

ANALYSIS OF THE NEEDS FOR DEVELOPING LEARNING VIDEOS ON THE MATERIAL OF EARTH'S ROTATION EVENTS IN GRADE VI OF SDN RANTAU PANGERAN

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Abstract

This study aims to analyze the need for learning videos on the rotation event material to train the problem-solving skills of grade VI elementary school students. The background of this study is based on the many students who have difficulty in understanding the material on the rotation of the earth and the results of observation data conducted by researchers indicate that the learning process is still centered on textbooks and oral explanations from teachers without the help of contextual and interesting learning media. This study uses a qualitative method with a descriptive approach and a needs analysis questionnaire. The subjects of the study consisted of teachers and grade VI students at SDN Rantau Pangeran. Data collection was carried out through observation, interviews, and distribution of needs analysis questionnaires. The results of the analysis show that students need learning media that are interesting, easy to access, and can improve students' ability to solve problems. The selection of video-based learning media is considered to be able to increase students' motivation and ability to solve problems, especially on the material on the rotation of the earth. The results of the study showed that generally students (80.75%) still do not understand the material related to the rotation of the earth and show low problem-solving skills. 73.50% of students are interested in video-based learning media because they are more interesting, concise, easy to access, and easy to understand. Based on these findings, it can be concluded that the development of learning videos on the material of the earth's rotation to improve students' problem-solving skills is seen as the right solution. The research data is expected to be useful as basic data in the development of learning videos on the material of rotation events in grade VI of elementary school.

Keywords: *Learning Video; Earth Rotation; Problem Solving Skills*

1. INTRODUCTION

Digital technology has recently experienced very rapid development and has had an impact on every aspect of people's lives.(1). Education is one aspect that has a significant impact due to technological developments.(2). This development is considered to aim to improve the quality of education to be better by utilizing this opportunity as much as possible by skillfully using technology and information media. (Pratiwi et al. 2020;Anggi et al. 2017;Nabila, 2024). For this reason, education in the current digital era demands the role of teachers to utilize this technology as a means of supporting effective and creative learning.(Sadriani et al., 2023). Teachers have a crucial role in classroom learning activities, because the teaching and learning process can be structured and implemented in accordance with the objectives that have been set.(7). One of the uses of technology that can be used by teachers to support learning activities is video-based learning media.

Media is a technology-based tool used to convey messages to support the learning process.(8). The use of digital technology-based learning media such as learning videos is considered capable of increasing students' motivation and understanding of difficult-to-understand learning materials.(Ardhianti, 2022; Riska Aini Putri, 2023). One of the materials that is often considered difficult by elementary school students is the phenomenon of the earth's rotation, which is part of learning Natural Sciences.(10). This material contains scientific concepts that cannot be observed directly by students, so a visual approach is needed to help their understanding.(11). Based on the results of observations conducted at SDN Rantau Pangeran, especially in class VI, data was found that many students had difficulty in understanding the material on the rotation of the earth such as the change of day and night. In addition, the results of observation data conducted by researchers showed that the learning process was still centered on

textbooks and oral explanations from teachers without the help of contextual and interesting learning media. The results of interviews conducted with teachers at the school obtained data that the unused learning media in schools was due to the limited facilities owned by the school. In addition, unavailable internet access and networks also became major obstacles in the implementation of learning media. The learning approach used was also still centered on the teacher, so that students became passive and less actively involved in the learning process.(Mariana, 2020). This condition has an impact on the low ability of students to apply the concept of the earth's rotation in everyday life, especially in the context of solving simple problems.(Ariawan et al., 2023).

Problem solving skills are one of the high-level thinking skills (HOTS) that need to be developed from an early age.(14). This skill involves the ability to analyze, evaluate, and create solutions to a situation or problem.(15). This ability can also train students to think critically in solving problems.(16). In the context of science learning, learning videos not only function as a medium for conveying information, but can also be developed to train students in identifying problems and designing solutions through visual displays that are designed contextually and based on problems.(17).

This study was conducted with the aim of analyzing the needs in developing learning media on the material of the earth's rotation event to train problem-solving skills in grade VI of elementary school. In addition, this study also aims to develop a product in the form of a learning video that is designed simply, has a light video size, and can be displayed offline. The results of this study are expected to produce an effective learning media design that is in accordance with the needs of students at the elementary school level.

2. METHOD

This research uses a qualitative method with a descriptive approach.(18). Qualitative method with a descriptive approach is a method that describes and explains in detail an event or object being studied, in accordance with the real conditions that occur when the research is taking place.(19). This study aims to analyze the needs of students for learning videos on the material of the earth's rotation and develop the media to train problem-solving skills. The subjects of the study were grade VI students at Rantau Pangeran Elementary School with a total of 20 respondents. The data collection techniques used were observation, interviews, and questionnaires. The instruments used were interview guidelines, observation sheets, and learning media needs analysis questionnaires that would be given to students. Appropriate data collection techniques and the use of valid research instruments play an important role in obtaining precise, accurate, and accountable data.(Ardiansyah et al., 2023;Romdona et al., 2025).

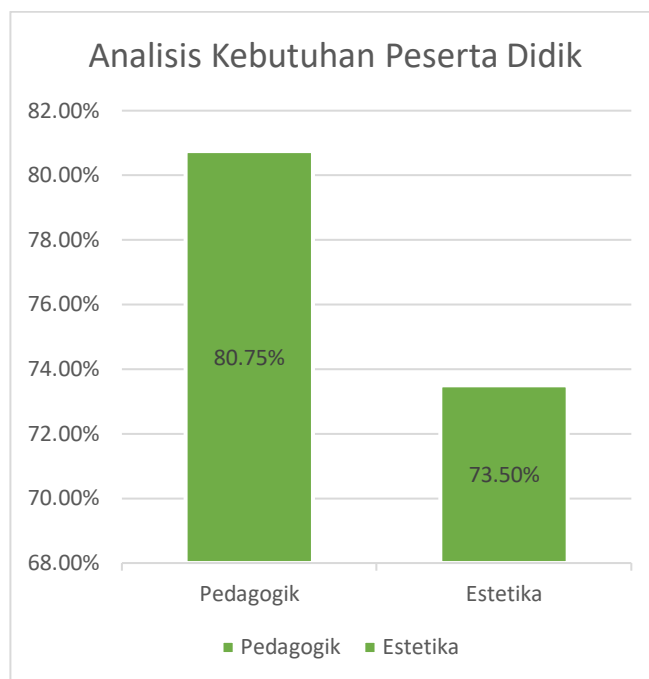
Data analysis was carried out using the Miles and Huberman analysis model, namely data reduction, data presentation, and drawing conclusions.(Zulfirman, 2022; Hasanah & Zakly, 2021). The data from the needs questionnaire were analyzed by calculating the percentage of each answer chosen by the respondents.(24). In this study, the data produced will be analyzed and described to make it easier for readers to understand.(25). The results of the needs analysis data obtained will be the basis for developing problem-based learning videos to improve critical thinking and problem-solving skills of Grade VI elementary school students.

3. RESULTS AND DISCUSSION

Needs analysis is the first step in designing relevant and targeted learning media.(24).Needs analysis is an important tool used by researchers to obtain information about the needs and constraints faced by students and teachers during the learning process in the classroom.This analysis aims to ensure that user needs match the effectiveness that will be obtained when the product has been implemented.(28).

In this study, needs analysis was conducted by distributing questionnaires to grade VI students at SDN Rantau Pangeran with a total of 20 students and 2 class teachers as respondents. The questionnaire was designed to find out information about students' interest in the material on the Earth's rotation and to what extent they need interesting and easy-to-understand video-based learning media. This needs to be done so that the learning media produced is in accordance with the needs of students and achieves the expected learning objectives.(Titin et al., 2023;Miftah & Nur Rokhman, 2022).

The questionnaire in this study consisted of ten questions with two aspects, namely 4 questions containing pedagogical aspects and 6 questions containing aesthetic aspects. The pedagogical aspect in learning media is closely related to the ability of the media to meet the learning needs of students and support the achievement of learning objectives.(30). Meanwhile, the aesthetic aspect emphasizes the philosophical foundation that facilitates students in interpreting the concept of beauty, understanding artistic values, and exploring the implied meaning in a work.(31). The percentage results of the needs analysis through the questionnaire are presented in the graph below:



Graph 1. Results of Percentage of Student Needs Analysis

Based on the graph of the results of the needs analysis that has been presented, this data shows that students who are the subjects of the research need supporting learning media to improve their understanding of the subject matter and train their problem-solving skills. The pedagogical aspect in question is the relevance of learning media to learning needs. learners, including ease in understanding the material and the potential of media to support the learning process in the context of problem-solving skills. While aesthetics in this case is the visual appearance of learning media in the form of videos. Details of the results of the analysis of student needs are described in the following table:

Table 1. Identification of Student Needs Analysis Questionnaire Results

Percentage	Data Results
80.75%	Students still do not understand the material about the Earth's rotation
73.50%	Students are attracted to learning media that is interesting, concise, easy to access, and easy to understand.

Table 1 shows the data from the identification of the questionnaire for analyzing students' needs based on pedagogical and aesthetic aspects. The results show that the pedagogical aspect is at a score of 80.75%, which means that students still do not understand the material taught by the teacher, especially regarding the material on the rotation of the earth and need supporting media to achieve this. This also indicates that the majority of students still do not fully understand the material taught, and need additional learning media to support a more concrete and comprehensive understanding of the concept.

In addition, the aesthetic aspect also shows a significant figure, which is 73.50%, which indicates that students are interested in video-based learning media that are designed in an attractive way. This media is considered more effective because it is able to present material with an attractive visual appearance, concise and easy-to-understand language, and is easily accessible at any time according to the learning needs of students. This is in line with the opinion(32)which states that video-based learning media is an effective means of conveying information because it combines sound and images to create an interesting and comprehensive learning experience.

This interest also shows that video-based learning media not only increases students' interest in learning, but also plays an important role in helping them develop critical thinking and problem-solving skills. This is because

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students can observe, understand, and apply material in a more real and applicable context through video.(33). Therefore, the development of learning video media is a strategic and relevant step to support the achievement of expected learning objectives, while also answering the needs of students for effective and enjoyable learning media.

Based on the data, it can be concluded that students need learning media that supports understanding the subject matter, especially about the earth's rotation event. Thus, the development of learning video media is a relevant solution and is needed by students in Elementary Schools that are the place of research.

In addition to analyzing the needs of students, researchers also conducted a needs analysis of teachers who teach at SDN Rantau Pangeran. The purpose of conducting this teacher needs analysis is to identify various things that are optimally needed by elementary school teachers in carrying out the learning process.(34).

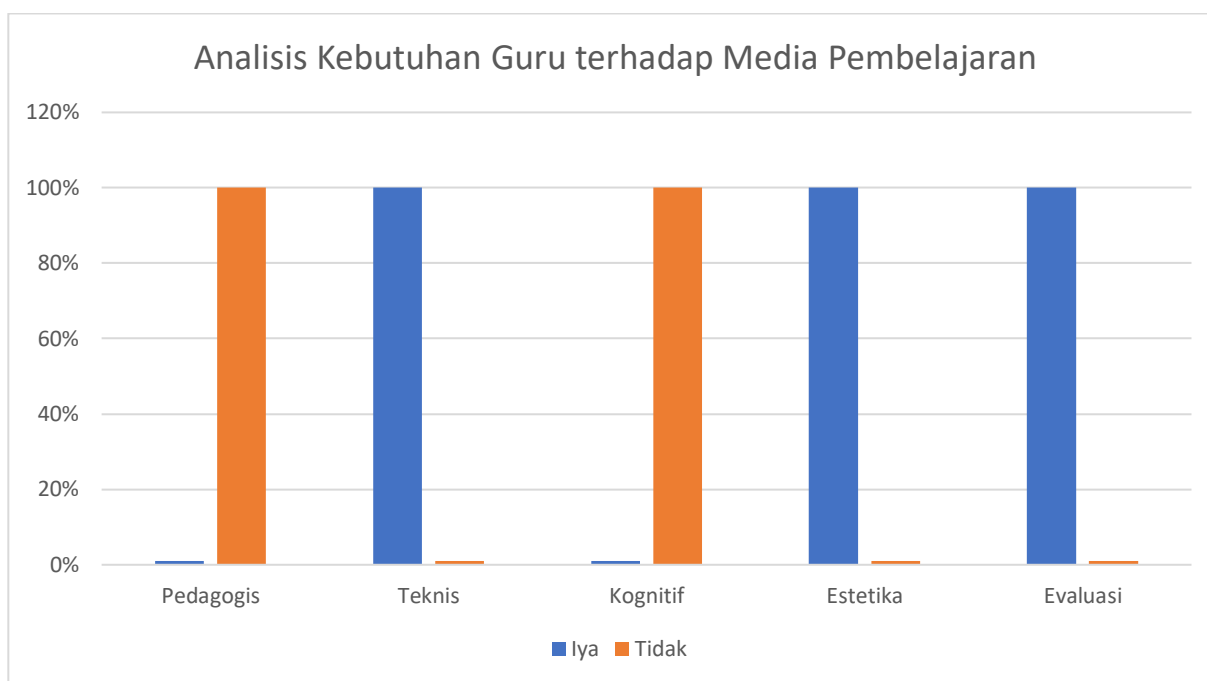


Chart 2 Presentation Results of Teacher Needs Analysis

Graph 2 is the result of teacher needs analysis questionnaire data distributed to two teachers at SDN Rantau Pangeran consisting of 5 aspects, namely pedagogical aspects (learning process), technical (learning methods), cognitive (facilities and skills possessed by teachers), aesthetics (development of learning media), and evaluation (follow-up). The questionnaire consists of 10 questions containing the teacher's needs for the learning media to be developed. The details of the identification of the results of the teacher needs analysis questionnaire based on the five aspects can be seen in the following table 2:

Table 2. Identification of Teacher Needs Analysis Questionnaire Results

Percentage	Data Results
100%	The teacher feels that the learning process regarding the Earth's rotation has not gone well.
100%	Teachers never use learning media to help explain material about the earth's rotation.
100%	Teachers always use the lecture method when providing learning material on the Earth's rotation phenomenon.
100%	The school is in a remote location and does not have adequate learning facilities such as computers and LCDs.
100%	Teachers do not have good skills in using computers
100%	Teachers never use smartphones/Androids in teaching about the Earth's rotation phenomenon

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100%	Teachers feel helped by the presence of learning media which can help in explaining learning material on the Earth's rotation.
100%	The teacher suggested that it was necessary to add images or sound to the learning media being developed.
100%	Teachers feel that learning media is something interesting
100%	The teacher suggested that evaluation questions need to be added to the learning media.

Based on the results of the teacher needs analysis questionnaire identification, data was obtained that in the pedagogical aspect, 100% of teachers answered yes and 0% chose no, meaning that the learning process of the earth's rotation event did not go well and teachers never used supporting media to teach the material. In the technical aspect, it got a score of 100% for the yes option and 0% for the no option, which means that teachers always use the lecture method when teaching in class. Then the cognitive aspect got a score of 100% for the no option and 0% for the yes option, which shows that the school does not have technological facilities, be it computers or LCDs, and teachers never use cellphones for learning activities in class, especially regarding the material on the earth's rotation event. The aesthetic aspect got a score of 100% for the yes option and 0% for the no option, which indicates that teachers feel helped by the presence of learning media on the material on the earth's rotation event with pictures and sound and is interesting. Then the last aspect of the evaluation got a score of 100% for the yes option and 0% for the no option, which shows that evaluation questions in the learning media need to be added so that teachers can measure students' abilities as a follow-up.

The details of the data results can be concluded that teachers also need learning media that can help them explain material about the earth's rotation in an interesting way, complete with images and sound so that students understand the material better. However, there are obstacles in the implementation of this learning media, namely the lack of adequate school facilities, especially the internet network. As a solution to this problem, learning media in the form of video is the right choice because videos contain sound (audio), interesting visuals, can be accessed anywhere, either on the teacher's laptop or cellphone, and can be accessed offline or without internet access. This statement is reinforced by the results of research from(35)which implements Canva-based learning videos in science learning in grade VI of SDN Inpres Kala. This study shows that the use of Canva-based videos creates a new learning atmosphere that is more interesting for students compared to learning that only uses textbooks. In addition, making videos with Canva is relatively easy for teachers and can be accessed without an internet connection.

In addition, similar research was also conducted by(36)which develops digital teaching materials using PowerPoint combined with animation and learning videos. This material can be saved in file form and accessed offline, making it suitable for school conditions with limited internet facilities. So it can be concluded that video learning media is the right choice to help teachers explain the material on the rotation of the earth in a more interesting and easy-to-understand way for students. Learning videos can also be accessed flexibly through digital devices such as laptops and mobile phones and can be used offline so that they are very suitable for schools that have limited internet access(37)

4. CONCLUSION

Based on the results of the analysis and discussion that have been carried out, it can be concluded that the development of video-based learning media on the material of the earth's rotation event for grade VI students of SDN Rantau Pangeran is a necessity for students and teachers. The needs analysis shows that most students have difficulty in understanding the concept of the earth's rotation through conventional learning, so supporting media are needed that are able to present material visually, attractively, and easily understood. The high percentage of pedagogical and aesthetic aspects indicates that students need media that not only supports conceptual understanding of the material, but is also fun and easily accessible. In addition, the results of the teacher needs analysis from the five aspects, namely pedagogical, technical, cognitive, aesthetic, and evaluation, can also be concluded that teachers need interesting learning media equipped with images and sound to help explain the material of the earth's rotation event. However, limited facilities and internet access are the main obstacles. For this reason, video-based learning media is the right solution and choice because it is audio-visual, flexible, and can be accessed offline. This learning media is expected to be able to provide a more meaningful learning experience, motivate, and support the achievement of student competencies optimally in learning the material of the earth's rotation at SDN Rantau Pangeran.

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