

ISLAMIC LEARNING APPLICATION FOR KINDERGARTEN

By

Fatin Nadzirah binti Firuz

13067

Final Year Project Dissertation submitted in partial fulfillment of

the requirements for the

Bachelor of Technology (Hons)

(Business Information System)

APRIL 2013

Universiti Teknologi PETRONAS

Bandar Seri Iskandar,

31750 Tronoh

Perak Darul Ridzuan

ABSTRACT

Nowadays, the information and technology is widely used in the education sector. Thus, the multimedia application can be used to assist the learning and teaching process. Besides, the usage of traditional method in learning will make the students become bored and not pay attention to the learning. This situation will make some difficulties for the teachers to attract and retain the students' interest during the learning session. In addition, there are few multimedia applications that provide Islamic learning for the kindergarten in the market. Basically, this project is about the development of Islamic learning multimedia application for kindergarten students or My-ADAB. The objectives of this project are to research on a suitable model or method of learning for kindergarten students, to develop a prototype of Islamic contents and to conduct the user acceptance test on the developed product. This application focuses only on the values or manners (Adab) that related to Islam which it assists the students to understand the values and also facilitate them to apply the learning later. Besides, this application contains five Adab modules and three levels of quizzes. The waterfall model is chosen as the research methodology and in order to gather the data, interviews and research from internet and books are done. This application is developed by using Adobe Flash CS4 Professional. The learning theories that are applied in this application are Cognitive theory and Constructivist Learning Theory. Lastly, to get the feedbacks from the users, user acceptance test are conducted and survey are done for teachers and parents to get their comments. Then, all results are recorded and analyzed. Most of the students, teachers and parents are satisfied with this application.

LIST OF FIGURES

Figure 1: Teaching using chalk and talk in class (one-way communication)	10
Figure 2a: Interface of KAFA courseware	13
Figure 2b: Interface of KAFA courseware	14
Figure 3a: Screen shot for exercise and game module in TaLA	15
Figure 3b: Screen shot for exercise and game module in TaLA	15
Figure 4a: Screen shot on pen-holding demonstration	16
Figure 4b: Screen shot on Jawi practice writing	16
Figure 5: A cognitive theory of multimedia learning	19
Figure 6: Examples of narrated animation on lightning formation	19
Figure 7: Summarization of the assumptions of Cognitive Theory of Multimedia Learning	20
Figure 8: Waterfall model	22
Figure 9: Gantt Chart	27
Figure 10: Previous Flow Chart of My-ADAB	30
Figure 11: New Flow Chart of My-ADAB	35
Figure 12: Flow of activities of My-ADAB	36
Figure 13: Main page of My-ADAB	37
Figure 14: Menu Page of My-ADAB	38
Figure 15: List of Adab Modules	39
Figure 16: Learning Module – Adab Dalam Keluarga	40
Figure 17: Learning Module- Adab Ketika Bertanya	40
Figure 18: Learning Module- Adab Berjalan	41
Figure 19: Learning Module- Adab Dengan Jiran	41

Figure 20: Learning Module- Adab Keramaian	42
Figure 21: Level of Difficulties for Quiz	42
Figure 22: Quiz for Tahap 1	43
Figure 23: Quiz for Tahap 2	43
Figure 24: Quiz for Tahap 3	44
Figure 25: Tadika Cilik Bestari Gemilang	46
Figure 26: Result from questionnaire for students	47
Figure 27: Result of correct answers for Tahap 1	48
Figure 28: Result of correct answers for Tahap 2	48
Figure 29: Result of correct answers for Tahap 3	49
Figure 30: Result from survey for teachers and parents	51
Figure 31a: During the User Acceptance Test	52
Figure 31b: During the User Acceptance Test	52
Figure 31c: During the User Acceptance Test	53

TABLE OF CONTENT

ABSTRACT	2
LIST OF FIGURES	3
LIST OF GRAPHS	4
CHAPTER 1: INTRODUCTION	6
1.1. Background of Study	6
1.2. Problem Statement	7
1.3. Objectives of Study	8
1.4. Scope of Study	8
CHAPTER 2: LITERATURE REVIEW	10
2.1. Multimedia	10
2.2. Multimedia Applications for learning	12
2.3. Cognitive Theory	18
2.4. Constructivist Learning Theory	21
CHAPTER 3: METHODOLOGY	23
3.1. Research Methodology	23
3.2. Project Activities	25
3.3. Tools	28
3.4. Development	30
CHAPTER 4: RESULT AND FINDINGS	32
4.1. Interview	32
4.2. Flow Chart	34
4.3. Prototype Designs	37
4.4. User Acceptance Test	45
CHAPTER 5: CONCLUSION	54
REFERENCES	55

CHAPTER 1

INTRODUCTION

1.1. Background of Study

Technologies these days are growing rapidly as its force the educators to apply the digital information and technology in their teaching fields as well as able to use the technologies (Wan Malini & et.al. 2010). For that reason, multimedia can be such a great tool of technology in order to assists the educators to teach the students. Multimedia is the hypertext system that integrates variety of media such as text, graphics, animation, video, sound, and hypertext links. The multimedia can helps to visualize the learning where it can also cause the learning process to be easier and attractive.

In order to teach the students, appropriate learning methods need to be applied as there are three different styles of learners which are visual (sight), auditory (sound) and kinaesthetic or tactile (movement) learners. The appropriate learning methods are important in order to catch the students' attention and make the learning process easier to them.

When it come to the Islamic learning to the kids, parents are advisable to start the learning when their children still young where it can gives them chance to capture and understanding about Islamic matters easily. In addition, the children can also learn about Islamic matters through the education at

home, school or kindergarten. The learning at school can aid them to understand about Islamic matters too and also assists them to apply the Islamic learning in the future.

As until today, there are few multimedia applications that help the kindergarten students to learn Islamic matter. By using the multimedia application, it allows teachers to teach Islamic matter to the kindergarten students in easier ways and helps to maintain the level of students' interest to learn. The purpose of this project is to come out with a prototype of a multimedia application that helps the kindergarten students with a different style of learner to learn Islamic matter.

1.2. Problem Statement

Currently, most of the kindergartens use traditional methods as the learning and teaching method, such are chalk, board, text or written materials such as books, and also the teacher delivers the lecture while the students are listening to the lecture. According to Wan Noor Hazlina and Kamaruzaman (2009), by using this method, it will create a passive learning mode and can causes the students to become bored and their level of interest to learn decreased. When they lost their interest to learn, they will stop giving their attention to the teachers and begin to do something else that makes them enjoyable such as playing. As the result, it is difficult for the teachers to attract and get back the attention from the students to continue learning the Islamic matters.

Besides that, according to Baharom and Johdi (2009), currently the society is facing the critical crisis of moral collapse that involves young children. Thus, the problems that related with behavioral should be taken seriously by all parties. In this case, parents play an important role in order to

educate their children to behave well and reduce the problems among them (Saadah, Salwan & Roslee, 2008). As the solutions to this behavioral problem, Baharom and Johdi (2009) stated that we should getting back to teachings of Islam, such as refer to Al-Quran and Sunnah and also the religious education and high moral character should be given by parent and teachers to the children since they are still young (Husin, 2011).

Besides that, as the technologies keep growing now days, it is crucial for the learning and teaching techniques to use the technologies. However in the real market, there are few technology applications that assist the kindergarten students to learn the Islamic matters. Thus, the parents and teachers have little choices to choose (Sazalinsyah, 2000).

1.3. Objectives of Study

This Islamic learning application assists the kindergarten students to learn about Islamic matter. The objectives of this project are:

- i. To research on a suitable model or method of learning for kindergarten students.
- ii. To develop a prototype of Islamic contents for kindergarten students.
- iii. To conduct the user acceptance test on the developed product.

1.4. Scope of Study

The scopes of the study for this project are, first, the students of kindergarten age from 5 to 6 years old. This project is to develop a multimedia application for them that help to learn the Islamic matters. Basically, the main user for this application is the kindergarten students. Thus, it is important to get the information or data that related to the kindergarten students in order to develop this application. Besides that, this application will be tested on them

after the development of this application is complete in order to collect the feedback.

Second, the scope of the study will cover the contents of this application. This application will contain the values or manners (Adab) that related to Islam. The learning module of the values or Adab and quizzes will be included in this application where it has the probability to helps the students to have better understanding about values or manner and also assist them to apply all the learning later.

Next, the scope of the study will also cover the learning theories that are suitable to be used in this project. Suitable learning theories will be searched from journals and internet. Learning theories are important in order to provide a proper and effective learning for the children and also to attract them to learn.

Lastly, the scope of the study is about the software that will be used in order to develop this application later. Macromedia Flash MX 2004 will be used to develop this application. However, further study regarding to use this software will be done.

CHAPTER 2

LITERATURE REVIEW

2.1. Multimedia

Currently, teaching and learning process in kindergarten still using the traditional way and it provides some limitations. Wan Noor Hazlina and Kamaruzaman (2009) claimed that teachers using chalk and talk for teaching the students in classroom will create one way flow of information. Besides, they teachers do not know exactly the response and feedback from the students even though they have given lecture for an hour. Besides that, it provides inadequate interaction with the student. Thus, the students tend to learn from memorizing other than understanding it. It shows that, the traditional way of teaching and learning is not efficient.

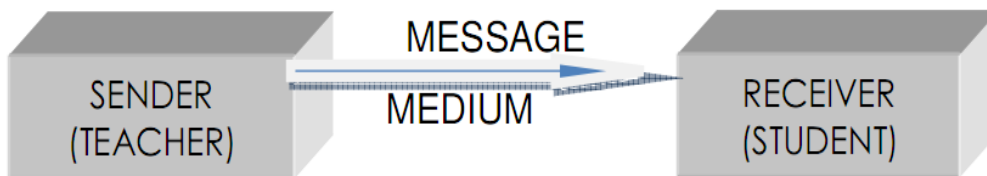


Figure 1: Teaching using chalk and talk in class (one-way communication)

Source: <http://www.academicjournals.org/jmcs/PDF/pdf2009/Nov/Jusoh%20and%20Jusoff.pdf>

Moreover, there are different styles of learner in the kindergarten and each of styles has its own learning strategies. Tabanlıoğlu (2003) conducted a study on the relationship between learning styles and the strategies of learning has revealed the visual style of learners have the relation to the affective strategies while auditory style of learners are related to memory, cognitive, affective and social strategies. The appropriate learning strategies should be applied correctly according to the respective styles of learner.

Hence, the current teaching and learning process need to be improved and have to suit the students' learning styles. It can be improved by using multimedia where it is able to maintain student's interest and make them enjoy the learning. Furthermore, Cairncross and Mannion (2001) stated that high quality of learning environment can be created by using multimedia. Basically, multimedia is a tool of presentation and communication where it is the combination of different media such as text, images, sound, animation and video (Lachs, 2000). Besides, various representations of information can be access quickly by multimedia.

The uniqueness that contain in multimedia can improve the current learning and teaching process. According to Lachs (2000), most of the researchers believe that multimedia can be matched with teaching, learning, and understanding assessment for response-based approaches. It is because the computing medium contains the unique characteristics which are able to represent cognitive processes and support the habits of thought (Alessi & Trollip, 2001) and also it helps the learners in order to interact with the learning materials which then, the learners can control the learning by react to the materials (Shou, 2012). Thus, multimedia can be the alternative to overcome the problems.

In addition, the usage of the multimedia in learning and teaching can give positive impacts to the teachers and also to the students. Aberson, Berger, Healy, Kyle and Romero (2000) stated that multimedia technology is an art of teaching where it is a basic in academic which assists to address an activity. Cairncross & Mannion (2001) emphasized that the usage of multimedia can provide positive impacts in learning. Furthermore, video-aided teaching as the educational method can be used to assess the student skills and also the video-based education helps to support other experiences Lachs (2000).

The multimedia also can help the learners to create their learning style. According to Erda Wati (n.d.), multimedia application supports independent learning where it assists the students to capture the information, learning space, and other resources. As a result, the multimedia allows the learners learn by themselves as well as shape their own learning style.

In addition, Ken (n.d.) claimed that the communication between one and another can be changed and enhanced the environment of learning as the usage of multimedia in the learning process. Multimedia has the multisensory, and can stimulate many audiences' senses which it leads to better attention and retention rates. Multimedia provides various benefits in learning and teaching, thus, it is suitable to be applied in the teaching and learning process.

2.2. Multimedia Applications for learning

There are various multimedia applications that are developed in order to aid learning and teaching process in the market. Wan Malini & et.al. (2010) have conducted a study on Development and Innovation of Multimedia Courseware for Teaching and Learning of KAFA Subjects and have developed a multimedia courseware that being used for teaching and learning primary school students the

KAFA subjects. From the study, they found that the learning method that is used currently is teacher-centered which it is unattractive. Besides, students will become bored and lost their focus on the learning as the KAFA classes usually being held in the evening. Thus, they have developed a multimedia courseware to overcome those problems.

Furthermore, to attract the students to use the KAFA courseware, graphics, audio, video and also innovative elements are inserted in the courseware. Besides that, with the aim of to meet teaching and learning objectives, some methodology is selected and various learning theories are used in order to develop the courseware. Below are the interfaces of the KAFA courseware.



Figure 2a: Interface of KAFA courseware



Figure 2b: Interface of KAFA courseware

In addition, Marina & et.al. (2011) have conducted a study on Engaging Learners to Learn Tajweed through Active Participation in a Multimedia Application (TaLA). They have produced a multimedia application that helps the students to learn tajweed and it contains storytelling, quizzes and games. In order to establish active participation from the learners, various multimedia elements are integrated in the application. However, from their study, they claimed that there is limited and unattractive tool to learn tajweed that students can use at home. Below are the screen shots of the multimedia application.



Figure 3a: Screen shot for main menu and storytelling in TaLA



Figure 3b: Screen shot for exercise and game module in TaLA

Besides that, other research has being conducted by Norizan & et.al. (2011) is to develop an application for children, which is Assisted Jawi- Writing (AJaW) Software for Children. This software is developed by concentrating on motor skills development in order to teach children ages from 4 to 6 years to write Jawi character. From the research, they found that, the chalk and board is currently being used as the teaching methods to teach Jawi writing and it is unattractive. Hence, Hannafin and Peack's Instructional Model is chosen and used to develop this software.



Figure 4a: Screen Shot on Pen-Holding Demonstration

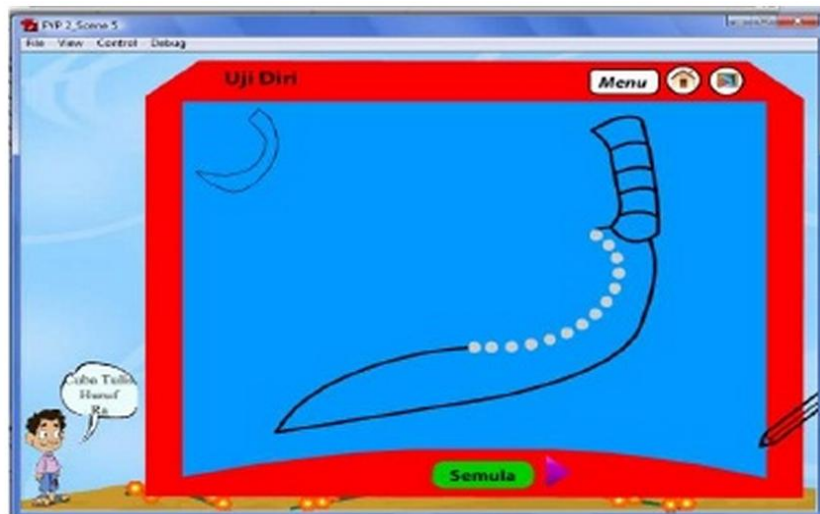


Figure 4b: Screen Shot on Jawi Practice Writing

Table below summarized all the existing multimedia applications.

Application	KAFA Courseware	TaLA	AJaW	My-ADAB
Focus/ Content	Learn KAFA subject	Learn tawjeed	Teach Jawi writing	Teach Islamic values / Adab
Activities	Learning modules, video and exercise	Storytelling session, quizzes and games	Video clip of pen demonstration, pre-writing activities and jawi writing demonstration	Learn module and quizzes
Target User	Primary school students, Teachers	Children aged 7 – 10 years old	Children aged 4 – 6 years old	Kindergarten students- Aged 5 – 6 years old
Learning Theory	Analytical and global learning styles, preferred verbal and visual modality and Cognitive and Constructivist Learning Theory	-	-	Cognitive theory and Constructivist Learning Theory
Functions	Can be used by students and teachers as the learning and teaching process of KAFA	Provide information regarding tawjeed	Teach to write jawi for young children	Teach Adab for kindergarten students

2.3. Cognitive Theory

There are several learning theories that can be used as the learning method in order to teach the kindergarten students. More to the point, the cognitive learning psychology can be applied as the learning method for kindergarten students. According to Bostrom & Sandberg (2009), cognition is the processes that the people used in order to manage the information. Cognitive psychology can assist in designing and evaluating the multimedia application. Cognitive theory has the specific areas such as perception and attention, encoding of information, memory, comprehension, active learning, and motivation. It can be as the guidelines to the developers in designing multimedia instruction effectively (Sorden, 2005). Besides, the cognitive interactivity can be beneficial as it can create the interaction between internal and external representations of information during the learning session. The internal representation is the cognitive structures of learners and the processes to get the information while the external representation is the way of teaching presentation (Kennedy, 2004).

Mayer and Moreno (2002) stated that there are three assumptions of multimedia learning for cognitive theory which it explained how the information is being processed. First is dual-channel assumption where separate channels in humans' body to process visual and auditory representations. Second, limited capacity assumption where at one time, each channel will only process few information and lastly is active processing assumption where the learner involved in cognitive processes, it will produce meaningful learning. Therefore, in learning process, the cognitive process of integrating can occur when both visual and verbal representations is corresponding in the learner's memory at the same time. For example, the narration of the learning will go through the ears and in verbal channel, some of the words are selected for further process and it

will then produce cause-and-effect chain which combines with the visual material and knowledge. Whereas, the animation of the learning will go through the eyes and some of the image will be selected and be processed in visual channel. After that, it will produce cause-and-effect chain that combines with the verbal material and knowledge. Figure 5 illustrated this explanation.

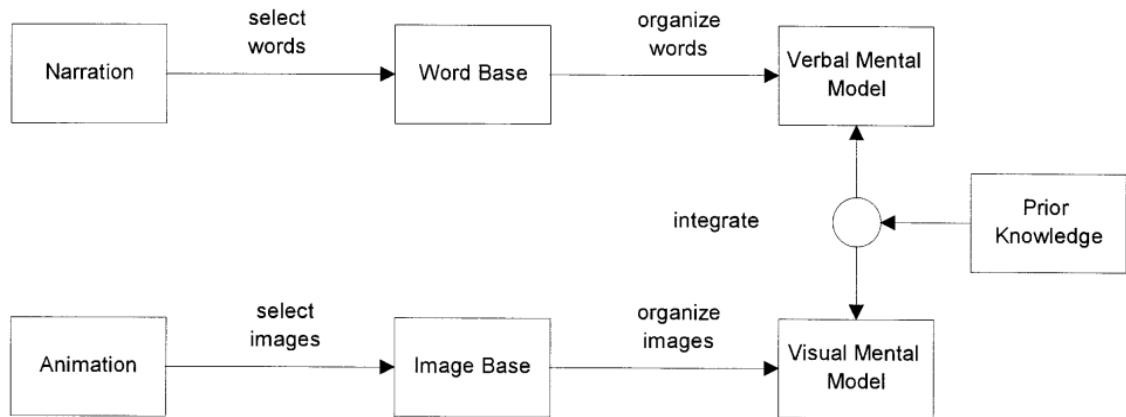


Figure 5: A cognitive theory of multimedia learning

Source: <http://ydraw.com/wp-content/uploads/2012/04/Stop-Motion-Aids-Multimedia-Learning.pdf>

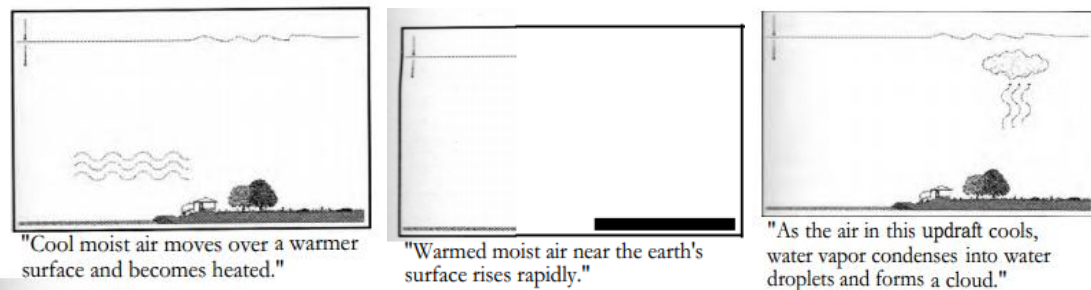


Figure 6: Examples of narrated animation on lightning formation

Source: <http://www.postgradolinguistica.ucv.cl/dev/documentos/40.1002.cap.%203%20.%20Cognitive%20theory%20of%20multimedia%20learning.pdf>

In addition, Mayer (n.d.) stated that dual –channel assumption process the information in humans separately. This type of assumption is considered as cognitive theory of multimedia learning because for humans’ information-processing system, they must have auditory or verbal channel and visual or pictorial channel. When the visual representation is going into eyes, it will be processed by the visual channel. As well as the verbal representation, when it goes into ears, it will be processed by the auditory channel. Besides that, for limited Capacity Assumption, Mayer stressed that only little information such as visual representation or verbal representation that can be process by humans in one time than the actual amount of information that being presented. For instance, when the humans received the verbal representation, they are only able to grab few words in the auditory channel. For active processing assumption, Mayer stated that it occurs when humans involve in cognitive process and react with the material. For example, when humans received the representation s, they will develop cause-and-effect system by changing one part of the system and cause the other part to be changed too. Figure 7 below summarized these three assumptions.

<i>Assumption</i>	<i>Description</i>	<i>Related citations</i>
Dual channels	Humans possess separate channels for processing visual and auditory information	Paivio (1986), Baddeley (1986, 1999)
Limited capacity	Humans are limited in the amount of information that can be processed in each channel at one time	Baddeley (1986, 1999), Chandler & Sweller (1991)
Active processing	Humans engage in active learning by attending to relevant incoming information, organizing selected information into coherent mental representations, and integrating mental representations with other knowledge	Mayer (2001), Wittrock (198

Figure 7: Summarization of the assumptions of Cognitive Theory of Multimedia Learning

Source: <http://www.postgradolinguistica.ucv.cl/dev/documentos/40,1002.cap.%203%20.%20Cognitive%20theory%20of%20multimedia%20learning.pdf>

2.4. Constructivist Learning Theory

The other learning method that can be used in order to develop this application is Constructivist Learning Theory. According to Kanselaar (2002), constructivism is the learners construct the new knowledge by themselves without copying it from the teachers or books. Whereas, Giesen (n.d.) stated the meaning of constructivism is the understanding the knowledge of the world by the learners through their own experiences and the reflection of it. Besides, it is an active learning process where the knowledge is actually gains from the learners' experiences. Basically, constructivism of learning theory focuses on the solving the problem and understanding it.

From the Cooperstein and Weidinger (2003), they claimed that the activities from constructivism learning theory guide to the concept. This type of learning theory usually has no lecture, demonstration or presentation. However, the development of skills and acquisition of concepts can be created by involving the learners in activities. In addition, the learners can also develop their own meaning. By receiving the knowledge passively, they will find some difficulties in order to process on what they have received. Thus, they must create a meaningful knowledge by process the information that they get, manipulate and discover it. In constructivism learning, a question, case or problem usually is used at the beginning where the learners will solve the problem given and the instructor only guide them to solve it. For example, the learners must join the old and new knowledge in order to get the sense of information. They can try to compare and question, challenge and investigate, and so on.

The constructivism theory essentially focuses on the learners as the learning experience. Besides, various approaches can be used to ease the learning of learner-centered (Collins, 2008). It is important to concentrate on the

perspective of the learners in order to provide the curriculum. It helps to give them huge impacts from their learning experience. The desire of learning and involvement of learners in an intellectual and emotional level can be developed from the effective learning.

CHAPTER 3

METHODOLOGY

3.1. Research Methodology

In order to develop this project, waterfall model of system development is used. This type of model is chose because it requires each phase to be completed before move to the following phase. The phases of this model and the respective activities are as below:

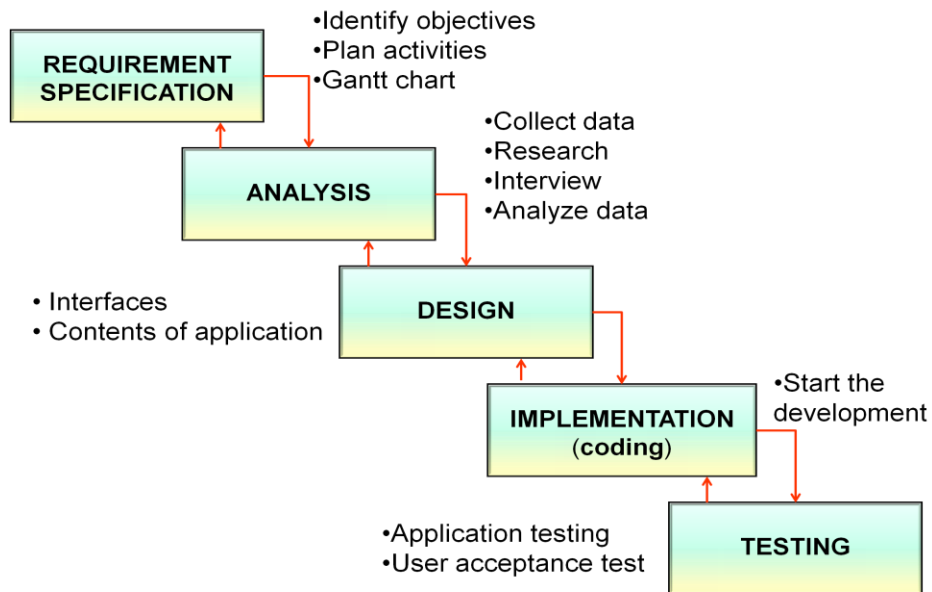


Figure 8: Waterfall Model

Source: http://www.sqa.org.uk/e-learning/SDM01CD/page_02.htm

1. Requirements Specification

The objectives for this project are identified, and all processes and activities that involve during the development of this project are planned. The Gantt chart is also constructed during this phase as the guidelines to complete this project.

2. Analysis

Data and information that related to the multimedia, Islamic values and learning theories for kindergarten students are gathered at this phase. In order to gather the data, two interviews are conducted and research from internet and books are done. Then, all data is analyzed in order to have better understanding regarding this project.

3. Designing

The designing phase is used to design the contents of the multimedia application and the interfaces of the prototype. The contents of the multimedia application are the Islamic values or Adab and also the quizzes regarding Adab. Adab that suitable with the kindergarten students' level will be selected as the contents.

4. Implementation

The development of prototype for this multimedia application is started at the implementation phase.

5. Testing

After the development of this multimedia application is completed, the application will be tested first. If there are errors appear, then the application needs to be fixed. After that, the user acceptance test will be conducted with the kindergarten students.

3.2. Project Activities

Several methods were used to collect data that related to this project. The methods that were used in order to conduct the research regarding this project are:

1. Book and Internet references

Books and Internet are used to search any information, documents, journals and existing applications that related to the multimedia application in learning Islamic matter to the kindergarten students. After that, all the related data are analyzed.

2. Conduct an interview

Interviews are conducted to the teachers of the kindergarten. The purposes of the interview are to get information regarding the current learning methods and tools that kindergartens used to teach students, problems that arise during learning session and some opinions regarding the project. Interviews have being conducted with two teachers from different kindergartens. Then, all data is analyzed.

Key Milestone

MONTHS	EVENTS/ MILESTONE
September 2012	<ul style="list-style-type: none">• Receive project title• Start Planning phase
October 2012 – November 2012	<ul style="list-style-type: none">• Construct Gantt Chart• Collect and analyze information• Conduct an interview• Submission of extended proposal
December 2012 – February 2013	<ul style="list-style-type: none">• Proposal defense and progress evaluation• Submission of interim report• Start the design phase• Start develop the application• Submission of progress report
March 2013	<ul style="list-style-type: none">• Testing phase• Pre-SEDEX
April 2013	<ul style="list-style-type: none">• User Acceptance Test• Submission of Dissertation• Oral Presentation – Viva
MAY 2013	<ul style="list-style-type: none">• Submission of final dissertation

Figure 9: Gantt Chart

Activity	2012															2013																	
	Sept		Oct					Nov					Dec					Jan				Feb				March				Apr			May
	17	24	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25	4	11	18	25	1	8	15	22	6
Requirements Specification																																	
Finding project title/idea	■																																
Proposal Approval			■																														
Identify objective and scope			■																														
Gantt Chart			■																														
Analysis																																	
Data Requirement			■																														
Analyze Data			■		■																												
Literature review			■										■																				
Submission of extended proposal			■																														
Proposal presentation													■																				
Submission of interim report													■																				
Design																																	
Design the interface and contents													■																				
Implementation																																	
Start the coding													■																				
Submission of progress Report													■																				
Pre-SEDEX																	■																
Testing																																	
Dissertation																	■																
Prototype testing																	■																
Viva																	■																
User Acceptance Test																			■														
Submission of final dissertation																			■		■												

3.3. Tools

Tools that are used in order to complete this project are:

i. Hardware

- Personal Computer
- Graphic Tablet – It is used for drawing pictures in the application.

ii. Software

- **Adobe Flash CS4 Professional** – It is a multimedia software that used to create animation, graphics, games, and so on. So, Adobe Flash is used to develop this multimedia application. Then, this application can be executed and played by using Adobe Flash Player.



- **Adobe Photoshop CS4** – It is editing software and it is used to edit images that consist in this application.



- **Audacity** – It is an audio editor and recording software. Thus, it is used to record sounds and also edit the sounds that will be inserted into this application.



- **RealPlayer Converter** – Its can converts the music and video to various types of formats. Thus, it is used to convert the format of the sounds and music.



3.4. Development

During the development of the prototype of this application, there are some problems that occurred. At first, in the planning, this application should has a function that can calculate the total marks of the correct answers at the quiz part. Its means that, after the users finished answer all quizzes, at the end, it will show the total marks that the user get. However, it cannot be done due to several problems. Thus, the flow of the quiz has been changed. The new flow of this application, it requires the user to answer each quiz correctly in order to move to the next quiz.

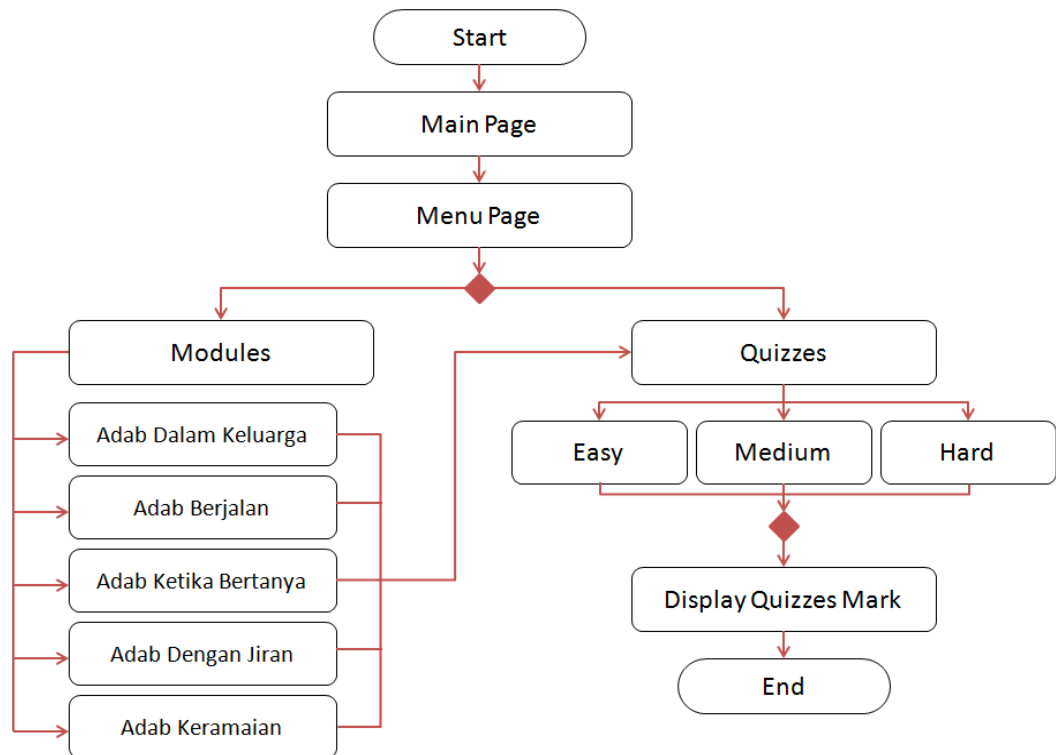


Figure 10: Previous Flow Chart of My-ADAB

Besides that, after the development is completed, this application has been showed to parents and teachers before the user acceptance test is conduct. They requested to put some moving objects or moving text into the application

especially at the modules part, so that, the students will not be bored to learn the module. In addition, some of them asked to insert audio of recorded instructions and texts at the quiz part. It is because it might ease the students to understand the questions of quizzes better.

Therefore, this application is modified by adding some moving texts at the modules part. Besides, the recorded sound of instructions, answers and texts also have been included at the quiz part.

CHAPTER 4

RESULT AND FINDING

4.1. Interview

Interviews have been conducted with two teachers from two different kindergartens. All the data from the interview sessions are collected. The objectives of the interview are:

- i. To research on the current learning and teaching methods in the kindergartens
- ii. To gather the problems occur during learning session
- iii. To identify the current tools or applications that the kindergartens use

There are four basic questions that been asked to the interviewees. The first question is regarding the current learning and teaching method that is use in the respective kindergartens. Second, the question is about problems that occur during the learning session, from students' and teachers' view. The next question is about the current tools or applications that are use during learning and teaching session. Lastly, the question is asking about their opinion regarding this multimedia application that will be developed soon.

First interview has been conducted at Tadika Generasi Global in Kedah and a teacher, Khairun Amirah, from that kindergarten has been interviewed. From the interview, the kindergarten used various methods in order to attract

the students' attention to learn. The methods are activities of learning (pedagogy), using book for storytelling and doing some exercises in the exercise books. Next, the problems that arise from students' view are they begin not paying attentions to the learning session when the period of learning is too long and they do not interest to learn using books. Whereas, the teacher at the kindergarten found that, it is difficult to control and manage the students during the learning session. Besides that, the existing tools or applications that were used in the kindergarten are flash cards, computers, and compact disks (cd) of learning and games. Lastly, the teacher found that the idea to develop this multimedia application is very useful as the students are easy to absorb the learning whenever the technologies are used and this kind of application is mostly liked by the students.

The second interview has been conducted at Tadika Pintar Rabbani in Sri Iskandar, Perak and a teacher, Hamizah Salwa, from that kindergarten has been interviewed. All data that gained from the interviewed are recorded. Currently, the kindergarten used books, computer, exercise books and games activities as teaching and learning methods. Next, the problem that the kindergarten faces from the students' site is that, the students quickly became bored when books are used or same activities are conducted while from the teachers' site is that, it is difficult for them to retain the students' interest. In addition, the tools or applications that currently being used by the kindergarten to aid the teaching and learning session is computers where at the same time, they used compact disks (cd) of learning and games. Besides that, the teacher tends to get some materials from the internet and used it for teaching. Lastly, the teacher thinks that the idea to develop multimedia application for kindergarten students to learn Islamic matter is interesting and they believe that it can attract the students to learn.

The suggestions that were given by both teachers regarding this application are to include an interactive learning lesson in the application, so that, it can help to attract the students to learn and make the learning process to become effective. Besides that, they stated that the usage of storytelling in the learning module can ease the students to capture and understand the learning. Lastly, they advised to include more learning activities and games in the application in order to attract the students to use the application.

4.2. Flow Chart

The flow chart below, Figure 8, showed the flow of this multimedia application. Firstly, this application will display the main page and by clicking a button, it will display the menu page. The main user for this application is the kindergarten students. Then, the users will choose either to start with the learning module or to solve the quizzes. There are five Adab modules that they need to learn which are Adab Dalam Keluarga, Adab Berjalan, Adab Ketika Bertanya, Adab Dengan Jiran and Adab Keramaian. Meanwhile, there are three levels of difficulty for the quizzes which are easy (Tahap 1), medium (Tahap 2) and hard (Tahap 3) level. After completing the entire Adab modules, the users are required to solve the quizzes.

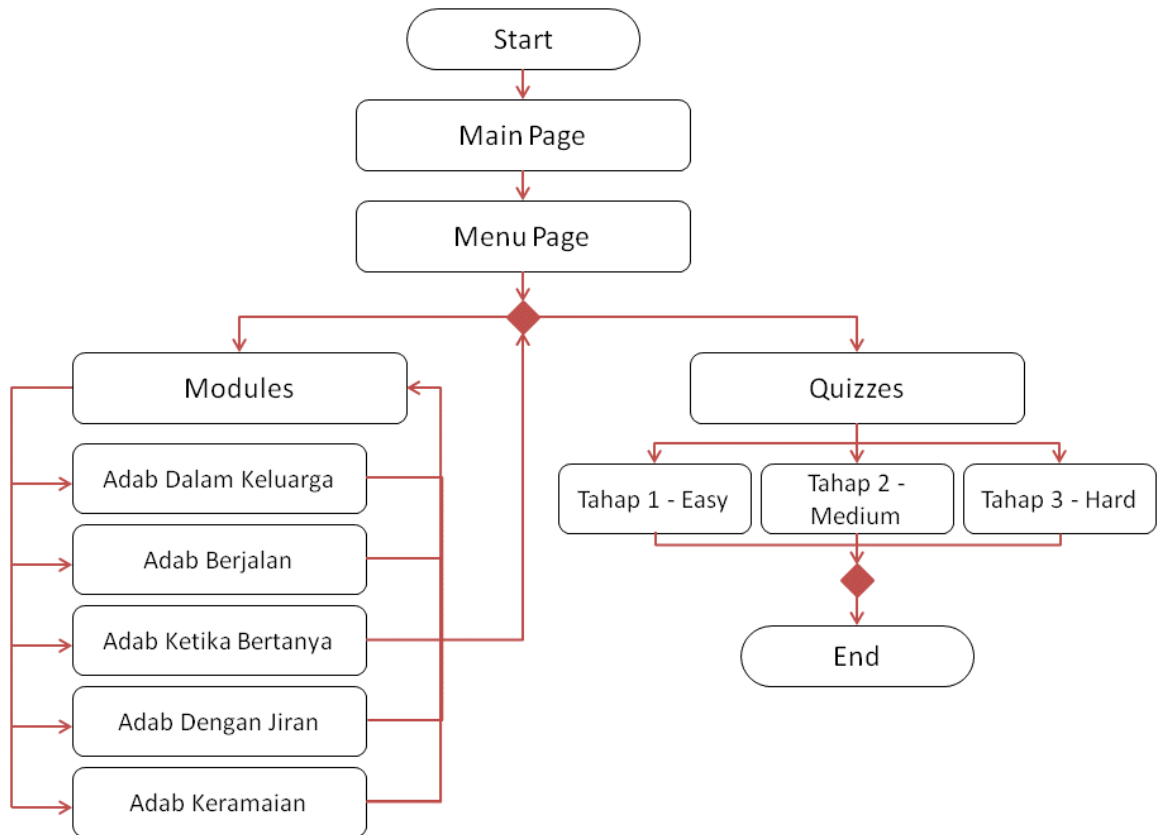


Figure 11: New Flow chart of My-ADAB

Besides that, the Figure 9 showed the flow of activities that the users will go through when using this application. Firstly, the users will go to the main page of My-ADAB. Next, they will move to the menu page where they can choose to learn the modules or start the quizzes. If they choose to learn the modules, they will learn all the modules which are Adab Dalam Keluarga, Adab Berjalan, Adab Ketika Bertanya, Adab Dengan Jiran, and Adab Keramaian. After that, the users start to solve all quizzes for each level which are easy (Tahap 1), medium (Tahap 2) and hard (Tahap 3).

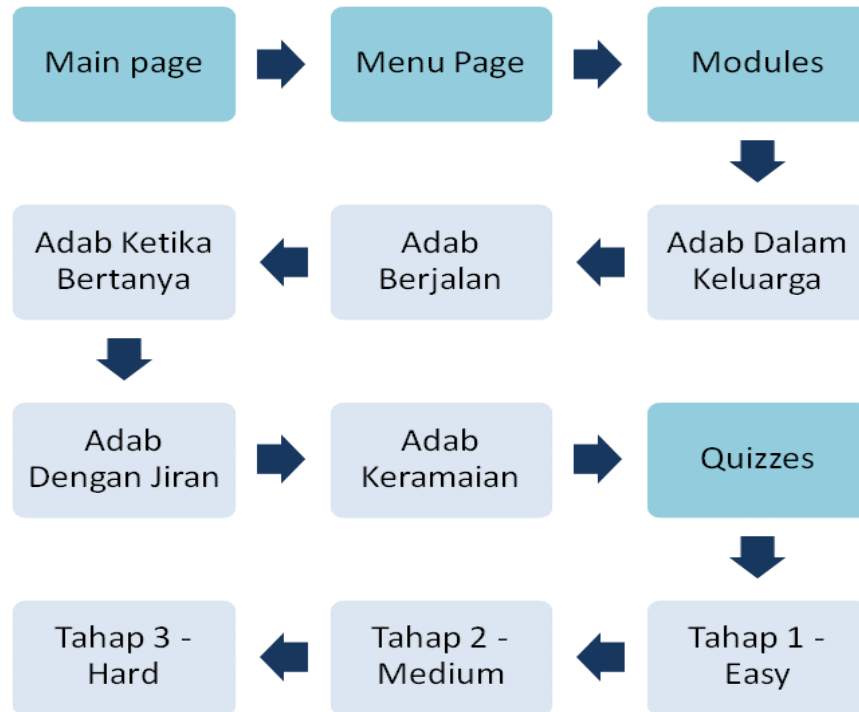


Figure 12: Flow of activities of My-ADAB

There are five Adab modules in this application which are Adab Dalam Keluarga, Adab Berjalan, Adab Ketika Bertanya, Adab Dengan Jiran and Adab Keramaian. In Adab Dalam Keluarga, it will teaches about the good manners with the parents, the right ways to respects parents and also the unethical manners with the parents. Second, in the Adab Berjalan, the students will learn about good manners when they want to go out, the significance of Adab Berjalan and doa before leave the house. In Adab Ketika Bertanya, it will teach the students about the good ways to ask something, the significance of Adab Bertanya and benefits that they can gain. For Adab Dengan Jiran, it will teaches the students on how to goods ways to treat the neighbor, the significance of Adab berjiran and the unethical manners with the neighbour. Lastly, in Adab Keramaian, the students will learn about the ethical manners in a function or celebration, the right ways to eat and drink in the function and doa before and after eat.

In addition, this application will be included with quizzes. There will be three levels of difficulties which are easy – Tahap 1, medium – Tahap 2 and hard – Tahap 3. For this prototype, there are only three questions for each level. The questions for Tahap 1 are to match the correct manners or Adab according to the pictures. For Tahap 2, the students are required to identify the title for those doa and lastly for Tahap 3, the students need to identify correct manners or Adab according to the situations given.

4.3. Prototype Designs

Below are the figures of the prototype designs. The figures show the main page of My-ADAB, the menu page where the users can choose either the learning modules or quizzes, modules page where it contains variety of Adab learning and the quizzes page where the users can test their understanding regarding the learning.



Figure 13: Main page of My-ADAB

When the users start this application, which is My-ADAB, the main page will firstly appear, Figure 13. The users need to click ‘MULA’ button in order to go to the menu page.



Figure 14: Menu page of My-ADAB.

At the menu page, in Figure 14, users are required to choose either to start with the modules (button - Mari Belajar) or to solve the quizzes (button - Kuiz). When “Mari Belajar” button is clicked, then it will move to module page where its display lists of modules. While, when “Kuiz” button is clicked, it will show the quizzes page where it contains three levels of difficulties.

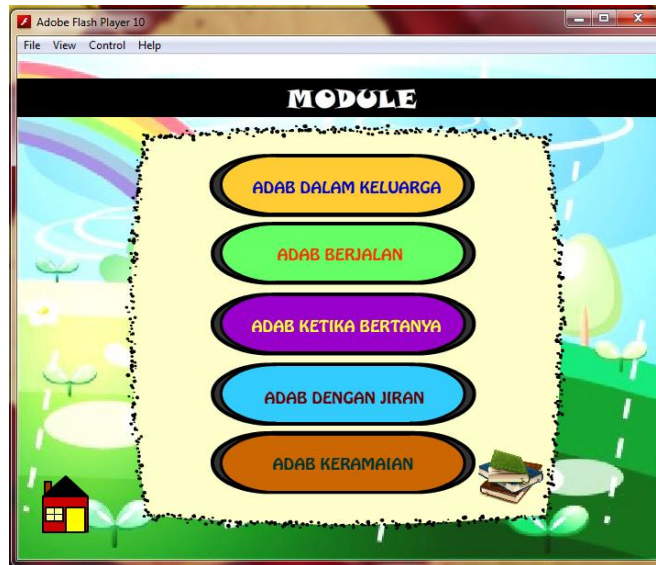


Figure 15: List of Adab modules.

In Figure 15, it shows the modules page. Its consists of five adab which are Adab Dalam Keluarga, Adab Berjalan, Adab Ketika Bertanya, Adab Dengan Jiran and Adab Keramaian that the users can learn.

The Figure 16 until Figure 20 show the screenshots of Adab learning modules. In this application, the Adab learning is teaches to the students by using storytelling techniques. Other than storytelling, it also contains the benefits and signification of the Adab and also doa. Besides that, the learning of Adab for the kindergarten students is simplified by inserted recorded sound into the Adab modules. It assists the students that still not able to read well to understand the learning better.



Figure 16: Learning Module-Adab Dalam Keluarga



Figure 17: Learning Module-Adab Ketika Bertanya



Figure 18: Learning Module-Adab Berjalan



Figure 19: Learning Module-Adab Dengan Jiran



Figure 20: Learning Module-Adab Keramaian

For the quizzes in Figure 21, there are three levels of difficulties. The levels are Tahap 1 (easy), Tahap 2 (medium) and Tahap 3 (hard). In this prototype, each level contains three questions. The users need to solve all the quizzes. Furthermore, to proceed to the next quiz, the users are required to complete each question with a correct answer.

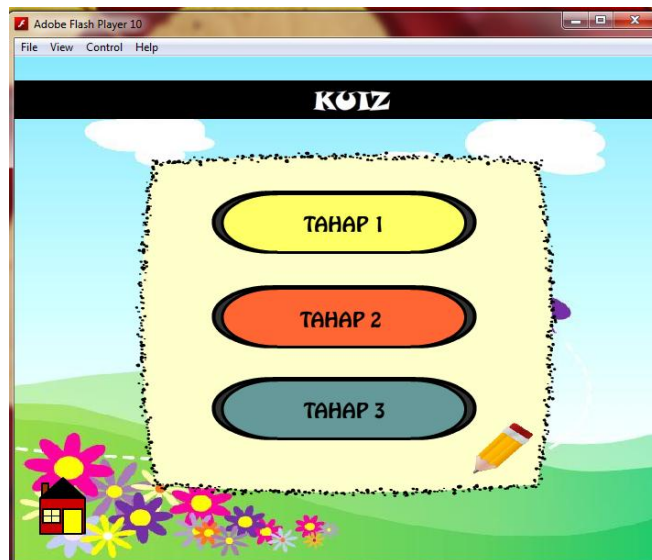


Figure 21: Level of Difficulties for Quiz



Figure 22: Quiz for Tahap 1

Figure 22 until Figure 24 are the examples of quizzes in this application. Figure 22 is an example of quiz for Tahap 1 which it is an easy level. The users are required to match the picture with the correct Adab.



Figure 23: Quiz for Tahap 2

In Figure 23, it is an example of quiz for medium level, Tahap 2. The users are required to choose correct title for the given doa. Besides that, to ease the students, the recorded recitation of the doa also included in this part.

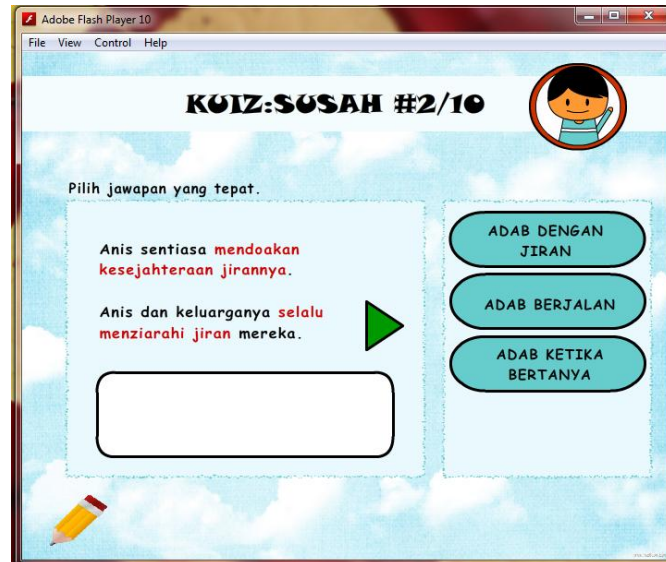


Figure 24: Quiz for Tahap 3

Lastly, Figure 24 shows an example of quiz for Tahap 3 which is hard level. The users are required to choose suitable Adab with the given situation. The recorded audio of the situation also is included to ease the students to complete the quizzes.

The learning theories that were mentioned before, Cognitive theory and Constructivist Learning theory, are applied in this application by using storytelling techniques for the learning modules, include images, sound and animations in the application. In addition, it allows the users to explore this application and experience the learning by themselves.

4.4. User Acceptance Test

User Acceptance Test is a test that is conducted in order to determine the efficiency of the application. This testing is conducted on the students of kindergarten after the development of this application is complete. The criteria that will be tested in the user acceptance test are understandability, learnability, attractiveness, and performance effectiveness. The details of each criterion are as follows:

- Understandability – the interfaces and the purposes of this application must be easy to understand.
- Learnability – this application must be easy to learn.
- Attractiveness – this application should have attractive screen layouts, pictures, contents and colour.
- Performance effectiveness – this application is able to help the students to learn the Adab learning and also they are able to answer the quizzes.

For understandability, the students must find that this application is easy to use and also the functions of the buttons, instructions, and other interfaces in the application are understandable. Then, for the learnability, they must find that this application can help them to learn Adab well and the contents are sufficient which can make them understand the learning easily. Next, for attractiveness, the students must find that this application consists of attractive layouts, pictures, contents and colour which can attract them to learn. Lastly for performance effectiveness, the students must find that this application is able to help them to learn Adab easily and after that, they are able to answer the quizzes.

The user acceptance test has been conducted on students of Tadika Cilik Bestari Gemilang in Seri Iskandar, Perak. There are 13 students from the kindergarten; aged from 4 to 6 years old that involved in this testing and its take about 30 minutes to complete the test.



Figure 25: Tadika Cilik Bestari Gemilang

The test is conducted by required the students to learn all the modules first. The modules that they need to learn are Adab Dalam Keluarga, Adab Berjalan, Adab Ketika Bertanya, Adab Dengan Jiran and Adab Keramaian. After finished the learning modules, then five students are selected to answer the quizzes. The totals of correct answers of each student are recorded. After that, they are required to answer four questions that were given to them regarding this multimedia application. To answer those questions, they only have to agree or not for each of the question. The purpose is to get their respond towards this application.

Below is the result from questionnaire for students:

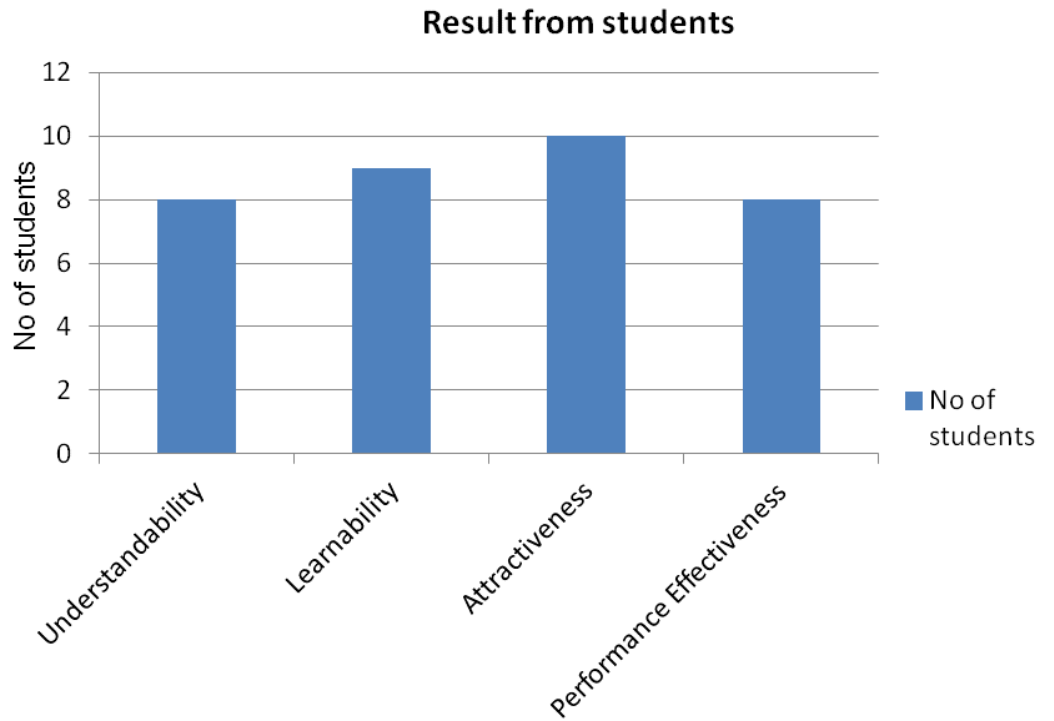


Figure 26: Result from questionnaire for students

Figure 26 showed the result from the questionnaires that have been done on the students of the kindergarten. It is only showed the number of students that agreed with those questions. From the Graph 1, there are 8 out of 13 students agree for understandability of this application. For learnability, there are 9 students that agreed with it. Besides that, there are about 10 students that agreed with attractiveness of this application. Lastly, for the performance effectiveness of this application, there are 8 students that agreed with it.

Then, below are the results of correct answers for each of the level:

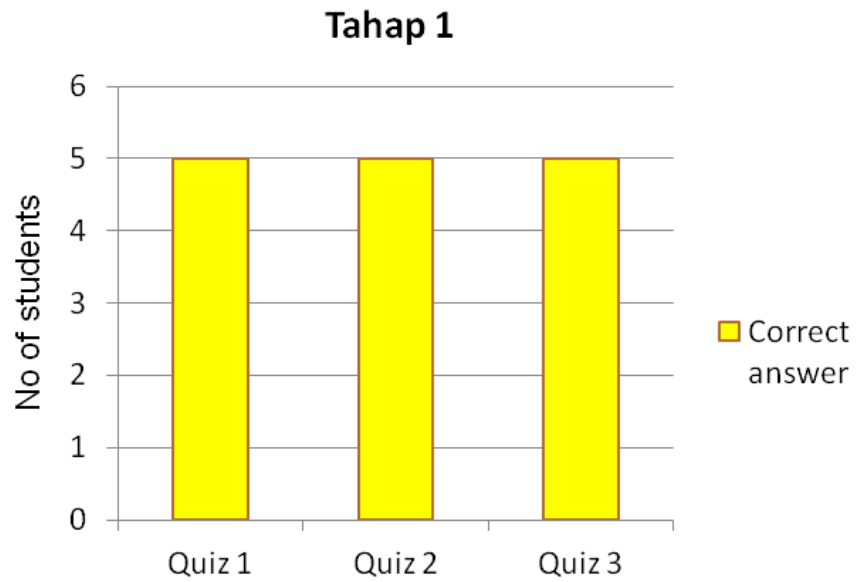


Figure 27: Result of correct answers for Tahap 1

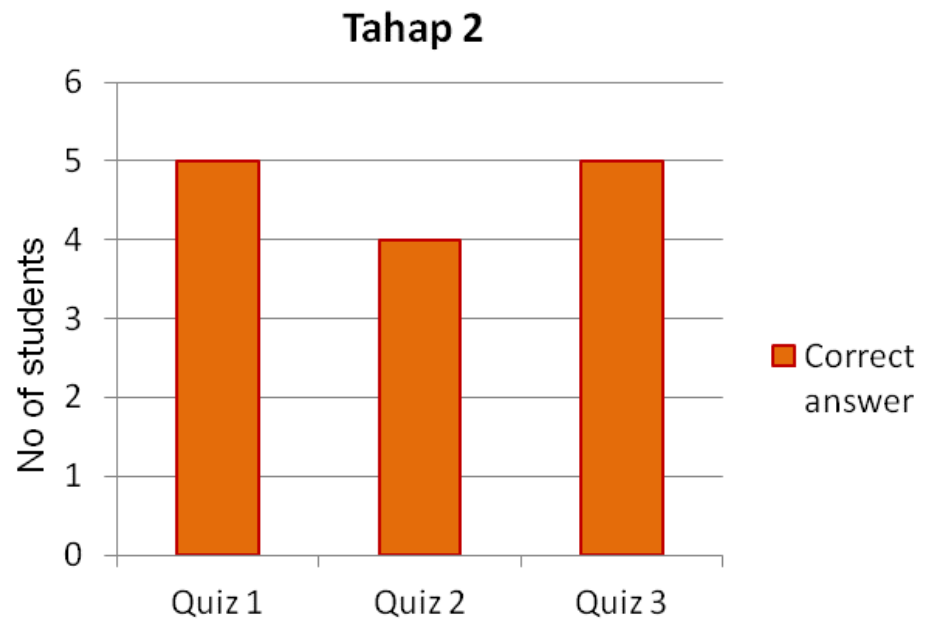


Figure 28: Result of correct answers for Tahap 2

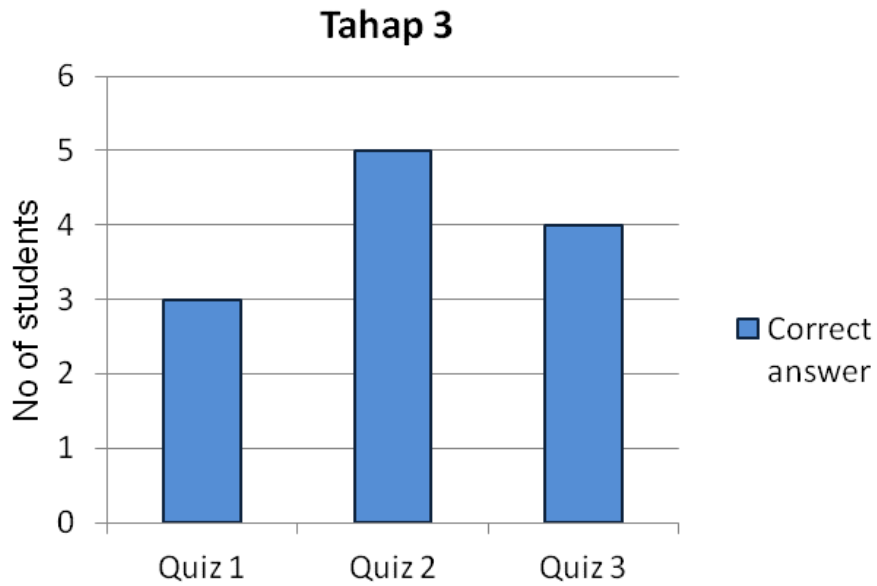


Figure 29: Result of correct answers for Tahap 3

There are five students that were asked to complete the quizzes. Then, the totals of correct answers are recorded. Figure 27 until Figure 29 show the result of the correct answers. In Figure 27, it shows the result for Tahap 1. For Tahap 1, all of the students answered all the quizzes correctly. Then, Figure 28 shows the result for Tahap 2. For quiz 1 and quiz 3, five students answered the quizzes correctly while, only 4 students answered quiz 2 correctly. Lastly, Figure 29 shows the result for Tahap 3. Three of the students answered quiz 1 and four of them answered quiz 3 correctly. For quiz 2, all of them answered it correctly.

Besides that, the teachers of the kindergarten and parents also have to complete survey regarding the multimedia application and its ability to teach students. The survey consists of six questions and their recommendations or comments.

Thus, the survey contains:

- Attractiveness – the screen layouts, pictures, contents and colour of this application should be attractive to the students.
- Understandability – the interfaces and the purposes of this application must be easy to understand by the students.
- Design – it covers the audio, texts, and pictures in this application.
- Suitability – the contents of this application is sufficient and suitable to be learned.
- Learnability – this application must be easy to learn by the students.
- Performance Effectiveness – this application must be able to help the students to learn the Adab and then, they are able to answer the quizzes.

Thus, for attractiveness, the teachers must find that this application has attractive screen layouts, pictures, contents and colour which it able to attract the students to learn. For understandability, the teachers must find that this application is easy to be used by the students and all interfaces in this application are understandable. After that, for design, the audio, texts and pictures that contain in this application must be attractive and useful. The teachers must identify that the design of this application is attractive to the students. For the suitability, the contents of this application which are Adab modules and quizzes are sufficient and suitable to be taught to the students. Next, the teachers must find that this application is easy to be used by the students. Lastly for performance effectiveness, they must find that this application is capable to teach Adab to the students.

Below is the result from the teachers:

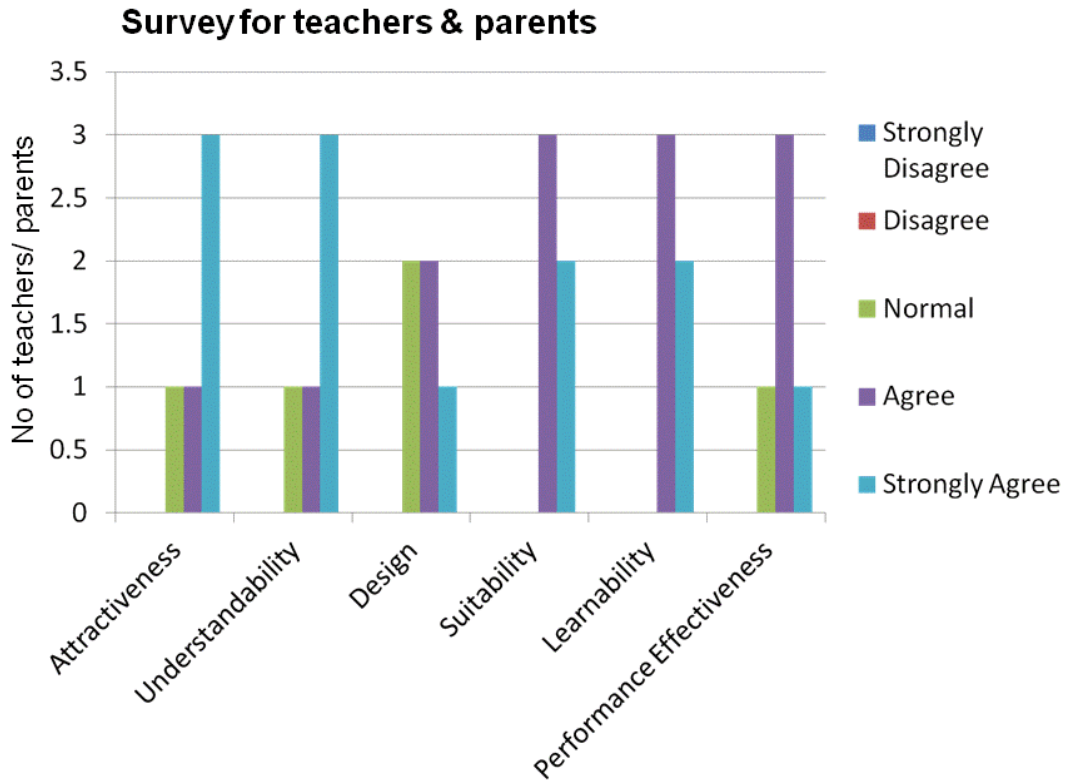


Figure 30: Result from survey for teachers and parents

Figure 30 showed the result from the survey that has been done on the teachers of the kindergarten and parents. For the survey, three teachers and two parents are involved. From Figure 30, there are 3 people that rated strongly agree for attractiveness, while one rated for agree and another one rated for normal. For understandability, 3 of them rated for strongly agree while the others are voted for normal and agree respectively. Next, for design, 2 of them rated agree while another 2 rated for normal and one rated for strongly agree. For suitability and learnability, three of them that rated for agree and two strongly agrees respectively. Lastly, there are 3 people that agree with the performance effectiveness of this application, one of them rated for agree and another one is rated for normal.



Figure 31a: During the User Acceptance Test



Figure 31b: During the User Acceptance Test



Figure 31c: During the User Acceptance Test

The comments or suggestions that were given by the teachers regarding this application are first, to include some animations or moving objects in this application. It is because it might helps to attract the students' attention and also to make the learning become more enjoyable. Besides that, they advised to include songs that the students can sing along and background music to make it more attractive. Overall, most of them are satisfied with this application.

CHAPTER 5

CONCLUSION

This project is discussed about the development of Islamic learning multimedia application for kindergarten students. The multimedia is selected and used in order to develop this application because it has the ability to make the learning become interesting and attractive. Besides that, two learning theories which are Cognitive theory and Constructivist Learning Theory are applied in the application. In addition, this multimedia application is focuses on the values or manners (Adab) that related to Islamic teaching and specially developed for students of kindergarten to learn it in classroom. To gather information regarding this project, interviews and research have been done. Besides that, user acceptance test has been conducted on the kindergarten students in order to get their feedbacks and reactions. Survey for the teachers and parents also has been done in order to collect their response and comments towards this application and also their suggestions to improvements this application.

Furthermore, this application can be used as a new teaching and learning method at the kindergartens and also replaced the usage of traditional method of learning that being used in kindergartens currently. In addition, this application can be one of the parents' and teachers' choices in order to choose the application that teach about Islamic matters especially in teaching Adab. Lastly, this application is able to teach the kindergarten students to learn Islamic values or Adab in an interactive and easy ways.

REFERENCES

- Alessi, S.M., & Trollip, S.R. (2001). *Multimedia for Learning: Methods and Development* (3rd ed.). Massachusetts: A Pearson Education Company.
- Baharom Mohamad & Mohamad Johdi Salleh. (2009). Pembangunan Modal Insan Sebagai Satu Pelaburan Penting Dalam Konteks Pembinaan Negara. *Seminar Pembangunan Modal Insan 2009*, 1. Retrieved Nov 25, 2012, from [http://irep.iium.edu.my/11673/1/Proceeding -
Pelburan Negara dlm Pmbangunan Modal Insan.pdf](http://irep.iium.edu.my/11673/1/Proceeding-_Pelburan_Negara_dlm_Pmbangunan_Modal_Insan.pdf)
- Bostrom, N. & Sandberg, A. (2009). Cognitive Enhancement: Methods, Ethics, Regulatory Challenges. *Springer Science+Business Media*, 312. Retrieved Oct 15, 2012 from <http://www.nickbostrom.com/cognitive.pdf>
- Cairncross, S. & Mannion, M. (2001). Interactive Multimedia and Learning: Realizing the Benefits. *Innovations in Education and Teaching International*, 38(2), 156. Retrieved Oct 15, 2012 from <http://personal.tsss.edu.hk/kem/msc/6025/5446424.pdf>
- Collins, S. R. (2008). Enhanced Student Learning Through Applied Constructivist Theory. *Transformative Dialogues: Teaching & Learning Journal*, 2(2), 1-2. Retrieved Nov 28, 2012 from http://kwantlen.ca/TD/TD.2.2/TD.2.2_Collins_Applied_Constructivist_Theory.pdf
- Cooperstein, S. E. & Weidinger, E. K. (2003). Beyond Active Learning: A Constructivist Approach to Learning. *Emerald Group Publishing Limited*, 32(2), 141-142. Retrieved Nov 28, 2012 from <http://www.unc.edu/~bwilder/inls111/111beyondactivelearningWED.pdf>

- Erda Wati Bakar. (n.d.). Using a Multimedia Application in the Teaching of Literature: A Demonstration on “Of Bunga Telur and Bally Shoes” By Che Husna Azhari. *Centre for Liberal and Language Studies*.2-3. Retrieved Oct 15, 2012, from <http://www.scribd.com/doc/47575333/USING-A-MULTIMEDIA-APPLICATION-IN-THE-TEACHING-OF-LITERATURE>
- Giesen, J. (n.d.). Constructivism: A Holistic Approach to Teaching and Learning. *Faculty Development and Instructional Design Center*. Retrieved Nov 28, 2012 from <http://www.niu.edu/facdev/programs/handouts/constructivism.pdf>
- Husin Junoh (2011). Faktor Keruntuhan Akhlak Remaja Islam Luar Bandar Di Daerah Kota Tinggi, Johor. *Jabatan Dakwah dan Pembangunan Insan, Akademi Pengajian Islam Universiti Malaya*, 3. Retrieved Nov 25, 2012, from http://eprints.uthm.edu.my/2173/1/Husin_Junoh.pdf
- Kanselaar, G. (2002). Constructivism and socio-constructivism. *Constructivism*, 1. Retrieved Nov 28, 2012 from <http://igitur-archive.library.uu.nl/fss/2005-0622-183040/12305.pdf>
- Kennedy, G. E. (2004). Promoting Cognition in Multimedia Interactivity Research. *The Hong Kong Institute of Education Library*. Retrieved Oct 17, 2012 from <http://steinhardtapps.es.its.nyu.edu/create/courses/2174/reading/Kennedy%20JILR%2004.pdf>
- Kian, K.N.T.(n.d.). Teachers as Multimedia Developers: Using Multimedia Authoring Tools to Enhance Teaching and Learning in the Classroom. *Centre for Innovation Education*. Retrieved Oct 15, 2012, from http://www.ascilite.org.au/ajet/e-jist/docs/Vol7_No1/CurrentPractice/Teachers_mm_dev.htm
- Lachs, V. (2000). *Making Multimedia in the Classroom*. London: RoutledgeFalmer.
- Marina Ismail, Norizan Mat Diah, Suzana Ahmad & Aida Abdul Rahman. (2011). Engaging Learners to Learn Tajweed through Active Participation in a Multimedia Application (TaLA). *Proc. Of Int. Conf. on Advances in Computing, Control, and*

Telecommunication Technology 2011. 88-90. Retrieved Oct 22, 2012, from http://www.academia.edu/1202720/Engaging_Learners_to_Learn_Tajweed_through_Active_Participation_in_Multimedia_Application_TaLA

Mayer, R.E. & Moreno, R. (2002). Animation as a Aid to Multimedia Learning. *Educational Psychology Review*, 14(1), 91. 9. Retrieved Oct 19, 2012, from <http://ydraw.com/wp-content/uploads/2012/04/Stop-Motion-Aids-Multimedia-Learning.pdf>

Mayer, R.E. (n.d.). Cognitive Theory of Multimedia Learning. *The Cambridge Handbook of Multimedia Learning*. Retrieved Apr 2, 2013, from <http://www.postgradolinguistica.ucv.cl/dev/documentos/40,1002,cap.%203%20.%20Cognitive%20theory%20of%20multimedia%20learning.pdf>

Norizan Mat Diah, Marina Ismail, Putri Mazliana Abdul Hamis & Suzana Ahmad. (2011). Assisted Jawi – Writing (AJaW) Software for Children. *IEEE Conference on Open Systems, Langkawi Malaysia*, 328- 332. Retrieved Nov 22, 2012 from http://www.academia.edu/963656/Assisted_Jawi-Writing_AJaW_Software_for_Children

Ogunlana, E.K.(2012). Perceived Use of Networked Multimedia Applications on Learning in Selected Universities in South West Nigeria. *Library Philosophy and Practice (e-journal)*. Retrieved Oct 20, 2012, from <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1803&context=libphilprac>

Saadah Sumarah, Salwan Sudirman & Roslee Ahmad. (2008). Kaedah Menangani Kanak-Kanak Bermasalah Tingkahlaku. *Seminar Kaunseling Keluarga 2008*, 90. Retrieved Nov, 25, 2012, from http://eprints.utm.my/6290/1/SaadahSumrah2008_KaedahMenanganiKanakkanakBermasalahTingkahlaku.pdf

- Sazalinsyah Razali (2000). Membina Perisian Multimedia Mengenai Fiqh Al-Muamalah Untuk Tahap Kolej. *Fakulti Teknologi Maklumat dan Sains Kuantitatif, UTM*, 10. Retrieved Nov 28, 2012 from http://eprints.uitm.edu.my/2046/1/SAZALINSYAH_BIN_RAZALI_00_24.pdf
- Shou, J. (2012). A Study of Multimedia Application-based Vocabulary Acquisition. *English Language Teaching*, 5(10), 203.
- Sorden, S. D. (2005). A Cognitive Approach to Instructional Design for Multimedia Learning. *Informing Science Journal*, 8, 1. Retrieved Oct 15, 2012 from http://dpli.ipgkrm.edu.my/index_htm_files/CognitiveApproachToID-ForMultimedia.pdf
- Swan, K. & Meskill, C. (n.d.). Multimedia and Response-Based Literature Teaching and Learning: A Critical Review of Commercial Applications. Retrieved Oct 20, 2012, from <http://www.albany.edu/cela/reports/swanmultimediareview.pdf>
- Tabanlıglu, S. (2003). The Relationship Between Learning Styles and Language Learning Strategies of Pre-Intermediate EAP Students. *The Graduate School of Social Science*. 15. Retrieved Oct 15, 2012, from <https://etd.lib.metu.edu.tr/upload/1014034/index.pdf>
- Wan Malini Wan Isa, Fadhilah Ahmad, Mat Atar Mat Amin, Mohd Sufian Mat Deris, Azilawati Rozaimie, Wan Mohd Rizhan Wan Idris & Suhailan Dato' Safei. (2010). Development and Innovation of Multimedia Courseware for Teaching and Learning of KAFA subjects. *Faculty of Information, UniSZ*. 100-103. Retrieved Oct 15, 2012, from <http://www.fit.unisza.edu.my/i-kafa/pdf/b.pdf>
- Wan Noor Hazlina Wan Jusoh & Kamaruzaman Jusoff. (2009). Using Multimedia in Teaching Islamic Studies. *Journal Media and Communication Studies*, 1(5), 87-89. Retrieved Oct 15, 2012, from <http://www.academicjournals.org/jmcs/PDF/pdf2009/Nov/Jusoh%20and%20Jusoff.pdf>