

The Development of Bolokuncoro Interactive Learning Multimedia for Language Literacy of Children Aged 5-6 Years Old

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Abstract

The objectives of this research are to develop Bolokuncoro interactive learning multimedia for language literacy of children aged 5-6 years old at the Pembina Public Kindergarten Jebres Solo, and to find out the effectiveness of interactive learning Bolokuncoro multimedia for language literacy for children aged 5-6 years at the Pembina Public Kindergarten Jebres Solo. This research is a Research and Development (R&D) model with ADDIE employing experimental and control classes as sample design. Bolokuncoro interactive learning multimedia integrates the local wisdom of Solo into the learning theme and is added with educational games. The results of this study are the production of interactive learning learning Bolokuncoro multimedia, interactive learning interactive learning Bolokuncoro is effective for language literacy of children aged 5-6 years old in the Pembina Public Kindergarten Jebres Solo with the results of the n-gain of the experimental class score is 0.84 which belongs to the high category and the n-gain of the control class is 0.51 which belongs to medium category.

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INTRODUCTION

Nowadays, there are many things that can be used as parameters whether a nation can be said as a developed nation. One of them is by looking at the quality of education. According to (Wisarja, 2017) indirectly, the more advanced the level of education of a nation, the more advanced the country will be.

The parameters of the quality of education in Indonesian can be seen in the PISA (Program for International Student Assessment) in 2015. The ability of Indonesian students in the fields of mathematics, science, and reading is still low compared to other countries. The average mathematics score of Indonesian students is 386, the average reading score is 397, and the average score for science is 403. Whereas, the average OECD (The Organization for Economic Cooperation and Development) score is respectively 494, 496, and 501. Speaking of education, there are various dimensions that are always interesting to study starting with our most basic level of education, early childhood education (PAUD). There are interesting facts from the UNESCO data set in (Ministry of Education and Culture, 2015) They illustrate the position of the application of Early Childhood Education in Indonesia among other countries in the world that is in the 45th place out of 45 countries. (Sari, 2017) stated that the quality of education in Playgroup, Kindergarten/RA in Indonesia is still relatively low. So, according to (Suryana, 2017), early childhood access services to education and care through Early Childhood Education are still limited and uneven. The quality of education services is the main focus which also impacts the quality of graduates from the institutions (Ita, 2018). The low service and quality of Early Childhood Education in Indonesia play a major impact on the quality of student outcomes at the next level of education.

The conditions above are the indicator of our current educational problems. Reading activities are very important for the success of a nation. However, in fact, (Nasution 2019) explained that the reading interest of the Indonesian people is still low in 2011, UNESCO

described that the result of a reading culture survey in Indonesia is on the lowest position with a value of 0.001. It means that out of about a thousand Indonesians, only one person has a high reading culture.

The Indonesian people who have thousands of cultures is a big problem for our nation when the government is not able to do all the innovations and the development of excellent learning models (Ahmadi, 2017). The government of Solo has shown its concern and seriousness in committing to foster a culture of literacy from an early age. This city has proven to be the only city in Indonesia that creates "Bolokuncoro" program (*bocah Solo tekun moco aksoro*). With their local wisdom, this program was created to give the first book for early childhood for free throughout Solo. However, the limited *APBD* has made the distribution of Bolokuncoro books uneven. The application of books to the Early Childhood Education institutions to be used in the learning process is constrained and not implemented.

Those above conditions are very unfortunate because the integration of multicultural cultural values in the Bolokuncoro book material is not delivered. According to (Slamet, 2017), multicultural education is a new discourse of education in Indonesia, but the urgency of its implementation is very high. Multicultural education curriculum can be applied in every level of education through student programs and the process of habituation through daily learning both at school and at home.

Related to those statements above, (Wulansari, 2017) said that Early Childhood Education institutions are given the freedom to develop their curriculum. Therefore, they can improve the quality of their curriculum through local culture in their respective regions so that the program of the government of Solo City, "Bolokuncoro" with the characteristics that based on the story of local wisdom can be used as an attempt to develop curriculum on existing learning themes. This is what makes the researcher wants to develop conventional

Bolokuncoro books into the form of interactive learning multimedia.

Literacy in general is defined as everything related to listening, speaking/telling stories, reading, writing, and representing it (Davidson, 2010). According to (Arsa, 2019) literacy requires a series of cognitive abilities, written and oral language knowledge, knowledge of genres, and cultural knowledge, in the sense that, complex abilities are needed in literacy. Each skill relates to the next skills (Doludea, 2018) Listening skills will be the basis for the development of other language skills. If early literacy abilities are interpreted and begin with language development, then it is important for a child to have speaking skills, reading skills, and writing skills in advance.

Along with the current development, it is found some technologies that can provide benefits to help the teaching and learning process, one of which is multimedia applications which can make learning more accurate and effective (David, 2018). Interactive learning multimedia is not new in early childhood education learning. This can be seen from existing research that interactive learning multimedia is widely used in the learning process. According to the research conducted by (Arnada, 2018), the results are the in form of interactive animations on animal recognition and the introduction of the alphabet used for learning.

In line with the above statements, (Hadary, 2019) conducted research with the product of interactive multimedia in the form of an animated video that contains an introduction to Chinese culture, Dayak, Malay "CIDAYU". (Yuniarni, 2019) also carried out the same research with the product of interactive multimedia in the form of cultural-based gymnastics and educational game tools based on natural resources of West Kalimantan to be used in the learning process. With the advantages of adobe flash-based interactive learning multimedia, the results of the research from (Rahmaibu, 2016) showed that there is significant difference before and after the implementation of multimedia-based learning media using adobe flash. Referring to the existing research, the development of Bolokuncoro

attractive learning multimedia is expected to provide effective learning.

METHODS

The research design used is Research and Development (R&D). According to Sugiyono (2018), research and development is a research method used to produce certain products, and test the effectiveness of the products. The development model used in this research is the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The following are the steps used in this model.

The first is Analysis. At this stage, the researcher conducted preliminary observations to find problems related to the implementation of the Bolokuncoro program in the learning process at school, explored the existing potentials, analyzed the needs, and find solutions to develop media. The second is design. The design developed was Bolokuncoro interactive learning multimedia which is originated from the conventional design of Bolokuncoro book materials.

The third is development. The development was done by converting the conventional Bolokuncoro book into an interactive learning multimedia using Adobe Flash application, with the development of guessing pictures games, and an animated character named Kuncoro. The fourth is implementation. Bolokuncoro interactive learning multimedia that had been valid was able to be implemented in the learning process at Pembina Public Kindergarten Solo. The last is evaluation. After the media was implemented in learning, the researcher evaluated the strengths and weaknesses of the media to the users.

The instruments of data collection technique are the most important tools to obtain research data. The types of data collection used in this study are (1) qualitative data obtained through observation and questionnaires on interactive learning multimedia. The interviews were used to find out the teachers' needs and children's responses to the media, (2) Quantitative data were obtained from the

effectiveness data of interactive learning multimedia from the effectiveness test of the implemented media. Data collection techniques used in this study are as follows: (1) Observation technique: observing students' activities and teacher skills through observation in classroom learning using developed media. (2) Test: the type of test used in this study is individual interviews with children. According to (Pranoto, 2018), early childhood group interviews did not go well. Therefore, an individual approach to children can be used using images as a stimulus.

Indicators of early language literacy skills (listening) in (Jalongo, 2007), stages of child development in listening are: (1) able to do things that require more guidance, (2) able to recognize basic colors and shapes, (3) able to show an understanding of the relationship place (above, below, near, beside), (4) able to distinguish high notes, low notes and understand the scales, (5) able to keep information in the right order.

RESULTS AND DISCUSSION

The results of the development of Bolokuncoro interactive learning multimedia are explained according to the research objectives as follows.

The Development of Media

In accordance with the ADDIE model used, this stage includes the following process.

Analysis

This stage is used to determine to what extent teachers and students need to be developed by the researcher. It was done by distributing questionnaires to the teachers and conducted structured interviews with students. The results of the needs analysis indicate that both teachers and students want media with animation and games.

Design

The second stage of this research is determining the design. The interactive learning multimedia model developed refers to the conventional design of the Bolokuncoro book. The next step is the design of Bolokuncoro

interactive learning multimedia. The followings are the details explanation.

Create Bolokuncoro interactive multimedia storyboards:

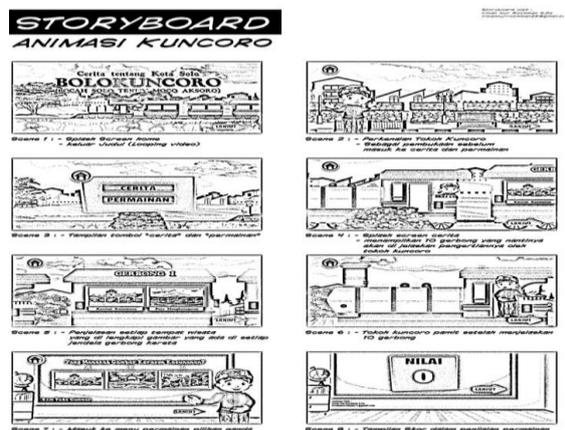


Figure 1. Storyboard

1. Create asset design (Character animation, background, train model, button design. The techniques used to create them are motion tween and frame by frame.
2. Do voice dubbing and adjust sound.
3. Determine the toys instrument.
4. Merge scenes with links using coding.
5. The last step is rendering. It is done to convert media products into a video format.

Development

The third stage of Bolokuncoro interactive learning multimedia is development. The results are as follows:

1. The initial display of Bolokuncoro book before development:



Figure 2. Bolokuncoro Book Design

Bolokuncoro conventional book consists of ten carriages. Each carriage contains two pictures of famous places or historical places in Solo.

2. The initial display of media after being developed



Figure 3. Development Design

The initial display of Bolokuncoro interactive learning multimedia that has been developed by adding some aspects of the video train with colorful carriages and each carriage has learning materials.

3. The form of Bolokuncoro book before development

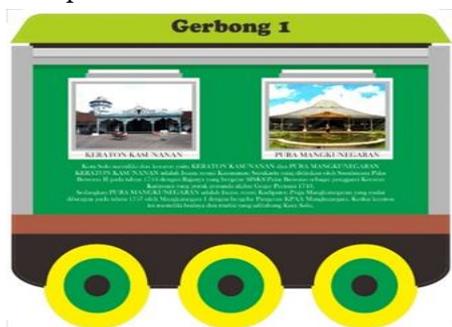


Figure 4. Bolokuncoro Book Carriages

4. The form of media after being developed



Figure 5. Carriages After Development

Display animation in education helps students on the delivery of the interactive material in a program using a computer (Firmantoro, 2016). The development of an animated character named "Kuncoro" is a character of a boy made with the aim to represent the local wisdom of the culture in Solo, namely by designing special *beskap* clothes and batik *blangkon* of Solo City. The introduction of cultural values of Solo can also be instilled from an early age through this interactive multimedia learning.

The form of Bolokuncoro book before added with the development of games is as in Figure 6.



Figure 6. Bolokuncoro Book

5. The form of the development of games:



Figure 7. Games Development

After interactive learning multimedia is declared valid, the next stage is the Implementation stage of the application of media into the learning process. This stage is carried out by small-scale and large-scale trials to the experimental and the control classes and is seen to be effective.

Effectiveness of the Media

Before testing the effectiveness of Bolokuncoro interactive learning multimedia, the researcher conducted the following stages first:

Normality test

The normality test results of the initial test data (pre-test) obtained a significance value of $0.84 > 0.05$ and the final test data (post-test) obtained a significance value of $0.121 > 0.05$. So, it can be concluded that the experimental class data is normally distributed.

Homogeneity Test

From the homogeneity test, it is obtained a significance value of $0.231 > 0.05$ was obtained. The decision of the test is H_0 accepted. So, it can

be concluded that the variance of the control and the experimental classes is homogeneous.

From the table above, it shows that the homogeneity test results obtained significance value of $0.231 > 0.05$. The decision of the test is H_0 accepted. So, it can be concluded that the control class and the experimental class is homogeneous.

Hypothesis Test

The hypothesis test is done by using t-test. With the t-test method using SPSS Version 23, it is obtained the results Sig. (2-tailed) 0.000 for the experimental class learning outcomes both pretest and posttest scores. Whereas, for the control class, it is obtained Sig. (2-tailed) 0.000 for both pretest and posttest. So, it can be concluded that H_0 is rejected.

Effectiveness Test

The effectiveness of Bolokuncoro interactive learning multimedia can be known through the N-gain index test.

Table 2. The Results of The Effectiveness Test

Class	Index N-Gain	Category
Experimental	0.84	High
Control	0.51	Medium

Table 2 shows the results of the N-gain index of the experimental and control classes. The N-Gain index of the experimental class is 0.84 which belongs to the high category, while the N-Gain index of the control class is 0.51 which belongs to the medium category.

Based on the observations, studies, and experiment results during the study, Bolokuncoro interactive learning multimedia is considered to be able to improve the early literacy skills of early childhood which is the ability to listen as basic skills that a child must have to read and write. The increase can be seen in the following chart.

Evaluation stage of learning media according to (Usman, 2002) is a process or activity to find out whether or not the media used in the teaching and learning process can achieve the goals that have been applied. After going through several stages of validity and trials that have been explained previously, Bolokuncoro

interactive learning multimedia learning media are feasible to use. It can be seen from the values obtained from each aspect with the final results showing that the media developed by the researcher is in the category of valid and feasible.

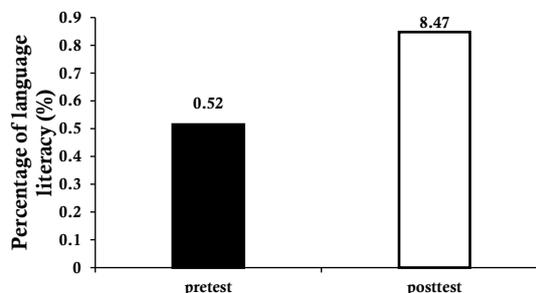


Figure 8. The Percentage of Language Literacy of Early Childhood

Bolokuncoro interactive learning multimedia development was conducted by using the flash-based ADDIE model. This research model is relevant to the research conducted by (Bakhri, 2019) with the research subject of RA Nurul Iman Kindergarten Jakarta with the design of adding games/quizzes and adding animation elements. The research subjects are in the same scope that is the early childhood level.

This development is in line with the socio-cultural theory by Vygotsky about cultural contributions to children in Hildayani (2015), stating that Vygotsky strongly agrees with the existence of cultural messages in the learning process at school. He said that the contribution of culture, social interaction, and history in the development of individual mental are very influential, especially in the development of language, reading and writing for children.

In addition, Bolokuncoro interactive learning multimedia is in accordance with the theory of literacy components. The literacy component in (Surangga, 2017) is early literacy. Early literacy (Clay, 2001) is the ability to listen, understand oral language, and communicate through pictures and oral that are developed by the interaction experience with their social environment. The students experience in communicating with their mother tongue becomes the foundation of the development of basic literacy.

CONCLUSION

The conclusion of the development of Bolokuncoro interactive learning multimedia developed by the researchers is based on the needs analysis of teachers and students through a questionnaire provided by the researcher. Bolokuncoro interactive learning multimedia is able to improve literacy skills which is the ability to listen of children aged 5-6 years old. It is indicated by the average posttest scores obtained in the experimental class that is 0.121. The average value is 0.116. It is higher than the control class that did not apply Bolokuncoro interactive learning multimedia.

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