Universiti Teknologi MARA

LEARNING HUKUM IZHAR AND HUKUM IDGHAM FOR STANDARD 1 STUDENT USING MULTIMEDIA APPROACH

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DECLARATION

I certify that this thesis and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

The **Learning Hukum Izhar and Hukum Idgham for Standard 1 Student using Multimedia Approach** prototype system is developing through the combination of multimedia elements with interactive 3D element where it uses three-dimensional character animation especially human animation. The interest of developing this application is to bring a new dimension of approach in delivering the information for **Learning Hukum Izhar and Hukum Idgham for Standard 1 Student using Multimedia Approach**. Normally in the daily lessons, it needs somebody to be a model in showing how to pronounce each of the Hukum Tajwid but in this prototype system, no more human model will be necessary. Instead, the animation and simulation of 3 dimensional models are used. This report discusses the implementation and the findings of **Learning Hukum Izhar and Hukum Idgham for Standard 1 Student using Multimedia Approach** as a new approach in interactive multimedia. Systematic methods based on multimedia framework have been chosen to implement multimedia relating to this system. In addition, powerful computer systems together with the appropriate multimedia authoring tools are identified in order to fulfill this system prototype requirement. With this **Learning Hukum Izhar and Hukum Idgham for Standard 1 Student using Multimedia Approach** system, a hope that standard 1 students of Islamic Schools will have an attractive and interesting learning experience of Hukum Tajwid.

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CHAPTER 1

INTRODUCTION

1.0 BACKGROUND OF THE PROBLEM

It is compulsory for every Muslim to pray the moment they reach puberty. It is a must for Muslims to learn the proper way to pray, the rules and also the prayer recitation. Almost all Muslims parents will start teaching their children the rules and the pray recitation when their children are about 6 years old. The recitation must be pronounced correctly because if Muslims pronounce it wrongly, the meaning will be wrong. Therefore, Muslims need to learn Hukum Tajwid which is one of the rules of reading Al-Quran to ensure they pronounce the words correctly.

There are 29 alphabets in Arabic that is called 'Jawi'. The basic learning of 'Hukum Tajwid' is divided into 4, that is 'Hukum Izhar', 'Hukum Idgham', 'Hukum Ikhfa'' and 'Hukum Iqlab'. For 'Hukum Izhar' and 'Hukum Idgham' there is 6 'Jawi' alphabets for each while for 'Hukum Ikhfa'' is 15 'Jawi' alphabets and only 1 'Jawi' alphabet for 'Hukum Iqlab'.

Standard 1 students of Islamic School have a subject called 'Tajwid'. 'Hukum Tajwid' is a part of the syllabus in that subject. Nowadays, teachers used the traditional teaching tools such as books, blackboard, chalks, cassettes, and cd and television program to teach students the subject. With the introduction of Smart Schools as one of the flagship applications of the Multimedia Super Corridor, there is now an immediate demand to have the 'Jawi' on computers for education and computer-based training purposes.

There are so many techniques of learning. Electronic Learning or best known as E-learning is another example of learning techniques. As for children, they will be easily attracted to an enjoyable learning. The use of multimedia elements that is text, sound, video, animation and graphic in E-learning make the learning process attractive to children. In the other hand, multimedia E-learning combined with three dimensional (3D) objects approach can help children to understand and memorize the learning easily and faster.

Volery & Lord (2000) observed from their findings that the richness of technology used in online course delivery often influenced the effectiveness and level of impact it had upon students. Online courses that combined both synchronous and asynchronous communication methods, supported by a variety of text, graphics, audio and visual messages often increased the levels of interactivity and overall performance levels of students. Similar findings were presented by **Evans & Fan (2002)** who claim that virtual learning which makes greater use of text, sound and video, help to enrich the learning process. They also explain that the use of multimedia allows demonstrations of physical and abstract phenomena to take place through computer modelling, which can be very difficult to replicate through the use of text and video alone, as in the more conventional classroom. According to **Kruse (2001)** the importance of multimedia in online courses is the use of audio and video critical to creating realistic simulations and accommodating different learning styles.

Baek & Layne (1988) compared the learning experiences of text only, text plus graphics, and text plus animation. The animation group required less study time and learnt more. The same results were found in a study by **Mayton (1991). Rieber & Boyce (1990)** compared animation-based instruction with carefully designed verbal presentations, and found that the animation did not result in a greater quantity learnt, but did result in less time required to retrieve information learned.

For this project a courseware called **Learning Hukum Izhar and Hukum Idgham for Standard One Student Using Multimedia Approach** is developed to help standard one students learn Hukum Tajwid which is a part of the syllabus of their Islamic School subject. It helps students to learn and to memorize the 'Jawi' alphabets and the rules of reading Al-Quran. Therefore, students will easily memorize the 'Hukum Tajwid' in their school syllabus and also will be able to recite the Al-Quran smoothly and correctly. So this courseware is developed by using an interactive design as a way to approach and attract children to learn more while learning and love to learn.

1.1 PROBLEM DESCRIPTION

Islamic School's standard 1 students need to learn 'Hukum Tajwid' which it is included in the syllabus of their 'Tajwid' subject. As the information technology is widely used in schools nowadays, teachers need a system of the subject that can be used as the teaching tools. Students also need a system that they can use at home as a revision. Students can do a revision at home using the system without a guide from the teacher.

The current systems in the market today are not so accurate for the teachers and also the students. According to Ustaz Kassan, the headmaster of Islamic School in Johor Bahru the current system only provides the notes and sound of the pronounciation of the 'Hukum Tajwid'. It makes the system not interactive for the users. The software is just a one way system which users cannot interact with the system. The system cannot attract the users to use it. This can make the users bored while using the software. The system also not user friendly which it will make the users find it is hard to use the system. The system also provided the notes in a sequence which users cannot choose which chapter they want to read first. They have to read the tutorial in sequence chapter by chapter. It means that every time the users want to use the system, they have to read it from the first chapter until the last chapter even if he or she just wants to read the last chapter only. The current system also does not provide the questions for users understanding, so users cannot test their understanding after they use the system.

For this project a courseware called **Learning Hukum Izhar and Hukum Idgham for Standard One Student Using Multimedia Approach** is developed to help standard one student to learn 'Hukum Tajwid' which is a part of the syllabus of their Islamic School subject. This courseware can guide students to learn 'Hukum Tajwid' as another technique of learning. The interactive design using three dimensional object and 5 multimedia elements which is text, graphic, animation, sound and video used to develop this courseware is to attract students to learn and have fun while learning.

The purpose of developing this courseware is to make standard 1 students understand and memorize the 'Hukum Tajwid' easily and in a very short time. On the other hand, this courseware can be used as learning approach for parents to persuade their children to love learning and also for teachers to use as a different approach of teaching.

1.2 PROJECT OBJECTIVES

The objectives of this project are:

- To develop an interactive courseware of 'Hukum Tajwid' for standard 1 students of Islamic Schools using multimedia approach and three dimensional objects.
- To develop a courseware that focuses on the proper pronounciation for each 'Hukum Tajwid' which users can play and hear the sound many times.

1.3 PROJECT SCOPE

The project scope is to build e-learning courseware using 5 elements of multimedia (video, audio, animation, graphic and text) for standard 1 students of Islamic School. Standard 1 students about 7 years old.

This project will focus on the two basics of 'Hukum Tajwid' that is 'Hukum Izhar' and 'Hukum Idgham'. All of the learning content is built with multimedia elements. There are also a three dimensional object of a man for showing the proper way to pronounce the 'Jawi' alphabets. Students can easily learn the 'Hukum Tajwid' and memorize it. After memorizing the 'Hukum Tajwid', students can test their understanding and knowledge by answering the questions included in the courseware. The test is in the form of a game.

This project is built by using Macromedia Director MX 2004. This is because it has a friendly user interface and easy to implement. The researcher has used Lightwave 3D version 7.0 software to build the object of a man. The Macromedia Flash MX and Macromedia Swish Max are used to design animation texts. Sound Forge 6.0 is used to edit the sound and background music for the system. Adobe Photoshop 7.0 is used to edit picture and graphics.

1.4 SIGNIFICANCE OF THE RESEARCH

The significance of this research is to ensure that the deliverance of the information together with the interactive design can improve the understanding of 'Hukum Tajwid' that is a part of the syllabus of standard 1 students of Islamic School.

This e-Learning courseware will give information to users especially to the standard 1 student to learn and understand the 'Hukum Tajwid' easier and faster. The interactive design can make the learning process more interesting and fun for students in the age of 7 years old.

Students can use the courseware anytime and anywhere. They can use the courseware at home as a revision tools after school. Parents also can use this courseware as an attractive learning tool for the children at home. As for teachers, they can also use this courseware as a different type of teaching approach that can attract and make students pay attention to the subject in class. It is an advantage as for this courseware, there are 3 types of users who can use it that is students, parents and teachers.

1.5 SYSTEM REQUIREMENT

1.5.1 Developer Requirement

The requirements needed for the developer to build this courseware are software and hardware requirements.

The hardware requirements are :-

- Pentium IV 1.6
- 256 MB of RAM
- Hard Disk Drive 4 Gb
- CD / CDRW Drive
- SVGA Color Monitor
- Sound card connected to the speaker
- Display Card with at least 8 MB of memory

The software requirements are :-

- Macromedia Director MX 2004
- Lightwave 3D version 8.0
- Adobe Photoshop 7.0
- Macromedia Flash MX
- Macromedia Swish Max
- Sound Forge 6.0
- Microsoft Office

1.5.2 User Requirement

The hardware requirements needed for the user to use this courseware are:

- Pentium IV 1.6
- 256 MB of RAM
- Hard Disk Drive 4 Gb
- CD / CDRW Drive
- SVGA Color Monitor
- Sound card connected to the speaker
- Display Card with at least 8 MB of memory

The software requirements needed for the user to use this courseware are:

- Macromedia Director MX
- Arabic Fonts ; Amien01 and Stnask

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION TO MULTIMEDIA

According to **Flynn** and **Tetzlaff (1998)**, multimedia is a combination of text, sound, graphic, animation and video. So that multimedia information is more interesting and easier to grasp than text and been used for education at all levels, job training, games and by the external industry.

According to **Martin (2001)**, multimedia by definition is the communication of information using multiple media such as a text, graphics, animation, audio and video.

Multimedia can be defined as text/natural language, pictures (including symbolic graphics, cartoons, animations and both still and moving real world images) and sound (speech and ambient) by research of **Bell, D et. al, (1995).**

According to **Syamsulhairi (1999), Najjar (1996),** multimedia refers to any computer-based presentation or application that integrates one or more of the following elements: text, graphics, animations, audio and video. Specific situations in which multimedia information may help people to learn include;

i. When the media encourage dual coding of information
ii. When the media support one another
iii. When the media are presented to learners with low prior knowledge or aptitude in the domain being learned.

According to **Mitchell (2003)** multimedia has for years been considered high in "potential" as a tool for educators, the student products and reactions to the multimedia assignments were very positive. These initial explorations into using multimedia within regular content-driven courses was encouraging enough that the instructor is now incorporating multimedia projects into all of his courses (including a foundation level statistics course).

Hypermedia and multimedia environments are well suited to the provision of learning opportunities that focus on knowledge construction and use. For example, *STC* (Seeing Through Chemistry) integrates video, animations, and experimental simulations with text and pictures onto multimedia content cards to facilitate the development of students' understanding of topics in an introductory college chemistry course **(Dershimer & Rasmussen 1990)**.

According to **R. J. Flynn & W. H. Tetzlaff (1998)**, stand-alone multimedia systems use CD-ROM disks and/or hard disks to hold more objects and the scripting metadata to orchestrate the payouts. CD-ROM disks are to produce and hold a large amount of digital data; however, the content is static requires creation and physical distribution of new disks for all systems. Decompress done by either a special decompression card or a software application that runs processor. The technology trend is toward software decompression.

According to **Kachian & Wieser (1999)**, it is most effective to deliver information via video, audio, CD-ROM and the web than through paper and face-to-face communication. An interactive multimedia project was not to replace the teacher, textbook, testing or the communal learning environment of the classroom, but rather to create a hybrid pedagogy which would utilize technology while retaining all that is good about the group classroom dynamics.

According to **Nielsen (2000)**, multimedia is gaining popularity on the Web with several technologies that support the use of animation, video, and audio, which supplement the traditional media of text and images. These new media provide more design options but also require design discipline. Unconstrained use of multimedia results in user interfaces, which are harder to understand. Not every Web page needs to bombard the user with the equivalent of Times Square in impressions and movement.

There is empirical support for concluding that specific multimedia can be used to help people learn specific kinds of information **Najjar (1996).** A research by **Marmolin (1995)** stated that one characteristic of multimedia that fulfils psychological aspect is that the strong emphasis on aesthetically attractive representations. Much time is spent on picture composition, coloring, interesting effects, dramatically effects and other action that increase user motivation and makes the usage of computer more interesting.

The importance of multimedia environments that support children's curiosities, enjoyment of repetition, and need for control, rather than "glitz", production features for example although media critics judged the *Lion King* animated storybook's 18 screens of narrative and three games to be boring, and perfunctorily produced, the observation found that the children using this product judged it to be pleasurable and helpful **(Ricker 1996)**. Children's software development should be designing an environments suited to the needs of children including "constructionism" and "edutainment"**(Dniin 1996).**

(Introductions To Multimedia: An Overview For Educators 1998) states that educational uses of multimedia are rapidly increasing. Its power to present information in ways not previously possible and its integration of resources, allow for the creation of rich learning environments. In the past, a teacher or student might have to consult many sources and use several media to access the needed information. By integrating media and utilizing hypermedia the user able to create user controlled, information on-demand learning environments. Problems occur because of poorly designed programs, resistance to change within organizations, and the lack of technology on which to run multimedia software.

According to **(Martijn 1997)**, the effects that multimedia systems have on people are grouped into knowledge transfer, entertainment and data processing. Multimedia paradigm, the dominant conviction among multimedia system developers and users that adding multimedia functionality to information systems always leads to improved information and knowledge transfer.

2.1 ELECTRONIC LEARNING (E-Learning)

According to **Hall (2000)** and **Mosterman (1994)**, E-learning is a very effective method of learning and lab's logistic for adults who have busy schedules or live in remote areas and are unable to attend an every day traditional school.

According to **Plaisent, Maguiraga, Bernard and Larhrib (2004)** e-Learning appears to be an inescapable tool in employees training of today's modern society. E-learning offers a multitude of tools such as course content, platform management and system for creating interactive contents.

According to **Igonor (2002)** e-learning is instruction that is delivered electronically, in part or wholly – via web browser through the internet or intranet, or through Multimedia platforms such as CD-ROM or DVD.

The emphasis on e-learning centers around the "e" promising the learner the ability to learn anywhere and anytime due to the power forces of computer and communications technology, other derivable benefits for the developers of e-learning products include – cost reduction, increase in effectiveness, increased retention, increased consistency and increased flexibility and access **(Gaede, 2002).**

According to **Intravip (2001)**, information and technology are moving at the speed of the Internet. The global online population will jump from 196 million in 1999 to 502 million in 2003, and 86% of all business will be using personal computer (PC). This explosion means greater demands for highly skilled IT professionals, and even greater demand for smart, focused training. In the past, training was accomplished using either the classroom instructor led training and Computer Based Training (CBT)".
This indicates that E-Learning will be the future training of learning mode.

Hall (2002) contends e-Learning will take the form of complete courses, access to content for "just-in-time" learning, access to content to components, any courses and services, and the separation of "courses" to acquire and test knowledge vs. content as an immediate, applicable resource to resolve an immediate, perhaps, one time only problem.

According to **Cisco Systems (1992)**, a company that successfully implements the E-Learning concept, "Components can include content delivery in multiple formats, management of the learning experience, and a networked community of learners, content developers and experts. E-Learning provides faster learning at reduced costs, increased access to learning, and clear accountability for all participants in the learning process. In today's fast-paced culture, organizations that implement E-Learning provide their work force with the ability to turn change into an advantage".

Electronic learning programs are being developed everywhere, and institutions that are developing these programs are pretty much looking at students as potential customers, which means that catchments area, student population, is being eroded. **McLuhan (1976)** suggested that it is going to become much more important in a few more years, especially when the new generation of students that the students who grew up with the future technology. Its suggestion is proven true looking at the present scenario.

According to **Faizah (2000)**, "a learner reads the study materials, does the activities and interacts on-line, but there is still the nagging question of "Has enough been done?". To learn online, the individual should be ready to take responsibility for his or her own learning. The main factor is to have the ability to learn as mature, independent individuals. There are more activities and interaction in an online class. The only difference is that guidance comes from self-direction. The online instructor assists only when requested by the students." Probably effectiveness can be measured via an evaluation process such as quizzes at the end of every topic.

2.2 EDUCATIONAL DESIGN

The educational design is based on a Candle model: the students are faced with authentic learning needs and receive help through exercises, learning tools, and feedback, via a web-based environment according to **Haataja, Suhonen, Sutinen** and **Torvinen (2001).**

Digital media is an inherently interdisciplinary area of study with links to computer science, art, film, music, communications, architecture, and design. Each module consists of traditional text-based chapters accompanied by interactive on-line demos, worksheets, and programming exercises as appropriate to the subject. Parallel chapters run through all three modules in the areas of digital imaging, digital audio, digital video, and multimedia programming according to **Burg, Wong, and Strokanova (2004).**