Multimedia Design Based on Mobile Learning "Smart Fun English" for Early Childhood.

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Abstract— **A person's ability to use English is needed. English education as an international language must be introduced as early as possible to early childhood. This research aims to design and build multimedia "smart fun English" based on mobile learning for early childhood. This research uses the waterfall method, with steps consisting of system engineering, software requirements analysis, design, coding, and testing. Multimedia is built based on the characteristics of children aged 4 to 6 years. Multimedia is designed as interactive as possible with the material presented in the form of names of human body parts, animal names, and vehicle names. Multimedia is accompanied by evaluation questions and educational games to increase motivation and the ability to memorize English vocabulary. Test results from this multimedia show that multimedia "Smart fun English" can be used in learning. This multimedia can create a pleasant learning atmosphere with the concept of playing while learning.**

Keywords: multimedia design, mobile learning, English, early childhood

I. INTRODUCTION

The English is an important language to learn. The rapid development of English is not only for adults but also for young children. English will be more easily taught to young children [1]. At this time, they can easily imitate and practice their language skills [2]. At this golden age, children have a quick grasp thus when English is taught to children, they will understand easily. By teaching English from an early age, children will be better prepared to learn English at the next level of education. Children are more confident to communicate with English.

One of the most critical steps of language learning at early age is the process of picking out and recognizing words, sounds and basic structures of a language [3]. Vocabulary is the basis of all aspects of language skills, both in speaking, or writing. Without vocabulary, children will have difficulty in understanding and expressing things both in spoken and written language. The better vocabulary mastery, the better child is in arranging sentences to be expressed in English.

The rapid development of technology in the industrial revolution era 4.0 enables teachers to choose various media to support the learning process. One of the media that can be developed for learning English is multimedia. Multimedia is a combination of text, image, sound effect, light, animated figure, video, and other form of interactive content [4]. Multimedia can present material, practice questions, and educational games. Educational games in multimedia not only increase children's motivation to learn but also can encourage children's interest in learning. It is also encourage and enhance language development, critical thinking, emotional development, intelligence and imagination [5].

The 21st century is an age of mobility and ease [6]. Mobile use for children is increasing every year [7]. Accessible, portability, speed, mobile devices are supporting factors to be used as learning media [8]. Children learn to explore mobile devices easily through touch, repeat, try, and error [9].

Mobile learning (M-Learning) exists as a form of technology application in learning using mobile devices [10]. Besides, M-learning as a facility or service that provides general electronic information to learners and educational content that helps the achievement of knowledge without questioning location and time [11]. M-learning is now widely used because it has been supported by multimedia elements such as text, images, sound, and video [12]. Then, M-learning also has advantages, namely flexibility, mobility, relative low cost, and convenience for users. Besides, the use of mobile will attract attention and increase children's motivation in learning languages. M-Learning is not only limited to using smart-phones, but also hand held and mobile information technology (IT) devices such as PDAs, laptops and Tablet PCs [13]. Thus, M-learning makes it easy for children to get English learning through their devices.

Many researcher suggest that the use of mobile applications in learning activities can increase children's interest during the learning process because of its success in attracting the attention of children with multimedia elements that are included. Although mobile learning has many advantage. The use of mobile devices for early childhood learning must be accompanied by adults. Teachers and parents are obliged to ensure that when children interacted with technology must be follow the stages of development and of course must be beneficial for children [14]. Multimedia must be designed, by the characteristics and needs of children [15].

Based on the description, it is necessary to have a multimedia design "Smart Fun English" based on mobile learning that can help children to learn about English vocabulary. The material in multimedia includes names of

body parts, vehicle names, and animal names. The design of mobile learning in English learning is expected to be beneficial for teachers and parents to teach English. This certainly requires guidance from adults.

II. METHOD

This multimedia design uses the waterfall method, with steps consist of:

a. System engineering. Analyze of the needs the whole of system to be applied to multimedia.

b. Software requirement analysis. Analysis of hardware requirement and what software will be used to design and build multimedia. The hardware used is a laptop with Intel Core i3, processor specifications, Installed memory (RAM) 4 GB, Windows 8.1 Pro 64 bit and Operating System. The software used is Adobe Flash C 6, Corel Draw X7, Adobe Photoshop CS6, Adobe Audition, and Wondershare Filmora.

c. Design. Multimedia design is done by arranging representations into flowcharts and storyboards. The aim is to provide a clear picture of the appearance of the program develop at the coding step. This is the multimedia flowchart "Smart Fun English"
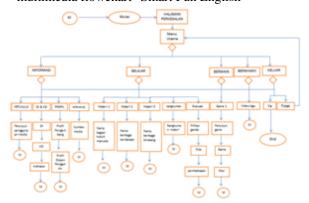

Fig. 1. Flowchart

d. Coding. Coding designs that have been made previously are built with Adobe Flash software with the action scripts 3 programming language.

e. Testing. Testing of multimedia products that are built to determine whether it is suitable to the needs and there are no errors. To test multimedia products carried out by programmers and product targets.

III. RESULTS AND DISCUSSION

The following are the print screen results from the multimedia "Smart Fun English"

Fig. 2. Main view

Figure 2 is the main page display when the program is opened. In this view, there is information about the program's title and target users. There is a "start" button to go to the next page.

Fig. 3. Information page display

Figure 3 is an information page display containing instructions for using multimedia, basic competencies of learning, multimedia programmer profiles and references or sources for multimedia teaching materials.

Fig.4. Menu display

Figure 4 is a menu page display. On this page there are buttons, material 1 body parts, material 2 transportation name, material 3 animal name, summary contains a summary of all material presented, evaluation contains multiple choice practice questions to test the ability memorize vocabularies.

Fig. 5. Display of material body parts

Figure 5 is a page view of the body part material. This display shows the character Davi. Where, each part of his body when clicked will appear the name in English and Indonesian.

Fig. 6. Display of transportation material

Figure 6 is a page display of transportation material. You can continue and go back. If you press the further button, the car will move and other vehicles will appear. Each vehicle appearing will be presented with information in English and Indonesian.

Fig. 7. Displays the material names of animals

Figure 7 is the third page display material the names of animals. There are several buttons with illustrations of animals. If clicked, an animal animation will appear accompanied by information in English and Indonesian.

Fig. 8. Summary display

Figure 8 is a summary page view of the three material previously presented. The summary page is designed like a book, if clicked on a piece of paper it will go to the next summary.

Fig. 9. Game display

Figure 9 is an educational game page display. This game is a puzzle where the user must arrange puzzle pieces based on the clue that has been given previously. There are 3 levels of games where children must complete each level if they want to go to the next level

Multimedia testing is performed to determine whether there is an error and whether the multimedia is following the desired. Multimedia was tested on ten early childhood with an age range of 4 to 6 years. The results of trials to get the child's response to multimedia. Based on the results of the questionnaire, ten children expressed interest in "smart fun English" multimedia and found no errors either on the display or on the navigation buttons

IV. CONCLUSION

After testing and evaluation, this research has succeeded in designing and building Multimedia based M-Learning "Smart fun English" for early childhood. This multimedia helps children to master and memorize various English vocabulary such as parts of body, vehicles, and animals. This multimedia creates a pleasant learning atmosphere and makes it easy for children to learn English according to their devices. In this multimedia educational games have not been presented too much that it is hoped to add a variety of educational games following the material so that children are more motivated to learn with this multimedia. This multimedia does not have a voice recognition feature. Furthermore, it is expected to be developed by adding a user voice recorder feature to then be given feedback

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