

The Development of Interactive Multimedia in the First Semester Learning at Class V Elementary School Students

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ABSTRACT

This study proposes to develop an instrument of interactive multimedia-based learning media that are effectively used in the first semester of learning in Fifth grade of elementary school with valid, practical, and effective criteria. Type of research is research and development by using the 4-D Thiagarajan model through four stages, namely design, define, develop, dan disseminate. The instrument used is the instrument of validity, practicality, and effectiveness. Data analysis using a Likert scale by looking at the analysis of validation, practicality, and effectiveness. The limited trial was carried out on the fifth-grade students of SDN 08 Sungai Rumbai with a total of 21 students. The results show that interactive multimedia-based learning media in the first semester of fifth grade elementary school have met the valid, practical, and effective categories to improve students' learning outcomes. This research aims to develop interactive multimedia effectively used in the first semester of learning in Class V SD with valid, practical, and effective criteria. This type of research is development research using the 4-D Thiagarajan model. This research uses the instruments of validity, practicality, and effectiveness. The data analysis is in the form of a Likert scale by looking at the analysis of validation, practicality, and effectiveness. The limited trial was conducted on 21 students of class V SDN 08 Sungai Rumbai. The results showed that interactive multimedia in the first semester of class V elementary school had met the valid, practical, and effective categories to improve student learning outcomes.

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1. INTRODUCTION

During primary education activities, Information Technology plays an important role, especially during a pandemic. As explained by Astini (2020) Information technology can be used in assisting with learning activities during a pandemic. Harun and Fitria (2020) explain that in education, it is not only to encourage new efforts to make the educational process effectively, but also the development of science and technology can facilitate teaching and learning activities. According to (Widiansyah et al., 2018), Education is a determining factor thus the quality of human resources can increase. Through education, human life is pursued in a positive direction for the sake of future life.

In education, teachers hold an important function so that they are required to master several competencies. The main competencies that need to be mastered by teachers are providing insight to students (Hadiyanto, 2004). However, this ability is not able to run by itself. To create quality human resources, professional teachers are needed. Teachers who can develop learning media. As described by (Indra & Fitria, 2021), an instrument can attract students' attention therefore, it increases their student learning achievement.

Referring to the experts above, one of the appropriate instruments to be applied during a pandemic is an interactive multimedia-based learning instrument. Priandana & Asto B (2014) explain that an interactive learning instruments can create maximum student learning activities because these instruments can involve students in learning activities and connect the skills possessed by students. The advantage of interactive multimedia is to present objects that are very far away (Harun & Fitria, 2020). Making interactive multimedia-assisted learning instruments can be done by using the Storyline application through contents of text, images, graphics, sound, videos, and even animations and simulations. (Rafmana & Chotimah, 2018) explain that Articulate Storyline is a software that can be used as an interaction or presentation instrument with designs made or available designs that can adjust characters based on desires. So that teachers can design their learning media according to the students' characteristics.

Through observations and interviews conducted from 22 to 24 June 2021 at SDN 08 Sungai Rumbai, it was temporarily concluded that the problem in learning lies in the limitations of learning instruments that have been applied by teachers so far, thus making learning activities less enjoyable. The media used by teachers are conventional, but due to the current epidemic and pandemic conditions, changes are needed to the learning media used. Research conducted by (Aulia & Masniladevi, 2021), show that results that interactive multimedia is appropriate and can be applied in increasing student enthusiasm for learning. In line with Aulia and Masniladevi, of Yeh et al. (2001), a lesson can be designed through images and sounds added to the software so that it can be understood by students optimally as seen from the magnitude of student stimulation during lesson activities. Research done by Arwanda, Irianto, and Andriani (2020) show the results that the Articulate Storyline theme 7 learning media with the TPS (think, pair and square) model is able to improve 4C competencies (critical thinking and problem solving, creative and innovative, collaborative, and communicative) based on the demands of 21st-century learning. It is also explained by Purnama and Asto B (2014), the development of interactive learning media using articulate software is declared feasible and can be used for the teaching and learning process. In line with the result above, (Rianto 2020) show that the level of feasibility of a multimedia application based on articulate storyline 3 which is named PERI GITA or digitalization independent learning for interactive learning is very feasible to use.

Based on the problem and the acquisition of the research, the researcher has a purpose in the implementation of the planning of interactive multimedia-based learning instruments with the use of Articulate Storyline 3 application on interactive learning media products. According to (Janah, 2015) an *Articulate storyline* is an application that is implemented based on the presentation of material based on the expected purpose.

2. METHODS

His research is *Research and Development* (R&D, supported model *four-D* (4D) referring to the 4D model (Thiagarajan, 1974) through several stages namely: 1) *definING* which consists of analyzing the curriculum, students, teaching materials, and assignments, 2) *designing* which consists of the preparation of materials, media selection, format, and initial design, 3) *developing* which consists of testing the validity, practicality, and effectiveness, and 4) *disseminating* carried out at SDN 11 Sungai Rumbai.

The data collection technique was a closed questionnaire using a Likert scale. The questionnaires applied were product validity sheets, practicality questionnaires, and effectiveness questionnaires. The research data are quantitative and qualitative. Qualitative data related to the quality of interactive multimedia-assisted learning instruments were obtained based on input, feedback, criticism, and suggestions by classroom teachers, media lecturers, and students as an experiment. The data were analyzed through media, material, and language validity tests then concluded to be used as improvements to the designed product. While quantitative data were obtained based on class teachers and media lecturers. Then the data will be presented in quantitative descriptive data analysis or data presentation through tables.

The participants in this development research were fifth-grade elementary school students, which consisted of 21 people. The interactive multimedia development procedure follows the 4-D development model (Four D models) consisting of four stages, namely 1) defining, 2) design, 3) development and 4) dissemination. Researchers used data research instruments to collect research data. The data collection instrument was a questionnaire in the form of a validity sheet, a practicality questionnaire, and a test sheet to see the effectiveness of interactive media and documentation. The type of questionnaire used is a closed questionnaire, which means that respondents must choose the already available answers. The scale used is a Likert scale with a measuring scale. The research's data collection tools were product validation sheets, product practicality analysis by teachers and students, and effectiveness analysis.

The data of this research are quantitative and qualitative. Qualitative data related to interactive multimedia learning instruments' quality data were obtained based on input, responses, criticism, and suggestions from class teachers, media lecturers, and students. The data were analyzed through media, material, and language validity tests and then concluded to be used as improvements to the designed product. Meanwhile, quantitative data were obtained from classroom teachers and media lecturers. Then the data will be presented in quantitative descriptive data analysis or presented in tabular form.

3. FINDINGS AND DISCUSSION

a. Interactive Multimedia Development Process in Grade V Elementary School

Interactive multimedia by using 4D model development is done by 4 stages of development. researchers designed interactive multimedia with the following steps:

- a) Preparation of materials
- b) Media selection
- c) Format selection
- d) Initial design includes: making flowcharts and storyboards, followed by making interactive multimedia products using the articulate storyline 3 application.

b. Validity of Interactive Multimedia Development in Grade V Elementary School

This development research creates teaching material of interactive multimedia-based learning media. To get quality interactive media for first semester of Fifth grade, it is necessary to test the validity, practicality, and effectiveness. The expert who validated was a lecturer at the Faculty of Education, Padang State University. Validation activities are carried out by filling out the validation

sheet and discussing it with the validator. The quality of interactive multimedia-based learning media and learning tools are carried out by media, material, and language experts. The results of expert research questionnaires, both media, material, and language experts indicate the validity of a product. Interactive multimedia-based learning media in first semester of Fifth grade elementary schools appropriate, the visual displays of text, images, animations, and interactive multimedia simulations are clear and meet to the target accuracy, animations and simulations in interactive multimedia, the use of visuals text, images, animation, and simulation in interactive multimedia is already attractive, the display (text, sound, image, animation, and simulation) in interactive multimedia is coherent, operation including interactive multimedia simulation is quite easy, and the graphical display of animation and simulation in interactive multimedia is clear.

a) The practicality of Interactive multimedia-based Media Development in Grade V Elementary School

Practical analysis is carried out to determine the quality of the learning tools developed based on the results of the teacher and student response questionnaires after using interactive multimedia-based learning media, as well as the results of observing the implementation of learning.

b) Effectiveness of Learning Outcomes Using Interactive multimedia-based Media in Fifth grade Elementary School

Analysis of the effectiveness of learning outcomes is carried out to determine the quality of learning tools developed based on the results of the questionnaire learning process and student learning outcomes after using interactive multimedia-based learning media.

His research on the development of learning instruments creates in an interactive multimedia-assisted learning instrument. The design in this interactive media was developed by adjusting the structure of the production, namely using Articulate Storyline 3. This interactive instrument was used as a learning tool in first semester of Fifth grade elementary school. The use of interactive media can help the teaching and learning process for teachers to develop the quality of student learning and creates quality and fun learning.

Develop interactive multimedia based on Articulate Storyline 3 in integrated thematic learning, which can be an innovation in using valid and practical learning media and increase students' interest in learning (Aulia and Masniladevi 2021). Research by Arwanda, Irianto, and Andriani (2020) shows that learning media can be used to support the learning process. The results of Yasin and Ducha's 2017 research show that the media theoretically gets an average score of 3.94 based on the results of media validation.

Based on the research in national and international journals above, it can be said that using multimedia-based learning media has a theoretically suitable media to increase student interest, process, and learning outcomes.

In getting the quality of interactive learning instruments in first semester of Fifth grade, validity, practicality, and effectiveness experiments have been carried out. The instrument developed was validated by scientists from the Faculty of Education, Padang State University. The validation process was carried out by filling out the validation sheet and discussing it with the Validator. Obtaining expert research sheets on instruments, teaching materials and language illustrate the validity of a product. The interactive multimedia-based learning media in the first semester of fifth-grade elementary school learning has been accurate. Visual design in the form of text, images, animation. The interactive multimedia experiment was targeted, quality, and interesting. The designs (text, images, animations, experiments) for interactive multimedia have been coherent in their implementation, which is quite easy and the graphic design is clear.

The analysis obtained a media validation score of 88% which was categorized as very accurate, the category of teaching materials is 85% which was categorized as very accurate, and the language category was 86% which was categorized as very accurate. From this description, is found that the validity of the interactive multimedia-based learning instrument was 87% and was in very accurate criteria.

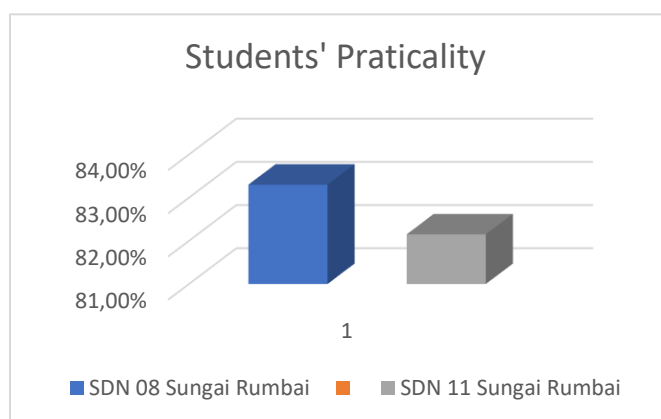
Obtaining practicality analysis illustrates that the interactive learning instruments are accurate to be used by teachers and students, meaning that interactive multimedia-based learning instruments can be applied as delivery of subject matter to students. (Sumiati, 2009) learning instruments are everything that can be applied so that the material is channeled, providing stimulation, feelings, thoughts, concerns, and desires of students to be able to increase the occurrence of learning activities. In line with this (Herawati & Hadiyanto, 2019) explain that the purpose of using media is so that students become stimulated in activities and understand the material well. So that the use of media in learning feels so important, especially for abstract materials.

Interactive multimedia is designed to present material that is far away by showing videos related to the material or by displaying images with captions (Harun & Fitria, 2020). Based on the analysis obtained in the practicality sheets of 3 teachers and 41 students, the interactive multimedia-assisted learning instrument can be declared very valid and accurate when applied to the learning process.

Based on the practicality of 3 teachers, the percentage value of educator 1 was 89.09%, educator 2 is 87.27%, educator 3 was 89.09%. From these acquisitions, the practical achievement of interactive multimedia-based learning instruments was 88.48% which was categorized as accurate. The following is explained in the table below:

User	%	Category
Teacher 1	89,09	Very Practical
Teacher 2	87,27	Very Practical
Teacher 3	89,09	Very Practical
Average	88,48	Very Practical

Referring to the practicality obtained by 41 students, a percentage score is obtained including 21 students of SDN 08 Sungai Rumbai with a percentage of 83.3% and 20 students from SDN 11 Sungai Rumbai with a percentage of 81%. So that the average percentage is 82.15% with a valid category. This is explained in the diagram below:



The results of data analysis also illustrate that interactive multimedia-based learning instruments are stated to be accurate in increasing students' achievement and learning activities during lesson activities. The description is illustrated in chart 2, namely providing information that before the instrument treated by teachers, students learning outcomes have not increased. But when the interactive multimedia-based learning instrument is finished, the learning outcomes of students tend to be better. Likewise with student learning activities, after being given interactive multimedia-assisted learning instruments, students' activities during learning activities achieve an increase in a better direction. Most of his research shows that the effectiveness when implementing interactive

multimedia-based learning instruments is much better than the use of conventional learning instruments (Hayumuti, Herawati Susilo, 2016; Harun & Fitria, 2020; Arham & Dwiningsih, 2016).

4. CONCLUSION

- a. The results of the validity test of learning media by media expert lecturers are in the very valid category, material experts are in the very valid category, and linguists are in the very valid category.
- b. The results of the practicality test by 3 teachers of Fifth grade at SDN 08 Sungai Rumbai with an assessment in the very practical category and 41 students from SDN 08 and 11 Sungai Rumbai with an assessment in the very practical category.
- c. The test of the effectiveness of learning media shows that the media designed are quite effective in improving student learning outcomes and activities, especially for fifth grade Elementary School, then the development of interactive multimedia-based learning media in the first semester of fifth grade elementary school learning is valid, practical, and effective media.

The development of interactive multimedia in fifth-grade elementary school learning produces valid, practical, and compelling multimedia so that it can improve student learning outcomes.

SUGGESTION

1. For elementary school teachers, based on the results of the validity, practicality, and effectiveness that have been implemented, interactive multimedia-based learning media in thematic learning in grade 5 elementary school can be used as an alternative in teaching the theme 4 Healthy is Important Subtheme 1 *Peredaran Darahku Sehat dan sub tema 2 Gangguan kesehatan pada organ peredaran darah*.
2. Other researchers, can develop interactive multimedia-based learning media using the Articulate Storyline 3 application on other materials.
3. Principals, because learning media are very practical to use, school principals should provide facilities and infrastructure in the manufacture and use of interactive multimedia-based learning media in the learning process.
4. Further research is needed to improve the quality of interactive multimedia-based learning media that is even better.

This research develops multimedia on the theme of 4th grade V SD, and it is highly recommended for further research to develop multimedia on other learning themes.

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