

Interactive Multimedia Development in The Learning Process of Indonesian Culture Introduction Theme for 5-6 Year Old Children

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Abstract

Due to the sore concern of young generation's insight about Indonesian cultures, thereby it is crucial to introduce them since the early ages. Common ways of introducing Indonesian cultures were by means of pictures, which made the children easily lost their interest. This research was aimed to design interactive multimedia learning in introducing Indonesian cultures especially for early children and also to learn about the effectiveness of interactive multimedia implementation during the classroom learning process. The research is a Research and Development research. Data collection methods were: observation, interview, documentation, and student worksheet test. Data analysis was included: designing interactive multimedia of Adobe Flash CS4, and descriptive analysis of percentage and effectiveness test. The research results show that: the design of learning multimedia for Indonesian culture theme in form of interactive game, the implementation of interactive multimedia that resulted in increasing effective class learning process, presented by the scoring result of pre-test in average of 2.07 to 2.73 for the post-test with mastery of learning result amounted to 80%. Interactive multimedia employed in learning process has given a new variation for the students, in which it was easier for them to memorize the content of the learning subject when they were shown with certain interesting pictures and sounds. Multimedia was able to help the development of interactive responses during the learning process. This result highly expects could be useful in developing and enhancing the scientific knowledge in the area of early childhood education aided by interactive multimedia.

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INTRODUCTION

Ki Hajar Dewantara stated that early childhood education is the sensitive periods or the crucial periods in child's life, therefore the importance of education is aimed to enhance the content of the soul and not to change the basic of the soul (Magta, 2013). However, in real life, there are many unsuitable education practices especially for early children, the ones which emphasize more merely in academic areas (Choiriyah, 2015). According to Khosasi, Damajanti & Muljosumarto (2018), a child's development is a significant thing to be paid with attention in order to construct a good individual of future grown-ups, as it has many determinant aspects. Today's technology advancements are highly influential on child's brain development. More computerized learning methods, easier to use, and more appealing to children can be applied as auxiliary tools for teaching and learning activities (Kurniawan, 2018). However, every development has its side effect, among others, its impact on multicultural cultures. The knowledge about cultures has been given since the early ages, such as the diversity in Indonesian tribes and cultures. In that material commonly will consist the diversity of traditional clothes, houses, dances, traditional weapons and also tribes or ethnic groups in Indonesia (Sari & Haryono, 2014). A child who grows in a certain cultural environment will definitely bring with him or her the cultures that have influenced his or her growth and development (Rahmawati, 2012). A most learning activity about Indonesian cultures is still using conventional and uninteresting methods thus made the students bored and even do not comprehend the material that has been delivered to them (Halidah, 2013). According to Mulyaniasih (2015), it is expected that the teachers always improve their roles during the teaching and learning process by enhancing their knowledge, comprehension, and experience by implementing more creative learning methods through more attractive materials that in result will motivate the students to follow the learning activity.

Fesakis (2011) stated that by the widespread of internet use, children are getting familiar with its use since their early ages, meanwhile, there is also an increasing number of teachers who design their learning activities by the help of internet service. Heading to this direction, teachers need practical examples of learning activities. Those activities are aimed to teach pre-school children about the geometrical concept by means of communication device via the internet that has been adjusted to children's development stage. Drigas & Kokkalia (2014) concerning Kindergarten education, there have been several researches stated that digital tools that have been well designed for education activities could be significant educational tools for the effective and efficient learning process, especially in the area of early literacy skill. By using a computer, based on child's task and real-life simulation, the use of cognitive mechanism gradually develop the knowledge because technology gives circumstantial and visual signals that enable children to think, to work, to interact, to collaborate, to make or create and finally to learn.

It is true that Indonesian cultures can be learned through encyclopedia or books and maps, however, early-age children are still unable to read or even understand them. Therefore, we need a more effective alternative in introducing Indonesian cultures, namely by means of interactive media (Ekawati & Falani, 2015). The most appropriate method is student-centered learning (Istikomah, Hartono & Rusilowati, 2013). Learning media is anything and everything used during teaching learning activities which are able to stimulate the student's mind (thought), feeling, interest, and attention, thereby the education-communication process between teacher (media maker) and students can be effectively and efficiently taken place (Wahyudi, Wibawanto & Hardyanto, 2017). Some students are able to learn quicker by means of visual media, some are more into audio media, while some others are more content with printed media, and some others prefer to audiovisual media, and more. Hence, the concept of multimedia for learning process was born

(Mahmudah, 2012). The design of interactive games has been done as an approach because early-age learning and way of learning are basically based on playing (Chandra, Hagijanto, Maer, 2018). This research was aimed to design interactive learning multimedia for introducing Indonesian cultures and also to figure about its implementation effectiveness during the classroom learning process. It is expected from this research that further development for early childhood education particularly in introducing Indonesian cultures by means of interactive multimedia.

METHODS

This research used the approach of Research and Development (R&D), namely an approach to result in certain products and test those products' effectiveness (Sugiyono, 2010). Development procedures employed in this study was a modification model named by Thiagarajan (1974) as Four D Model (FD model), which included several phases of define, design, develop, and disseminate, the last stage, unfortunately, has not been carried out due to the time and cost limitation.

Purwanto (2013) stated that it is significant to clearly identify the characteristic of test subjects. They are population and sample that are going to be used as subjects to trial. A population is a group of individuals to which the results of the research are going to be generalized. Frainkel and Wallen (Purwanto, 2013) stated that a researcher needs to determine the sample in a clear way concerning who is going to be imposed with the research's conclusion. The test subjects of interactive multimedia product for Indonesian cultures introduction learning for 5-6 year-old children were the students in PAUD (early childhood education) Lestari, Candirejo village, Tuntang sub-district, Semarang Regency, in a number of 15 students.

Data collection technique is the most strategical step in research, without knowing the data collection technique thus a researcher will not be able to obtain predetermined standardized data (Sugiyono, 2008). This research used some

data collection techniques, among others, (1) Through interview sessions with the teachers to figure out deeper matters about their difficulties in delivering Indonesian culture introduction learning, (2) Data collection during observation was obtained through the observation carried out by the researchers and teachers by means of instrument what-so-called observation sheet in form of checklist model, (3) Documentation is a form of event records, can be written, photos, recordings or even videos.

The researcher employed some data analysis techniques as follow: (1) Knowing about how the learning process of Indonesian culture introduction theme has been carried out by means of observation and interview guidelines, (2) Formulating interactive multimedia that is able to introduce Indonesian cultures through the use of Adobe Flash CS4 program and its internal supporting applications, (3) Figuring out how effective the interactive multimedia in introducing Indonesian cultures for 5-6 year-old children by using descriptive and quantitative analysis techniques of rubric and scores, (4) Test, namely knowing child's understanding level towards the learning material has been given, by using Student Worksheet contained of suitable learning material.

RESULTS AND DISCUSSION

The Design of Interactive Learning Multimedia for Indonesian Cultures Introduction Theme for Early Childhood Students

The strength of this media is that students can be more active through the use of music, pictures, videos, and also interactive problems. By means of the existing facilities, students are required to do their tasks in stages or gradually. The format arrangement of interactive multimedia learning included determining the software, basic layout, background, color choices, font types, animation, music, pictures, and videos for the application. The software used in operating this interactive multimedia is Adobe Flash Player. It is a vector-based animation program that has been widely used by animators in creating various animations (Hidayati, 2017).

Similar research had been carried out by Hwa (2012) in a research project of developing a multimedia package of interactive courseware for moral values education by using oral Malay language in traditional narration called CITRA. The main purpose of this project was to create a pedagogical tool that combines on the screen the texts, graphics, animations, audio, and video in an attractive environment so that enabling positive values and pictures from the projected stories.

When opening this interactive multimedia, it will see at the front page the animation of Indonesian archipelagos and animations of Indonesian traditional clothes at the bottom right side. Appearing simultaneously a text of “Keragaman Budaya Nusantara” (National Culture Diversity) accompanied by traditional music. To begin the game, click *MULAI* button. The initial display can be seen in Figure 1.



Figure 1. Multimedia Initial Display

This multimedia is based on the theme of “Budayaku” (My Cultures). In this interactive multimedia, there are three (3) game choices by pressing or clicking the desired picture that will directly lead to the chosen one. The display of interactive can be seen in Figure 2.

Traditional clothes picture guessing games consist of 2 levels. In level 1, students have to guess three (3) traditional clothes and matched with the displayed examples. Meanwhile, in level 2, students are given 6 traditional clothes to be matched with the displayed examples. The traditional clothes picture guessing game can be seen in Figure 3.



Figure 2. Display of Interactive Multimedia Game Choices



Figure 3. Traditional Clothes Picture Guessing Game

The feedback used in this game of “Indonesian traditional clothes picture guessing game” is in form of a green ball written with “Correct” which then falls at the side and an animation of a smiling child. Whereas, if the answer is wrong, there will be a red ball written with “No” and an animation of the growing child will appear. The animation responses for answers

of traditional clothes picture guessing game can be seen in Figure 4.

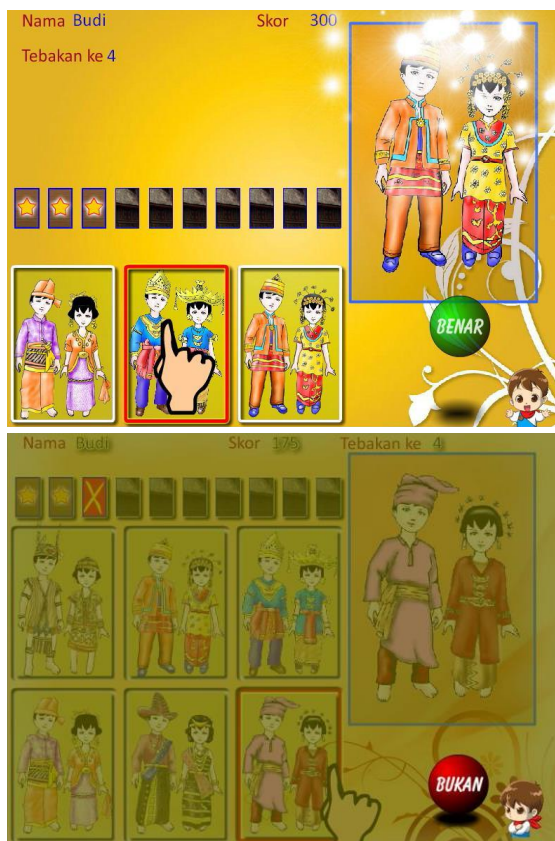


Figure 4. Animation Responses for Answers of Traditional Clothes Picture Guessing Game

A sort of puzzle game in form of drag and drop model will consist of 3 types of traditional houses. To assemble the puzzle in this game, the students need good coordination between hands and eyes, and also able to operate the mouse well. The puzzle game of drag and drop model for 3 types of traditional houses can be seen in Figure 5.

Feedback response used in this game “assemble puzzle for Indonesian traditional houses” is if the students are able to assemble all the puzzles correctly there will appear ‘berhasil’ (Succeeded) text, accompanied by the name of the traditional house and its region, as well as its original house photo. The response for puzzle game when successfully completed can be seen in Figure 6.



Figure 5. Puzzle Game of Drag and Drop Model for 3 Types of Traditional Houses



Figure 6. Response for Puzzle Game when Successfully Completed

The introduction of diversity in traditional clothes and houses also can be introduced by means of maze game. This game directs a character named “Si Blangkon”, who is wearing a Javanese traditional outfit, to go to different traditional houses in each level. This maze game uses arrow button of the keyboard, moves the object according to the road or way that will be taken. The maze game can be seen in Figure 7.

This maze game shows the way home to “Si Blangkon” consisting 7 types of various maze boards towards each traditional house. The types of maze game can be seen in Figure 8.



Figure 7. Maze Game



Figure 8. Types of Maze Game Choices

Not only fun, but playing maze also increase student's skills. The choice of maze game needs to see the student's ability and should be varied so that they will not be bored. This game also sharpens student's spatial ability. It has a meaningful advantage for early-aged children, namely by training the coordination between eyes and hands, training student's patience, increasing the knowledge, training the concentration, training the motoric. This game is able to develop all child's aspects and potentials, as it can be modified according to the purpose, want to be achieved (Rosidah, 2014).

The Implementation of Interactive Multimedia Showed An Effective Result in Enhancing The Classroom Learning Process

This was characterized by a better conceptual mastery level of the students. The calculation to know the effectiveness of learning result prior to the development of interactive multimedia (pre-test) and after the development of the interactive multimedia (post-test) for the material of introducing Indonesian culture was done by using percentage thus can be found the success comparison prior to and after the development of interactive multimedia.

Based on Table 1, it can be seen that after post-test the children were able to understand the learning subject of Indonesian culture introduction which was exceeding the target. However, there was a student with a low score because he or she did not complete in following the learning thus was not fully understand the task given due to crying in the class. Based on t-test, it was obtained the following data.

Table 1. Pre-test and Post-test Result Comparison

Theme	Score	Category	Number of students	
			Pre-test	Post-test
Learning the material of Indonesian Culture introduction	***	Developing very good	5	12
	**	Developing as expected	6	2
	*	Starts developing	4	1
	#	Not yet developed	0	0

According to Table 2, it can be explained that the mean for pre-test was 2.07 and post-test was 2.73 of total 15 respondents with standard

deviation for pre-test was 0.594 and post-test was 0.799.

Table 2. t-Test Mean Results

	Mean	N	Std. deviation	Std. error mean
Pre-test	2.07	15	.799	.206
Post-test	2.73	15	.594	.153

Based on Table 3, can be outlined that $t_{\text{value}} (3.568) > t_{\text{table}} (1.75)$, thus can be said that there was an influential difference between pre-test and post-test.

The research result for the introduction theme of Indonesian cultures in PAUD “Lestari”, Candirejo village, Tuntang sub-district

was that introducing Indonesian cultures through the attractive display of interactive multimedia presenting pictures and animation that made students showing more interest. Introducing Indonesian cultures by means of interactive multimedia according to the subject was displayed made students easier in understanding and following the learning activity. Introducing Indonesian cultures by using interactive game created a more fun learning for students.

Table 3. t-Test Results

	Paired differences				t	df	Sig. (2-tailed)
	Mean	Std. deviation	Std. error mean	95% Confidence interval of the difference			
	Lower	Upper	Lower	Upper	Mean	Std. deviation	Std. error mean
pre-post	-.667	.724	.187	-1.067	3.568	14	.003

Research results were obtained mean score pre-test was 2.07 of a maximum score of 3.0. Meanwhile, mean score post-test was 2.73 of a maximum score of 3.0. After testing its effectiveness through the calculation in order to test the effectiveness learning result comparison between pre-test and post-test, there were a low category of 6.6%, medium category of 13.3%, and high category of 80%. This data exhibited the existence of a difference in learning result between learning with interactive multimedia and prior to the use of interactive multimedia. The result data of pre-test 2.07 increased into 2.73 for post-test showed a significant increase.

The use of information and communication technology also needs to be embraced in order to enhance learning effectiveness and efficiency. Research performed by Çalık (2013), showed that the use of technology in the learning process was able in increasing learning effectiveness as it was able to make the students more active and confident. According to Munir (2010), some advantages of using learning media was able to attract student’s attention, grow student’s interest and activeness during the learning process. The use of technology-based learning media is highly helpful in facilitating the students during the learning and teaching process, and also able to make the

learning activity more interactive, effective and attractive.

Learning media by means of interactive multimedia can be in form of games which contained programs that are able to interact with the users by the help of computer or laptop. The learning theme of introducing Indonesian cultures to the early-age children, more specifically the students in PAUD Sun Class, has used one of learning media in facilitating the students to understand the message delivered to them, namely by using interactive multimedia. This interactive multimedia-aided learning has been tried to make students to better understand, comprehend, be more active, and apply them in daily real life. In his research, Manikowati (2012) deduced that by using multimedia, the teacher is becoming more professional. The communication between the teacher and the students is becoming better. Students can be focused, enthusiastic, and have an interest in learning. Moreover, students are able to express their ideas and can be more content with the objects displayed in the learning multimedia.

The learning results aided by interactive multimedia during the learning process in PAUD “Lestari”, Candirejo village, Tuntang sub-district, Semarang Regency are: (1) The students in PAUD “Lestari”, Candirejo village, Tuntang sub-district, Semarang Regency were easier to

memorize the content of learning activity when they are shown with certain attractive pictures and sounds. The audiovisual service in interactive multimedia helped the students to create or form memory depiction in their minds in relatively long-term (long-term memory), (2) Learning media by means of interactive multimedia during learning process gave new variation for the students, hence they were more active in following the learning activity, (3) Interactive multimedia is able in helping the construction of interactive response during learning activities as each student is given with opportunity to be responded directly in interactive multimedia games.

Through this research, it is expected that the teachers always create and do learning innovations by means of learning model that is suitable with the student's condition and ability, so that they will be more motivated and have more interest in the learning process. A certain learning model which is successfully solving the problem in one place, yet is not applicable to other places, is not an innovative one for learning. So, the main factor for innovative learning is novelty and ability to solve learning problems (Sarwi, Supriyadi & Sudarmin, 2013). It is expected that this research can be meaningful and useful in developing and enhancing the scientific area of early childhood education aided by interactive multimedia. Also, it is expected that the results from this research are able to develop early childhood learning especially in introducing Indonesian cultures by means of interactive media.

CONCLUSION

The design of interactive multimedia for the theme of introducing Indonesian cultures produced by this research was in form of games that can be easily saved in computers or laptops. The implementation result of this interactive multimedia was effective in improving the classroom learning process. This can be seen from a better conceptual mastery level of the students. The computation for figuring out the effectiveness of learning result between the

development of interactive multimedia was shown with the pre-test score of 2.07 and after the development of interactive multimedia with the post-test score of 2.73 with studying result, mastery reached 80%.

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