The design a scenario of multimedia learning model based on synchronization between English lesson and ablution lesson

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Abstract. Multimedia-based learning becomes a trend in schools that want their students to be able to absorb subject matter faster. Multimedia systems that are intended for learning must be designed to have a scenario that is aligned with the content of the lesson. In this research a scenario of multimedia-based learning model will be made using Data Flow Diagrams. The scenario model starts with Data Flow Level 0 which contains 3 processes, namely the learning process, the training process, and the quiz process. From the Data Flow Diagram Level 0, then the decompose process is carried out for each process to produce Data Flow Diagram Level 1. At level 1 Data Flow Diagrams for Learning Processes, 4 processes are generated, namely the process of Selecting Ablution Sequences, the Process of Show Ablution, Process Display of Physical Response, and Process of Display of Spell Speech. In the training process, 6 processes will be generated in the Level 1 Data Flow Diagram. In the quiz process, 4 processes will be generated in the Data Flow Diagram Level 1.

1. Introduction
English lessons when synchronized with ablution lessons will be effective learning if used as a multimedia-based learning media [1]. Multimedia-based learning will basically become a learning media that is more fun and interesting if you have a scenario.

A multimedia learning scenario must have content that is easily understood by students. Therefore, Multimedia Learning must have a scenario that is aligned with the content of the lesson.

In order to facilitate the creation of multimedia learning in accordance with the desired scenario, it is necessary to do the scenario design stage first. The design stage will make it easier for developers to build a multimedia learning so that the results are in accordance with the desired scenario.

In describing the scenario design a multimedia learning can use various tools. In this research the Data Flow Diagram model will be used. Data Flow Diagrams will be able to represent user needs related to computerized systems in this case multimedia learning.

2. Literature review
In this section some literature will be discussed which will be used as research supporting material.

2.1. Multimedia learning
The definition of a multimedia term is basically diverse. However, if viewed from the field of computer science, multimedia is an application that has multiple modalities, namely in the form of text, images,
drawings, graphics, animation, sound (including speech), and many more relating to interactive matters [2]. Understanding of multimedia learning is how to utilize a multimedia in a learning.

Multimedia learning is an application whose function is used for learning activities. According to Richard E. Mayer, in building a multimedia learning can follow 12 principles of multimedia learning. These 12 principles are then used as references by researchers in developing multimedia learning [3].

2.2. English lesson
English is a language used as a communication medium for many countries in the world. Even communication between countries used is English. Besides that, a lot of science and technology are presented in the form of English. Therefore, currently English is considered as a very important learning to face the era of globalization in the mastery of IpTek.

If you want to master English fluently, the right learning model is needed and adapted to the conditions of students.

2.2.1. A total physical response. The principles and techniques in learning English vary, where each has its own advantages and its use is adjusted to the conditions of a class and age level of students. One method of learning English is known as the total physical response method [4]. The total physical response method is a method that first introduced by James Asher’s, a professor of psychology from the University of San Jose California. The total physical response method is a language learning method based on the coordination of speech and action. This method refers to learning a language by using physical movements to react to input verbally in order to reduce barriers and reduce students’ affective. Children direct pronunciation will respond to the physical before they begin to produce a verbal response. This method places more emphasis on gestures in the learning process, so that to further improve understanding of the material can be helped by media images in accordance with the theme being discussed.

2.2.2. Method of playing word rounds. The method of playing round words is a method that can be used for learning English. This method aims to increase the vocabulary of the English language owned by someone. The techniques used are done by doing a kind of game by doing word rounds on students [5]. This method is very favored by kindergarten students, according to the time period that nursery students still prefer playing. So that English learning with the method of playing word rounds will make kindergarten students seem to be playing and without realizing they already know and record various vocabulary in English.

2.3. Ablution lesson
The procedures and orders of ablution are provided in the Qur'an [6], that is QS 5: 6. And Hadith [7-9]:

- Book of Hadith of Sahih Al-Bukhari 192 Version of Fathul Bari
- The Hadith of Sahih Al-Bukhari. 159,160 Version of Fathul Bari
- The Book of Hadith Sahih Muslim 226 Syarh Sahih Muslim Version
- Book of hadith Saheeh sunan Abu Daud 102 Baitul Afkar Ad Dauliah Version

2.4. Data flow diagram

2.4.1. Definition of data flow diagrams. Data Flow Diagrams or often abbreviated DFD is a structured analysis and design tools that allow system analysts to understand systems and subsystems visually as a series of interrelated data streams [10].

- Context diagram: describes a large circle that can represent the entire process contained in a system. Is the highest level in the DFD and is usually numbered 0 (zero). All external entities
shown in the context diagram are the main data streams to and from the system. This diagram does not contain data storage at all and looks simple to create.

- Zero diagram (diagram level-1): is a large circle representing the small circles in it. Represents the solution from the Context diagram to the Zero diagram. in this diagram contains data storage.
- Detailed diagram: is a diagram that describes what processes are in the Zero diagram.

2.4.2. Function of data flow diagrams. The function of the Data Flow Diagram is:

- Data Flow Diagrams (DFD) is a modeling tool that allows system professionals to describe the system as a functional process network that is linked to each other with data flow, both manually and computerized.
- This DFD is one of the most frequently used modeling tools, especially if system functions are more important and complex than data manipulated by the system. In other words, DFD is a model creation tool that puts emphasis only on system functions.
- This DFD is a system design tool that is oriented to data flow with the concept of decomposition can be used to describe analysis and system design that is easily communicated by system professionals to users and program makers.

3. Research method
This research will be divided into 3 stages, namely:

- Determine the number of ablutions that will be included in Multimedia Learning. The order of ablation is determined as much as 13 Sequences which refer to the Qur'an and the hadith as written on the theoretical basis.
- Planning a Multimedia Learning scenario design. The Multimedia Learning scenario design is based on the subject matter that contains the content of synchronizing English language lessons and ablation lessons [1].
- Describe the results of modeling Multimedia Learning scenarios into a graphical tool called Data Flow Diagram.

3.1. Determining the basic multimedia learning scenario
Scenario multimedia learning basically starts by determining the sequence of main activities that exist in a multimedia learning. In this study found the main sequence of activities that will be a multimedia learning scenario, namely:

- Learning Activities
- Exercise Activities
- Quiz Activities

Next, what must be done is to determine the components needed for Student learning materials. The need for learning components refers to the results of synchronization of English language content and ablation lesson content [1], namely:

- Display ablation demonstrations based on the sequence being studied
- Spell Word Display
- Display Physical Response
- Display of Exercise Material
3.2. Determine the sub scenario of the multimedia learning scenario

After the main activity of a Multimedia Learning has been made, then determine the sub scenario of a multimedia that will be built.

3.2.1. Learning sub scenario. In the learning sub-scenario will be made as many as 4 sub-scenarios of activities, which include:

- Sub Activity "Choose Ablution Order"
- Sub Activity "Choose Display Ablution"
- Sub Activities "Choose Display Physical Respons"
- Sub-Activities "Choose Spell-Proof Words"

3.2.2. Sub scenarios of exercise. In the sub-scenario of exercise will be made as many as 6 sub-scenarios of activities, which include:

- Displays the vocab training interface
- Vocab training
- Check the Results of Vocab Answer
- Display the Interface of Sentence Exercise
- Sentence training
- Check Sentence Answers

3.2.3. Sub scenario of quiz. In the Quiz sub scenario, there will be 4 Sub Scenario activities, which include:

- Show Quiz
- Showing questions
- Calculating Quiz Scores
- Display Student ratings

4. Results and discussion

The results of the research, are:

- Data Flow Diagram Level 0, Containing the main scenario
- Data Flow Diagram Level 1, Learning Sub Scenario
- Data Flow Diagram Level 1, Exercise sub Scenario
- Data Flow Diagram Level 1, Quiz sub Scenario
4.1. *Data flow diagram Level 0, containing the main scenario*

In Figure 1 the Data Flow Diagram is shown for the main scenario. In Figure 1 it appears that the main scenario has 3 Sub Scenarios.

![Data Flow Diagram Level 0](image)

**Figure 1.** Main scenario of data flow diagram.

4.2. *Data flow diagram level 1, sub-learning scenario*

In Figure 2 the Data Flow Diagram is shown for the learning sub scenario. In Figure 2 it is known that the Learning Sub Scenario has 3 sub-scenario derivatives again. And in Figure 2 also shows the data storage needs, namely:

- Data Storage Procedures for Ablution
- Data Storage State Ablution
- Data Storage Picture Ablution
- Data Storage Sentence Ablution
- Physical Data Storage Picture
- Physical Vocab Storage Data
- Data Storage of the Action Vocab
4.3. Data flow diagram level 1, sub scenario of exercise

In Figure 4 a Data Flow Diagram is shown for the Quiz sub scenario. In Figure 3 it is known that the Quiz Scenario Sub has 4 sub-scenario derivatives again. And in Figure 4 also shows the data storage needs, namely:

- Data Storage Rule Level
- Data Storage Bank of Question
- Data Storage History Score

**Figure 2.** Data flow diagram of learning sub scenario.
5. Conclusion
From the results of several experiments on the research conducted it can be concluded that the scenario design of a multimedia learning can be described using Data Flow Diagrams. Some of the advantages of using Data Flow Diagrams are as follows:

- Can be described the needs of activities owned by a Multimedia learning in accordance with the scenario created.
- Variables are needed can be raised by the activity component, and it can be known the variables produced by the activity component
- Can be found Data Storage needs that will be used when building Multimedia Learning.

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