game play that contribute to learning outcomes. The game that been used in GBL is designed to create balance inside the learning matter with how we play the game and how the real life situation can be handled by the player by applying and implementing it. GBL is a new way of teaching created by teachers for students to explore important aspect of games in a learning context . Trends in educational research shows that there are an increasing interest in how games can affect learning. In the past few years, it has been showed that games have become a splendid medium of references in our learning system. We can see that games are widely being played by children and adults in their leisure time thus explaining the popularity of the

games itself (Papastergiou, 2009). Games has been globally used in a lot of different fields such as in marketing, education, military and advertising.

In the opposite, conventional learning system bring us on certain narrow procedures where we will be evaluated by the power of our brain to store memory of what we were told. Even if, and only if we successfully memorize the lesson's procedure and facts, our behavior in real-life situation remains untested. But by using GBL in our learning system, we gain a lot not only the facts but why and how we are learning. This knowledge acquisition via GBL make us more understand, fully ready in new and unexpected situations to perform consistently and effectively (Trybus, 2014). This research will focused on the key success factor of Game-Based Learning (GBL) in the effectiveness of learning system of higher education.

1.2 Problem Statement

In the era of technology, we have a tendency to expect everything to be instant and interactive. Game-based learning is one of the proven concepts in education system. It delivers an interactive experience to the learner. Plus, games promise engagement of user at right intervals inside the educational content. The different with conventional learning is that GBL is that it is easy to transfer information to educational setting, fast responses to our mistake and the game itself is designed for people to learn.

In a research conducted by Papastergiou (2009), he found that students easily become bored and lose interest in normal lecture class. They easily lose focus during their lecture hours. By implementing and using game-based learning in higher education, learners become more participating and intuitive. GBL enables students to be more motivated and create positive interactions in the class. Plus, through game-based learning, students can have a better progress in the academic achievements. Future trend for

education shows that student involvements with games can promote satisfaction, motivation, achievements and selffulfillment.

Squire (2005) mentioned that in the 21st century era, skills requirement are different from skills our current learning systems offers before. Critical thinking, creativity, collaboration and communication are the innovative and learning skillsets requires in 21st century (Binkley et al., 2014). Critical thinking skills include scientific reasoning, systems thinking, computational thinking, decision making and problem solving. Creativity includes divergent thinking, innovative thinking, originality, inventiveness and the ability to see failure as a chance to improve. Collaboration refer to to the ability to work effectively and respectfully with diverse teams, motivate flexibility and willingness to make compromises to accomplish goals, and assume shared responsibility. Communication refers to the ability to articulate thoughts and ideas in a variety of forms, communicate for a range of purposes and in diverse environments, and use multiple media and technologies (Binkley et al., 2014). By focusing on only one correct answer, imposing high-stakes failure and favoring conformity and standardization, it shows that conventional learning always negate creativity (e.g., Plucker & Makel, 2010). Plus, Binkley et al. (2014) mentioned that 21st century skills are hard to estimate using conventional assessment practices such as the popular standardized testing. Games, on the other hand, demands the improvement of 21st century skills which are valued in the new digital economy and provide a means of assessing these hard to evaluate skills (Shute, 2011). To be precise, effective learning is problem-based, active, situated and requires immediate feedback.

Some of the country in the other continents already implement GBL in their education system. For example Stanford Medicine University, Massachusetts Institute of Technology (MIT), University of Central Florida and many more. Some even questions whether the use of games to teach educational content is compatible with deep learning or not (Graesser et al., 2009). GBL is vastly used in other continents. It is also an increasing trend in Asia. We can see that Hong Kong and Singapore already implemented game-

based learning in their curricula in higher education. If we can implementing it in Malaysia, it can improve a lot in our education system.

In the higher education system, students lack of educational use of game-based learning in their courses. If government can take game-based learning as a new way of education, studying would make a new level of changes. There are several factors that game based-learning affect in higher education. Usability, usefulness and the effectiveness of GBL is the main factor that contribute in learning system. By studying this factor, game-based learning can be improved and implemented in higher education system. That is why the study are going to focus on the key success factor of GBL in the effectiveness of learning system.

1.3 Research Questions

In accordance to the problem statement above, therefore the nature research questions in this study are:

1. What is the usability of GBL in the effectiveness of learning system of higher education?
2. What is the usefulness of GBL in the effectiveness of learning system of higher education?
3. What is the perceived intention to use of GBL in the effectiveness of learning system of higher education?
4. What is the architecture design of GBL in the effectiveness of learning system of higher education?

1.4 Research Objectives

The main objective is stated below.

1. To study the usability of GBL in the effectiveness of learning system of higher education.
2. To study the usefulness of GBL in the effectiveness of learning system of higher education.
3. To study the perceived intention to use of GBL in the effectiveness of learning system of higher education.
4. To study the architecture design of GBL in the effectiveness of learning system of higher education.

1.5 Scope of the Study

This study focused on the key success factor of game-based learning (GBL) in the effectiveness of learning system of higher education. This study accessed each and every single factor that has been discussed. The researcher will conduct this research in Melaka that will focus on the available university and college at here. The respondents that was chosen for this research were university and college students.

1.6 Limitations of Study

There were several limitations that have been spotted when doing this research which are time, cost and respondent outliers. A lot of time required to conduct this research. The researcher had time constraint during conducting this research because there are other factor that need to reconsider such as classes and part time job. Plus, researcher