

Designing A Pre-school Courseware To Learn Basic Al-Quran Using 'Jom Ngaji' Method

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Abstract Most Muslims recite Al-Quran in their daily lives. Therefore, basic Al-Quran needs to be introduced to children at an early age. The purpose of this paper is to identifying the component of courseware for children to learn basic Al-Quran and designing the courseware. The target group of this study is children aged four to six years, and learning is done through Book 1 of the *Jom Ngaji* series. The name of the courseware is MyNGaji. The design methodology used in study applied the Persuasive System Design (PSD) steps in order to research and to check the activities are going in the right direction.

Keywords: Multimedia, Courseware, Al-Quran, Persuasive, Basic Al-Quran, Persuasive system design

1. INTRODUCTION

A courseware is defined as an educational material proposed as teaching aids and kits for teachers, usually packaged for use alongside a computer, with the objective to enhance learning and teaching process among students (AiniArifah & Norizan, 2008). According to Hossain & Rahman (2006), courseware refers to content specific instructional software, which functions to generate instruction with the support of instructional delivery system. Multimedia courseware evolves within the same definition of the courseware in an environment encompassing the interactions and transformations of the semantics through multimedia. In a multimedia courseware product there are five basic elements, namely the content and learning or pedagogical methods as the main components, the learning objectives and the medium as its attributes, the media component and the architecture (Hossain & Rahman 2006). Aziz, Mutalib & Sarif(2014) have highlighted eight necessary components of a courseware namely, the structural component, content composition, design guidelines, learning theories, learning approach, development process, Instructional Design (ID) model and technology. Both of these studies only focus on general.

However, they do not focused on basic Al-Quran courseware for pre-school children.

In previous studies, there are several basic Al-Quran courseware's developed such as *Bahasa Arab Interaktif Kurikulum (BAIK)* courseware (Faryadi 2009), Arabic Language Learning (ALL) courseware (Salim et al., 2009), i-IQRA' courseware (Rosmani & Wahab, 2011), EZ-Arabic courseware (Sahrir et al., 2013), Al-Furqan courseware (Hammza et al., 2013; Bakri et al., 2014a) and IQRA courseware (Bakri et al., 2014b). All of these coursewares have applied various techniques or models to help people learn to read Al-Quran effectively. Thus, the suitable courseware components will affect the final outcome of the courseware.

There are many methods available from past until today that have been compiled to assist Al-Quran learning, such as Baghdadiyah, Qiraati, Hattawaiyah and Iqra' (Sharudin 2006). Traditionally, for the Islamic Kindergarten in Malaysia, children at the age of five years old only read Al-Quran alphabets using Iqra' method. However, there are many Muslims children who are still unable to read the Al-Quran successfully. The efforts to diversify the methods of education must continue to produce literate generation of Al-Quran, with many methods focussing on phonetics. In respond to this problem, this research is focusing on designing and developing a courseware for young children in order to improve the learning and reciting Al-Quran. Goldberg and Lederberg (2015), emphasized that the learning of the alphabet is considered to be a foundational in reading. The research applied *Jom Ngaji* method that introduced basic Al-Quran in a step by step basic starting from recognizing a single letter until the letters of Hijaiyah marching (Kamarudin 2015).

Persuasive system design implemented in this research aims to support *Jom Ngaji* as a basic Al-Quran learning environment. A persuasive system design is an interactive technology that attempts to change behaviours or attitudes in some direction. Therefore, a

computer qualifies as a persuasive technology only when the individuals who make, disperse or embrace the technology do so with an aim to influence human behaviours and attitudes (Fogg 1998). Thus, this research uses an interactive learning model using persuasive system design to support *Jom Ngaji* method as a device to influence children to learn Al-Quran characters and lastly they can read and recite the Al-Quran successful. The target audience for this project is children four to six years old, currently registered with a kindergarten at Pulau Jaya, Johor.

Flashcards is recognized as a tool to improving learning (Diouri, 2009). Recent studies on basic Al-Quran coursewares including Al-Furqan courseware (Bakri, Zakaria, et al., 2014a) and IQRA courseware (Bakri et al., 2014b) have applied electronics flashcard component to teach children effectively. Thus, in this research, the use of electronics flashcard is embedded in the courseware developed to help children to in the Al-Quran learning. To the best of researcher knowledge, there are no studies that focus on courseware component with electronics flashcard using *Jom Ngaji* method for children aged between four to six years old.

2. DESIGN METHODOLOGY

The main objective of this paper was to design a courseware, the MyNGaji. The phases involved are determining the courseware components, and designing the model phase.

2.1 Courseware Component

A comprehensive literature review was conducted to help determining the components for the courseware, Table 1.

Table 1 : Related Learning Courseware

Courseware	Persuasive	Multimedia	Learning Theory	Flashcard
i-IQRA' (Rosmani & Wahab, 2011)	√	√		
MyFurqan (Bakri et al., 2014a)	√	√	√	√
IQRA (Bakri et al., 2014b)	√	√		√
V-Hajj (Yusoff et al., 2011)	√	√		
Smoker Shooter (Ismail et al., 2012)	√		√	

All courseware's, namely, i-IQRA' courseware, Al-Furqan courseware, IQRA courseware, V-Hajj courseware and Smoker Shooter courseware have implemented persuasive principles in their learning courseware. While, only four courseware has

implemented multimedia elements in their courseware, with the exception of smoker shooter courseware. Two courseware have implemented learning theory and two courseware have implemented flashcards. Thus, it is inferred that the persuasive principles is suitable to apply in learning courseware for children to persuade them to learn basic Al-Quran effectively. Other than that, multimedia elements and learning theory are also important to motivate children to learning have some fun while. Flashcards is the most suitable for children to learn quickly. But, all of these coursewares do not implement the edugames application in their learning courseware models. Hence, this study would be the significant interest as it includes edugames to enhance their learning process.

The courseware components design as shown in Figure 1. The entire component will be integrated in the initial courseware components to persuade young children to learn basic Al-Quran successful.

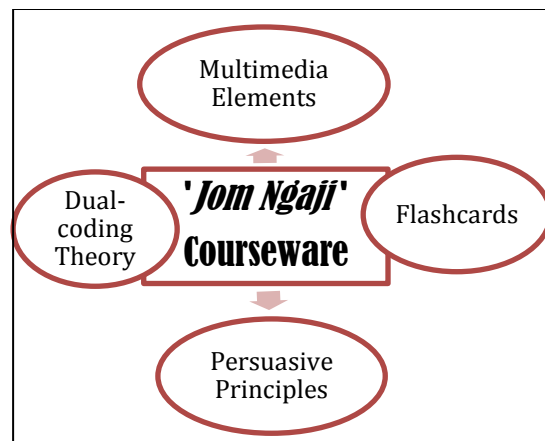


Figure 1: Courseware components

Each element of courseware components is explained in detail as follows;

2.1.1 Persuasive Principles

Fogg (2003b) has identified seven types of persuasive principles. In MyNGaji courseware components for e-flashcards, only four principles are adopted, including reduction, tunneling, tailoring and suggestion. Table 2 summarizes the persuasive principles used in the courseware development for e-flashcards.

The courseware features enable the persuasive principles to be utilized in the courseware development. With the use of suitable principles, it is believed that with prolonged usage of courseware the behaviour of target group can be achieved, as intended. The persuasive principles used in the courseware development for e-flashcards are reduction, tunneling, tailoring and suggestion.

Table 2: Persuasive principles used in courseware development for flashcards (Adopted by Fogg (2003b))

Persuasive Principles	Courseware Features for Flashcards
Reduction Persuade users through simplifying and reducing complex behaviour to simple tasks.	Courseware content are separated into five modules using <i>Jom Ngaji</i> method which are <i>Kenal Huruf, Huruf Bersambung, Kenal Baris, 2 Harakat</i> and <i>Mad Asli 2 Harakat</i> . It is not mix up as it will confuse children concentration. Each module is labelled clearly and not hidden under module. Each module of flashcards is timed less than 3 minutes for children learn in one time. Long-time stay on same flashcard will get them bored and lost their focus.
Tunneling Guide users through a predetermined step by step of actions or events.	For each video flashcard, user clicked on the video file and the video run until the end of module.
Tailoring Persuade users through customization based on individual needs, interests, personality, usage context and so on.	Using same sound with edugames application. Courseware sound quality is sufficiently loud for normal hearing. Static images applied in the courseware are easily distracted by other moving objects. Wording used should be sufficiently clear to be seen to capture children focus.
Suggestion Intervene or offer suggestions to the users at the right time.	Courseware offers suggestions to choose the modules to learn weather <i>Kenal Huruf, Huruf Bersambung, Kenal Baris, 2 Harakat</i> or <i>Mad Asli 2 Harakat</i> . Courseware implements repetition concept especially on module chosen to learn the module over again.

2.1.2 Multimedia Elements

Multimedia elements are required to provide a good persuasive impact to the children. Multimedia is a combination of various media elements, such as text, audio, graphics, video and animation (AiniArifah & Norizan, 2008; Isa et al., 2010; Rosmani & Wahab, 2011; Yoag et al., 2012; Kamaruddin, 2015). This courseware is developed based on integration of text, audio, graphics

and animation. It makes the courseware more attractive for children to learn. The elements are explained as follows;

(i) Text

The design should be easy to read and appropriate for children, with clear Al-Quran alphabet font size and style to make the courseware more attractive to learn.

(ii) Audio

The audio for this courseware should attached children voices, especially for songs in Arabic alphabet. Text and graphics are useless without sound. This would make the courseware more interactive to learn.

(iii) Graphics

The design uses beautiful and cheerful wallpaper, suitable to attract children’s interest to learn basic Al-Quran using e-flashcards.

(iv) Animation

The design of animation is useful in children education area. The animation can be much easier to understand rather than of video element. E-flashcards would apply text animation in its courseware development. Figure 2 shows the implementation of multimedia elements in flashcards courseware. All the elements applied in the courseware would hold the children’s attention to learn basic Al-Quran.

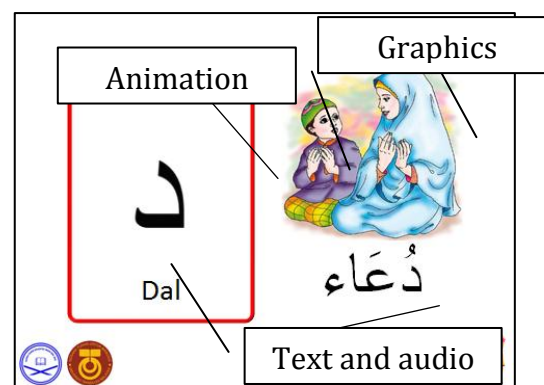


Figure 2: Adopted multimedia elements in e-flashcards courseware

2.1.3 Dual-coding Theory

According to Paivio (2006), the dual-coding theory has two sets of codes, including visual codes and verbal codes, sometimes referred to as symbolic codes, which can be represented by letters, numbers or words. When learners are presented with both visual and verbal codes which are functionally independent, this has additional effects on their recall. Rieber (1994) reported that it is easier to recall information from visual processing codes than verbal codes because visual information is accessed using synchronous processing, rather than sequential

processing. The multimedia instruction effectiveness increases when verbal codes (such as letters, numbers and words) and visual codes (such as pictures) are presented simultaneously as shown in Figure 3. In the field of basic Al-Quran learning, the verbal and visual is very important to children learning the language.

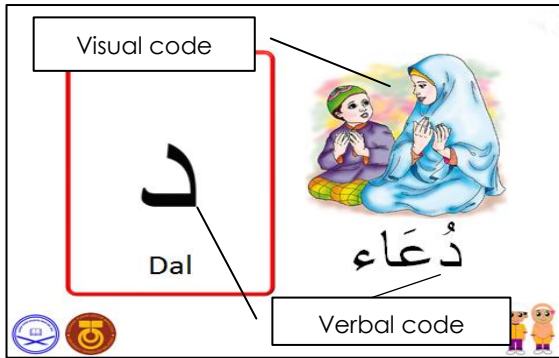


Figure 3: Adopted dual-coding theory in flashcards courseware

2.1.4 E-Flashcards

In MyNGaji courseware, the texts, pictures, animations and sounds are applied on e-flashcard. The background colour of e-flashcard is white and half of the flashcard's size is filled with picture, basic Al-Quran letter and animation. Figure 4 shows an example of e-flashcard that has been implemented on MyNGaji courseware. The colours used in the e-flashcard are red, black, and white because of their limited sense of prime colour (Muhamamad and Nawi 2011).

There are many advantages of learning basic with e-flashcards, some of which are as follows;

- i. **Portable:** The e-flashcards can be accessed anywhere from any smart phones and computers.
- ii. **Audio-based:** The audio component of the cards helps children to hear the correct native pronunciation of the vocabulary or expression.
- iii. **Visual:** The e-flashcards with their visual content (text and images) accommodate children with a visual learning style.
- iv. **Interactive:** Children can find the interactiveness of the tool extremely valuable.
- v. **Flexible:** Can be accessed online or offline and every child has access to the same set of cards. They do not suffer from being misplaced, getting torn or coffee-strained due to wear and tear like paper flashcards.
- vi. **Friendly to use:** E-flashcards are generally easy to use both offline and online.

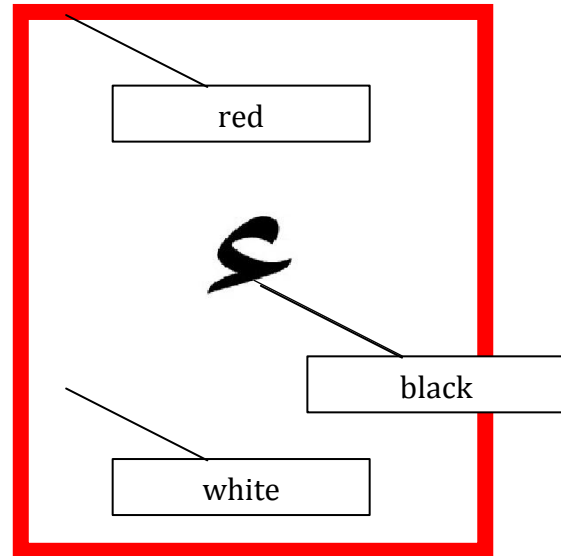


Figure 4: The example of e-flashcards courseware

The courseware component of e-flashcards implemented the dual-coding theory and applied the persuasive principles. The dual-coding theory applies verbal (letters and words) and nonverbal processes (pictures) in the courseware development. The persuasive principles used in the courseware development for e-flashcards are reduction, tunneling, tailoring and suggestion.

2.2 Design Model Phase

In the courseware design phase, the courseware architecture model, the courseware use case diagram, and the user interface design were developed. These designs integrate the components that were discussed in the previous section.

2.2.1 Courseware Architecture

In this section, the courseware is carefully designed to integrate each courseware components in order to deliver interactivity, effectively and usability courseware. Figure 5 shows the overall architecture of courseware that integrates the MyNGaji courseware with the structure that comprises the courseware components, the externally visible properties of those components and the relationships between them.

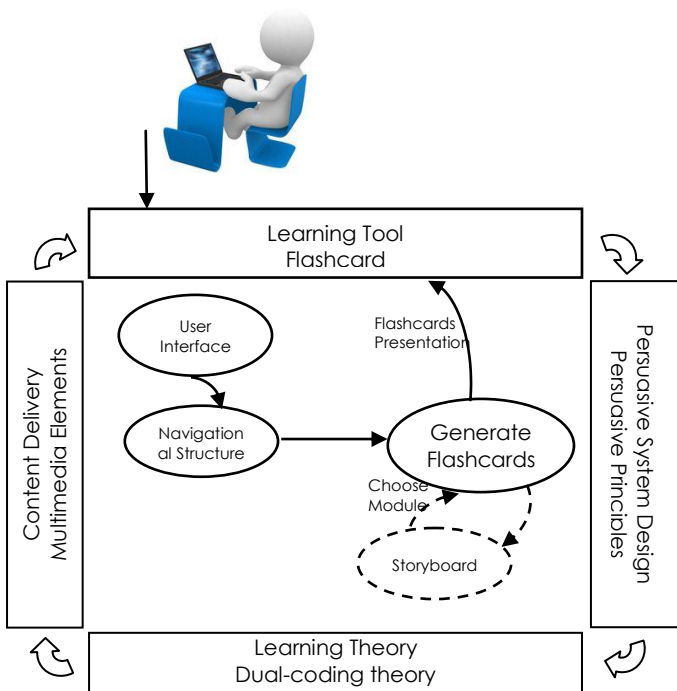


Figure 5: MyNGaji Courseware Architecture

The main screen of MyNGaji courseware acts as an introduction to the courseware. E-flashcard components used white background to attract children to look at the content of the e-flashcard. Cartoon characters such as an image of male and female character are used to express on *Jom Ngaji* method trademark. Sounds and pictures are used in parallel in order to adapt the multimedia elements. The user interface design consists of text, graphics, sound, animation and color. An example of a user interface design for text is by using clear basic Al-Quran font size and style that make the text more attractive and more desired to be read. E-flashcard courseware consists of five main modules. Each module displays its contents an expressed with icon where user can access to it by clicking on its title. All the modules aims to familiarize the young children with hijaiyah alphabet start with *hamzah* (ء) and end with *ya* (ي).

2.2.2 Courseware Design

In the courseware design, the Unified Modeling Language (UML) diagram shows the functionality, activity flow and interaction of the courseware. Initial interfaces of the courseware are also shown as a prototype for the courseware development.

2.2.3 Courseware Design UML Diagram

Three types of diagrams, i.e. use case diagram, sequence diagram and activity diagram are designed. These diagrams are described and illustrated using Rational Rose Enterprise Edition tool.

Use case diagram shows the interaction of the user with the courseware functions. It explains the different types of user that interact with the system. Figure 6 shows the use case diagram of the courseware components.

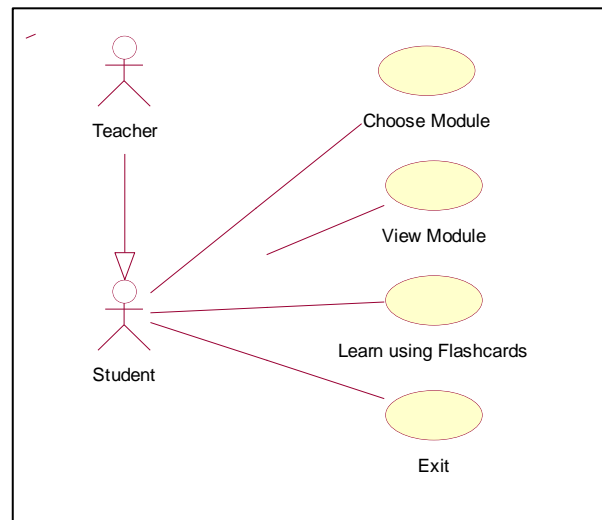


Figure 6: Use case diagram for e-flashcards

2.2.4 User Interface

A user interface is produced to show the screen design of the courseware components according to the summary of courseware components. Figure 7 shows the main menu for e-flashcards page. The user can choose the modules in this courseware. Module 1 is for *Kenal Huruf* page, Module 2 is for *Huruf Bersambung* page, module 3 is for *Kenal Baris* page, module 4 is for *2 Harakat* page and module 5 is for *Mad Asli 2 Harakat* page.

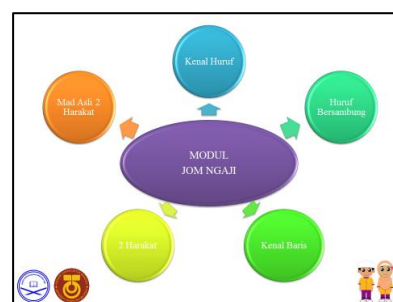


Figure 7: Main menu for flashcards page

Figure 8 shows an example of *Kenal Huruf* page. This module starts from the sequence of Arabic alphabet, which is *hamzah* (ء) and ends with *ya* (ي).



Figure 8; Example of *Kenal Huruf* page

Figure 9 shows the example of *Kenal Baris* page. The user will learn three short vowel alphabets sounds in Arabic called *fatha* (َ), *kasra* (ِ) and *damma* (ُ).

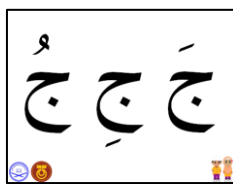


Figure 9: Example of *Kenal Baris* page

Figure 10 shows the example of *Huruf Bersambung* page. The user will learn to write alphabets, placed at the beginning, middle and end of the spelling.



Figure 10: Example of *Huruf Bersambung* page

Figure 11 shows the example of *Mad Asli 2 Harakat* page. This lesson is learning to read example of *Mad Asli* with three short vowel alphabets, which is a combination of four Arabic alphabets.



Figure 11: Example of *Mad Asli 2 Harakat* page

Figure 12 and 13 shows the Hijaiyah alphabets song page in sequence and in reverse. This is a very beautiful cheerful song, in order to win the hearth of the children to learn and memorise through the courseware.



Figure 12: Hijaiyah alphabets song (in sequence) page



Figure 13: Hijaiyah alphabets song (in reverse) page

3.0 CONCLUSION

This study has discussed the design of the MyNGaji courseware, where in this design various components principles are applied, which are persuasive system design, dual coding theory of learning theory, e-flashcard as learning tool and content delivery in multimedia elements. These principles and components are important in order to ensure effectiveness of the Al-Quran learning courseware (MyNGaji) its target audience user the kid aged four to six years. The future work of this study will next go into the development of the courseware and to study the effectiveness of the developed courseware with the target.

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