

## BORANG PENGESAHAN STATUS TESIS


**JUDUL:** M-Learning – A Prototype of Accelerated Pre-reading Application

**SESI PENGAJIAN:** 2007 / 2008

**Saya :** SYARINA BINTI HJ ISMAIL

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 :** Lot 66,  
Kg Bukit Nangka,  
78000 Alor Gajah, Melaka.

**Tarikh :** 12/11/2007.

  
(TANDATANGAN PENYELIA)

En. Ibrahim bin Ahmad  
**Nama Penyelia**

**Tarikh :** 12/11/07.

**CATATAN:** \* Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)

\*\* Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

**M-LEARNING – A PROTOTYPE OF ACCELERATED PRE-READING  
APPLICATION**

**SYARINA BINTI HJ ISMAIL**

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


**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA  
2007**

**DECLARATION**

I hereby declare that this project report entitled

**M-LEARNING – A PROTOTYPE OF ACCELERATED PRE-READING  
APPLICATION**

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

STUDENT:  Date: 12/11/2007  
(SYARINA BT HJ ISMAIL)

SUPERVISOR:  Date: 12/11/07  
(EN. IBRAHIM BIN AHMAD)

## DEDICATION

*Specially dedicated to my beloved parents,  
Tn. Hj. Ismail bin Hj. Bidin and Pn. Hjh. Siti Hajar bte Abdullah*

*For my supervisor, En. Ibrahim bin Ahmad  
(Utem)*

*And lastly to my beloved friends who have  
encouraged, guided and inspired me throughout my journey in education*

## ACKNOWLEDGEMENTS

First of all, all praises and thanks to Allah, Lord of the worlds, for His guidance and will, for the revelation of some of His knowledge for me during all the hard times through out the semester.

This project would also not be possible and successful without the help and support from many individuals and organizations. First and foremost, I extend my deeply thanks and appreciation to my Supervisor, Mr Ibrahim bin Ahmad for all her willingness to respond to my questions, support and guide me throughout this project. Thanks and special mention is also extended to Sekolah Kebangsaan Ganun, Alor Gajah, Melaka which have given me opportunity to be involved as part of my research for this project. My special thanks also extended to Cik Azreen bte Shamsuddin the English teacher from Sekolah Kebangsaan Ganun, and Tn. Hj. Ismail bin Hj Bidin, the owner of Matrix Tuition Centre, who are willing to provide materials for me and to be included as part of my research for this project.

I do not forget to mention and extend thanks to my family for their understanding and courage in bearing with me, my housemates Haryani bte Ibrahim and Raja Emy Saadiah bte Faisal Ahmad, all my friends and acquaintances for their support and help.

## ABSTRACT

This project that entitled “M-Mobile - A Prototype of Accelerated Pre-reading Application” is the prototype of mobile learning application that produces to provide an alternative learning platform for children between six to nine years old about the step in reading process in English subject. This application basically has six main components or section that is introduction to alphabets, introduction to vowels letter, introduction to consonant letters, words spelling, words blending and finally words rhyming. This is the step by step system that will help children to learn to read. Accelerated Pre-reading application is an integrated learning system that teaches essential phonic technique. With voice narrative technology, children will receive immediate feedback as he hears, sees and speaks phonetic sound. Hopefully this project will become one of the potential learning platforms in the future.

## ABSTRAK

Projek ini yang bertajuk “M-Mobile - Prototaip Aplikasi Pra-pembacaan Pantas” adalah merupakan prototaip kepada aplikasi pendidikan yang dibangunkan bertujuan bagi menyediakan platform pembelajaran alternatif untuk kanak-kanak berumur diantara enam hingga sembilan tahun untuk mengikuti langkah-langkah proses pembacaan dalam matapelajaran Bahasa Inggeris. Prototaip aplikasi ini secara amnya mengandungi enam komponen utama iaitu pengenalan kepada huruf alphabet, pengenalan kepada huruf vokal, pengenalan kepada huruf konsonan, pengejaan perkataan, percampuran perkataan dan pembunyian perkataan. Ini merupakan langkah demi langkah yang dapat membantu kanak-kanak untuk belajar membaca. Prototaip Aplikasi Pra-pembacaan pantas ini merupakan sistem pembelajaran yang mengajar dalam menggunakan teknik *Phonic*. Dengan teknologi pengecaman bunyi, kanak-kanak akan menerima tindak balas yang pantas seperti yang mereka dengar, lihat dan tutur melalui pendekatan *Phonic*. Diharap agar projek ini menjadi salah satu platform pembelajaran yang berpotensi pada masa akan datang.

## TABLE OF CONTENT

CHAPTER	SUBJECT	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENT	vii
	LIST OF TABLES	xi
	LIST OF FIGURES	xii
	LIST OF ACRONYMS	xv
CHAPTER I	INTRODUCTION	
	1.1 PROJECT BACKGROUND	1
	1.2 PROBLEM STATEMENT(S)	2
	1.3 OBJECTIVE	3
	1.4 SCOPES	3
	1.5 PROJECT SIGNIFICANCE	6
	1.6 EXPECTED OUTPUT	6
	1.7 CONCLUSIONS	7



<b>CHAPTER II</b>	<b>LITERATURE REVIEW AND PROJECT METHODOLOGY</b>	
2.1	INTRODUCTION	8
2.2	FACT AND FINDING	
2.2.1	E-Learning	8
2.2.2	Existing System	12
2.2.3	Technique	13
2.3	PROJECT METHODOLOGY	16
2.4	PROJECT REQUIREMENTS	
2.4.1	Software requirement	20
2.4.2	Hardware requirement	21
2.5	PROJECT SCHEDULE AND MILESTONES	22
2.6	CONCLUSIONS	26
<b>CHAPTER III</b>	<b>ANALYSIS</b>	
3.1	INTRODUCTION	27
3.2	PROBLEM ANALYSIS	
3.2.1	Case Study	28
3.2.2	Conducting an Interview	31
3.3	REQUIREMENT ANALYSIS	
3.3.1	Content Analysis	37
3.3.2	User Analysis	47
3.3.3	Software Requirement	48
3.3.4	Hardware Requirement	49
3.4	CONCLUSION	50
<b>CHAPTER IV</b>	<b>DESIGN</b>	
4.1	INTRODUCTION	51
4.2	SYSTEM ARCHITECTURE	52
4.3	PRELIMINARY DESIGN	

	4.3.1 Storyboard Design	54
4.4	USER INTERFACE DESIGN	
	4.4.1 Navigation Design	62
	4.4.2 Input Design	63
	4.4.3 Output Design	64
4.5	CONCLUSION	65
<b>CHAPTER V</b>	<b>IMPLEMENTATION</b>	
5.1	INTRODUCTION	66
5.2	PRODUCTION AND IMPLEMENTATION	
	5.2.1 Production of Text	67
	5.2.2 Production of Graphic	67
	5.2.3 Production of Audio	69
	5.2.4 Production of Animation	71
	5.2.5 Production of Integration	71
5.3	SOFTWARE AND CONFIGURATION MANAGEMENT	
	5.3.1 Configuration Environment Setup	73
	5.3.2 Version Control Procedure	74
5.4	IMPLEMENTATION STATUS	74
5.5	CONCLUSION	75
<b>CHAPTER VI</b>	<b>TESTING</b>	
6.1	INTRODUCTION	76
6.2	TEST PLAN	
	6.2.1 Test User	76
	6.2.2 Test Environment	78
	6.2.3 Test Schedule	79
	6.2.4 Test Strategy	80

	<b>6.2.5</b>	Test Implementation	<b>81</b>
		<b>6.2.5.1</b> Test Description	<b>81</b>
		<b>6.2.5.2</b> Test Data	<b>84</b>
	<b>6.3</b>	TEST RESULT AND ANALYSIS	
		<b>6.3.1</b> Analysis Testing	<b>86</b>
	<b>6.4</b>	CONCLUSION	<b>98</b>
<b>CHAPTER VII</b>		<b>PROJECT CONCLUSION</b>	
	<b>7.1</b>	OBSERVATION ON WEAKNESSES AND STRENGTH	<b>99</b>
	<b>7.2</b>	PROPOSITION AND IMPROVEMENT	<b>101</b>
	<b>7.3</b>	CONTRIBUTION	<b>102</b>
	<b>7.4</b>	CONCLUSION	<b>102</b>
		<b>REFERENCES</b>	<b>103</b>
		<b>APPENDICES A: GANTT CHART</b>	
		<b>APPENDICES B: STORYBOARD</b>	
		<b>APPENDICES C: QUESTIONNAIRE</b>	

## LIST OF TABLES

<b>TABLE</b>	<b>TITLE</b>	<b>PAGE</b>
1.1.	PSM I Milestones	23
1.2.	PSM II Milestones	25
3.1	Analysis of Reading Skill Level for English Subject to Standard 1 Student	34
3.2	Analysis of Reading Skill Level for English Subject to Standard 2 Student	35
3.3	Analysis of Reading Skill Level for English Subject to Standard 3 Student	36
4.1	Input Design	63
4.2	Output Design	64
5.1	Development Software Setup	73
5.2	Development Duration	74
6.1	Table of Respondent Involved in this Application Prototype Beta Testing	78
6.2	Test Schedule for This Project	79
6.3	Test Case Form	83
6.4	Description of Test Case	84
6.5	Alpha Testing – Phone Memory Testing	86
6.6	Alpha Testing – Functionality Test	87
6.7	Alpha Testing – Sound Test	87

## LIST OF FIGURES

FIGURE	TITLE	PAGE
2.1	The subsets of Flexible Learning (Brown,2007)	11
2.2	Sample of Online Learning	12
2.3	An Interface Screen of Mobile Application	13
2.4	A Sample of “Reading Picture” Activities	14
2.5	ADDIE Model (Rosset, 1997)	16
2.6	Storyboard Format	18
3.1	The Alphabets from evaeaston.com	29
3.2	ABC Order for Pre-school from learningplanet.com	29
3.3	Interactive Phonics System from teacher.scholastic.com	30
3.4	One of Phonic Assessments in Synthesis Phonic Technique	30
3.5	Analysis of Reading Skill Level for English Subject to Standard 1 Student	34
3.6	Analysis of Reading Skill Level for English Subject to Standard 2 Student	35
3.7	Analysis of Reading Skill Level for English Subject to Standard 3 Student	36
3.8	Analysis of Character Necessity in Learning Application	38
3.9	Warm Color Scheme Diagram	40
3.10	Cool Color Schema Diagram	41

3.11	Analysis of Color Scheme Preferred by Children	42
3.12	Soft key and Navigation Key Labels	43
3.13	Simple Flow Chart of Mobile Learning	
	Application to be	45
3.14	Level of User Familiarities on the Usage of Mobile Phone	47
4.1	System Structure of Accelerated Pre-reading	
	Application Prototype	52
4.2	Sample of Storyboard	54
4.3	Main Menu Screen Design	55
4.4	Alphabets, Vowels and Consonant Introduction	
	Screen Design	56
4.5	Alphabets Screen Design	57
4.6	Letter & Object Represent Screen Design	57
4.7	Spelling Introduction Screen Design	58
4.8	Spelling Example Screen Design	58
4.9	Rhyming Introduction Screen Design	59
4.10	Rhyming Example Screen Design	59
4.11	Blending Introduction Screen Design	60
4.12	Blending Option Screen Design	60
4.13	Beginning Blend Introduction Screen Design	61
4.14	Beginning Blend Example Screen Design	61
4.15	Basic Flow of Application Prototype	62
4.16	Application Prototype Module	62
5.1	Screenshot of creating image in Macromedia Flash 8	68
5.2	Sample of Button	69
5.3	Screenshot of Voice over recording in Sound Forge 8.0	70
6.1	Test Design	81
6.2	Analysis on the Usage of Mobile Phone among Respondent	88
6.3	Analysis on the Usage of Mobile Phone for Learning Purpose	89
6.4	Analysis on the Usage of Mobile Phone for Learning Method	90

<b>6.5</b>	<b>Analysis of User Acceptance Level base on Learning Material</b>	<b>91</b>
<b>6.6</b>	<b>Analysis of User Acceptance Level Base on Navigation Management</b>	<b>92</b>
<b>6.7</b>	<b>Analysis of User Acceptance Level Base on Sound Quality</b>	<b>93</b>
<b>6.8</b>	<b>Analysis of User Acceptance Level Base on Learning Approach</b>	<b>94</b>
<b>6.9</b>	<b>Analysis of User Acceptance Level Base on User Interface Design</b>	<b>95</b>
<b>6.10</b>	<b>Analysis of User Acceptance Level Base on Font Suitability</b>	<b>96</b>
<b>6.11</b>	<b>Analysis of Respondent's Motivation Level</b>	<b>97</b>

## LIST OF ACRONYMS

<b>PDA</b>	Personal Digital Assistant
<b>WWW</b>	World Wide Web
<b>TV</b>	Television
<b>CD-ROM</b>	Compact Disk Read Only Memory
<b>GIF</b>	Graphics Interchange Format
<b>PNG</b>	Portable Network Graphics
<b>PSM</b>	<i>Projek Sarjana Muda</i>
<b>MB</b>	Mega Byte
<b>GB</b>	Giga Byte
<b>RAM</b>	Random Access Memory
<b>PC</b>	Personal Computer
<b>ADDIE</b>	Analysis, Design, Development, Implementation, Evaluation
<b>UPSR</b>	<i>Ujian Penilaian Sekolah Rendah</i>
<b>ICT</b>	Information & Communication Technology



## CHAPTER I

### INTRODUCTION

#### 1.1 Project Background

The Accelerated Pre-Reading Application Prototype is the new approach for multimedia mobile learning application and interactive learning for children as their education aid on their early learning process. This application prototype will focus more to recognizing alphabets among children as their first step to prepare themselves towards reading process. Differ with others portable education tools (such as books, flash card), this application prototype will fully utilize the technology of mobile phone or PDA's (such as palm or Pocket PC). These will provide another handy learning method.

The existing multimedia learning application such as e-learning courseware has the same concept, which involved the transformation of content from the book into the computer and creates it more interactive. The Accelerated Pre-Reading Application Prototype also will apply the same approach with the existing multimedia learning application. However, the platform used will be totally different. Via this application prototype, user will indirectly involve in utilizing mobile devices as their platforms of learning method and environment.

The Accelerated Pre-Reading Application Prototype is an experimental new concept of learning and recognizing 26 letters of alphabets via mobile phone. It is a new approach to use mobile phone as instructional tool of learning. Basically the

effectiveness of the application is not totally depends on it but also depend on the user, the children. This is because user – children firstly need to have self-motivation to investigate, to explore and to learn in order to get the best result. The application prototype is about to recognize alphabets and differentiate the letter of vowels and consonants. It is also involved the module that will teach children how to spell the simple words, to blending and to rhyming the words as their beginning step to read. Besides, this application will be integrated with voice narrative technology to teach the children on how the words are being pronounced. The details of this application prototype will be discussed in analysis chapter.

## 1.2 Problem Statement(s)

- Reading disability problem are reported facing by 24,000 forms one student in Malaysia. From the research done by *University Kebangsaan Malaysia UKM*, (2006), illustrate that almost 24,000 student in form one, facing a problems to read. On the other hand, because of reading problem, they also failure to score in their Mathematic and Science subject. This problem occurs by student since they were in preschool and secondary school. They were not capable to recognize alphabets letters “A to Z” and number “0 to 9”.
- Classroom environment in school is one of the factors that make children failure to give fully concentration during learning activities. The scenario is, the relation of one teacher to many students in one class, has definitely illustrate that learning content cannot be delivered directly to all students. This scenario ultimately makes slow learner children required an extra learning time with supportive learning material that allow them to sees, hears and speak such as in the classroom.

- An existing traditional learning aid such as flash card is already left away behind the technology. Now, an electronic base learning such as learning courseware and internet becomes more popular. However, there is some issue regarding to the requirement because it is not a portable devices which is not flexible to bring to anywhere.

### **1.3 Objective**

- To develop the new method of learning aid material for teacher and parents
- To create the module that helps children to recognize the letter by using voice narrative approach (Phonic).
- To develop application with information that can be accessed in a setting free from time and place constraints. Children can go through the lessons at his or her own pace

### **1.4 Scope**

The project deliverables is about the development of electronic learning via mobile phone which is known as mobile learning application. The specific/target user for this project is the children between 6 to 9 years of age. Children between 6 to 9 ages were selected as the target user because the actual early reading process was started at this level of age. Overall, this application prototype is the step by step systems that will help the children learn to read. An Accelerated Pre-reading Application prototype is an integrated learning system that teaches essential phonics skill via mobile phone to build an effective reading. With voice narrative technology, children will receive an immediate feedback as he hears, sees and speaks phonics

sounds. This content of application prototype will cover 6 modules. The details are as above:

⇒ **Module 1: Introduction to Alphabets**

In this module, children will be introduced to 26 alphabets letter. This will be focus on recognizing the shape and sound of each letters, and display related object that represent the words begin with that letter. (e.g.: A for Apple, B for Ball).

⇒ **Module 2: Introduction to Vowels**

In this module, children will identify 5 vowels letter, and learn how this letter being sound.

⇒ **Module 3: Introduction to Consonants**

In this module, children will identify 21 consonant letters, and learn how this letter being sound. The goal of module 2 and module 3 is to ensure children will able to classify between two different groups of letter that come out from alphabets letter in module 1.

⇒ **Module 4: Introduction to Spelling**

In this module, children will be exposed to the usage of combination vowels and consonants letter to construct one simple word. This is an advance from module 1, module 2 and module 3. This module will provide 15 simple words that able to select by children in order to learn how each combination letter being formed. The purpose of this module is to illustrate to the children the concept of words construction.

⇒ **Module 6: Introduction to Rhyming words.**

This is the last module in this learning application prototype. Via this module, children be introduce to the meaning of “rhyming” and will recognize the words that called as rhyming words. The purpose of this module is to make sure children will capable to differentiate two different words that sounded approximately similar.

- i. Example of rhyming words: “*rest-nest*”, “*main-paint*”

⇒ **Module 5: Introduction to Blending words.**

This is further level from module 4. Children will be introducing to the definition of “blending” words. There are two types of words blend which are beginning blends and ending blends. This module will provide 10 simple words that able to select by children in order to learn how each blending letter being formed. From this module, children can strongly enhance their spelling and reading skill. And it is important for them to dominate this level so that the words can be sounded correctly.

- i. Example of words with beginning blends: “*free*” , “*plane*”
- ii. Example of words with ending blends: “*paint*”, “*help*”

This application prototype is able to run in mobile phone or PDA with Windows or symbian operating system.

### **1.5 Project Significance**

The significance of this project is there will be an increasing of variation learning aids for children especially in mobile learning. Nowadays, when we talk about mobile learning, most of the topic or subject will more focuses to adult side. There are less of application can be utilize by children for their education. So, from this Accelerated Pre-reading application prototype, children will expose to the new method of learning with interactive approach and indirectly it may give the opportunity for children to explore and to walk around with technology that growth together with them. Beside that, there will be more tools or devices to use by parents, as a teaching aid for their children. Here, they don't need to bring flash cards, books, or personal computer to teach their children but they just need to use their mobile phone for that proposes, in anytime and anywhere. Other than that, this project is also significant as the way to apply the Phonics technique to children as an alternative towards accelerated reading process among children.

### **1.6 Expected Output**

The expectation from the output is it may help children to recognize, memorize and deliver every single letters and capable to pronounce it in the correct way. These are the main aspect that must be focus as propose in this project development. Basically, the output would have 6 stages that the children must explore and each of stage is sorting by level of difficult. Through each level, children need to recognize every single letters, and then pronounce the letters by using Phonics technique. They also need to differentiate the 5 vowels and 21 consonants letters as the preparation to deliver the sound of both vowels and consonants combined in one word.

Other than that, the project should deliver in interactive way and capable to bring the excitement of children to learn. The graphics design should suitable to early child age, so that they will go into the enjoyable learning condition without bored. For their parents, this teaching aid will give them an alternative to make sure their children can be excellent before enter preschool level and indirectly decrease the amount of reading disability problem among primary and secondary school.

## **1.7 Conclusion**

Overall, this chapter is discussed briefly about the summary of project that will be developed, which is known as Mobile Learning - Accelerated Pre-reading Application prototype. This chapter is divided into six parts that is the project background, problem statements, objectives, scope, project significance and expected output. In the project background, a brief overview about the project that will be develop was discussed, for the problem statements part the problem related to the topic of the project that will be develop been discussed. The objectives listed out the goal to be achieved from this project, scope that describes about the target user and brief of scope explanation whether the significance of project told about who and what will get benefits from the project developed and finally the expected output briefly describe the expected result of this project. The next activity to be developed is on the chapter two, literature review and project methodology report writing.

## **CHAPTER II**

### **LITERATURAL REVIEW AND PROJECT METHODOLOGY**

#### **2.1 Introduction**

The literature review and the project methodology briefly review the specific factor and research about the project and the significant between the earlier project and the existing project. Other than that, this chapter also will cover the methodology, schedule and milestone and review the hardware and software requirement that need for project development. All the information is gather from the internet, books and magazine.

#### **2.2 Fact and Finding**

This topic will discuss about the fact and finding related to mobile learning field

##### **2.2.1 E-Learning**

- The Emerging Concept of Mobile Learning