Contextual Approach Animated Video in Science Material for Grade Fourth Elementary School Students

Ni Putu Ari Mardanti1*, Ida Bagus Gede Surya Abadi2*

1.2 Pendidikan Guru Sekolah Dasar, Universitas Pendidikan Ganesha, Singaraja, Indonesia
*Corresponding author: niputuariamardanti24@undiksha.ac.id

Abstract

Lack of learning support materials and the need for media development to assist teachers in explaining learning materials. Learning is only based on the theme book. Therefore, it is necessary to develop animated videos with a contextual approach to the content of science material. This study aims to develop an animated video learning media with a contextual approach to the content of science material. This type of research is the development of the ADDIE model development research model. Data collection methods used are questionnaires or questionnaires, interview methods, and document recording methods. Data analysis techniques used are qualitative analysis techniques and quantitative analysis techniques. The subject of this research is the development of animated video media. The results of this study are a description of the design and development of animated video media with a contextual approach in the form of product development documentation and validation according to subject content experts' reviews which obtained a score of 100% very good qualification, a review of learning design experts obtained a score of 97% with very good qualifications. Learning media expert reviews obtained a score of 97% with very good qualifications, and media expert reviews were obtained by 97.3% with very good qualifications and group expert reviews with 98.67% gains with very good qualifications. So it can be said as the development of animated video media with a contextual approach is very well used in fourth-grade science material in elementary schools. The research implication is that contextual approach animation video media can help students in learning.

Keywords: Videos, Animation, Contextual, natural science

Introduction

Education is a right for everyone, and education does not look at age, distance, and place (Marhayani, 2016; Wu & Wu, 2020). Education can be pursued and explored anywhere, such as the current example of current education. In the Covid-19 pandemic situation, learning activities are no longer carried out in schools but at their respective homes online according to policy (Goldschmidt, 2020; Patricia, 2020; Sahu, 2020). Changes in the...
learning system from outside the network (offline) to online (online) have a significant impact, especially for teachers who are the spearhead of educational change (Chou, 2013; Rigianti, 2020). The influence during the current pandemic has led to global changes in terms of economy, social, culture, health, including changes in the world of education (Hincal & Alsaadi, 2021; Kolta & Ghonimy, 2020). The world of education is currently experiencing significant changes, such as the use of design techniques that can be used in learning today (Goldschmidt, 2020; Mpungose, 2021). All activities cannot be carried out, as usual, many people do activities at home. Given that the risk of spreading it is still very high and the development of the virus is speedy, learning can only be done by applying the Health protocol (Kadafi et al., 2021; Shodiq & Zainiyati, 2020).

Teachers in grade IV elementary schools also feel this; based on the results of observations and interviews, it is known that teachers find it challenging to explain learning materials, especially on science content in online learning activities. Natural Science (IPA) material content in elementary schools is compulsory material content for students to learn. Science examines living and inanimate objects and everything about the symptoms that exist in nature (Komala, 2016; Mulyantini et al., 2019; Trianawati, 2019). The problem encountered is that learning outcomes that have not yet reached the maximum must be addressed because understanding the material in class IV can affect learning outcomes at the next level. Each individual has an essential difference in terms of interests, talents, and knowledge in science. Therefore, in one class, there are various characteristics of students’ knowledge, there are students who excel in the science field, and there are also students with low science knowledge competence.

Students who have less knowledge are learning difficulties and require good, planned, and integrated handling efforts to improve students’ science knowledge competence (Gürsoy, 2021; Setiawan et al., 2017). In addition, the next problem is through asynchronous assignment activities. The learning process is only based on the material in thematic books or other sourcebooks so that students do not understand the material and expand the knowledge possessed by students. Teachers find it difficult to explain learning materials to students via WhatsApp because of the limited interaction between teachers and students (Padli & Rusdi, 2020; Yunitasari & Hanifah, 2020). The impact on the decline in learning interest and student knowledge competence. Apart from being limited in space and time, the use of less innovative and varied media is also another cause (Jogezai et al., 2021; Linda et al., 2018).

Based on these problems, one solution that can be given is the development of learning media in the form of animated video media as a form of using technology in online learning activities. Animated video media positively impacts students as a means and intermediary for learning to understand learning materials in an easy and fun way (Megawati & Utami, 2020; Rahayuningsih, 2020). This animated video media contains information in text, images, and audiovisuals packaged in a file (Fadhli, 2015; Lin & Li, 2018). The final result of animated video media is made in Html and CD formats to facilitate the use of media either through mobile phones or other digital equipment such as computers or laptops in online learning (Rubini et al., 2018; Yulando et al., 2019). In addition, this media can also be used in offline learning by utilizing LCD projectors facilitated by schools.

Another advantage of this contextual approach is that animated video media can overcome the limitations of space and time so that this media can be accessed anywhere and repeatedly played (Andini et al., 2018; Noviyanto et al., 2015). In addition, this animated video media can be used by students individually or in groups, and this animated video media can also clarify abstract things for students, especially in learning materials of various styles (Kartika et al., 2019; Van Alten et al., 2020). Animated video media is different from previous research, namely animated video media which developed science material content in learning various styles accompanied by a contextual learning approach with real examples.
that are close to students' daily lives so that it can motivate and facilitate students to understand the material (Kühl, 2021; Tapingkae et al., 2020). This is supported by research that has been done previously. Learning media can make it easier for students to learn, attract students' attention to study, and improve student learning outcomes (Amali et al., 2020; Satyawan, 2018). Other research also states that the results are that animated video media can attract students' attention to study, help clarify the material so that students can learn quickly, and can increase students' cognitive knowledge (Saripudin et al., 2018; Endang Saripudin et al., 2018).

In the development of animated video media in general, the developed video media still does not integrate learning models or learning strategies, so students are less motivated to learn. Meanwhile, this animated video media product was developed with a contextual approach and is equipped with examples that are often encountered by students in everyday life so that learning becomes more exciting and easier for students to understand. Thus, the purpose of this research is to develop an animated video learning media with a contextual approach that can increase students’ interest.

Methods

This type of research is development research (R&D), wherein developing animated video media is carried out by applying the ADDIE model. The ADDIE model has systematic steps to overcome learning problems related to learning resources according to the needs and characteristics of student learning (Alnajdi, 2018; Widiyasanti et al., 2018). ADDIE consists of five systematic steps, namely analysis, design, development, implementation, evaluation, which are easy to understand and implement in the research product development process (Hidayatulloh, 2019; Rubini et al., 2018). This research was conducted in elementary schools. The subject of this research is animated video media developed with a contextual learning approach that is packed with real examples of styles in students' daily lives.

The data collection method in this development research used the questionnaire method. The questionnaire method was used when analyzing student needs, product trials on test subjects, namely subject content experts, instructional design experts, learning media experts, individual trials, and small group trials on students. The experts consist of 1 subject expert, a lecturer at Ganesha Education University who teaches science courses, one learning design expert, and 1 learning media expert, namely a Ganesha Education University lecturer who has educational technology qualifications. Individual trials were conducted on 3 fourth-grade students and small group trials involving 9 fourth-grade students at SD Negeri 2 Blahbatuh. The questionnaire was given using a closed questionnaire. An open questionnaire consists of 12 statement items in the subject content expert questionnaire consisting of 4 aspects, namely aspects of material structure, material content, grammar, and evaluation, 8 statement items in the instructional design expert questionnaire consisting of 3 aspects, namely objectives, strategies and evaluations, 15 statement items in the learning media expert questionnaire consisting of 3 aspects, namely appearance, technical and media, and 11 statements in the individual test questionnaire consisting of 4 aspects, namely display, material, technical and evaluation. The grid for the assessment instrument for animated video media with a contextual approach is as follows Table 1.

Table 1. Expert Instrument Grid of Lesson Content

<table>
<thead>
<tr>
<th>No</th>
<th>Aspect</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Material structure</td>
<td>a. Conformity with basic competence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Compliance with indicators</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Fit for purpose</td>
</tr>
</tbody>
</table>
Table 2. Instructional Design Expert Instrument Grid

<table>
<thead>
<tr>
<th>No</th>
<th>Aspect</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Goal</td>
<td>a. Clarity of learning objectives</td>
</tr>
<tr>
<td>2.</td>
<td>Strategy</td>
<td>a. Conformity of delivery strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Delivery strategy accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Presentation of material in the media motivates students</td>
</tr>
<tr>
<td>3.</td>
<td>Evaluation</td>
<td>a. Clarity of instructions for working on questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Suitability of questions with learning objectives</td>
</tr>
</tbody>
</table>

Table 3. Grid of Learning Media Expert Assessment Instruments

<table>
<thead>
<tr>
<th>No</th>
<th>Aspect</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Appearance</td>
<td>a. Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Text</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Picture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d. Color</td>
</tr>
<tr>
<td>2.</td>
<td>Technical</td>
<td>a. Ease of use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. The use of media can motivate students</td>
</tr>
<tr>
<td>3.</td>
<td>Media</td>
<td>a. Contents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Easy to understand material</td>
</tr>
</tbody>
</table>

The data analysis method used in this development research is the quantitative descriptive analysis method. The quantitative descriptive method is a way to process data systematically into numbers or percentages to get general conclusions (Agung, 2014). In this study, quantitative descriptive analysis was used to process the data obtained through a questionnaire in the form of scores. To provide meaning in decision-making, a determination or reference for conversion of the level of achievement is used on a scale of 5.

Results and Discussion

Results

The results of the research on the development of animated video media with a contextual approach to the content of science material regarding various styles of grade IV in elementary schools will discuss two main things, namely describing the design of animated video media with a contextual approach and describing the validity results of animated video media with a contextual approach. The design of animated video media with a contextual approach uses the ADDIE development model, which has five stages. The first stage is the analysis stage, at this stage is carried out (1) analysis of student characteristics and learning
problems through filling out student needs analysis questionnaires filled out by students, (2) analysis of learning content through interviews with teachers, and (3) analysis of facilities and environment through observation activities to the research location. The second stage is the design stage. The concept design is carried out at this stage, such as designing storyboards, storylines, flowcharts, sound effects, voice actors (narrator), designing animated characters in the video to be made, and making media covers. In this development stage, the activities carried out combine concepts made previously at the design stage and develop into a product that can be implemented.

The fourth stage is the product implementation stage. At this stage, the activities carried out were (1) testing the validity of the animated video media product with a contextual approach based on the aspect of the subject content tested by subject content experts, (2) testing the validity of the animated video media product with a contextual approach based on the aspect of the learning media tested by a learning media expert. (3) test the validity of the animated video media product with a contextual approach based on the aspects of learning design experts tested by learning design experts. (4) conducting individual tests with 3 students who have differences in learning achievement, and (5) conducting small group tests with 9 students who have differences in learning achievement. At this stage, the aim is to determine the feasibility and quality of the animated video media with a developed contextual approach. The last stage is the evaluation stage. This stage is an evaluation of the data that has been collected at the implementation stage. Evaluations are carried out to measure or assess learning products, including expert validation, individual trials, and small group trials. The results of the development of animated videos are presented in Figure 1.

![Figure 1. Developed animation video](image)

The results of the validity of the animated video media with a contextual approach based on the results of subject content expert reviews, instructional media expert reviews, learning design experts reviews, individual test reviews, and small group test reviews will be presented in the form of a table as follows.

**Table 4. Product Validity Test Results**

<table>
<thead>
<tr>
<th>No</th>
<th>Achievement Level</th>
<th>Validity Results</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Subject Content Expert Test</td>
<td>100%</td>
<td>Very good, no need to revise</td>
</tr>
<tr>
<td>2.</td>
<td>Learning Media Expert Test</td>
<td>97%</td>
<td>Very good, no need to revise</td>
</tr>
<tr>
<td>3.</td>
<td>Learning Design Expert Test</td>
<td>97%</td>
<td>Very good, no need to revise</td>
</tr>
<tr>
<td>4.</td>
<td>Individual Trial</td>
<td>97%, 3%</td>
<td>Very good, no need to revise</td>
</tr>
<tr>
<td>5.</td>
<td>Small Group Trial</td>
<td>98.67%</td>
<td>Very good, no need to revise</td>
</tr>
</tbody>
</table>
Based on the data acquisition results, it can be concluded that the development of animated video media with a contextual approach has very good validity and is suitable for use as student learning media, especially in the content of science material regarding various styles. In addition, this media can also be used by teachers to make it easier to convey material to students. Suggestions, input, and comments were obtained through the review results of subject matter experts, instructional design experts, learning media experts, individual trials, and small group trials. All suggestions, inputs, and comments become material for revisions that have been followed up for the progress and perfection of the animated video media product with a developed contextual approach. The results of the revised product development of animated video media with a contextual approach are presented in Figure 2.

！Figure 2. Results of the Revised Opening of the Animated Video that was Developed

Discussion

The content and content on this animated video media were developed with a very well-qualified contextual learning approach. The essential competencies, indicators, and learning objectives used in the animated video media are by the material in the curriculum so that the learning activities in the animated video media are genuinely able to achieve the learning objectives. Learning materials should be relevant to the achievement of competency standards and essential competencies reflected in the learning objectives (Churri & Agung, 2013; Hamzah & Mentari, 2017). The animated video media with a contextual approach that was developed contains material concepts for students to know about various styles and examples that students often encounter through science lessons that support learning objectives. This is in line with the results of previous studies, which state that science learning is very suitable for applying a contextual approach (Kimianti & Prasetyo, 2019; Mutakinati et al., 2018).

Based on the assessment of the instructional design expert, the animated video media with a contextual approach got a very good qualification assessment. The learning objectives in the media and lesson plans are formulated in the ABCD format (audience, behavior, condition, degree) (Latifa, 2017; Nurtanto et al., 2021). This is by the theory put forward that learning design should be adapted to the process of designing learning objectives, learning experiences, learning resources, and evaluation of learning based on the characteristics of students so that students have the knowledge, attitudes, and skills as a provision for life ((Rozhana & Harnanik, 2019; Wiyani, 2013). The comments obtained from instructional design experts are very good, where the animated video media can provide meaningful learning activities through examples that are often encountered by students in everyday life and observe videos independently. Learning activities can develop students' skills to actively build their own knowledge and make learning meaningful (Irwansyah et al., 2017; Putri &
Arifin, 2017). Other comments besides the voice of the researcher's text, the researcher also uses accompaniment music. Regular arrangement of accompaniment music keeps students motivated to learn (Abendroth & Richter, 2021; Ismara et al., 2021). For accompaniment music, comments are also given, namely choosing music that is more calming and not too crowded, so that it does not interfere with students' focus in understanding the learning material.

The expert assessment of the animated video media learning media obtained very good qualifications. Four aspects are assessed, namely technical aspects, display aspects, text, and images. Based on expert comments, animated video learning media is very easy to use, only need to click on the link provided, and users are ready to watch animated video media (Maryanti & Kurniawan, 2018; Noviyanto et al., 2015). By using animated video media, of course, users can repeatedly watch to understand better-animated video material, and this animated video media can be used anywhere at any time repeatedly (Almas & Krismayani, 2019; E Saripudin et al., 2018). The text aspect got a very good qualification average. Animated video learning media with a contextual approach positively influences student learning outcomes and provides a pleasant atmosphere so that students' attention is focused on videos containing information related to learning materials (Sarnoko, 2016; Dewi, 2013). Based on expert comments, the character images created and selected according to the material and videos integrated with the animated video media have a duration by the characteristics of fourth-grade elementary school students. This makes learning that takes place not tend to be monotonous to take place without obstacles (Audie, 2019; Rubini et al., 2018).

The results of previous studies also stated that animated video media effectively improved student learning outcomes (Febliza & Okatariani, 2020; Margareta & Wahyuno, 2014). Other research also states that the results are that animated video media can attract students' attention to study, help clarify the material so that students can learn quickly, and can increase students' cognitive knowledge (Saripudin et al., 2018; Endang Saripudin et al., 2018). The development of animated video media with a contextual approach has implications for the validity of the animated video media products produced and are suitable for use in the learning process. This animated video media development can increase students' interest in learning and help students learn independently according to learning objectives. The implications of using animated video media with a contextual approach as technology-based learning media are supported by existing facilities and infrastructure in schools such as internet access (WiFi), computer/laptop devices, LCDs, projectors, as well as the readiness and skills of teachers and students in accessing animated video media with a contextual approach. On the content of science lessons for grade IV elementary school.

**Conclusion**

The results of the assessment by experts of the developed media get excellent qualifications. It can be concluded that this contextual approach to the product development of animated video media is "Very Appropriate" to be used as a learning medium. Suggestions that can be put forward is the need for further development of animated video learning media with a contextual approach and the need to test the product's effectiveness in further research.

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