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Asma Ul Husna Interactive Courseware: Adaptation of Multimedia Learning Principles

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Abstract
Asma Ul Husna interactive courseware has been developed as an assistive tool intended for primary school students to learn about the 99 names of Allah SWT. The interactive courseware implemented multimedia elements such as text, graphic, audio and animation to assist users' learning process. Additionally, as it is presented with the absence of the traditional face-to-face method, the materials are required to be engaging to the users. The 'engaging' requirement is achieved by adopting several multimedia learning principles. The principle of multimedia learning consists of variety of principles which are utilised to develop the design and organisation of multimedia presentations. User Acceptance test has been carried out among primary school students to determine the overall level of acceptance and understanding towards the courseware. Other than that, this test is also conducted to assess the effects of the multimedia learning principles being adopted. The impacts shown by the results are significant as to confirm its benefits to its target users.

Keywords: *cognitive theory of multimedia learning, multimedia learning principles, interactive courseware*

Introduction

Asma Ul Husna is known as the names of Allah SWT which are in total of 99 names. According to Nurul Murtadho (2012), Asma Ul Husna definition is divided by two; which is, Asma defined as a name and Husna described as beautiful. Therefore, the whole meaning of Asma Ul Husna is the most beautiful names owned by Allah SWT. As a Muslim, memorising the names of Allah SWT is a necessary knowledge as it refers to all the benefits of His Creation and His attribute. It is also meaningful for a Muslim when they correctly understand its meaning and follow the moral behind the attributes of Allah SWT in their daily life. In general, Asma Ul Husna is widely practised by schools in Malaysia, especially in Islamic religious schools as it is believed to be beneficial to its practitioner. Generally, Asma Ul Husna is learned and memorised by students in their early childhood. Usually, this information is easily forgotten as the approach of learning and memorising used is often incorrect.

Currently, the Asma Ul Husna are available through songs called 'nasyeed', a variety of books, and from Al-Quran & Translation. It is a challenge for the students to study and memorise Asma Ul Husna through songs and texts. The reason being, in songs, the pronunciation is not identical with how it should be primarily pronounced. Moreover, Asma Ul Husna reading material is usually presented as books or cards which include its translation, benefits and Zikr. As an example, bookstore provides such material which filled with only texts, and it lacks the elements to ease the learning process; thus, it is not suitable as a material for learning and memorization.

Therefore, to promote the learning process of primary school students in learning and memorizing Asma Ul Husna, a better alternative of interactive courseware is introduced. This

courseware is incorporated into several selected multimedia learning principles - to enhance the courseware elements to produce an engaging and efficient education product. Through this courseware, the users will be able to control, learn and use the courseware according to their comfort and pace. Moreover, with the aid of the adopted principles, its design and content are formed in a way that it can be used at ease.

Principle of Multimedia Learning

The principles of multimedia learning are introduced by Mayers (2001). These principles guide in producing an engaging multimedia courseware without the traditional face-to-face method. It primarily focused on the courseware design and organisation. There are a wide variety of multimedia learning principles discussed by Mayer (2016) which supported by research distinguishing different multimedia learning situations to decide which results in better student learning. In this paper, four most appropriate principles are studied, which are, Segmenting Principle, Modality Principle, Multimedia Principle, Voice Principle and Image Principle.

i.   Segmenting Principle

Segmenting is an elementary principle involves breaking down a large chunk into smaller chunks. Information segmentation is a process of breaking down the information into bite-size segments - in a way that it can easily be absorbed. The application of this principle in multimedia learning is such a way that complex or lengthy lessons are separated into smaller parts, which are delivered one at a time (Clark & Mayer 2011).

ii.   Multimedia Principle

Multimedia Principle highlights the ability of learners to experience deeper learning from the combination of words and pictures than solely from words. By providing both verbal and visual information which complement each other, it encourages a faster rate of learning, more thoroughly, efficiently and stays longer in learner's memory (Mayer, 2016). Communicating with verbal or visual alone decreases the learning rate as the information is only processed by one of our information processor channel, which is the auditory and visual channel.

iii. Voice Principle

Voice Principle promotes active learning and learner engagement through stimulating social responses in a way that delivering information by speaking naturally with good tempo. (Mayer, 2016). The definition of 'natural' speaking depends on the targeted audience. Audiences who are used to US English accent should be able to feel natural and comfortable to learn information in their accent compared to other accents. Currently, text-to-speech technology is widely used in multimedia learning, but it violates the Voice Principle as it does not output a natural voice. Using human voice is a way better as it is natural for the learner to associate the information to and process it.

iv.   Signalling / Cueing Principle

The Signalling / Cueing Principle idea is on emphasising what is important in the material presented (Mayer, 2016). The emphasising technique used can be graphically or verbally. In technical terms, signalling means emphasising using verbal. Meanwhile, cueing means highlighting using graphics. The techniques used in Signalling involved using a higher tone of voice in audio or using bold font in written texts. In Cueing, the technique used is by highlighting important parts by using circles, arrow or zooming effect.

Methodology
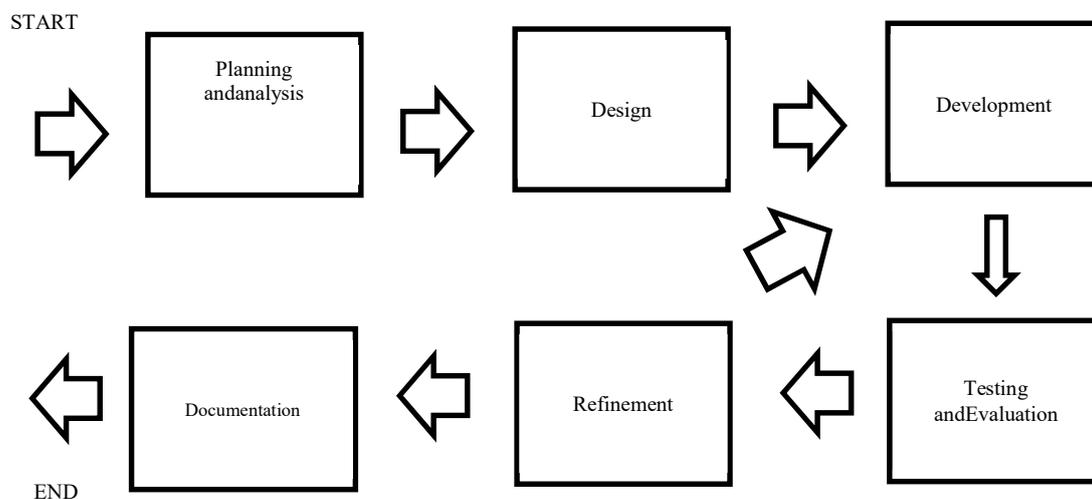
Figure 1: Methodology

The project has been conducted based on the research model presented in the figure below. It involves six phases; 1) Planning and analysis, 2) design, 3) development, 4) testing and evaluation, 5) refinement, and 6) documentation.

1) Planning and Analysis: Identifying the field of study (Courseware and Multimedia learning principles), problem statement, research objectives, project scope, project significance and the expected outcome.
2) Design: Change the user requirement description into a structure in the form of a storyboard and adapt selected multimedia learning principles into the design and content of the coursework.
3) Development: Create the courseware using selected hardware and software by following the design that has been prepared.
4) Testing and Evaluation: Users will evaluate the courseware and provide feedback.
5) Refinement: Enhance the design and development based on the previous testing and evaluation. Fix any error and problems.
6) Documentation: Documents all the activities involved in the project in a form of report.

Adaptation of Multimedia Learning Principle in Asma Ul Husna Courseware

This project offers an alternative way of learning and memorising the Asma Ul Husna (99 Names of Allah) - through computer application called Asma Ul Husna Courseware. The adaptation of the principles of multimedia learning is disseminated throughout the module provided by this courseware. Adaptation of the principles is crucial as it will determine whether the users will be able to understand and use the courseware at ease. The three most important modules provided in this courseware are; Info, Asma Ul Husna List, Du'a Collection and Quizzes.

The first principle of Segmenting Principle adaptation is reflected in the Asma Ul Husna List module. This principle is focused on breaking down large chunk information into smaller one. Displaying the 99 names in one page is violating the Segmenting Principle. In this courseware, the 99 Names of Allah are divided by some pages, as in one page only five names are listed. Furthermore, the user needs to click the names listed to see the details of each name - as the users will be able to focus on the content one at a time.

Figure 2: Adaptation of Segmenting Principle on Asma Ul Husna module

The Multimedia Principle is concerned about presenting both audio and visual material to the users to increase their learning rate. Engaging multiple users' information processing channel promotes a faster rate of learning. Thus, in this courseware, some of the module presented uses both images and audio supports to enhance users learning rate. In the AsmaUlHusna Lists module, the audio can be heard by clicking on the visual of the names.

Figure 3: Clicking on the displayed text produces audio

The third principle, the Voice Principle is closely related to the Multimedia Principle as it also focuses on audio. A natural voice is believed to be a good stimulation for the user's social responses. The audio used to vocalize the names in this courseware is a natural voice - a human voice. Thus, it is more comfortable for the users to learn instead of learning the pronunciation from machine voice.

The last principle which is Signalling/Cueing principle adaptation can be seen especially in the video provided for the Du'a Collection module. The emphasising effect of Signalling and Cueing used in this video is by highlighting the texts with different colour as to shows various content presented. Other than that, the zooming effect is used highlight the content to provide a clear view. The Asma Ul Husna view also adopting the emphasis effect by showing that the name is interact-able by showing pop-up.

Figure 4: Zooming effect and usage of different colour applying Signalling / Cueing Principle

Results and Discussion

Usability Testing was conducted to measure all the multimedia applications criteria such as its objectives, content and interactivity. Two criteria focused on this test are on Learnability and Satisfaction - referring to the usability theories introduced by Jacob Nielsen. Learnability is measured on how natural for a new user to learn the new information provided in the application. Meanwhile, satisfaction is studying in how the user scale their experience while using the application. The test participants (primary schoolers) will rate their experience on given questionnaire.

Table 1: Usability Testing Questionnaire

No	Statement	No	Statement
1	The text use is clearly seen and suitable	5	Music sound is clear and suitable
2	I can easily understand the information given.	6	Color used is in the courseware is attractive.
3	The graphics and image use are suitable and pleasing.	7	Easy to remember where to find information.
4	I can understand the video content.	8	I understand on how to use the application.
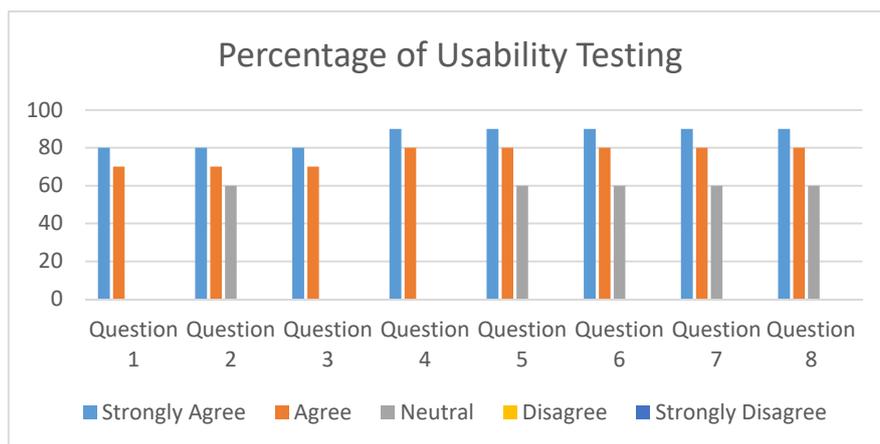
Figure 5: Results of Usability Testing

The usability test aimed to measure the Learnability and Satisfaction criteria towards the courseware. There are five scales used; Strongly agree, Agree, Neutral, Disagree and Strongly Disagree. By referring to the figure above, the users did not scale any answers below the Neutral scale - most of them either agreeing to the questions and a smaller percentage are

neutrals. The result shows that the courseware has successfully fulfilled its purposes of implementing the multimedia criteria.

Other than that, User Acceptance test has been conducted and participated primarily by primary school students. According to Kariyuki (2011), this test is conducted to measure how successful the developed application captures the users' requirements. The goal of this testing is to determine the user level of acceptance and understanding of the courseware content. Moreover, to assess the effects of multimedia learning principles adapted to the courseware, this test is significant. This test is conducted on a group of primary school students. The students are given the opportunity to go through the courseware and answers list of questions provided regarding the test.

Table 2: User Acceptance Test Questionnaire

No	Statement	No	Statement
1	I understand the courseware content	6	The courseware background is satisfactory.
2	I understand the meaning of AsmaUlHusna	7	The content in this courseware is clear
3	I can use the courseware easily	8	Colour used is satisfactory.
4	The navigation button provided is suitable	9	The text (font) is clear and understandable.
5	This courseware is suitable for primary schoolers	10	I can answer the quiz provided in this courseware.
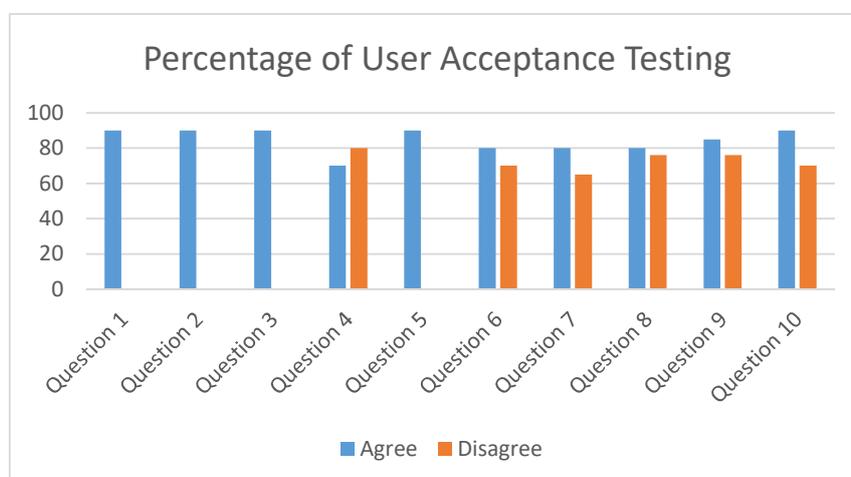
Figure 6: Results of User Acceptance Test

The figure above shows the results of the User Acceptance Test. There is only two scales used which are; Agree and Disagree. With this minimum scale used, the results should make it very clear whether the courseware is acceptable or not. Most of the students (90%) agreed with the half of the questions listed (Q1, Q2, Q3, Q5 and Q10) and the rest of question (Q4, Q6, Q7, Q8, and Q9) had an average of 80% of participant agreed.

Majority of the students can use the courseware with ease. The multimedia learning principles adopted in this course enhance the effectiveness of its design and content. Half of the questions which has 90% students agreed with are focusing on the overall understanding of the content

delivered which shows that the intent on emphasizing the content is satisfied. The rest of the questions which got 80% agreement is focusing on the overall design is satisfactory, as there are several enhancements can be applied to it which is addressed in the recommendation part in this paper. It can be concluded that most of the test participants are satisfied with the courseware presented and can use it with ease.

Conclusion and Recommendation

In conclusion, based on the User Acceptance test result that has been conducted, the participant was satisfied, and they can use the AsmaUlHusna courseware with ease. The multimedia principles selected has been successfully adopted in the courseware resulting in a satisfactory courseware regarding its design and content. This project focuses on adopting the selected multimedia principles to the AsmaUlHusna courseware specifically targeted to the primary schoolers in the hope of offering a better way of learning the 99 Names of Allah. Some recommendations for future works are to consider for more multimedia learning adaptation in the courseware to maximise its potential as an efficient, appealing and engaging courseware. Completion of this courseware is encouraged as it can be utilised in the future, and also includes some other types of assessment (puzzles) to improvise the learning rate. Furthermore, this courseware can be devised by offering multiple languages so it can be used in its user's language.

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