Development of Prophetic Motion Graphic Animation Videos

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Abstract. This aim of research to determine the development and effectiveness of motion graphic video for elementary school students in science subjects. This exploratory sequential mixed method research uses a combination of qualitative descriptive methods to define the current situation and product development process as as well as experimental methods in each control and experimental group. This research was conducted in two different selected elementary schools. Researchers used interviews and observation methods for qualitative research, as well as tests to measure the effectiveness of the motion graphic media being developed. At the qualitative stage, this research found the need to develop interactive audio-visual media. This research shows the values of prophetic education and establishes its connection with the pillars of positive politeness. Values are divided based on humanization (*amar ma'ruf*), liberation (*nahi mungkar*), and transcendence (*tu'minubillah*). First, the values of cooperation, generosity, honesty, politeness, and tolerance are included in humanization. Second, the values of education, health, mutual cooperation, and hard work fall into the category of liberation. Third, Istiqomah, the value of worshiping Allah SWT, gratitude, and humility (*tawadhu'*) are grouped under transcendence.

Keywords: *animated videos, motion graphics, prophetic*

1. Introduction

Currently progressing of technology is very rapidly. Various daily human activities can now utilize technology and are starting to broadly influence all aspects of social life. The functioning of the Internet, social media, and the dissemination of information have become an important part of human life (Widyaningrum et al., 2023). Technological developments have a major impact on the way people live, learn, and interact. Apart from that, it is now easier for people to obtain information because information sources are accessed in real time. Therefore, it can assume that technology will become a necessity in the future. The technology is expected to enter general use within a year or less. This will be one of the main human needs in helping and increasing the efficiency of human activities, not a tertiary need (Bağatarhan & Siyez, 2015). Humans live in a technological society and are placed in technological situations.

Addiction to modern technology is starting to spread across all spheres of human activity education (Hlasna, P., Klimova, B., & Poulova, 2017). Current pedagogical literature pays great attention to the massive development of educational technological processes. This condition has resulted in a shift in the role of teachers, where currently teachers can no longer act as the only source of information on student learning activities. Technology in education makes teachers learning facilitators, educational managers, and training directors, not information translators. The education system (Wiana et al., 2018) has an important role in achieving national development by empowering the acquisition of knowledge. The education system aims to prepare generations to face

their lifetime by gaining knowledge, mastering certain skills, and forming students' attitudes (Gurbuzturk, 2018). Through education, people will obtain means of livelihood that can support the welfare of individuals and society.

In the modern learning paradigm, the student's position is the center of learning. Teachers function to arouse students' interest in learning, facilitate students to find and develop their learning motivation, and fulfill students' satisfaction from learning in the classroom (Meng & Chen, 2023). The dominant role of teachers in the old-fashioned paradigm ignores student involvement in learning activities (Adilah, 2017). Thus, knowledge is rehearsed, constructed by, and transferred to actively seeking students. Because elementary school students are in the acquisition stage, student learning situations should be designed with interesting, interactive, and meaningful activities. Therefore, the environment must be designed to generate motivation to learn, activities allow students to work in teams, and program content must reflect, and be determined based on, students' basic knowledge (Hanif, 2020).

In line with the modern learning paradigm, student activities and the learning media chosen greatly determine the success of learning activities in elementary schools. In the modern era, children naturally grow up with a high level of access to information so teachers must shift their role as facilitators rather than sources of information (Huda, M., Jasmi, K. A., Mustari, M. I., Basiron, B., Hehsan, A., Shahrill, M., 2017). As a result, information and communication technologies have the possibility to improve teaching and learning (Gellerstedt et al., 2018). The existence of computers and the internet makes them ideal tools to potentiate various implementations in learning contexts. In many countries, there is currently a paradigm shift towards more interesting, interactive, experiential, and meaningful learning methods in education (Regnier, 2005). Education practitioners need the ability to apply available modern media and adopt Information and Communication Technology in an appropriate pedagogical manner (Gellerstedt et al., 2018).

Information and Communication Technology are gradually changing the way knowledge is understood and conveyed (Yulisetiani, Septi; Suwandi, Sarwiji; Subiyantoro, 2020). However, teachers are expected to be able to master and utilize it optimally (El Shaban & Egbert, 2018). Unfortunately, from elementary to high school levels, teachers often apply conservative learning methods and media in presenting knowledge. In the results of initial observations in one of the 5th-grade elementary schools, researchers observed that science learning material was presented by making theoretical and logical examples, adhering to textbooks, and using still pictures by the teacher on the blackboard (Pricahyo et al., 2018). This situation may not optimize student learning achievement (Asrowi et al., 2019). Apart from that, teachers tend to use lecture methods that present students' verbal knowledge about science and rarely present concrete phenomena or media related to the material being studied. Generally, most students experience misinterpretations. They are free to fantasize and try to visualize the theory given based on their limited basic knowledge. This will cause problems if not anticipated properly. Students will acquire and interpret material without visualization and confirmation of whether it is correct or not. Apart from that, there is a lack of teacher awareness regarding the use of modern learning media. The use of learning media tools is

still rarely used. Even though the learning support media facilities available at schools are adequate, teachers have not utilized the learning media devices available at schools optimally. In fact, to integrate technology effectively, the development of professional competencies, such as adequate training can help teachers to utilize and improve technological innovation in their professional lives (El Shaban & Egbert, 2018). There are many challenging factors that prevent teachers from being able to take advantage of opportunities for rapid technological developments, such as limited skills in operating technology and the absence of rules for using technology as a learning medium.

Science learning is a process of learning about students themselves and their environment. This science not only discusses a collection of facts and concepts of natural phenomena but also about how to work and think scientifically. Teaching science to lower-level students is a challenge. To present complex conceptual knowledge about real natural phenomena in the classroom, teachers must facilitate students to develop students' abilities to reason logically and abstractly (Ji, 2021). The use of technology-based learning media can be a solution to the limitations of visualization and bridging as well as students' abstract reasoning.

Based on several of the problems above, this research tries to examine how to resolve the problems faced as a result of teacher-centered learning by providing innovative learning media. Researchers propose to develop interactive motion graphic animation videos as learning media to explain science subject matter. Learning animation videos were chosen to be developed because most students showed interest in watching cartoons and animation films. Apart from that, animated videos also prevent students from feeling bored, because they are able to provide a learning atmosphere that is fun, relaxed, and full of humor, while still accommodating the main elements of the learning material. Motion Graphics are images that are manipulated sequentially to look like moving animation. Combined with audio, motion graphics can create the illusion of movement operated using animation technology.

The use of cartoon videos can build a positive environment by stimulating students' imagination and creativity. Through students' imagination and creativity, students are able to construct their own knowledge and master the conceptual material presented. The learning process in class using cartoon images can be carried out in various active learning environments, such as discussion environments, teamwork, and active participation of other students. Supported by an active learning situation, student-centered learning classes will be created and have the potential to improve learning outcomes (Hanif, 2020).

Prophetic is a positive essence inherent in every individual that leads to transformation and imitating the actions of a prophet. Prophetic values consist of theories that describe and transform social phenomena or changes based on ethical and prophetic ideals. Prophetic education is the transfer of knowledge and values to get closer to and understand God and nature to build a civilized nation (khairul ummah) (Roqib, M., & Wachid, 2011). Apart from that, it is based on prophetic values, especially to humanize humans who are often called perfect (kamil), perfect (syumul), and fear of God (taqwa) in Islamic terminology (Prayitno et al., 2022). Prophetic education is rooted in the Al-Qur'an which was conveyed by the Prophet, to humanize humans, free them from ignorance or

backwardness, and direct them to reaffirm their faith in Allah SWT (Hardiyanto, 2016). Furthermore, in the contents of the Qur'an, verse 110, Surah Ali-Imran (4: 110) explains that these values are a benchmark for social transformation which includes three, "You are the best nation that can be produced [as an example] for mankind . You encourage the righteous, forbid the evil, and believe in Allah. If the people of the book had believed, it would have been better for them. Among them there are believers, but most of them are very disobedient."

So it is natural that choosing cartoon films or other animated videos, such as motion graphics, is an alternative solution to learning problems in the classroom found in initial observations. So researchers hypothesize that video motion graphic media is effective in improving elementary school students' science learning outcomes. And learning media is associated with prophetic values which will make all series of research activities more meaningful.

2. Method

a. Types of research

Used an exploratory sequential mixed methods research design (Creswell, J. W., & Clark, 2018). An exploratory sequential approach was chosen to investigate the current situation and needs of the development process qualitatively and to quantitatively test the effectiveness of motion graphic video media for science learning in elementary schools in a sequential process. This research was guided by three research questions:

Q1: How is the science learning process currently carried out in the classroom?

Q2: Are motion graphic videos effective for improving science learning outcomes in elementary schools?

The purpose of this research is to analyze the need for learning media, describe the development process, and determine the effectiveness of motion graphics media in improving elementary school students' science learning achievement. Questions Q1 and Q2 were asked sequentially using qualitative methods to answer development needs. Therefore, a quantitative analysis was carried out to test the effectiveness of motion graphic animation media. This research is part of development research that has been published previously (Hapsari et al., 2019) by paying attention to aspects of effectiveness.

b. Research Population and Sample

This research involved two public elementary schools in Klaten City, Indonesia. Elementary schools were used as this population because there were science learning problems found in initial observations. Class V is a critical value before facing the National Examination in class VI to determine elementary school graduation. At this level, students are expected to master complex conceptual material, and abstract reasoning and understand several foreign terms in science subjects. The participants were 54 students from two classes from two different schools. Purposive sampling is used to select samples that have similar characteristics based on research objectives and

then divide them into control and experimental groups. Four science teachers and two principals from the two elementary schools were also involved as participants in the qualitative stage.

In the qualitative stage, researchers observed the learning situation in the classroom to formulate the need for developing learning media. These observations are supported by confirmation data from interviews with teachers and school principals. The results of the needs analysis are used as the basis for developing animated video learning media. The media developed is validated by content and media experts as well as potential users to measure its suitability. Researchers divided the samples into control and experimental groups before carrying out the treatment. The experimental group was given treatment using motion graphic animated video media. Thus, the control group used still image media and 2D images as a comparison rather than animated video motion graphic media in science learning.

c. Data Collection Instrument

At the qualitative research stage, the data collection techniques used were field observations, interviews, and documentation (Creswell, J. W., & Clark, 2018). Observations were carried out by paying attention to classroom learning practices carried out by the teacher in two meetings. It collects information about current learning methods and media used in the classroom and student interactions during the learning process. Meanwhile, interviews were held to obtain information regarding the obstacles in implementing learning practices faced by teachers and the solutions offered by teachers in resolving challenges that arise in learning practices. Student behavior during classroom learning is also observed to determine student characteristics. Researchers used unstructured open questions to interview four elementary class teachers from the two classes to collect information about learning media needs. The interview was guided by the limitations of the learning media used, the reasons for using the media chosen, and the school atmosphere that supports teachers in encouraging the use of technology in learning. Documentation is carried out by collecting learning reports, learning plans, and quality assurance system documents. Useful for summarizing information data about student learning achievements obtained in observed classroom learning as well as the facilities and infrastructure provided by the school.

Development stage, scale Likert questionnaire was also used to obtain expert data and user validation of the media being developed. The media developed is validated from the aspects of media purpose, content quality, visual and language suitability, subject matter, presentation, and ease of use.

3. Result and Discussion

a. Science learning process

Based on observations of learning activities, the researcher founded teachers still (a)lecture method using schematics and pictures drawn manually on the blackboard as well as built-in modules from the school. The challenges in this method are students' interpretation errors and lack of mastery of scientific terms (Latin). Apart from that, when the teacher tries to explain

using pictures on the blackboard, students don't pay attention and joke with their classmates because using the whiteboard to visualize the material also takes a long time, whereas if they only look at the pictures in the module, it sometimes causes boredom for students. Not to mention, when the teacher draws on the blackboard at the front of the class, the teacher loses control of paying attention to the students' activities. So in the end, this method causes learning to be centered only on the teacher. As a result, the knowledge provided by the teacher is not fully absorbed because students only watch and listen and try to understand what the teacher has conveyed and tend to be passive in the learning process.

These findings were identified as factors in several problems with student learning outcomes such as motivation, concentration, and understanding. (a) Students become less motivated when learning is dominated by the teacher and there are no interesting innovations for learning for a long period of time. Modifying interactive learning media and lecture methods is expected to produce more interesting and motivated learning. Likewise, if you use the lecture method and combine it with still images, students will get bored and remain silent in class. (b) With regard to student concentration, teachers should provide dynamic and interesting activities and media during learning. This dynamic activity should appear throughout classroom learning. When the teacher delivers in front of the class, students become apathetic and busy with their friends, when the teacher draws schemes, students are playing and even running around in class. This classroom situation needs to be the center of attention to attract students' attention. Moving media, videos, or displays will be very helpful because movement and changes will be more easily seen (eye-catching) by students compared to static (still) images. (c) Students' lack of understanding of the teacher's explanation can be caused by the complex and conceptual nature of science. The many foreign terms and theories contained have the potential to make students confused and require more in-depth explanations. All of these problems stem from the results of student report cards, most of which are below the completion score. These situations require a complex combination of resources to accommodate a variety of student learning styles. Visual and audio modifications can help them recognize concepts and understand the scientific process at the same time. Multimedia also makes students understand more about the lessons being taught and maximizes teachers' ability to manage and facilitate learning.

b. Effectiveness of Motion Graphic Animation Videos

To test the effectiveness of motion graphic video media, researchers conducted experimental research. This quasi-experimental research involved a total of 54 students from two different schools as experimental and control groups. Researchers chose classes randomly and avoided students who had been involved in previous trials. The experimental group was held in 2 meetings. Experimental Group Pretest and Posttest Data

Table 1. Class Eksperimen

	Pretest	Posttest	Score Improvement
Mean	50,57	70,74	20,17
Median	50,00	70,00	
Mode	40,00	70,00	
Standard Deviation	9,951	7,120	

Table 1 above shows that the average score for the experimental group's pre-test. This means that the average score of the experimental class after being given treatment has met the criteria for completion. The results show an increase of 20.17. Control Group Pretest and Posttest Data

Table 2. Control Class

	Pretest	Post-est	Score Improvement
Mean	48,28	65,67	17,13
Median	47,00	63,00	
Mode	40,00	60,00	
Standard Deviation	8,071	6,703	

Table 2 above shows that the control group's average pre-test. The results show an increase compared to the pre-test value. There was an increase in the average score of 17.13.

c. T-test analysis

The T-test is a test which is an analysis technique for measuring the difference in means from two groups of data. Researchers used the t-test of Independent Sample for each group, both pretest and posttest, to avoid the influence of independent variables that were not controlled before treatment was given. The t-test was used to test for significant differences between the scores of the control and experimental groups. The Independent Sample T-test was chosen because the data sources came from two different groups. The groups are assumed to have significant differences when sig. This value is greater than 0.005 and the t-count obtained is greater than the t-table.

This research found the need for interactive learning media as an alternative to facilitate students in the learning process. The existence of several problems and learning potential prompted this research to empirically prove the effectiveness of motion graphic animation videos on learning achievement. In the qualitative part, the researcher tries to explore specific problems that can be solved with the help of technology-based learning media, then proposes alternative motion graphic animation videos to improve learning achievement. In the quantitative part, researchers followed up on the need for learning media and proposed video media developed by conducting effectiveness tests. At the end of the research, there was a significant difference in cognitive learning achievement between the experimental class and the control class after being treated with the use of motion graphic animation video media. The materials used and the

process of developing media in this research have been explained in previous research (Wiana et al., 2018).

To explain the effectiveness, an t-test analysis of independent samples was carried out by comparing the post-test mean values of the control and experimental groups. After testing the hypothesis, the results showed that there was a significant difference in cognitive learning achievement between the experimental class and the control class. These differences can explain why motion graphic animation video media is more effective compared to the conventional learning media that has been applied. So it can be concluded that learning using animated motion graphic video media is empirically effective in increasing learning achievement (Wiana et al., 2018). These results also support existing literature that the use of media has a influence on class learning outcomes. The animated videos used must facilitate of students characteristics (Pricahyo et al., 2018). Animation media fulfills the characteristics of young teachers, namely being active in socializing and thinking concretely.

Compared to the use of other image-based learning media, motion graphic videos are much more effective in explaining conceptual and abstract material. This can be seen from the media features developed which contain interesting content, explanations of basic competencies, interactive videos, and practice sections (Naylor, S., & Keogh, 2013). The characteristics of moving animation easily attract students' attention because the moving animation videos presented make learning interactive and fun and are supported by student-centered learning methods in the form of simple, directed discussions and presentations.

The results of this research really imply that there is a relationship between the use of animated videos and learning achievement, which is also in line with and supported by the research results stated above which state the effectiveness of animated videos on conceptual material (Berney & Bétrancourt, 2016). learning subjects become more interesting and enjoyable (Khalid et al., 2010). The interactive display invites you to work on practice questions and the colorful presentation presented in the animated video influences students' activeness in the learning process.

4. Conclusion

This research investigates the effectiveness of video motion graphic media developed to solve science learning problems in elementary schools. Motion graphics are proposed as an alternative based on existing problems found at the qualitative stage. The features of the proposed media effectively influence the learning achievement of the experimental group. The interactive features of motion graphics meet students' needs for active learning situations. By integrating motion graphic video media with student-centered methods in the classroom, an active learning atmosphere is more easily created. Experimental group students looked more active and concentrated in the learning process. Media has also been proven to increase students' understanding of factual and conceptual material. Students can easily get to know and further develop their new knowledge to the maximum because the material is very closely related to basic knowledge and everyday life. It is proven that video motion graphic media can be an

alternative prospective solution to the limitations of laboratory equipment, print media, and other visualization media in science learning for elementary school students. The combination of student-centered activities and motion graphics media can encourage active learning for young students.

In this regard, the values of prophetic education included in humanization are cooperation, generosity, tolerance, politeness, and honesty which are interrelated with solidarity, friendship, familiarity, and harmony. Liberation values include education, health, mutual cooperation, and hard work, which are linked to intimacy, friendship, and harmony. Furthermore, the transcendent values are Istiqomah in worshiping Allah SWT, gratitude, and humility (tawadhu') which are interrelated with intimacy, friendship, and harmony.

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