

**THE DRIVERS OF GAME BASED LEARNING (GBL) IN HIGHER  
EDUCATION INSTITUTION TOWARD STUDENTS' PERFORMANCE**

**LIM EE YOU**

**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**LIM EE YOU**

**BTM (INNOVATION TECHNOLOGY)**

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Tandatangan : \_\_\_\_\_  
Nama Penyelia : Dr. Juhaini Binti Jabar  
Tarikh : \_\_\_\_\_

Tandatangan : \_\_\_\_\_  
Nama Penilai : Ms. SitiNor Wardatulaina Binti Mohd Yusof  
Tarikh : \_\_\_\_\_

*\*Potong yang tidak berkenaan*

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LIM EE YOU

Laporan ini dikemukakan sebagai  
memenuhi sebahagian daripada syarat penganugerahan  
Ijazah Sarjana Muda Pengurusan Teknologi (Inovasi Teknologi)

Fakulti Pengurusan Teknologi dan Teknousahawanan  
Universiti Teknikal Malaysia Melaka

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Tandatangan : \_\_\_\_\_  
Nama : LIM EE YOU  
Tarikh : \_\_\_\_\_

## **DEDICATION**

I would like to dedicate the appreciation for my beloved family, lecturer, supervisor and friends with innermost and everlasting affection and love.

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First and foremost, I would like to express my sincere gratitude to Dr. Juhaini Binti Jabar, for her constant guidance, and invaluable advice and support during this research.

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## ABSTRACT

According to Prensky (2007), in the last 20 years, the so-called G-generation is living in times of rapid development of science, advanced networking and a knowledge explosion. In these times, students improve their performance by learning in many ways. This study examined the factors of game based learning influencing students' performance in higher education institution. So this study is proving that the drivers are needed to improve students' performance. The research question and research objective is to determine the drivers of game based learning that affect students' performance, and also to examine the relationship between the drivers of game based learning and students' performance and finally to evaluate how far students will adopt game based learning in higher education institution. The methodology of this study used of quantitative methods. The analysis used is Frequency analysis, Descriptive analysis, Correlation analysis, Regression analysis and Reliability analysis. A questionnaire will be distributed to undergraduates in higher education institution such as UTeM, UiTM and MMU to collect the data. The population of respondents that answered the questionnaire is 500 respondents. The results of this study indicate all objectives and research questions are met and answered. So as a conclusion through the game based learning given to students, it can enhance the students' performance such as grade point average (GPA). However, the integration of game based learning into learning ways also benefits from the establishment of an incentive policy and the undertaking of relevant studies.

*Keywords: Game Based Learning, Students' Performance, Grade Point Average (GPA)*



## ABSTRAK

*Menurut Prensky (2007), dalam 20 tahun yang lalu, apa yang dipanggil G-generasi adalah livings semasa perkembangan pesat sains, rangkaian maju dan letupan pengetahuan. Pada masa ini, pelajar meningkatkan prestasi mereka dengan belajar dalam pelbagai cara. Kajian ini mengkaji faktor pembelajaran berasaskan permainan yang mempengaruhi pencapaian pelajar dalam institusi pengajian tinggi. Oleh itu kajian ini membuktikan bahawa pemandu yang diperlukan untuk meningkatkan prestasi pelajar. Persoalan kajian dan objektif kajian adalah untuk menentukan pendorong pembelajaran berasaskan permainan yang memberi kesan kepada prestasi pelajar, dan juga untuk mengkaji hubungan antara pemandu pembelajaran berasaskan permainan dan prestasi pelajar dan akhirnya untuk menilai bagaimana pelajar ini akan menggunakan pembelajaran berasaskan permainan di institusi pengajian tinggi. Metodologi kajian ini menggunakan kaedah kuantitatif. Analisis yang digunakan adalah analisis frekuensi, analisis deskriptif, analisis korelasi, analisis regresi dan analisis Kebolehpercayaan. Soal selidik akan diedarkan kepada pelajar di institusi pengajian tinggi seperti UTeM, UiTM dan MMU untuk mengumpul data. Populasi responden yang menjawab soal selidik adalah sebanyak 500 responden. Keputusan kajian ini menunjukkan semua objektif dan persoalan kajian dipenuhi dan menjawab. Jadi, sebagai kesimpulan melalui pembelajaran permainan berasaskan diberikan kepada pelajar, ia boleh meningkatkan prestasi pelajar seperti Purata Nilai Gred (PNG). Walau bagaimanapun, integrasi permainan berasaskan pembelajaran cara-cara pembelajaran juga manfaat daripada penubuhan dasar insentif dan perusahaan kajian yang berkaitan.*

*Kata Kunci: Pembelajaran Berasaskan Permainan, Prestasi pelajar, Purata Nilai Gred (PNG)*

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## CHAPTER 1

### INTRODUCTION

#### 1.1. BACKGROUND OF STUDY

Interactive digital media, or video games, have emerged as a powerful new economic, cultural, and now educational force. Games are now a multi-billion dollar industry, and new conferences, journals, and research initiatives are all competing to become the home of “serious gaming”. In truth, games are much more powerful. They provide situated experiences in which players are immersed in complex, problem solving tasks. Good games teach players more than just fact; they provide ways of seeing and understanding problems and, critically, supply opportunities to “become” different kinds of people. Give its importance, this study aims to examine the factors of game-based learning in higher education institution towards student’s performance.

Game-based learning is a method of learning and teaching that is currently in the process of development and implementation in educational contexts across the world. It combines the readiness to utilize games, either educational or commercial in nature, in the classroom, with a developing theory of learning drawing upon the work educational psychologists, most notable Csikszentmihalyi and his idea of Flow



Theory. While the use of games or play in education has been acknowledged and promoted for some time (Piaget, 1962; Vygotsky, 1978), the value of game-based learning in formal secondary school and higher education settings has only recently emerged (Johnson, Smith, Willis, Levin, & Haywood, 2011).

According to Wong (2008), game based learning is a paradigm which utilizes the game as a medium for conveying the learning contents. Game base learning is all about leveraging the power of computer game to captivate and engage and users for a specific purpose, such as to develop new knowledge and skills. Game based learning is also defined as an application which uses the characteristics of video and computer games to create engaging and immersive learning experiences for delivering specified learning goals, outcomes and experiences.

## 1.2. PROBLEM STATEMENT

As early as the 80s and 90s, many scientists stated that computers and later hypermedia could be used as a cognitive tool for learning, and also outlined a number of other potential advantages that computer aided learning offers. Among the researchers of hypermedia applications for education, the following basic questions were proposed: How to design effective learning opportunities? Why is learning by experience very often more efficient than learning by studying? How to provide the learning experiences needed to respond to current challenges?

David (1997) reported that there is an increasing demand for greater interactivity to be built into learning materials. There is a clear need to offer a variety of different knowledge presentations and to create opportunities to apply the knowledge within the virtual world, thus supporting and facilitating the learning process. To achieve that goal, it is necessary to provide a complex level of interactivity that stimulates user's engagement, apply different interactivity concepts as objects, linear, construct or hyperlinked interactivity, and non-immersive contextual interactivity as well as immersive virtual interactivity.

When using computer games, and games in general, for educational purposes several aspects of the learning process are supported: learners are encouraged to combine knowledge from different areas to choose from a number of given solutions or to make a decision at a certain point, learners can test how the outcome of the game changes based on their decisions and actions, learners are encouraged to contact other team members and discuss and negotiate subsequent steps, thus improving, among other things, their social skills.

### 1.3. RESEARCH QUESTION

According to the problem statement, several questions arise about the impacts of game-based learning in higher education institutions on students' performance. Several research questions are going to be asked in this study. Therefore, this research was conducted to seek answers and new findings related to it. To facilitate research, this study will specialize in the impact of knowledge management, motivation, perceived usefulness, and perceived ease of use that will influence students' performance. The study of the drivers of these factors will answer some important questions. The following are the research questions that will be answered in the study:

- What are the drivers of game-based learning to enhance students' performance?
- What is the relationship between the drivers of game-based learning and students' performance?
- How far will students adopt game-based learning to enhance their performance?

### 1.4. RESEARCH OBJECTIVE

This section will discuss the objectives about the research question stated earlier. Numerous research objectives are needed to be achieved in this study as follows:

- To identify the drivers of game-based learning and how they influence students' performance.
- To examine the relationship between the drivers of game-based learning and students' performance.
- To evaluate how far students will adopt game-based learning in higher education institutions.

## 1.5. SCOPE AND LIMITATION OF STUDY

The scope of this study is to focus on the drivers of game based learning in higher education institution towards students' performance. Furthermore, this study will determine whether game base learning will really influence the students' performance in higher education institution and at the same time investigating how far students adopt the game based learning. Therefore, for this study questionnaire will be distributed to the respondents at higher education institution such as UTeM, MMU and UiTM to get the data that can figure out the result. From the questionnaire, the result will be analyzed and come up with new solution or recommendation to solve the problem.

The limitations determine the threats of the study that are out of control. The limitation of this study was limited to time and cost constraints. This study was completed within few weeks and budget. Hence, this research may not thoroughly to study the relationship between drivers of game based learning such as knowledge management, motivation, perceived of usefulness and perceived ease of use and students' performance in higher education institution. Future researcher need to spend more time and budget in studies.

Besides that, the instruments that need utilized. For the study, researcher needs to use many methods to test the hypothesis. Among the methods, researcher is not expected to use and this take time to learn it. After trial and error for many times, then just came out with the results. Consultation time for the study is very less and this lead to the misunderstanding. Future studies should consider this issue.

## **1.6. SIGNIFICANCE OF STUDY**

The significance of this study is to understand the relationship between the drivers of game based learning such as knowledge management, motivation, perceived ease of use and perceived of usefulness and the students' performance. In fact, the drivers of game based learning are important to students for enhancing their performance in higher education institution. In addition, this study is significant since majority of the previous game based learning were not locally-based, and so ought not to be expected to reflect the same situation settings as in Malaysia. Thus, the results of this study will provide a new insight to the local higher education institution. From that, this study will analyze the result based on questionnaire given, and make a conclusion and recommendation to improve or add value of existing learning method that higher education institution applied.

## **1.7 SUMMARY**

The main goal of this study is to discover the factors of game based learning that influences the students' performance in higher education institution. In this chapter, the study is successful importance was recognized and obvious to be developed later. The background of study, problem statement, research questions, research objectives, scope and limitation of study and significance of study already arranged to be verified and detected later.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter will discuss the previous study which related to the students' performance and the independent variables, the definition of knowledge management, motivation, perceived usefulness and perceived ease of use influences the students' performance in higher education institution. The reviews of this study which relate with the theoretical framework and the hypothesis will be discussed.

#### **2.2 DEFINITION OF VARIABLE**

##### **2.2.1 DEFINITION OF GAME BASE LEARNING**

Despite the widespread recognition of the advantages attached to the use of games in elementary and secondary education, we found little evidence of their use in higher education. Game-based learning is similar to Problem-based learning;

therein specific problem scenarios are placed within a play framework (Barrows & Tamblyn, 1980).

Previous experience in the field of Medicine highlighted the usefulness this approach (Schmidt, 1983), (Baroffio et al., 1997), (Carlile et al., 1998), (Morrison, 2004). Subsequently, Problem-based learning can provide a Student Centered e-Learning (SCeL) approach (Motschnig-Pitrik & Holzinger, 2002).

And, games include many characteristics of problem solving, i.e. an unknown outcome, multiple paths to a goal, construction of a problem context, collaboration in the case of multiple players etc., and they add the elements of competition and chance. However, online games provide the additional possibility of building teams of players who are geographically scattered.

The benefits of learning through games are numerous (Mann et al., 2002), and games are often closer to simulating real life experiences than more traditional educational media: this allows the students to immerse themselves in a realistic simulated setting without the fear of real life consequences. Although not the necessity it is in Medicine, but is very useful in Civil Engineering.

In term of the social dynamics of game-based learning, a common theme is that through video games young people cultivate interests and join „affinity groups“ that operate across contexts, as part of their projects of personal development. In these groups, players engage in sophisticated forms of learning fuelled by the shared passion for gaming.

According to Gee (2008), they include forums where players share „cheats“; wikis that clarify elements of the game universe; and experienced. A similar, and equally popular, theme is that video games provide virtual worlds which are effective contexts for learning, because acting in such words allow learners to develop social practices and take on the identities of actual professional communities.

According to Shaffer (2008), these soft learning outcomes are seen by many commentators as more useful and worthy than the „outdated“ forms of knowledge acquired through traditional schooling.

We also found the work of Bogost (2011) particularly useful to explore a definition of game-based learning. Bogost is concerned with understanding the distinctive properties of video games as a medium, in order to examine the implication in a range of social contexts, including education and learning. He stresses that games are first and foremost representations that simulate certain behaviors and experiences, and use rule sets, role playing and reward mechanisms to motive and engage. They offer learners a way to more fully engage with topics or ideas than they might be able to in the „real“ world. They can exercise choice and control over reality, without incurring any real consequences. This means that a video game allows, at least in theory, learners to experience a certain school subject through interaction and simulation, rather than through the conventional materials and formats of schooling: textbooks, lessons, assignments and the others.