

iMSL: INTERACTIVE MALAY SIGN LANGUAGE COURSEWARE FOR THE  
DEAF AND HEARING IMPAIRED

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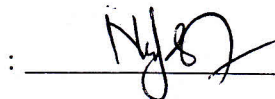
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## **ABSTRAK (BAHASA MALAYSIA)**

*Malay Sign Language* (MSL) atau Bahasa Isyarat Malaysia adalah merupakan salah satu bahasa yang digunakan oleh orang-orang pekak di Malaysia untuk membantu mereka berkomunikasi dengan orang lain. Orang-orang pekak dan cacat pendengaran pergi ke sekolah istimewa bagi mempelajari MSL. Pada era kini, teknologi digunakan untuk tujuan menyediakan kursus MSL untuk orang-orang yang cacat pendengaran dan pemegang mereka. Dengan adanya kursus MSL berasaskan teknologi, pembelajaran MSL bukan sahaja boleh dilakukan di sekolah, malahan di rumah mahupun di mana-mana sahaja. Ini menjadikan aktiviti pembelajaran berleluasa. Berdasarkan hujah ini, kajian ini bertujuan untuk mencadangkan satu model bagi kursus multimedia interaktif yang dinamakan sebagai iMSL. Sehubungan itu, kertas kerja ini akan membincangkan konsep latar belakang untuk keperluan dan reka bentuk iMSL. Objektif kajian ini ialah 1) Untuk menentukan keperluan antara muka untuk iMSL untuk orang-orang yang pekak dan cacat pendengaran, 2) Untuk reka bentuk dan pembangunan iMSL, dan 3) Untuk menilai kebergunaan iMSL melalui ujian pengguna. Dalam menjayakan kajian ini, Metodologi Waterfall telah diadaptasi. Kaedah ini melibatkan tiga fasa iaitu Keperluan Pengguna, Pembangunan Prototaip, dan akhirnya Ujian dan Fasa Penilaian. Model ADDIE juga disesuaikan dalam membangunkan prototaip iMSL. Pendekatan kualitatif seperti pemerhatian dan temu bual telah dijalankan dengan empat orang pelajar darjah 1. Kesimpulan daripada hasil kajian ini menyatakan bahawa teknologi berdasarkan perisian adalah alat yang boleh digunakan sebagai alternatif untuk membantu proses pembelajaran bagi pelajar pekak dan cacat pendengaran. Kaedah ini mudah untuk difahami dan dapat membantu guru untuk mengajar dalam cara yang lebih menarik.

## **ABSTRACT (ENGLISH)**

Malay Sign Language (MSL) or Bahasa Isyarat Malaysia is a language that has been used by the deaf people in Malaysia. The deaf and hearing-impaired people go to special schools to learn MSL. In current age, technology could be utilized for the purpose of providing MSL course for the hearing-impaired people and their stakeholders. With the provision of the technology based MSL course, learning MSL not only happen in schools, but also at home, or anywhere. This makes the learning activity pervasive. Based on that argument, this study aims at proposing a model for an interactive multimedia courseware which is called iMSL. Accordingly, this paper discusses the background concept for the needs and design of the iMSL. The objectives of the study include 1) To determine the interface necessity for the iMSL for the deaf and hearing-impaired, 2) To design and developed the iMSL, and 3) To evaluate the usefulness of iMSL through user testing. In accomplishing this study, Waterfall Methodology was adapted. There are involved three phase which are User Requirements, Prototype Development and finally the Testing and Evaluation phase. ADDIE Model also adapted in developing prototype of iMSL. The qualitative approaches such as observation and interview were conducted with four students in standard 1. The result of this study concluded that the technology based on courseware is an alternative tool that can be used to assist the learning process for the deaf and hearing-impaired students. It is easy to understand and help teacher to teach in interesting way.

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## TABLE OF CONTENTS

	<b>Page</b>
<b>PERMISSION TO USE</b>	<b>I</b>
<b>ABSTRACT (BAHASA MALAYSIA)</b>	<b>II</b>
<b>ABSTRACT (ENGLISH)</b>	<b>III</b>
<b>ACKNOWLEDGMENTS</b>	<b>IV</b>
<b>TABLE OF CONTENTS</b>	<b>V</b>
<b>LIST OF TABLE</b>	<b>VIII</b>
<b>LIST OF FIGURES</b>	<b>IX</b>
<b>LIST OF ABBREVIATION</b>	<b>X</b>
<b>CHAPTER 1: INTRODUCTION</b>	
1.1 Background of Study	1
1.2 Problem Statement	4
1.3 Research Questions	5
1.4 Research Objectives	6
1.5 Scope of Study	6
1.6 Significance of Study	7
1.6.1 Benefits to Children	7
1.6.2 Benefits to Parents and Society	7
1.6.3 Benefits to Teachers	8
1.6.4 Contribution to the Body of Knowledge	8
1.7 Thesis Structure	8
<b>CHAPTER 2: LITERATURE REVIEW</b>	
2.1 Introduction	9
2.2 Persons with Disabilities (PWD)	9
2.2.1 Hearing-Impaired	11
2.3 Assistive Technology (AT)	11
2.4 Sign Language	12
2.5 Study of Courseware	13
2.5.1 Multimedia Courseware	13
2.5.2 Assistive Courseware (AC)	14
2.6 Interactive Multimedia	16
2.7 Accessibility	17
2.8 Usability	18
2.9 Multimedia Learning Theory	19
2.9.1 Dual Coding Theory	19
2.9.2 Working Memory Theory	21
2.9.3 Cognitive Load Theory	22
3.0 Summary	23



## **CHAPTER 3: RESEARCH METHODOLOGY**

3.1	Introduction	24
3.2	Phase 1: User Requirements	24
	3.2.1 Literature Review	25
	3.2.2 Interview A	26
3.3	Phase 2: Prototype Development	26
	3.3.1 Design Process	27
	3.3.2 Development Process	28
	3.3.3 Implementation Process	28
3.4	Testing and Evaluation	29
	3.4.1 Test Run	29
	3.4.2 Observation	30
	3.4.3 Interview B	30
3.5	Summary	30

## **CHAPTER 4: RESULTS**

4.1	Introduction	31
4.2	Data Collection	31
4.3	Development	33
	4.3.1 Starting Screen	33
	4.3.2 Main Menu Screen	34
	4.3.3 Alphabet Screen	34
	4.3.4 Number Screen	35
	4.3.5 WH Question Screen	36
	4.3.6 Transportation Screen	37
4.4	Multimedia Learning Theory	38
	4.4.1 Dual Coding Theory	39
	4.4.2 Cognitive Load Theory	39
4.5	Testing and Evaluation	40
	4.5.1 Results of Observation	41
	4.5.1.1 Ease and Effectiveness of Navigation	41
	4.5.1.2 Usefulness of Content	42
	4.5.1.3 Effectiveness of Presentation	42
	4.5.1.4 Task Success Rate	42
	4.5.2 Results of Interview	43
4.6	Conclusion	43

## **CHAPTER 5: DISCUSSION AND CONCLUSION**

5.1	Introduction	44
5.2	Problems and Limitations	44
5.3	Recommendations for Future Research	45
5.4	Conclusion	47

## **REFERENCES**

## **APPENDICES**

**Appendix A - Interview A**

**Appendix B - Interview B**

**Appendix C - Storyboard**

**Appendix D - Letter**

**Appendix E - List Name Students and Teachers SKTAM**

## **LIST OF TABLES**

Table 1.1	Hearing loss according to dB range	2
Table 1.2	Registered disabled people according to types of disability, 2005-2010	3
Table 2.1	Reviews materials for the Teaching and Learning Aids for the Deaf Community in Malaysia	15
Table 3.1	List of Hardware and Software	29

## LIST OF FIGURES

Figure 2.1	Structural model of Dual Coding Theory (DCT)	20
Figure 2.2	Proposed system architecture for studying Working Memory Theory (WMT)	21
Figure 3.1	Summary of Research Methodology	25
Figure 3.2	Flow Chart ADDIE Model	27
Figure 3.3	Non-Linear Storyboard for Malay Sign Language Courseware	28
Figure 4.1	Starting screen	33
Figure 4.2	Screenshot of Main Menu Screen	34
Figure 4.3	Snapshot of Alphabet Screen (before press the button)	35
Figure 4.4	Snapshot of Alphabet Screen (after press the button)	35
Figure 4.5	Snapshot of Number Screen (before press the button)	36
Figure 4.6	Snapshot of Number Screen (after press the button)	36
Figure 4.7	Screenshot of WH Question screen (before select the word)	37
Figure 4.8	Screenshot of WH Question screen (after select the word)	37
Figure 4.9	Screenshot of Transportation Screen (before select the picture)	38
Figure 4.10	Screenshot of Transportation Screen (after select the picture)	38
Figure 4.11	Word Screen with pronunciation	39
Figure 4.12	Activity that strengthens learning (before answer the question)	40
Figure 4.13	Activity that strengthens learning (after answer the question)	40

## LIST OF ABBREVIATIONS

OKU	Orang Kurang Upaya
MSL	Malay Sign Language
iMSL	Interactive Malay Sign Language
CD ROMs	Compact Disk Read Only Memories
PWD	Persons With Disability
AT	Assistive Technology
AC	Assistive Courseware
dB	Decibel
TTY	Text Telephone
IT	Information Technology
MCM	Manually Coded Malay
KTBM	Kod Tangan Bahasa Melayu
BIM	Bahasa Isyarat Malaysia
MFD	Malaysian Federation of the Deaf
ICT	Information and Communication Technology
CD	Compact Disk
VCD	Video Compact Disk
DCT	Dual Coding Theory
WMT	Working Memory Theory
CLT	Cognitive Load Theory
ADDIE	Analysis Design Development Implementation Evaluation
LR	Literature Review

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background of Study**

The United Nations states that the estimated number of persons with disabilities (PWD) in Malaysia is about 2.8 million (Zulkiple, 2011). These increasing numbers of PWD attracts the researchers to develop various technologies that could assist them in their daily life, which is known as Assistive Technology (AT). The term AT has long been used, referring to technologies developed for PWD. Each PWD uses different AT based on their types of disability. The AT could be founded in terms of hardware and software. In conjunction, this study focuses on designing assistive educational software for deaf and hearing-impaired people, which is known as Assistive Courseware (AC). AC could be used to help hearing-impaired students in their learning process.

There are a number of disabilities including hearing-impairment or deaf. Murniwati (2007) identified that hearing impairment can occur in the outer, middle, or inner ear along the pathway to the brain. Table 1.1 lists and classifies the degrees of hearing loss in dB (Decibel). Referring to the table, this study considers all types of hearing loss.

The contents of  
the thesis is for  
internal user  
only

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