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JUDUL: HANDSPEAK – EARLY EDUCATION OF SIGN LANGUAGE FOR HEARING IMPAIRED CHILDREN

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(TANDATANGAN PENULIS)

Alamat tetap: NO. 7, LORONG 4/8E,
TAMAN TASIK TAMBAHAN,
68000 AMPANG,
SELANGOR DARUL EHSAN.



(TANDATANGAN PENYELIA)

MOHD HAFIZ BIN ZAKARIA
Nama Penyelia

Tarikh : 21 NOVEMBER 2006

Tarikh : 21 NOVEMBER 2006

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

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Handspeak - early education of sign language for hearing
impaired children / Muhammad Yazid Masol.

**HANDSPEAK - EARLY EDUCATION OF SIGN LANGUAGE FOR HEARING
IMPAIRED CHILDREN**

MUHAMMAD YAZID BIN MASOL

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

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
KOLEJ UNIVERSITI TEKNIKAL KEBANGSAAN MALAYSIA**


2006


DECLARATION

I hereby declare that this project report entitled

HANDSPEAK - EARLY EDUCATION OF SIGN LANGUAGE FOR HEARING IMPAIRED CHILDREN

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

STUDENT :  Date: 21st NOVEMBER 2006
(MUHAMMAD YAZID BIN MASOL)

SUPERVISOR :  Date: 21st NOVEMBER 2006
(MR. MOHD HAFIZ BIN ZAKARIA)

DEDICATION

This project is dedicated to all disables people in this world...

ACKNOWLEDGEMENT

This BITU 3946 (PSM 2) subject had given me the opportunity to test my skill and knowledge which I've learned from the previous three years about interactive media in ICT. Through this subject, I'd been given a chance to develop an E-learning application named 'HANDSPEAK'. This cd based application is a product developed through my research in this project titled 'Early Education of Sign Language for Hearing Impaired Children'. I would like to express my appreciation to everyone who has helped me from the beginning until the end of my project. One of those is my Information Communication and Technology Faculty of KUTKM.

This 'Early Education of Sign Language for Hearing Impaired Children' project would not be developed successfully if I'm doing it alone. In consequence, I would like to give millions of thanks and appreciation to my supervisor, Mr. Mohd Hafiz bin Zakaria. He is the one who supervised my project and conduct me to develop a project that has all the requirements needed. He also gave many effective and creative ideas which let me to develop a successful project. Many of my improvements in this project came from his comments and suggestions. I hope to get more opportunity in working with him in this field for the future.

Last but not least, for those who are indirectly involved in my project development especially my family and friends who gave so much supports, cooperation and encouragements. Thanks everyone.

ABSTRACT

A development of 'Early Education of Sign Language for Hearing Impaired Children' project is to fulfill the requirement of Project Sarjana Muda 2 (PSM 2) subject. It is a compulsory subject for the final year ICT students of Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM). The 'Early Education of Sign Language for Hearing Impaired Children' project is to develop an E-learning application. In PSM 2, this project will be elaborated thoroughly and was developed accordingly. All the works were divided into seven chapters. These chapters are Introduction, Literature Review and Project Methodology, Analysis, Design, Implementation and Project Conclusion. The project progress is kept on track with the help of the project schedule using Gantt chart. This project was developed using the integrated methodology which was elaborated intensively in the Literature Review and Project Methodology chapter. Through that chapter also stated the methodology in using this application onto the affected children effectively. The analysis chapter will analyze the related topics for this project and all the results will be used in the design phase. Through this phase, the storyboard will be developed and all the ideas and suggestion were blended and come out with an appropriate project design. 'HANDSPEAK' is the compact disc shaped of product that is developed successfully through this 'Early Education of Sign Language for Hearing Impaired Children' project. This application will be an alternative in special education system in teaching hearing impairment students. This colorful, interactive and attractive courseware should be able to attract affected students study the sign language appropriately in a computer environment. 'HANDSPEAK' also will assist them communicate using selected basic daily words which are supported by Kod Tangan Bahasa Malaysia. We hope that this product will not just help the impairment students but anyone who interested in learning sign language in order to communicate well with the disables.

ABSTRAK

Projek 'Pendidikan Awal Bahasa Isyarat Tangan Untuk Kanak-kanak Kurang Upaya Pendengaran' adalah untuk memenuhi keperluan di dalam matapelajaran Projek Sarjana Muda 2 (PSM2). Subjek ini adalah wajib untuk semua pelajar tahun akhir FTMK di Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM). Projek 'Pendidikan Awal Bahasa Isyarat Tanfan Untuk Kanak-kanak Kurang Upaya Pendengaran' adalah untuk membangunkan perisian berkonsepkan 'E-Learning'. Subjek PSM2 akan menerangkan dan membangunkan secara terperinci tentang projek ini di mana ianya terbahagi kepada tujuh bab utama. Bab-bab tersebut ialah Pengenalan, Kajian Literasi dan Metodologi Projek, Analisis, Rekabentuk, Implementasi dan Konklusi Projek. Kemajuan projek ini dibangunkan adalah berdasarkan jadual projek yang menggunakan carta Gantt. Projek ini dibangunkan menggunakan kaedah penggabungan beberapa metodologi. Perkara ini ada dibincangkan dalam bab Kajian Literasi dan Metodologi Projek secara menyeluruh. Melalui bab tersebut juga, metodologi teknik pengajaran menggunakan applikasi ini ada dinyatakan. Bab analisis adalah untuk menganalisis perkara-perkara yang berkaitan dengan projek ini dan semua hasil tersebut akan digunakan dalam fasa rekabentuk. Bab rekabentuk akan menghasilkan papancerita applikasi ini di mana semua idea dan cadangan digunakan dalam membangunkan rekabentuk yang efektif. 'HANDSPEAK' adalah produk yang terhasil daripada projek 'Pendidikan Awal Bahasa Isyarat Tangan Untuk Kanak-kanak Kurang Upaya Pendengaran' ini. Aplikasi ini adalah alternatif kepada teknik pengajaran dan pembelajaran awal bahasa isyarat tangan dalam bidang pendidikan khas kepada pelajar-pelajar yang bermasalah pendengaran. Aplikasi ini juga akan membantu mereka berkomunikasi menggunakan perkataan-perkataan harian yang penting dan disokong oleh Kod Tangan Bahasa Malaysia. Kami berharap applikasi 'HANDSPEAK' ini juga akan digunakan oleh orang ramai yang normal supaya mereka dapat berkomunikasi dengan orang kurang upaya pendengaran.

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LIST OF ABBREVIATIONS

2D	-	2 Dimensional
ASL	-	American Sign Language
AV	-	Audio Video
BMP	-	Bitmap
BIM	-	Bahasa Isyarat Malaysia
CD	-	Compact Disc
CD-Rom	-	Compact Disc Rom
FTMK	-	Fakuliti Teknologi Maklumat Komunikasi
GIF	-	Graphic Interchange Format
HTTP	-	Hyper Text Transfer Protocol
JPEG	-	Joint Photographic Expert Group
KUTKM	-	Kolej Universiti Teknikal Kebangsaan Malaysia
KTBM	-	Kod Tangan Bahasa Melayu
MB	-	Mega Bytes
MSL	-	Malaysia Sign Language
PC	-	Personal computer
PSM 1	-	Projek Sarjana Muda 1
PSM 2	-	Projek Sarjana Muda 2
TIFF	-	Tagged Image File Format
TV	-	Television
UKM	-	Universiti Kebangsaan Malaysia
USA	-	United States Of America
VCD	-	Video Compact Disc

CHAPTER I

INTRODUCTION

1.1 Project Background

Lately, countries which mastered the information and communication technology (ICT) can be defined as a modern country. In Malaysia, our country needs to participate and not to get leave behind in the rapid development of ICT era. For the beginning to step into the cyber world and to realize the 2020 vision, it is a great responsibility for Ministry of Education to produce a new teaching method that related with ICT industry in order to help younger generation of Malaysian and the future leaders compete with other countries in this field. Rapid advancing development of ICT requires the education institutions to optimize the function of computer in the teaching and learning process.

E-learning is an approach to facilitate and enhance learning through both computer and communications technology. This is a new way in teaching and learning process. Methods include online lectures, tutorials, performance support systems, simulations, job aids, games, and more. Effective e-learning is often a blend of methods. Special education or 'Pendidikan Khas' also involved in the ICT era. In 1980's, computers have been introduced to help the special education field. But until today, the usage of this facility is limited due to the lack of specialist to develop a research to link ICT with this field. In consequence, it is compulsory for the special education teachers to fully utilize and benefit the uses of this facility in order to improve the disable

students' performance. Research done by Mander, et. al, (1995) had proved that using e-learning as a method of teaching and learning process had given a significant impact of improvement in the skill of writing for the hearing impaired children.

Now, with the help of e-learning courseware, it will simplify teaching, learning process and give an alternative for teachers to express the information and education for the disable students. The research that will be conducted through this project is called 'Early Education of Sign Language for Hearing Impaired Children'. The project is an interactive application where user will has the ability to learn the appropriate sign language through this courseware. This compact disc platform product is named 'Handspeak'. This is an E-learning courseware which had all the multimedia elements inside. Roughly this application will has ten menus. The first menu will teach user the sign code of numbers from 0 to 9. Second menu will have the sign code for letters from A to Z. The third menu will teach provide user sign codes of communication and this menu named 'Komunikasi'. The third menu is 'Kata Ganti Nama'. It is followed with 'Rumah' menu where the sign codes for the daily words are provided in this menu. The next menu is 'Sekolah' where similar with the 'Rumah' menu but the words are related with schools. 'Warna' menu will display the sign codes for colors and 'Penting' is the menu for the emergency words. The last menu is the 'Latihan' where user needs to test their skill memorizing the sign codes. This project will combine all the multimedia elements such as audio, video, graphic, text and animation. The inclusion of audio is reliable because this project will have normal person also as one of the expected user.

1.2 Problem Statement

The old technique of teaching sign language is uninteresting for students' ages 6 to 8 years old. Students only exposed with the information written on the black board or in the text books and do so many manual exercises to make them really accept the content of the learning. Beside the method that using cards and pictures to teach students

really put a burden for teachers where they need to make a lot of them to feed the information for all the students in that particular class (Abd. Rahim, 2003). This will not attract students especially hearing impaired children.

The content of e-learning which include multimedia elements would be interesting as a medium in the teaching and learning process. With such elements like video and animation will change the environment of the class rather than the dull traditional method.

Hearing impaired children always have the problem with memory. This happened due to the problem that affected them where they couldn't use the hearing organs just like normal children do. This gave a little affect to their memory process.

To solve the problem, the combination of audio and video (AV), is so crucial and important where this will be a good medium of teaching. Good multimedia courseware which includes these elements should improve the performance of learning for hearing impaired students (Loi Wing Ping, 1996).

'Malaysian Sign Language' (MSL), or Bahasa Isyarat Malaysia (BIM), is the sign language in every day use in many parts of Malaysia. Bahasa Isyarat Malaysia literally translates as Language Sign Malaysia. MSL has many dialects, differing from state to state. American Sign Language (ASL) has had a strong influence on MSL, but the two are different enough to be considered separate languages. Other Sign languages use in Malaysia are Penang Sign Language (PSL), Selangor Sign Language (SSL or KLSL), and 'Kod Tangan Bahasa Malaysia' or Manually Coded Malay (KTBM), and Chinese Sign Languages.

This application will use 'Kod Tangan Bahasa Malaysia' or Manually Coded Malay as the main language. This because the code is officially registered with the Education Ministry and was created based on our national language. It refers all the

grammar and vocabulary of 'Bahasa Melayu'. This will synchronize the application with the language used by the teacher daily in the teaching process.

1.3 Objectives

Several objectives have been decided to develop this 'Handspeak' e-learning courseware. The objectives are:

- I. To help hearing impaired children (primary user) learn the basic of sign language.
 - This can be achieved if the primary user uses this application appropriately with the help of the teachers.

- II. To develop an application suitable for the use of hearing impaired children.
 - To achieve this objective, all the related multimedia elements will be included into this application.

- III. To help normal people (secondary user) interact with the hearing impaired children.
 - This application will suit them in order to learn the basic of sign language through this user-friendly application.

1.4 Scopes

'Handspeak' will be developed using Micromedia Flash 8.0 as a platform. This software is comfortable and not difficult to use. This is suitable to make the hearing

impaired children as the primary user. This application will be focused hearing impaired children especially primary one student where they will be teaches how to express the selected words they are using daily in sign codes. With the help of teachers when using this application, the primary user also may learn how to make a sign codes for A to Z letters and the sign codes of numbers (0 to 9). This application will not cover all the words and sign codes where it can't be described as a dictionary. It will only cover the important or selected words where the children use in their daily life. This will make them master the basic of sign language before advance into the next level of the sign language.

Normal people can be targeted as the secondary target user where they can use this application in order to communicate with the affected children because this courseware will use the official Manually Coded Malay or 'Kod Tangan Bahasa Malaysia' which had been recognized by Ministry of Education.

1.5 Project Significance

Generally, there are three sides of users which will benefit from this application. This application mainly will be developed for the use of primary one hearing impaired children to master the basic of sign language. It will help the learning process where it will provide an interactive environment with the inclusion of multimedia elements such as text, audio, video, graphic, and animation. Indirectly, students will enjoy while study this application.

Special education teachers can minimize the use of the traditional method of teaching and optimize the new teaching process using this e-learning courseware. It will ease the burden from their shoulder. Beside that, teachers just need to teach the students how to use the application and help them understand the flow of the courseware to improve the students' performance in the learning process.

This application will use the official Manually Coded Malay (KTBM). This will be very useful if normal people learn the basic of sign language through this application for them to interact and communicate with the affected children.

Teaching and learning process using e-learning as a method, is a good technique where it will involve many of the human senses, such as visual sense and hearing sense which resulted a good learning. This aspect will attract students to learn something new (Wallace 1997).

1.6 Expected Outputs

The 'Handspeak' application is expected to produce ten menus. The first menu will teach user the sign codes for numbers from 0 to 9. Second menu will have the sign code for letters from A to Z. The third menu will teach provide user sign codes of communication and this menu named 'Komunikasi'. The third menu is 'Kata Ganti Nama'. It is followed with 'Rumah' menu where the sign codes for the daily words are provided in this menu. The next menu is 'Sekolah' where similar with the 'Rumah' menu but the words are related with schools. 'Warna' menu will display the sign codes for colors and 'Penting' is the menu for the emergency words. The last menu is an exercise to enhance them understanding the code sign for all the words called 'Latihan'. This project will combine all the multimedia elements such as audio, video, graphic, text and animation.

The expected output can be seen roughly on this application simple flow.

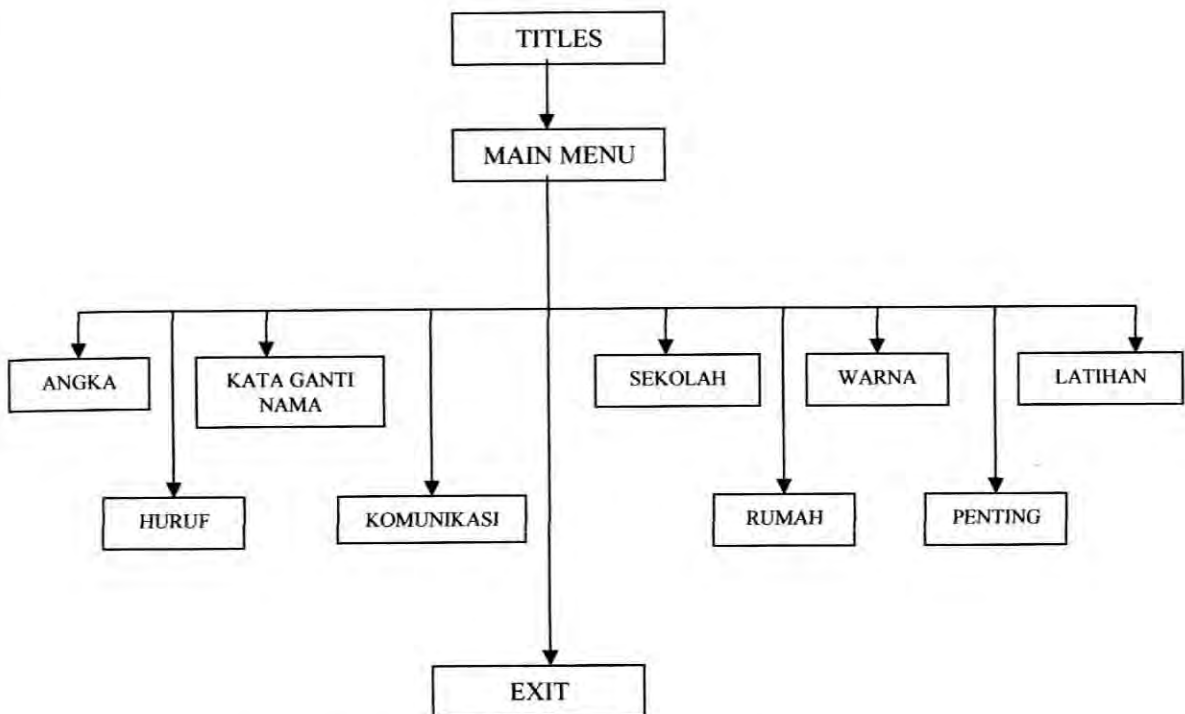


Figure 1.1: Simple Flow of 'Handspeak' Application.

1.7 Conclusion

E-learning is an approach to facilitate and enhance learning through both computer and communications technology. This is a new way in teaching and learning process. This application will use this approach to minimize the dull traditional way of teaching and replace it with an interactive and interesting e-learning courseware. This 'Handspeak' application will gather all the multimedia elements in order to make it suitable for the use of the hearing impaired children. This application will use the official Manually Coded Malay to synchronize all the grammar and vocabulary with the current code of sign language. The sign language will be integrated appropriately into this application to help the entire user understand the content of this application. With the good syllabus and a user-friendly environment in this application, hearing impaired