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DEVELOPMENT OF EDUCATIONAL VIDEO ANIMATION OF WATER CYCLE MATERIALS IN CLASS 5 ELEMENTARY SCHOOL (SD) STUDENTS

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ABSTRACT

Video learning media can assist teachers in conveying learning and facilitating student learning with a fun and non-monotonous learning atmosphere so that it can improve student achievement in learning and students' thinking skills. The purpose of developing this media is to produce valid and appropriate animated cartoon educational video products for fifth grade elementary school students. This research method uses the ADDIE model and has been modified by the researcher. The purpose of this research is to develop interactive multimedia on the topic of the water cycle for fifth grade elementary school students. This type of research is development using the ADDIE development model. There were 12 research subjects consisting of 2 material experts and 2 learning media experts and 2 science teachers. The test subjects were fifth grade students at Bakongan 3 Public Elementary School. Collecting methods namely observation, interviews, and questionnaires. . Based on the results of the trials conducted, it was concluded that the animated cartoon educational videos that had been developed belonged to the valid category. Therefore, this animated cartoon educational video media is valid and can be applied in learning activities. The development of this animated cartoon educational video is expected to be developed by developers who have ideas about the same media as well as being a reference.

Keywords: *international, conference, ICONESTH 2023, template.*

INTRODUCTION

Education comes from the word "Pedagogie" which means the need for guidelines or resources to develop educate the next generation of the nation so that they have high knowledge according to the development of science and technology and have the ability to equip their lives in society. Education cannot be realized without effective, creative learning and education cannot be separated from learning, nor can learning be separated from the curriculum that must be developed and learning materials and educational facilities. According to Luthfianah (Velda & Mustika, 2022) Education plays an important role in shaping the quality of human resources from cognitive, affective and psychomotor. Therefore, the implementation of this education must be prepared as well as possible to create a young generation that is synchronous in learning according to the Education Law No. 20 of 2003. Based on the understanding that education is a nation's foundation for advancing a country. Without education, as the nation's successor will be on the verge of collapse. Education is not only limited to learning at school, but can know the process in that learning.

Education for Indonesia is currently the main spearhead of the nation's progress, for this reason efforts to improve the quality of education must continue to be carried out so that Indonesia continues to progress in the global era. Quality education will make a very large contribution to achieving the overall goals of national development. Being an educator (teacher) must master the method and choose the appropriate media used in teaching. However, the facts show that currently in the learning process teachers still use conventional methods and do not apply IT as a medium that is relevant in this era. Teachers tend to convey all material orally without paying attention to the psychological condition of their students so that it still seems monotonous, uninteresting and impractical.

According to Daryanto (Putri et al., 2020) the application of conventional learning results in less effective and tedious students so that it makes students less understand the material given by the teacher. With media, students become enthusiastic, active, more critical by using all the five senses of students in learning, and making learning more meaningful. The meaning of media for learning is as a tool and infographic to reconstruct visual and verbal information. Learning media can help the teaching and learning process. Submission of messages and content of the material can be well received by

students. A media is said to be efficient if it is used correctly and is easy to use, besides that it doesn't take up much time and place.

In achieving maximum learning objectives, quality learning activities are also needed. Three components that can support success in learning activities are teachers, students, and learning media. Quality learning processes are learning activities in which interactions occur between teachers and students. This interaction can make learning activities active and fun. Quality learning is achieved by developing innovative and creative learning. Learning is not good if the teacher does not apply varied learning activities, so that the learning atmosphere becomes less enjoyable. This will certainly affect the learning process. Therefore, the use of learning media also needs to be considered. Learning media will help students in learning. Moreover, learning changes occur suddenly causing various problems such as imbalances in the provision of material to students. Therefore, teachers are expected to be able to develop innovative learning media that assist students in learning.

Professional teachers must be able to investigate anything that can attract the attention of their students. However, each basic skill may have a different level of difficulty. The ability of students is also different. So, even though arousing interest in learning is difficult, a competent teacher must be able to do it so that the learning process can run smoothly and actively. Because students are motivated and eager to learn when there is strong motivation to learn, especially from the teacher. Students are also able to accept, understand, and master the subject matter they learn. Students who can complete the task will have a high level of learning achievement.

The reality on the ground, students' interest in learning during learning activities is very lacking. As was found by the fifth grade students at SDN 3 Bakongan, students were less enthusiastic and interested in learning activities so that students did not pay attention to the teacher when teaching, and students did not understand the lesson, which had an impact on low learning outcomes. Student involvement in learning activities is minimal. When the teacher asked a question, only a few students answered. Likewise, when the teacher gave students the opportunity to ask questions, none of the students asked questions related to the subject matter being taught by the teacher.

From previous research conducted by (Nashrullah, N., Sulton, S., & Soepriyanto, 2019) it was found that students had difficulty understanding adaptation material and how to reproduce living things, then the number of science teachers was very limited, namely there were only only one teacher, thus making it difficult for teachers to deliver optimal development material.

Reinforced by research (Permatasari et al., 2019) namely the conclusion from the results of this study is that the learning video supplements developed have proven to be effective and efficient. Another study by (Susilawati et al., 2020) developed a learning video regarding various disaster threats for junior high school students based on problems at SMP 8 Surakarta and obtained decent results. Therefore, video is the right alternative to use in learning.

Like the use of video in science subjects. As one of the main subjects in elementary school, Natural Sciences is a collection of knowledge in which it studies the universe and its application emphasizes scientific methods such as observation and experimentation to form scientific attitudes such as curiosity etc. Science is material in schools that can play a role and provide experience for students. IPA helps students in looking for problems and finding the right solutions based on evidence and scientific thinking. In science learning, there is material about the water cycle which includes the stages and processes in which the water cycle occurs which must be explained with illustrations or explanations through pictures. Because it is a process and is abstract, even an oral explanation from the teacher is not enough, so a media is needed. The media used should meet the standard criteria suitable for elementary school students. as an alternative, namely educational video media.

The low interest in student learning is not unreasonable, this can be caused by external factors, namely the teacher does not take advantage of the use of learning media that can arouse students and attract student interest in learning, this is due to the lack of knowledge and skills possessed by the teacher in using learning media so the teacher only gives assignments -assignments from student worksheets only. Of course this can make students' interest in learning low. As stated (Elfida Putri et al., 2021) argues that interest in learning can be generated by applying a fun learning model and demanding student activity, then slowly an interest in learning will arise in students and in the end it will also lead to optimal learning outcomes .

Based on the problems described above, an alternative solution that can be put forward is to develop audio-visual learning media in the form of animated cartoons. Cartoon animation media is part of the audio visual media. Audio-visual media is media that enhances the senses of sight and hearing and animation depicting abstract events that appear to move so that they have a positive impact on learning. Therefore, cartoon animation media on the water cycle explains that a moving image is in the form of a set of objects arranged in an orderly manner movement that has been determined at each count of time that occurs. The images referred to above include humans, animals, humans,

and writing. The advantage of the cartoon animation media is that it shapes students to get learning achievements because media depictions are made with unique characters so that the attractiveness of students to study the water cycle material can increase. In this study the researchers developed the cartoon animation media in the form of cartoon animation videos about the water cycle.

This learning video is also very helpful for teachers in delivering material and creating a non-monotonous learning atmosphere so students can easily understand the material. Messages conveyed via video will be easier to understand clearly, because they are heard audio and seen visually to help students understand the learning process. The use of video in various aspects of life is very complex. Video is usually used for entertainment, documentation and education. Videos can inform, explain complex concepts, teach skills, save time, and influence attitudes.

This is in line with the opinion (Anugrah Putri, 2013) which says that cartoon animation media was chosen as an alternative to solving problems in class V in learning and helping the process of explaining a skill and improving students' listening skills. The researcher made an important aspect of research on the development of cartoon animation media to help elementary school students to be able to increase students' motivation to learn, help students remember the material presented through the depiction of unique designs and characters and not make students bored while learning takes place.

METHODS

Design This development research uses the ADDIE model with 5 stages, including Analysis, Design, Development, Implementation, and Evaluation. In this development research only used 3 research stages, namely 1) Analysis, 2) Design, and 3) Development. Looking at previous research, researchers also modified the ADDIE model like research conducted by (Habibati et al., 2019) that modifications were made with consideration of the focus on bulletin media development, so that research used the ADDIE model until the development stage only. The stages of the ADDIE model in its development are easy and dynamic to carry out (Hamidah et al., 2020). The researcher chose the ADDIE model because this model is coherently arranged with a clear and simple program for solving learning problems according to learning resources and needs as well as the characteristics of students. The stages in this model are also very easy to understand and implement to develop products such as: modules, textbooks, learning videos, learning multimedia and others. In addition, this model provides a focused feedback approach for continuous improvement processes. The steps that must be carried out in the ADDIE model are as follows:

1. Level of Analysis (Analysis)

The analysis stage is the stage of analyzing development needs and feasibility and analyzing all the requirements for developing a new model (Putri et al., 2020) This stage includes activities of needs analysis, curriculum analysis, and material analysis.

a. Needs analysis After making observations at school, it is known that students need learning media that can strengthen the teacher's delivery of the material presented. The media was developed based on students' needs and adapted to the characteristics of fifth grade elementary school students. At this stage the researcher conducted an analysis and made a list of the needs needed by students according to the problems in learning.

b. Curriculum analysis Curriculum analysis activities are conducting an analysis of the curriculum used by schools. Curriculum analysis aims to determine the appropriate material to be developed. The content of the material that will be published in this animated cartoon educational video media is adapted to the objectives of the 2023 curriculum, namely to make students active and independent.

c. Material analysis Material analysis is determining what material is appropriate to be developed. In addition to carrying out observations and interviews with teachers, researchers identified the main material listed in the syllabus. Then the results were obtained, namely, the Water Cycle material was selected from the Theme "Our Friend's Environment" which is theme 8 which has 3 sub-themes, for class V semester 2. Core Competencies (KI) and Basic Competencies (KD) which is published in this educational video media is made by covering the contents of the water cycle material.

2. Design (Planning)

The second stage of the ADDIE model is the design or planning stage. At this stage, the LKS was started to be designed which would be developed according to the results of the analysis carried out previously. Furthermore, the design stage is carried out by determining the elements needed in the LKS such as the preparation of LKS needs maps and the LKS framework. Researchers also collect references that will be used in developing materials in LKS teaching materials.

Make concepts and designs of animated cartoon educational videos using storyboards so that the designs are clear and easy to understand. Apart from that, he also designs graphic designs for educational video media. Next, arrange

a media feasibility instrument grid. This instrument is in the form of a questionnaire for material experts, media experts, and audience (students).

3. Development

The development stage is the product realization stage. At this stage the development of LKS is carried out according to the design. After that, the 50 LKS will be validated by expert lecturers and teachers. In the validation process, the validator uses instruments that have been prepared in the previous stage.

Furthermore, after obtaining a product that is considered feasible by media experts and material experts, the media is applied to actual conditions, namely by trying it out in a field tryout class. The purpose of this stage is to improve the final product and find out students' responses to the media. Students will be distributed response questionnaires or audiences. Before being tested, the product or media is first validated by material experts, media experts, and audience or students. The data obtained after carrying out research activities are qualitative and quantitative data.

Qualitative data were obtained from the results of criticism and suggestions by material experts, media experts, and students which were concluded for the improvement of animated cartoon educational video media. Quantitative data was obtained from the analysis of the results of the material expert questionnaire, media expert questionnaire, and student questionnaire which were then converted into qualitative data using a Likert interval scale of 1 to 4 to determine product quality. This research involved 12 students of SDN 3 Bakongan, precisely in class V.

The animated cartoon educational video learning media developed will be said to be successful and can be used as a learning medium if it reaches the eligibility criteria, namely if the criteria are sufficiently feasible and valid/feasible. The eligibility criteria are based on

eligibility criteria by experts. The researcher himself uses the eligibility criteria according to Arikunto.

4. Implementation (Implementation)

The fourth stage is implementation. Implementation is limited to schools designated as research sites. Class teachers conduct learning with the help of worksheets that have been developed. The researcher serves as an observer and records everything on the observation sheet which can be used as a worksheet improvement. After the learning process is complete, students take tests using the questions that have been provided. These questions have been prepared based on competency achievement indicators to see the level of effectiveness in using the developed worksheets.

5. Evaluation (Evaluation)

At this stage, the researcher made the final revision of the worksheet which was developed based on the input obtained from the response questionnaire or field notes on the observation sheet. It is intended that the LKS developed is truly appropriate and can be used by a wider range of schools

RESULTS AND DISCUSSION

RESULTS

The results of the research were obtained after the animated cartoon educational video media was tested and validated by media experts and material experts so that the media was valid or suitable for use. In the field trial this research involved 12 fifth grade students at SDN 3 Bakongan.

DISCUSSION

Discussion Learning media based on interactive multimedia on the topic of the water cycle is appropriate for use in science learning for class V elementary schools for several reasons as follows.

First, it makes it easier for students to understand the water cycle material. The use of learning media is able to facilitate students in understanding teaching material. This learning media is able to assist teachers in channeling information, so that learning material can be channeled properly. In addition, this media also helps students when studying independently. Cognitive development theory states that elementary school students are still in concrete operations, so children are not yet able to think abstractly. It can be said that students' abstract thinking skills are low, so concrete learning media is needed that can train students' thinking skills such as using innovative learning aids. In addition, the diverse characteristics of students with different learning styles also make teachers have to determine suitable learning media applied in learning. Good learning media is able to facilitate all student learning styles, thus providing opportunities for students to learn in a relaxed and easy way. The application of interactive multimedia is very helpful for students who have style. Learning is different because it combines audio and visual elements. With this media, students can learn using pictures, sound or music, making it easier for students to learn science. The use of multimedia can help achieve learning objectives to the fullest.

Second, increasing students' enthusiasm for learning the water cycle material. The use of innovative learning media can increase learning motivation. This

multimedia is packaged in a fun way which results in being able to attract students' attention in learning. This media can facilitate students in learning and motivate students to learn, so that learning objectives can be achieved optimally. In developing a media, criteria are needed in selecting the appropriate media for students. The criteria for selecting media are based on learning objectives, materials and characteristics of students. This interactive multimedia was chosen because it fits the characteristics of elementary school students. This multimedia innovation is able to increase student motivation because it combines images, text, sound, graphics, and video. Learning media that combines all of these aspects will certainly increase the enthusiasm for learning. Multimedia combines audio and visual aspects packaged in digital files which also attract students' interest in learning. Multimedia development is one of the solutions that can increase students' enthusiasm for learning, especially in science subjects.

Third, learning media based on interactive multimedia on the topic of the water cycle is appropriate for use in science learning because it is very practical. Learning multimedia is very appropriate to be used to facilitate student learning. The use of interactive media supports aspects of sound, animation, and text, so that it becomes very practical for students to use. Multimedia is very practical to use by students. The practicality of using this media will also affect students' willingness to learn. When using multimedia applications, students will carry out activities by clicking the navigation buttons (next, back home, page), kill menu, choose another answer, enter text, transfer objects so they are easy to use. Interactive learning multimedia is a combination of various media in the form of text, animation, images, sound videos, graphics, packaged in digital form so that in its use there is two-way interaction or communication between the user and the media.

a. Educational Videos

Educational videos are videos that contain educational content and contain educational messages for the audience, especially for students. Educational video is also one of the media in learning which aims to make it easier for students and teachers in the learning process. Creative learning videos are a way to attract students' attention, so that students quickly capture, understand, and master the material being taught, especially in thematic learning. Video usability is complex in all aspect of life. Generally videos are used for entertainment, documentation and education. Video can provide new information and knowledge, explain complex processes and concepts, train skills, shorten or extend time, and influence and even change attitudes. The

advantages of video include: a) It is very appropriate to use to explain a process. b) Give a thorough and complex message to students. c) Overcoming the limitations of space and time. d) Realistic and can be used repeatedly as needed. e) Implies a deep impression message so that it influences student attitudes. From the advantages mentioned, it can be concluded that video is indeed very appropriate if it is an alternative media for learning in the classroom. In addition to media that is able to adapt to the development of the video era, it is also very flexible in its use. With video which is a combination of two materials in the form of audio and visual helps teachers in creating a quality learning process, because communication takes place more effectively.

b. Animated Cartoon

Animated cartoon is a film made by hand or drawn by computer and then given a motion effect or shape change effect on the image for a certain duration. Usually animated cartoons shown on cinema, television, or computer screens with a certain storyline. Along with the development of technology in the field of film, pushing the development of animated cartoons in a more modern direction. In the past, animation was only limited to manual drawings using hands with simple and makeshift equipment, but now animation is being replaced by computers as a tool for producing animated cartoons. animation is a stationary object that is projected into a moving image that is adapted to the character that has been previously designed.

CONCLUSION

Learning media based on interactive multimedia on the topic of the water cycle have received very good qualifications from experts, teachers and students. It was concluded that learning media based on interactive multimedia on cycle topics is feasible to use. Interactive multimedia-based learning media can help students in learning, especially in science material on the topic of the water cycle.

Educational video media with animated cartoon innovations is an alternative media that can help teachers as modern media and is able to attract students' attention in the learning process. This shows that students are more interested in using innovative educational video media than just using textbooks. This media has also proven to be appropriate for use in science learning, especially water cycle material.

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