THE DEVELOPMENT OF MOBILE EDUCATIONAL GAMES FOR CHILDREN TO LEARN VOCABULARY AND GRAMMAR

NORATHIRAH BINTI SHA'ARI

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS

JUDUL: <u>THE DEVELOPMENT OF MOBILE EDUCATIONAL GAMES FOR CHILDREN TO LEARN VOCABULARY AND GRAMMAR</u>

SESI PENGAJI-AN: _____2015/2016_____

Saya __NORATHIRAH BINTI SHA'ARI_____

mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)

_____	SULIT	(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)
_____	TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)
_____	TIDAK TERHAD	

(TANDATANGAN PENULIS)

Alamat tetap: <u>678-4</u>
<u>KG SUNGAI PUTAT, BATU</u>
<u>BERENDAM,75350 MELAKA</u>

Tarikh: 19.08.2016

(TANDATANGAN PENYELIA)

DR. IBRAHIM BIN AHMAD
Nama Penyelia

Tarikh: 19-08-2016.

CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)
　　　　**Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

THE DEVELOPMENT OF MOBILE EDUCATIONAL GAMES FOR CHILDREN TO LEARN VOCABULARY AND GRAMMAR

NORATHIRAH BINTI SHA'ARI

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Interactive Media) With Honours

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA
2016
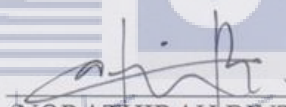
DECLARATION

I hereby declare that this project report entitled

**THE DEVELOPMENT OF MOBILE EDUCATIONAL GAMES FOR
CHILDREN TO LEARN VOCABULARY AND GRAMMAR**

is written by me and is my own effort and that no part has been plagiarized
without citations.

STUDENT   : _____ Date: 19.08.2016
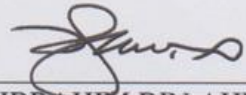
(NORATHIRAH BINTI SHA'ARI)

I hereby declare that I have read this project report and found this project report is
sufficient in term of the scope and quality for the award of
Bachelor of Computer Science (Interactive Media) With Honours

SUPERVISOR   : _____ Date: 19.08.2016

(DR. IBRAHIM BIN AHMAD)

DEDICATION

Praise to Almighty God

For my adorable Mom and Dad
Thanks for your patience and encouragement

For my Supervisor Dr. Ibrahim bin Ahmad
Thanks for mentoring and tutoring me
I am very appreciate it

To my evaluator Mr. Muhammad Helmi Emran
Thanks for providing advice during presentation

For my Friends.
Thanks for your support and hope that
"We May Enjoy Success Together"

ACKNOWLEDGEMENTS

Grateful to the Almighty for His grace and I am able to prepare a project that has embarked on The Development of Mobile Educational Games for Children to Learn Vocabulary and Grammar. This report is very important for me since this is part for the subject Project II (Undergraduate Project).

I would like to thank Supervisors for Project I and II, Dr. Ibrahim bin Ahmad because he has provided coaching and guidance during make this project until it can be achieved successfully.

Next, thanks also to my beloved parents who are always support and give me an advice during completing this project. In addition, thanks to my fellow undergraduates who struggled and work together in completing this project. The kindness of all of you who are willing to take time and energy to provide wide range information, I will not forget and spoken with gratitude.

Lastly, thanks to the other parties who assist me either directly or indirectly through this report is carried out until successfully produced.

ABSTRACT

This project is develop to help the students to improve their basic skill in term of vocabulary and grammar. The methodology for this project is User Centered Design which is known as a philosophy that puts the user and their aims at the center of the design and development process. It is also develop products that are tightly aligned with the user's needs. The UCD methodologies are best applied at different points in the design such as target users, analysis, design and evaluation. The objective of this project are to design the Basic English skill in terms of grammar and vocabulary. Then, to develop an English educational games for primary students. Next, to evaluate the effectiveness way of games using mobile application to nurture primary students' knowledge about the English. After that, there are three games that are being developed in this project. The games are Match Game for vocabulary, Catch Game for grammar and Puzzle Picture for the extra game. Besides, the expected result for this project is that the project will run successfully and the students will understand on how to play the educational game that has been developed. Furthermore, the students also will make this educational game as their spirit to learn the Basic English skill very well. Thus, the students will study in the happy and fund environment when using this educational game and this will help to increase the percentage of weakness during English learning.

ABSTRAK

Projek ini dibangunkan untuk membantu pelajar untuk meningkatkan kemahiran asas mereka dari segi perbendaharaan kata dan tatabahasa dalam Bahasa Inggeris. Kaedah yang akan digunakan untuk menghasilkan projek ini adalah *UCD (User Centered Design)*. *User Centered Design* ini merupakah satu kajian yang meletakkan pengguna serta matlamat mereka untuk mereka bentuk dan pembangunan proses. Selain itu, *User Centered Design* juga berusaha untuk membangunkan produk-produk yang selaras dengan keperluan pengguna. Metodologi *User Centered Design* adalah yang terbaik dan digunakan di tempat yang berbeza dalam reka bentuk dan penilaian. Sehubungan itu, objektif projek ini adalah mereka bentuk kemahiran asas Bahasa Inggeris dari segi perbendaharaan kata dan tatabahasa. Selain itu, membangunkan permainan pendidikan Bahasa Inggeris untuk pelajar sekolah rendah. Seterusnya, untuk menilai keberkesanan permainan menggunakan aplikasi mudah alih untuk memupuk pengetahuan pelajar sekolah rendah tentang Bahasa Inggeris. Sehubungan itu, terdapat tiga permainan dalam projek ini iaitu permainan padanan untuk perbendaharaan kata, permainan tangkap untuk tatabahasa dan teka teki gambar untuk permainan tambahan. Seterusnya, hasil yang diharapkan bagi projek ini adalah supaya pelajar dapat memahami bagaimana untuk bermain permainan pendidikan yang telah dibangunkan ini. Tambahan pula, permainan ini dibuat untuk dijadikan semangat untuk para pelajar dalam meningkatkan penguasaan Bahasa Inggeris dengan baik. Oleh yang demikian, para pelajar akan belajar dalam persekitaran yang selesa dan jika penggunaan permainan pendidikan ini diajar, ia akan dapat membantu untuk meningkatkan peratusan kelemahan semasa pembelajaran Bahasa Inggeris dijalankan.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

1.1   Introduction

Nowadays, writing, speaking and reading are one of the skills which need in the communication and knowing only one of these skills will minimize our effective communication. In our current educational problem, the classroom has the most widely used and also known as a traditional type for teaching. Therefore, as a student, they need a new environment things to learn during the lecture time such as learning with audio and video, games and others concept that will bring them more interact to the advanced technology. The students was introduced with the new technology such as cellular devices, desktop computer and others. Hence, they want to have this kind of technology as a platform to make them feel happy and understand while learning process in the class.

In addition, Malaysia also provide a long-term vision, usually referred to as "Vision 2020" which calls for sustained, productivity-driven growth and the education system has to be transformed by providing computer laboratories, electronic books and e-learning to thousands of schools. In 2001, the Ministry initiated a pilot project involving the use of electronic book or e-book as the Ministry was interested to see how this device which store electronic textbooks and links the user to the internet can be used to improve teaching and learning in the classroom. In addition, the Ministry also interested to investigate the use of the e-book to replace conventional textbooks and thereby resolve the perennial problem of heavy school-bags by Sang, Valcke, Braak, and Tondeur (2010). Therefore, the changes of the technology and platform from conventional textbooks to CD-ROMs to Web based has widely accepted among people. Then, the technology nowadays become advance and changeable in order to attract the student attention during learning session, thus the potential of games for learning is widely accepted among the community of Educational Technology and this is also can be practiced by all students all over the world. According to Williamson (2009), majority of teachers believe that computer games can help and support children's cognitive development, ICT development, and their higher-order thinking skills such as logical thinking, planning and strategizing.

After that, this Educational Games project is an Android game platform and it is a designed game that is suitable to the requirements of the course of English subject in primary school. However, the design of a learning environment built on the educational properties of games can be an appropriate way to improve learning as the digital games are user centered and they can promote challenges, co-operation, engagement and the development of problem solving strategies Bekker, Beusmans, Keyson, and Lloyd (2003). After that, Egenfeldt Nielson (2005) identified that games are useful instruments for learning specific strategies and for acquiring knowledge, it is also likely to have long-term consequences.

This game is developed by using Unity-2D as this is the latest platform to make a game and this software also is widely use at the company who are developed a game. After that, this project will be motivate the students from seven until nine years old to be more understand about the grammar and vocabulary. According to Roberts et (2002), in a national survey of children and teenagers from two to twelve, the percentage of children who reported to have used a mobile devices out of school the day is from 26% in the two to twelve age range and boys are have always and continue to spend more time playing mobile games. Therefore, this kind of game based learning of the Basic English are very suitable for the beginner from age seven to nine years old according to their syllabus as they have an experiences playing a game on the smartphones. In addition, this game also are developed as a part of the study to show that a technology facilitates better learning and will make students learn in an effective ways. Then, this project is focuses on the Basic English learning content as it shows that many researchers investigate and identify the factors that contribute to low or limited English literacy achievement among Malaysia learners and to examine why Malaysian students do not seem to be able to attain reasonable English literacy even after going through 11 years of learning English in school.

Furthermore, this project has provide three games such as match picture for learn vocabulary, catch game for learn grammar and puzzle game in order to attract the student to perform their English very well. As technology is developing at a great speed today, learning vocabulary is the fundamental step to learn a foreign language. Hence, many studies are carried out in order to increase efficiency in vocabulary learning Baki & Lu (2010). After that, this exercises also will be covered among their class environment as this is also will help them close with the environment around. In this project, learn vocabulary is about to match the picture and it is also aim to introduce an items such as eraser, chair and others. After that, catch game for learn grammar is also will be develop in order to help the students understanding about present tense and past tense. This game will encourage student to catch the present tense word in order to win the game. This game also contains a score and time limit as it will show the level of knowledge of the

students about the grammar. Then, the puzzle game is an extra game for the student to learn about find the steps to get the exactly picture. Thus, all these kind of games will make them more fun while learning English.

In a nutshell, the new technology such as cellular devices incorporates many methods that can lead to faster and better of communication in terms of educational. It is also can help students to improve their English language in terms of vocabulary and grammar. Therefore, this game will make the student attractive and have a spirit to learn the English very well. After that, this game also will help the teacher to teach with the effective way as it will give a beneficial to the students and it is an application that would make learning through technology as a good experiences, McFarlane (2002), show that most of the teachers acknowledge that games contribute to the development of a wide variety of strategies that are extremely important for learning, problem solving, sequence learning, deductive reasoning, memorizing and it also provide a group strategies such as cooperative work and task-based learning that can be introduced easily in the setting of game. Thus, this games have largely gained momentum in teaching the students and it is also a medium through which people of all ages can now enjoy learning.

1.2   Problem statements

The problem statement for the current educational system that has been found are the student are weak in their basic skill such as grammar and vocabulary. This can shows when the student are often make an error while answers the question about the grammar and vocabulary. Marlyna Maros, Khazriyati (2007), explore interference of effect Bahasa Malaysia as an important inhibiting in the acquisition of English literacy among primary students. They also find that the learners have difficulties in using correct English grammar in their writings and essay.

Furthermore, the students also viewed that English is a difficult subject to learn and the students only depend on the English teachers as authorities. So that, they only have a limited vocabulary knowledge and weak at understanding long sentences with difficult words. This problem has been found by Rosemala Ismail (2008), that vocabulary play an important role in academic reading, comprehension, the insufficient vocabulary knowledge inevitably affects the learners' performance in the content subject areas. Thus, the students from the primary school need to force themselves to improve their Basic English skills.

Lastly, the linguistics differences are shown to be one of the major factors influencing students' inability to successfully acquire English. This can be shown when the students feels shy or afraid to talk and learn about English grammar and vocabulary because in their daily lives, they only use Malay language to communicate with parents, friends and others. According to Ambigapathy (2002), Bahasa Malaysia has a strong influence over the learning of English and has interference of mother tongue language system in some ways contributes to wrong use of English grammatical rules and syntax. Therefore, from this statement it shows that the students use direct translation and depend on dictionary meanings to comprehend English text.

1.3   Objective

The objective for this project are:

    i.   To design the Basic English skill in terms of grammar and vocabulary.

    ii.   To developed an English educational games for primary students.

    iii.   To test the acceptance of students about the effectiveness way of grammar and vocabulary using mobile educational games.

1.4   Scope

This project is primarily designed for the children at the range of age seven to nine years old. This is because they are beginner and the possibility of them to learn and understand the English subject in terms of grammar and vocabulary are very high.

In addition, this project is focuses on mobile devices and the platform that has been chosen for this project is Android platform which must acquire those minimum features such as Android version 4.0 or higher.

The module of this system are learn about the Vocabulary which is the student need to match the picture of the school items such as chair, pen, scissors and others. Then, the catch game for grammar is to test the student understand about the present tense and past tense. This game also consists the score and time limit to win this games. Lastly, the puzzle game is a game to test the student creativity and understanding on how to find and match the picture as the exactly picture given.

1.5   Project Significance

The Development of Mobile Educational Games for Children to Learn Vocabulary and Grammar is developed to make sure that the student easy to learn the basic of vocabulary and grammar that contain in English subject in primary school. This project also provide many advantages to the student, parent, teacher and also Kementerian Pengajian Tinggi (KPM).

The student are responsible to play a grammar and vocabulary games in order to make them more understanding on how to implement it in their daily lives. Then, using games in the classroom lends itself to engaging the learners as well as creates an environment of experiential learning. The interaction in these games creates a better understanding for the learners in regards to information, tools and material.

In addition, the teacher will reduce the manual work such as to print or photostat the example of vocabulary and grammar worksheets. Therefore, the current movement toward using games and game design also can enhance teaching and learning process outcome. This project also will give a space for the teacher to explore a new environment and this will affect the student's feels to get fun during the lecture session as they can play the game and learn about the vocabulary and grammar at the same time. Therefore, this will cause the student happy and attractive to learn English subject very well.

On the other hand, parents are also get an advantage from this project such as, they can manage or teach their children at home and the parents will know what kind of activities that the school has provided for their children. Parents also can know the level of English language that their children has reached. Hence, this project are interesting for the student in order to make them become more success in their English language very well.

1.6   Conclusion

Literacy and language learning are remain central to educational purposes and the language is used as a medium for learning and to communicate knowledge. In addition, it is highly important for language educators and policy makers to carefully examine and test on how the language learning is theorized in our educational context and make the necessary changes in order to advocate better English language learning among students.

On the other hand, this project is developed using Unity-2D and using C# language based on the requirement specification of the user need and the analysis of the existing system with flexibility for future enhancement. This project also want to attract the student from seven to nine years old to learn English subject in terms of grammar and vocabulary very well.

In a nutshell, this educational games also customize as a user friendly game based learning which provide a learning content and also a game to make the user become more interest and happy while using it. This project also offering a maximum standard, stability, cost-effectiveness and usability. Then, the numbers of students are increasingly year by year. Thus, this project deals with the problems on managing a grammar and vocabulary in the English subject.

CHAPTER II
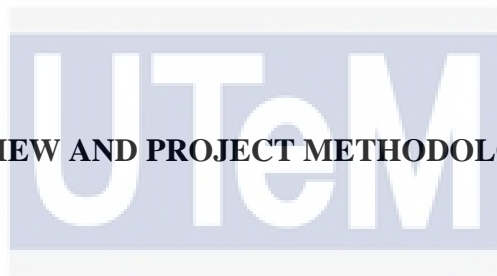
LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

In this chapter, a literature review and project methodology for developing this mobile educational games would be discussed. The literature review plays on the important role in developing this project and it is about gathering, analyzing and conducting the reading about the related topics or articles of the project that will be implemented. On the other hand, most of the reading sources for the literature review are from books, articles, journals and internet sources. Literature review will be done by searching the articles about the previous technology that has been used in school or educational institutions, reference book about the technology that is going to implement in this project.