DESIGN MODEL OF BASIC AL-QURAN LEARNING COURSEWARE BASED ON PERSUASIVE SYSTEM DESIGN FOR TODDLERS

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This thesis is dedicated to my family especially *umi* and *abah* for their endless support and encouragement.

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ABSTRACT

Nowadays, there are many courseware design models for learning basic Al-Quran. Previous studies on the models were developed for various ages. However, some of the components in the models are not suitable for toddler's learning ability level. This research developed a courseware design model, MyFurqan for toddlers to learn basic Al-Quran. The process started with developing the courseware, evaluating the design model, and measuring the effectiveness. Based on literature review, this study proposed a new courseware design model, comprising six components, which are course content, design guidelines, learning approach, learning theory, multimedia elements and technology. Selection of these components was based on the design model Block Structure, which was used to develop the initial model for this research. From the model, a courseware was developed to test the components. Al-Furqan learning method was applied in the course content to introduce sounds familiar to toddlers. E-flashcard was used to deliver the learning content using multimedia elements. Visual, Auditory and Kinesthetic (VAK) was applied to support toddler's learning styles which consist of pictures, sounds and animations. The outcome/change matrix and persuasive principles were used as guideline to design in a persuasive manner. Mobile technology was applied as a learning platform to make learning process happen anywhere at any time. The quasi-experimental evaluation of pre-test and post-test were conducted to test MyFurqan by comparing the learning outcome in comparison to Al-Furqan Song. The courseware was tested on thirty nine toddlers aged between 18 to 36 months old. The results showed that the toddlers who used MyFurqan courseware achieved better scores in the post-test as compared to toddlers who used Al-Furqan Song courseware to learn basic Al-Quran.

ABSTRAK

Masa kini, terdapat banyak model reka bentuk koswer bagi mempelajari asas Al-Quran. Model kajian lepas telah dibangunkan untuk pelbagai peringkat umur. Walau bagaimanapun, beberapa komponen dalam model tidak sesuai untuk tahap keupayaan pembelajaran kanak-kanak. Kajian ini membangunkan satu model reka bentuk koswer, MyFurqan untuk kanak-kanak untuk belajar asas Al-Quran. Proses ini bermula dengan membangunkan koswer, menilai model reka bentuk, dan mengukur keberkesanan. Berdasarkan kajian literatur, kajian ini mencadangkan satu model reka bentuk koswer baru, yang terdiri daripada enam komponen, iaitu kandungan kursus, garis panduan reka bentuk, pendekatan pembelajaran, teori pembelajaran, elemen multimedia dan teknologi. Pemilihan komponen ini adalah berdasarkan model reka bentuk Struktur Blok yang digunakan untuk membangunkan model awal kajian ini. Daripada model itu, koswer telah dibangunkan untuk menguji komponen. Kaedah pembelajaran Al-Furqan telah digunakan dalam kandungan kursus untuk memperkenalkan bunyi mesra kanak-kanak. E-flashcard telah digunakan untuk menyampaikan kandungan pembelajaran menggunakan elemen multimedia. Visual, Auditori dan Kinestetik (VAK) telah digunakan untuk menyokong gaya pembelajaran kanak-kanak itu yang terdiri daripada gambar, bunyi dan animasi. Matriks hasil/perubahan dan prinsip pujukan digunakan sebagai garis panduan untuk mereka bentuk secara pujukan. Teknologi mobil telah digunakan sebagai platform pembelajaran untuk menjadikan proses pembelajaran berlaku di mana sahaja pada bila-bila. Penilaian kuasi-eksperimen pra-ujian dan pasca-ujian telah dijalankan untuk menguji MyFurqan dengan membandingkan hasil pembelajaran berbanding dengan Al-Furqan Song. Koswer ini telah diuji ke atas tiga puluh sembilan kanak-kanak berusia antara 18 hingga 36 bulan. Hasil kajian menunjukkan bahawa kanak-kanak yang menggunakan koswer MyFurqan mencapai skor yang lebih baik dalam ujian pasca jika dibandingkan dengan kanak-kanak yang menggunakan koswer Al-Furqan Song untuk mempelajari asas Al-Quran.

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CHAPTER 1

INTRODUCTION

1.1   Introduction

Nowadays, due to a rapid development of Information, Communication and Technology (ICT), the communication device for computers and smart phones is widely used in the education field for teaching and learning purposes (Zin and Wong, 2008). A courseware, defined as a computer-aided learning tool is believed to assist teaching and learning particular topics and at same time promotes active learning and self-directed learning (Zaini and Ahmad, 2011; Zulkifli *et al*., 2013). It promotes active learning as learners directly involve themselves with all activities in the courseware such as courseware module or learning content (Kamaruddin, 2010a). Courseware can be accessed in different platform; whether mobile, computer, online website or CD-ROM (Aziz and Mutalib, 2014). Therefore, many researchers did research on learning courseware to enhance the quality of learning process, whereby they have suggested a few components that enhance courseware learning (Kamaruddin, 2010). Courseware design model is a combination of a few components that consist of learning method, multimedia elements and course content in order to achieve the learning goal (Hossain and Rahman, 2006). However when designing a courseware design model, choosing the right components is essential to help designers develop a good courseware for the target users.

A good courseware should have interesting and fun interfaces so that the end users would feel entertained and it could enhance their level of understanding on the courseware content (Kamaruddin, 2010). In order to develop a courseware that can

attract and encourage the end user to learn, the design model should be developed to guide the developers in designing a design model with appropriate components for target learners (Aziz and Mutalib, 2014).

1.2   Problem Background

Previous studies have highlighted some components for courseware learning, such as learning theories, learning approach, learning content, structural component, instructional design model, design guidelines, development process and technology (Baharudin *et al*., 2010; Rosmani and Wahab 2011; Faryadi, 2012; Sahrir *et al*., 2013; Bakri *et al*., 2014). However, those learning theories and approaches were conducted for different age and level of target learners. Therefore, for this research different learning content that will be used to cater for toddlers' age and toddlers' learning ability are suggested.

The process of teaching and learning is a lot easier as courseware act as supplementary learning materials for various level of age range such as students at primary schools, secondary schools, university level, elders and even young children (Muda and Mohamed, 2005; Yahya and Zaman, 2008; Ahmad *et al*., 2011). There are a courseware developed for adults with purpose to help them to learn on how to perform hajj or learning new skill (Yusoff *et al*., 2011; Ramli *et al*., 2013). Furthermore, there are courseware developed for disabled learners, such as for the Down Syndrome, hearing impairment and visual impairment (Nurulnadwan *et al*., 2009; Ng *et al*., 2015). However, there is lack of studies done on coursewares learning environment for toddlers of age 18 months to 4 years old. Only one work by (Bakri *et al*., 2014) that focus on courseware for toddlers. Courseware for toddlers is important because at their age the brain state is rapidly developed for cognitive development (Eddie and Schmid, 2007).

Learning content can be defined as various compositions, platforms and media elements that cover learner's learning ability and accessibility (Dang *et al*., 2011). In previous studies, there have been many courseware that promote particular

learning topic such as Arabic (Salim *et al.,* 2010), Mathematic (Zaini and Ahmad, 2011), Bahasa Malaysia (Ng *et al.,* 2015) and health (Almomani, 2012). Even though there are many studies developing Arabic courseware, it is found that each Arabic courseware consists of different learning content, which can be categorized into two groups of Arabic language learning (Salim *et al*., 2010; Baharudin *et al*., 2010; Faryadi, 2012) and basic Al-Quran learning (Rosmani and Wahab, 2011; Bakri *et al*., 2014). Even though there were studies focused on basic Al-Quran learning, both of the studies were focused on learning basic Al-Quran using IQRA' method. There is no study focused on learning Al-Quran using Al-Furqan method.

The design guideline is important to guide the developer in designing the courseware whereby the principles provided consist of information, comprehension and rule in designing the courseware (Hemard, 1997). In persuasive system design, the persuasive principles is included to design and evaluate the persuasiveness of courseware where it is necessary to understand the courseware content and courseware functionalities (Kukkonen and Harjumaa, 2009). There were several studies that applied the persuasive principles in education setting to motivate and encourage learning (Rosmani and Wahab, 2011; Yusoff et al., 2011; Mintz and Aagaard, 2012). Rosmani and Wahab (2011) have adapted five persuasive principles which are Principle of Multimedia Design, Principle of Self-Monitoring, Principle of Information Quality, Principle of Contiguity and Principle of Praise. While Yusoff et al. (2011) has adapted five persuasive principles namely as Principles of cause and effect, Principles of virtual rehearsal, Principles of simulations in real-world contexts, Principles of attractiveness, Principles of conditioning. Lastly Mintz and Aagaard (2012) applied seven persuasive principles of reduction, tunneling, tailoring, personalization, self-monitoring, credibility and praise/rewards. To the best of researcher's knowledge, there is no study on toddlers that apply persuasive system design.

The outcome/change matrix is a matrix used in persuasive system design to design and evaluate the application outcome (Langrial *et al*., 2013). The matrix has been applied mostly in health domain (Langrial *et al*., 2013). However, the previous study conducted in health domain is focused on evaluation. To the best of

researcher's knowledge there has yet study use the outcome/change matrix in designing a courseware.

To the best of the researcher's knowledge, there has been no study conducted on courseware design model for toddlers using persuasive system design and applying Al-Furqan method in the e-flashcard environment.

1.3   Problem Statement

In developing a good basic Al-Quran learning courseware, there are a few issues and problems to be addressed. There are several basic Al-Quran learning coursewares being reviewed in this study. However, the components identified in each of the courseware were different, where components were chosen based on their study's target learners. As this study was conducted for toddlers of 18 to 36 months old, suitable courseware components should be chosen. A courseware design model should consist of appropriate and suitable components in order to achieve the courseware learning goal. Therefore, the implementation of persuasive system design of the outcome/change matrix and persuasive principle can help in designing a good basic Al-Quran learning courseware for toddler according to the toddler's learning ability. Hence, the main objective of this study is to design a courseware model that can motivate learning for toddlers thus demonstrating the applicability of the proposed design model and evaluating the effectiveness of the design model.

1.4   Research Questions

These research questions are developed based on the problem background described in section 1.3 as follow;

i.   How to design a courseware design model for basic Al-Quran learning courseware?

ii.   What are the components required in basic Al-Quran learning courseware design model?

iii.   What is the method to evaluate the effectiveness of the courseware design model?

1.5   Research Objectives

i.   To design a courseware model for toddlers to motivate learning.
ii.   To demonstrate applicability of the proposed design model.
iii.   To evaluate the effectiveness of the design model.

1.6   Scope of Research

The scope of this research is to identify suitable components for basic Al-Quran learning courseware design model that will be developed for toddlers of 18 to 36 months old to learn basic Al-Quran letter with sound called *fathah* notation (upper stroke).

1.7   Significance of Research

The implementation of persuasive principles in basic Al-Quran learning courseware increases the potential of motivation in learning basic Al-Quran and encourages toddlers to learn basic Al-Quran letter with sound of *fathah*. The persuasive principles are carefully chosen based on the learning goals that have been design by using outcome/change matrix. In addition, the courseware design model has been developed in order to guide the developers to identify the appropriate and best components to suit the toddlers. This research hopes to contribute a courseware design model especially for toddlers.

The findings of this study would benefit toddlers by helping them to learn basic Al-Quran by using courseware in a mobile platform. Besides that, it would also benefit eager Muslim parents who welcome basic Al-Quran learning courseware for their children at an early age.

1.8   Thesis Outline

In chapter 1, the background problems are addressed. This study has identified a few research gaps to be filled. In designing a good courseware design model a few components need to be chosen according to target learner's age and learning ability. Persuasive system design aims to change human's behavior and attitude; therefore it can help in designing a good courseware based on the outcome/change matrix and persuasive principles. In chapter 2, the literature is reviewed on a few related subjects; the basic Al-Quran courseware, courseware design model, early childhood education and development. The courseware design model of previous studies are reviewed and analyzed to get components for the design model of this study. A review of previous studies of the basic Al-Quran courseware were discussed where the components of the basic Al-Quran courseware were compared and criticized. The advantage of early childhood development and persuasive system design were highlighted. In chapter 3, the research methodology discussed; an operational framework is proposed to show the flow of research conducted from beginning until the end. While in chapter 4, the courseware design model and the implementation for basic Al-Quran coursewares used are discussed. Each of the components of three coursewares explained; one courseware that is used for pilot study and two more coursewares that are used in the main study. Moreover, in chapter 5 the evaluation and findings discussed where the evaluation is conducted to compare the effectiveness of the developed basic Al-Quran learning courseware with the existing courseware. Lastly in chapter 6, the conclusion and future work are discussed to shows that the objectives for this study is achieved. Besides, the contribution and future work of this study is highlighted

1.9 Chapter Summary

In this chapter the problem background for this study is highlighted to show the gap in previous studies. A few research gaps are founded from the problem background; the basic Al-Quran learning courseware that lack study on toddlers and also the learning content which apply same Al-Furqan learning method. From the problem background the research questions and the objectives are developed. Besides that, the scope of this study is also highlighted; conducted for toddlers of age 18 to 36 months old and only focus on learning Al-Quran basic lwith sound of *fathah* (upper stroke).

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