CHAPTER 1

INTRODUCTION

1.0 Background Study

Palmtop, which is categorized in handheld computing, has rapidly accepted in the mobile computing industries. Many developments are enabling easier access to the technology where rapid changes have taken place in both hard and soft technology (Loh, 2001). Nowadays, palmtop or also known as PDA can play the MP3, accessing web, playing games and doing things as a personal computer does (Jalaludin, 2001). However, pre-school educational applications focusing on Jawi alphabets using Palmtop as the platform are seldom found especially when it comes to integrating all the media in one educational application.

This research is about implementing Jawi application using the palmtop as its input and output device. Its focus towards Jawi alphabet as an initiative to add to the Islamic Educational Application in the market. This application will help the preschool children to learn Jawi alphabets easier and effective, using Palmtop. Children can learn Jawi alphabets without being at the school, home or tuition center. Even though the Palmtop is quite expensive at the moment but with recent evolution on technology, the cost will decrease in the future. Furthermore Palmtop has multi functions
like date book, address book, to do list, memo pad, calculator and the latest version supports e-mail and basic Internet capabilities (Ebell and Rovner, 2000). However, the implementation for pre-school educational application that using Palmtop is not popular. Recently the Palmtop has been used by physician to assist them in getting the information at the point of care (Ebell and Rovner, 2000). In the real estate industry, handheld computer allows the real estate professionals to conduct business and provide service in real time (Canale, 2002). Based on this fact, we can conclude that this educational application for pre-school children, focusing on Jawi alphabets is also ready to be implemented.

Jawi is a Malay writing script based on traditional Arabic script (Ahmad Zaki, 1998). It comprises of 35 characters that twenty-nine were adopted from Arabic and six were invented by the Malays (Mashkuri Yaacoob and et.al, 2001) to accommodate Malay vocal sound. Jawi was widely used since 1300’s. Unfortunately since 1960’s, Jawi became less important after the Malaysian government officially adopted the use of romanized writing system (Ahmad Zaki, 1998). In order to revive the use of Jawi, the implementation of Jawi application on palmtop is one of the approaches.

1.2 Objective of Research

The objective of this research is to build the prototype Jawi application called 'Mari Belajar Jawi' for preschool education on palmtop like HP iPaq Pocket PC H 1910.
The idea behind using Palmtop as the platform for this application (focusing to preschool children) is to educate them wherever they are, even in car through the journey back home. The portability and easy access of the Palmtop was the main criteria when this research was started. This research might invoke other researcher in creating a framework for multimedia application for displaying the application through Palmtop without considering the processor and memory of the Palmtop processor.
For example, one research is currently in progress in developing a Situated Computing Framework (SCF) project at Siemens Corporate Research (SCR) to develop an ubiquitous computing infrastructure that facilitates nomadic users to access rich multimedia contents using small screen devices (Pham and et.al, 2000), such as Palmtop. On the other hand, this research might also give an idea to software developers and designers for designing a multimedia application for Palmtop in the future.

1.2.1 Steps in Achieving the Objective

1. To collect data about the palmtop and its architecture in comparing for suitable brand and type of platform for implementation.

2. To identify the compatibility of certain palmtop with certain authoring tools in integrating the multimedia elements.

3. To identify the software that can translate the roman scripts to the Jawi scripts as a text.

4. To collect information about government policy and syllabus on preschool education especially for correct Jawi syllabus on application.
5. To analyze and discuss the results of preliminary data and requirements gathering on palmtop, Jawi and Jawi application from the sample.

6. To develop a prototype Jawi application for preschool children based on syllabus for Jawi in preschool education.

7. To implement the prototype Jawi application on palmtop like HP iPaq Pocket PC H 1910.

8. To analyze and discuss the evaluation of prototype Jawi application on palmtop based on preschool students, preschool teachers and parents feedback.

1.3 Scope of Research

The scope of the study cover:

1. Requirements of Jawi application - the data and requirements about the Jawi application are gathered from the education CDs for the preschool children, books, children websites on the Internet, questionnaire and interviews.

2. Prototype of Jawi application - to develop a prototype Jawi application, based on the preschool syllabus. This study try to manipulate multimedia application in conveys knowledge of Jawi alphabets.

3. Concept of Palmtop and its architecture - in this study, Palmtop has been chosen as platform in delivering multimedia application because of its portability and easy access through wireless.
4. Prototype Jawi application on Palmtop - this study implemented Jawi application on Palmtop with several considerations. The considerations will be discussed in another chapter.

5. Evaluation of Jawi application on Palmtop - the questionnaire was distributed to target groups including preschool students, preschool teachers and parents to get their feedbacks about this new application.

1.4 Problem Statement

1. Young generations nowadays are less interested in learning Jawi script especially after the romanize script used as the formal writing in Malaysia, in 1960s (Ahmad Zaki, 1998). Though, Jawi is part of the Malay heritage, as romanized script is used widely (Ahmad Zaki, 1998), the younger Malaysian are not able to write and read Jawi. In addition, limited materials in Jawi and the traditional method of learning make the children feel bored and discouraging them to learn. So this research tried to overcome the problem by providing an alternative platform in learning Jawi.

2. A classroom Jawi lesson is less exciting compared to the one with visual teaching aid and multimedia package. In addition, it lack of senses as the children just hear and see without any interactive. However, with multimedia package that combines several media elements like audio, animation, video, texts and graphic, a Jawi lesson can invoke different senses in children and students are actively
involved in the learning process. Students that involve actively in learning process retain more knowledge in their memory (Hofstetter, 2001). Furthermore the multimedia technology has been used in other subjects like science and geography. So the same method can be applied to Jawi script by using an alternative technology and immersion like palmtop.

3. Eventhough there are Jawi packages (for example *Siri Anak Bestari: Game Jawi* and *CD Multimedia Pelajaran Jawi*) in the market but preschool children can only accessed the packages if they have PC or laptop. PC can only be accessed at a fixed place. While using laptop, even the learning process has no time and venue boundaries but laptop is heavy compared to palmtop which is more portable. So palmtop is an alternative platform for preschool children because of its portability and wireless.

4. Nowadays there are lot of preschool educational applications emerged in the market. These applications are distributed in CD-ROM, published as web pages accessable via Internet. Children can accessed the applications through platforms like Personal Computer (PC) and Laptop but seldomly through Palmtop. This is due to slower microprocessor, limited memory for storage and small screen that may be difficult to read (Ebell and Rovner, 2000).
1.5 Significance of the Research

1. The research main interest is towards implementing educational Jawi application for preschool children in an alternative and complement platform like Palmtop. The application can develop children awareness in recognizing and pronouncing Jawi alphabets in the early age. Furthermore children can learn the alphabets anywhere they like as Palmtop is portable and lightweight.

2. The application can expose the technology of handheld devices and multimedia application to preschool children.

3. The study can be a stepping-stone to other researches and developer in finding and building other types of multimedia application on the Palmtop.

4. It is also the foundation for individualize teaching or CAL (Computer Assisted Learning).

1.6 A System Development Methodology Overview

This research is towards implementing Jawi preschool educational application on Palmtop. The research activities including analysis about Palmtop and multimedia in education and preschool education, development of a prototype educational application and implementation of
Jawi application on Palmtop. The analysis about Palmtop and Jawi for preschool education helped this project in getting data and information about palmtop and Jawi syllabus for preschool children. The data and information was analyzed in order to make the design. The design of the prototype was prepared before the development of system start. In this thesis, the Instructional System Design Modeling using ADDIE model was chosen as system development methodology. After the system was developed, Jawi application prototype was implemented on Palmtop.

1.6.1 Instructional System Design Modeling

Instructional System Design Modeling was chosen since it support one frame work that helps developer in designing and developing multimedia software systematically (Jamaludin Harun and et.al, 2001). This model comes from software engineering technique (Pressman, 1997).

ADDIE model is one of the Instructional System Designs Modeling that is being used as basic to another models. The instructional design aims for learner centered rather than teacher centered approach instruction. Every components of the instruction is governed by the learning outcomes that have been determined after analysis of the users’ needs.

1. Analysis

Fact-finding or data gathering about palmtops was on its function and usage in educational industry. There were six information resources being used in fact finding:

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- Catalogues, Pamphlets;
- Questionnaire;
- CD-ROMs;
- Newspapers, magazines and books;
- Journals and proceedings;
- Internet webpages;

Problems can be determined through certain techniques like questionnaire, interview, observation and etc. However in this project the observation technique had been used to determine the problems. Analysis towards learners identified the aim of teaching, learning environment and content of the instructions.

Firstly the problem domain is identified. Most of the education applications and other multimedia applications such as games on Palmtop are not about preschool education especially Jawi application. Furthermore Jawi alphabets is not given due attention. To bring back the Jawi alphabets knowledge, especially to preschool children, more Jawi applications are needed. The Jawi application for preschool children that being implemented on Palmtop should be one of the methods to bring back the popularity of Jawi script.

The analysis process can be divided into three. They are Jawi application analysis, multimedia and preschool education analysis and Palmtop
analysis. In Jawi application analysis, different types of Jawi applications and other preschool education course notes from the education CDs are being analyzed and studied to get the overall picture. The interview sessions were conducted with preschool students to get their requirement. This is including the method of presentation in conveying the knowledge to children and also the advantages and disadvantages of each application and course materials. The software used to convert the romans script to Jawi script also discussed. The second analysis was concerning about multimedia and preschool education. This analysis was on the usage of multimedia in improving the preschool education, Jawi syllabus for preschool and government policy on preschool education. Palmtop analysis was done in order to find the suitable features in implementing the multimedia application on it.

2. Design
This phase clarified the view about interface, structure, teaching approach, learning theory, type of media and the technology involves. It included creating the structure and storyboard of the Jawi application.

The designing of the application including creating the structure of the application and the storyboard for the flowline of the application. After that, the development process was carried on.
3. Development

The development involved activity such as building the content of the application, using authoring tool like Macromedia Flash 5.0 that integrates all the media like graphic, audio, video, animation and text.

4. Implementation

Application that has been developed must be presented to test the effectiveness and to find any overlooked problems during design and development phase. In this project the Jawi application, ‘Mari Belajar Jawi’ has been implemented on the HP iPaq Pocket PC H1910.

After the application was tested, it was implemented on the desktop first. The process of transferring the application to the Palmtop will had to cater several considerations such as display, processor and USB port usage.

5. Evaluation

Evaluation involved the process of getting feedback from users towards content, interface, media and structure of the software on the palmtop through questionnaire and interviews to find whether it fulfill client’s demand and users’ requirement especially preschool students and preschool teachers.

The evaluation was done to the application on Palmtop to see the effectiveness of Palmtop usage for preschool education, regarding its
portability and mobility. Questionnaire was used to get the feedback from preschool students, preschool teachers and parents.

The summary of the overall thesis process is as in figure 1.1.

![Diagram of thesis process]

**Figure 1.1: Overall Thesis Process**

1.7 Organization of Dissertation

The layout of the dissertation is summarized as follows:

**Chapter 1: Introduction**

The overview of overall thesis is covered in this chapter. Its comprises the background of the study, scope, objectives, problem statement, significance
of study and system development methodology.

Chapter 2: Literature Review

This chapter discusses about the Palmtop and things related to it, such as examples of usage. It also included topics like multimedia in education and preschool education. The rationale behind using Jawi application is also being discussed. The program used in translating roman script to Jawi script is discussed in this chapter. Lastly it states the examples of other scripting applications on palmtop.

Chapter 3: Analysis and Design

The research methodology for the proposed dissertation is discussed in this chapter. The analysis including data requirement gathering target groups. The data then analyzed and discussed to get the user requirement before the system was developed. It includes instructional design modeling, systems requirements specification for hardware and software, and contingency development planning. The modules involved in the system are also discussed in this chapter. The structure and storyboard used for development of ‘Mari Belajar Jawi’ is also included in this chapter.

Chapter 4: Implementation

This part explains about the chosen Palmtop like HP iPaq PocketPC H1910 as an experiment in implementing the Jawi application on it. Steps of implementing the Jawi application on Palmtop and brief description of
system interface design are also given. The considerations in designing and implementing a multimedia application on Palmtop are also highlighted.

Chapter 5: Evaluation for Jawi application on Palmtop

This chapter covers the steps of evaluation that have been done. It included the list of participants involved in the evaluation process. The analysis of evaluation results and discussion of the questionnaire and structured interview are stated. It also includes the Palmtop user acceptance and satisfaction.

Chapter 6: Conclusions

The discussion and solution are included in this part. It discusses about the contributions and achievements, constraints of the study and future enhancements of the research. The objective that had been stated earlier was achieved even though few problems were encountered.