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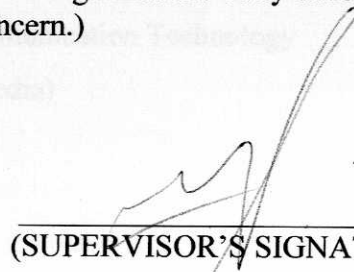


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**JAWI HANGMAN: GAME APPLICATION AS A LEARNING MEDIUM FOR
CHILDREN**

SURIANI BINTI MOHD BEDU

This report is submitted in partial fulfillment of the requirements for the
Bachelor of Information and Communication Technology
(Interactive Media)

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY KOLEJ
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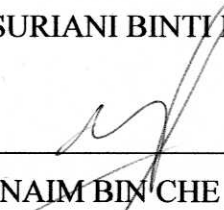
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DEDICATION

I would like to dedicate this thesis to the lecturers who had without any hesitation provide me with precious knowledge, spirit, initiative and practiced me with lots of practical concept and application oriented elements along my study here in Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM). It is also my honour to appreciate and present this thesis to be continuously used, for further reference, whether by other students or for research work and presentation by KUTKM. My family is the other reason why I keep doing and implementing the good practices of learning and excepting any ideas to be implemented and to be used throughout my whole duration of study. Their supports have given me the courage to keep on moving to produce the best results of work. And lastly, I would like to thank for each individual and organizations that has contributed time, resources either directly or indirectly, my colleagues toward the completion of this thesis and project.

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Thank You so much.

Suriani binti Mohd Bedu

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ABSTRACT (ENGLISH)

This report presents the *Projek Sarjana Muda* thesis to fulfill the integrated curriculum of the Bachelor of Information and Communication Technology (ICT) degree courses, Faculty of Information and Communication Technology (FICT) at Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM) in Ayer Keroh, Melaka. The project, *Jawi Hangman Game* is build to enhance Jawi reading among children age five to seven. It is also as an alternative way of learning besides the help of book and to gain the use of Information and Communication Technology (ICT) to make the learning procedure more interactive, dynamic and interesting. The development of this game is also as a support for The Education Ministry to introduce Jawi, Al-Quran, Arabic and Fardhu Ain (Islamic scripture) learning in all primary schools next year and to enhance the command of Jawi, enable them to recite the Al-Quran fluently, make Arabic a compulsory subject and practise the religious obligations. The idea in development of *Jawi Hangman Game* was based on the *Jawi Pro Tutor Program*, an application develop by IKED Systems Sdn. Bhd. The objective of the application is to teach children aged five to seven reading and writing jawi character. This program application is a very interesting product and good for the children. Experiencing working outdoor and meets the user when promoting the *Jawi Tutor* application in *Pusat Sumber Pendidikan Negeri (PSPN)* in Pengkalan Chepa, Kelantan during the Industrial Training period was extremely precious. The courses give a lot of experience and give chance to know the user whom is the children age five to seven. From their reaction to the application the weakness of the software have been recognize and it give knowledge as the guide on how to develop multimedia application that will fully satisfy and can take children attraction. The methodological approach adopted for this study was the qualitative methods that tend to focus deeper on the specific study questions. This way it is easier to answer the questions on how and why certain phenomena apply. Given the problems with digital learning using game application, a major challenge is to make it more interesting. This thesis is written based on a hypothesis that the use of games and is one way of learning medium for children. To explore how and to what extent games and can be used as elements for presenting learning content. The main focus is to highlight whether games can help the procedure of learning. In summary, the overall findings suggest that game design with regard to functionality of education, and are embedded within rich multimedia based learning environments have the potential to provide user with greatly enrich experience of learning.

ABSTRACT (MALAY)

Laporan ini merupakan tesis bagi Projek Sarjana Muda untuk memenuhi keperluan kurikulum kursus Ijazah Sarjana Muda Teknologi Maklumat dan Komunikasi, Fakulti Teknologi Maklumat dan Komunikasi Kolej Universiti Teknikal kebangsaan Malaysia (KUTKM) Ayer Keroh, Melaka. Projek yang akan dibangunkan, *Jawi Hangman Game* dibangunkan untuk meningkatkan kebolehan membaca Jawi di kalangan kanak-kanak berusia lima hingga tujuh tahun. Ia juga sebagai satu cara pembelajaran alternatif selain bantuan daripada buku serta untuk meningkatkan penggunaan Teknologi Maklumat dan Komunikasi dan menjadikan prosedur pembelajaran lebih menarik, dinamik dan interaktif. Pembangunan permainan ini juga sebagai sokongan kepada usaha kementerian Pendidikan Malaysia untuk memperkenalkan pembelajaran Jawi, Al-Quran, Arab dan Fardhu Ain di semua sekolah pada tahun hadapan serta meningkatkan penguasaan Jawi untuk membantu dalam pembacaan Al-Quran dan menjadikan bahasa Arab sebagai subjek penting. Idea untuk membangunkan *Jawi Hangman* adalah berdasarkan produk yang dibangunkan oleh IKED Systems Sdn. Bhd iaitu Program Jawi Pro Tutor. Objektif bagi program ini adalah untuk mengajar kanak-kanak berusia lima hingga tujuh tahun membaca dan menulis Jawi. Program aplikasi ini merupakan produk yang sangat menarik dan bagus untuk kanak-kanak. Pengalaman bekerja di luar pejabat dan bertemu pengguna semasa mempromosikan aplikasi Jawi Tutor di Pusat Sumber Pendidikan Negeri (PSPN) yang terletak di Pengkalan Chepa, Kelantan memberikan memberi peluang untuk mengenali pengguna yang kebanyakannya berumur sekitar lima hingga tujuh tahun. Daripada tindak balas mereka terhadap aplikasi ini menyedarkan tentang kelemahan yang terdapat pada aplikasi tersebut dan memberikan pengetahuan bagaimana untuk membina sebuah aplikasi multimedia yang akan sepenuhnya memenuhi citarasa dan dapat menarik perhatian kanak-kanak. Pendekatan metodologi yang digunakan untuk kajian ini adalah metodologi kualitatif yang lebih menumpukan kepada soalan kajian yang pesifik. Ia merupakan cara yang termudah untuk menjawab soalan bagaimana dan mengapa sesuatu fenomena diterapkan. Dengan permasalahan pembelajaran digital menggunakan aplikasi permainan, cabaran utama ialah untuk menjadikan ia lebih menarik. Tesis ini ditulis berdasarkan hipotesis penggunaan permainan sebagai salah satu cara pembelajaran untuk kanak-kanak, untuk mengenalpasti bagaimana dan untuk apa permainan boleh digunakan sebagai elemen pembelajaran. Tumpuan utama adalah untuk memastikan samada permainan boleh membantu dalam prosedur pembelajaran. Kesimpulannya, dari keseluruhan kajian, mencadangkan bahawa pembangunan permainan digital dengan tujuan pendidikan, dan dimuatkan dengan persekitaran multimedia yang menarik berpotensi untuk memberikan pengalaman pembelajaran yang sangat berharga untuk pengguna.

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ABBREVIATIONS

Acronym	Description
KUTKM	Kolej Universiti Teknikal Kebangsaan Malaysia.
PSM	Projek Sarjana Muda
FICT	Faculty of Information and Communication Technology
IKED	Information Knowledge Electronically Disseminated
JPT	Jawi Pro Tutor
CD	Compact Disc
CD-ROM	Compact Disc-Read Only Memory
IT	Information Technology
ICT	Information and Communication Technology
MSC	Multimedia Super Corridor
MDC	Multimedia Development Corporation
PSPN	Pusat Sumber Pendidikan Kelantan
LMS	Learning Management Systems
MIMOS	Malaysian Institute of Microelectronic Systems

CHAPTER I

INTRODUCTION

1.1 Overview

Jawi, the traditional Malay writing script based on the Arabic writing script was widely used in the Malay Archipelago since the 1300's. However, during the 1960's, Jawi became less prominent after the Malaysian Government officially adopted the use of the romanized writing system or Rumi as the medium to write the Malay language. Jawi became more confined to Islamic matters and is used in the Islamic courts, mosques, religious offices and religious schools.

The popularity of Rumi due to its wide usage in education and official correspondence, less Malaysians were able to read the Jawi. As a consequence, a popular daily newspaper published in Jawi, the *Utusan Melayu*, which was in wide circulation for more than 50 years, suffered greatly. At one instance, its publication was almost stopped. At this juncture, many Malaysians have the firm belief that Jawi will soon be extinct if no serious effort is undertaken to save it.

Due to the resurgence of Islam or out of pure nationalistic feelings, there have been a lot of efforts to save the Jawi as a national heritage and to reintroduce it in a stronger manner in the public school curriculum.

Jawi Hangman Game is one of the efforts to the development and the usage of information technology as a strategic tool to develop and disseminate the Malay language in Jawi through out the world. This game was especially develop for children between the age of five to seven thus to encourage children learn and improve their jawi reading and writing. It is develop based on the current application of Jawi Pro Tutor (JPT) program by IKED Systems Sdn. Bhd in Kelantan. The objective is to build new game that will satisfy children needs. It will include interesting graphic, animation and sound to attract the user especially the children so they will not easily get bored with the game.

This game will function like other hangman game except that the word will be spelled in Jawi and using Jawi's font. The user will be given the clue to answer the word given and the hangman process will be started if the user failed to add the correct letter to the word.

1.2 Problem statement

The problem with the current game is the game is not very interesting with bad range of color and sometimes confused the children who playing it. The contrast between the text and the background color makes the text difficult to read. Some of the colors in the background themes also conflict with the color of the labels in the document and make the labels very difficult to read. Other problem with the game is that it was not designed with children in mind and therefore is a solely text based interface. The image clue is very small and would be difficult for children to see.

Creating software for target audience such as children can be a difficult task. Children tend to have a shorter attention span than adult users and do not comprehend

tasks in the same way. Specialized and the right interfaces are necessary for younger users who are still developing their reading skills.

1.3 Objective

The objectives of Jawi Hangman Game are as follows:

- To upgrade the JPT application and increase the quality and effectiveness of the product to the user.
- To develop Islamic knowledge using multimedia technology to produce software especially for the children to play and in the same time, improve their reading ability in Jawi.
- To organize educational and training programs to use the Digital Jawi technology.
- To help children learning Jawi innovatively using computer.
- To combine two activities children enjoy: playing and learning

1.4 Scopes

Given the problems with digital learning using game application, the major challenge is to make it more interesting. The focus is learning for children age five to seven. This thesis is written based on a hypothesis that the use of games and is one way of learning medium for children. To explore how and to what extent games and can be used as elements for presenting learning content. The main focus is to highlight whether games can help the procedure of learning.

This game used a specification of maximum Windows XP operating system with 256Mb RAM.

1.5 Contributions

The importance of developing this project is to achieve the best per cent of learning and to make sure the Malaysian children acquire both knowledge in Bahasa Malaysia and Jawi writing. The children will benefit learning the Jawi spelling in an exciting way. The goal of the Jawi Hangman Game project is to create software which is both educational and fun.

The goal of this project is to review the Jawi Hangman Game included in the Jawi Pro Tutor Program and identify the existing and the potential problems in its usability and interface. Issues shall be identified with possible solutions for review.

This project might be proposed to the company and will upgrade the quality of the Jawi Pro Tutor Program with this new version of the Jawi Hangman Game.

1.6 Expected output

It is expected that the final output of this project will be engaging and fun to the children. It is hoped that this game can attract children to learn Jawi in a new and more exciting way.

The feature of this new Jawi Hangman Game will be an adoption of features from the previous hangman game. In this Jawi Hangman Game, the player must reveal the hidden word before running out of chance. Each time the player makes a wrong guess, the chance will be decreased by one. The player will lose the game when run out of chance before revealing the hidden word. It will function nearly the same as other hangman

game, but in more traditional touch, suit the Malaysian children taste. It will include collection of word that is appropriate for the children to learn Jawi and finally include a lot of sound effect and interactivity to make it more meaningful.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This literature study focused on issues related to learning effectiveness based on games application. It focuses at certain factors that will influence learning effectiveness: willingness to learn, expectations, content, learning design, engagement, mentoring and collaboration.

The case study is chose as research design for this qualitative research, and used the recent application as a basis for discussion. During the industrial training period with the company, IKED Systems Sdn. Bhd, a contact with the companies, help to request of using one of their products as a case study. Below are the full explanation and information about the product in research, the JPT Program.

2.2 Case Study

The following chapter presents the theory used in this study, companies and products in our case studies.

2.2.1 Theory

Our education combines the three disciplines of technology, economics and management. Therefore, finding theories within the common boundaries of both technology and organization was important. It feels that the problem-definition lies within the borders of both, since digital learning is both developed and delivered using technology, and learning effectiveness is crucial for organizations. Theoretical basis will be built throughout this chapter that will help carry out and justify the analysis and findings.

This chapter will discuss about children learning theory and multimedia learning effect and also will focus more directly on the use of games learning and discuss which factors create engagement for the user. The theory in this section will be more closely dimensions that need to use in the analysis.

2.2.1.1 Learning Theory

Based on the problem aligned with definition and educational background, more general discussion of children learning principles was defined, some of which are based on ideas from a broad range of learning theories, for instance problem-based learning.

Recent research into brain function (eloquently explained by Green field 1998) has shown that there is a huge growth in the number of synapses (connections between brain cells) after birth, followed by a time of 'pruning', when the least used connections are eliminated. The young child's brain, up to the age of about ten years, has more synapses than at any other time of life. The brain is highly 'plastic',

and new learning creates new pathways and networks, which improve brain function. Children need physical activity, concrete and relevant experiences to aid this learning.

Curriculum process should involve the children in many learning experiences of which knowing, thinking, doing, communicating and remembering are some main features. We know that any curriculum 'works' when, as Bennett et al. (1984) suggest, children can give evidence that they are:

- acquiring new knowledge and skills;
- using their existing knowledge and skills in different context;
- recognizing and solving problems;
- practicing what they know;
- Revising and replaying what they know in order to remember it.

2.2.1.2 Multimedia Learning Effect

Studies have compared the effect from multimedia-based learning with traditional classroom-based learning. Allen (1998) discusses the effect of multimedia-based training. He claims that in addition to cost savings, good multimedia training is not only faster than classroom training, it is also better. People remember what they learn more accurately and longer (retention) and they are better able to use what they learn to improve their performance. Allen refers to Adams (1992), who reviewed six studies that carefully compared multimedia training to classroom instruction: "Learning gains" were up to 56% greater, "consistency of learning" (variance in learning across learners) was 50-60% better and "content retention" was 25-50% higher. Brett (1997) claims that multimedia-based learning is more motivating and exciting than more traditional educational methods, and that it is usual to claim that use of multimedia increases learning effectiveness.

Clark and Craig (1992) disagree to some extent with the above-mentioned statement, and claim that not much theory supports a difference between dissimilar media. There is likely to be an increased effect, but research seems to prove that this effect comes from other factors, for instance:

1. Novelty effects

Students seem to increase their attention to media that are novel to them, and the increased attention paid by students sometimes results in increased efforts or persistence which yields achievement gains. If they are due to a novelty effect, these gains seem to diminish as students become familiar with the new medium.

2. Interactivity

Clark and Craig claim that studies comparing multimedia to more traditional instruction show that interactivity is the factor that has the biggest impact on learning.

3. Design problems

“The positive effect of newer media more or less disappears when the same instructor produces all treatments in a study.” Instructors are likely to use different content and different methods in the treatments that are compared. Well-designed studies that control for methods by having the same method available in all media treatments generally show “no significant differences” on learning outcomes. (Clark and Salomon, 1986, in Clark and Craig).

2.2.1.3 Engagement In Games Based Learning.

This third part of the theory will focus more specifically on computer-based games in learning. The target is to find out which features create engagement among users. Engagement is one of the important features creating learning effectiveness. Looking closer at engagement, it is found at least six factors that more or less influence user engagement in games. These are the factors that came up with **interactivity, flexibility, competition, reality, drama effects and usability.**

The theory work on all these different categories gives the feeling that engagement is a widespread and complex concept. The six different features used to represent engagement have both different value and influence on different users, and will also depend on the specific learning product.

Interactivity is in literature described as necessary and fundamental for engagement in learning situations. In digital learning the human interaction is less frequent, and **interactivity** in terms of degree and quality is even more important for user engagement. Not emphasized to the same extent, but still of distinctive influence, **flexibility** adds more engagement to those users who want to have control and investigate the content following their own path.

Flexibility touches some of the same ground as interactivity, and it seems hard to have a high quality of interaction without having good flexibility at the same time. Hence, the influence of **flexibility** is considerable for engagement too.

Drama effects cover all the factors that make the learning content more entertaining. Features like sound, music, storytelling, humor and role-play work to the purpose of the user engagement as long as they are appropriate to the learning content. Hence, **drama effects** are important for user engagement but serve more as an “add on” than a basic engagement feature.

Usability is also important for the user engagement when talking about how easy to play and intuitive the product is. Still, this term is probably more often when a product is too difficult to use, than when it is working well. Therefore, engagement in a positive way is not influenced as much by **usability** as it is when contrary.

When describing **competition** and the effect on user engagement, much focus is put on different game styles and how it matches the learning content. The optimism among theorists seems to be significant on the effect for user engagement, although not as fundamental as for instance interactivity.

Finally, **reality** is describing how different media elements provide the user with the necessary “nearness” to the real work situation. This will evidently give engagement to the user, but we see no consensus as of importance relative to the others mentioned.

2.2.2 The Product: Jawi Pro Tutor

The Jawi application called “Jawi Pro Tutor” (JPT) is developed by IKED Systems Sdn. Bhd. JPT is a program that fulfills all requirements of teaching and learning Jawi. This can be describe from its colors graphic interface, sound effect, mind games, jawi crossword, jawi hangman and all stage of knowing, writing and reading jawi. All of this was presented in an interesting and effective ways for the need of learning for all children. The children will be able to handle individual learning without input from the teacher. The teacher will only be the guider in handling a learning session.

To increase their mind and understanding ability, the crossword and hangman game provided was suitable to monitor their improvement everyday. Beside that,