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Improving Science Learning Outcomes in the Material Getting to Know Our Earth by Applying Powtoon Animation Media.

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Abstract

This classroom action research aimed to improve fifth-grade students' science learning outcomes on the topic *Getting to Know Our Earth* through the application of Powtoon-based animation media. The study was conducted in three cycles, following the stages of planning, action, observation, and reflection. The use of Powtoon was designed to make the learning process more interactive, engaging, and easier to understand. The results revealed a consistent improvement in student activity and learning outcomes across cycles. Student completeness increased from 53.85% in Cycle I to 92.31% in Cycle III, surpassing the classical mastery target of 85%. The findings indicate that Powtoon animation media can effectively enhance student motivation, participation, and conceptual understanding in science learning. Thus, integrating technology-based visual media contributes significantly to active and meaningful learning experiences in elementary classrooms.

Kata kunci: Animation media, classroom action research, learning outcomes, Powtoon

1 INTRODUCTION

Education is a fundamental need in the process of child growth and development. (Halamury 2022) In essence, education functions to guide and develop the potential of students so that they can achieve safety and happiness in life as individuals and members of society. Education is also understood as a process of humanization, namely an effort to humanize humans by respecting the human rights of each individual. Students are not machines that can be controlled at will, but rather a generation that needs to be accompanied and cared for in every stage of their development towards adulthood. (Sutianah 2022) Through education, it is hoped that independent, critical, noble, and socially conscious individuals will be formed. Thus, education not only makes humans capable of simply meeting the needs of daily life, but also facilitates the formation of a complete personality in accordance with the meaning of humanizing humans.

Education in Indonesia still faces several challenges, including the gap between urban and remote areas, limited teacher quality, and unequal distribution of learning resources. The government has attempted to address these issues through school mentoring programs, infrastructure development, and improving the competency of educators. Furthermore, the implementation of the Independent Curriculum is a strategic step to strengthen the quality of education by emphasizing the development of student competencies and teacher creativity. The gap between urban and remote areas, limited teacher quality, and unequal distribution of learning resources are still evident in Indonesia. (International Journal of Humanities Education and Social Sciences, n.d.) However, its implementation still faces obstacles, especially in remote areas. At the elementary school level, education plays a crucial role in building a solid foundation for students. (Judijanto

et al. 2025) The main objectives of basic education include character and moral formation, mastery of basic skills such as reading, writing, and arithmetic, development of critical and creative thinking skills, and fostering social awareness and concern for the environment.

Natural and Social Sciences (IPAS) is a study that examines humans as individuals and social beings who interact with their environment. (Naila 2023) In general, science is understood as a body of knowledge that is arranged logically, systematically, and pays attention to cause-and-effect relationships (KBBI, 2016). This knowledge includes interrelated natural and social aspects. As a country rich in culture and local wisdom, learning IPAS is expected to encourage students to explore these local values and use them to solve problems. because in its implementation it has been proven to increase student engagement, if the design is right. (Ramadhan et al. 2024) The main focus of learning IPAS in elementary schools/Islamic elementary schools or Package A programs is not on the amount of material mastered, but on the ability of students to use knowledge in an applicable manner. By considering the characteristics of elementary school/Islamic elementary school children who are still at the stage of concrete, simple, and holistic thinking, the subjects of science and social studies are simplified into one field, namely IPAS.

Science learning in elementary schools aims to build students' understanding of nature and the environment, train critical and logical thinking skills, raise awareness of the importance of nature conservation, and instill an attitude of respect for cultural and historical diversity. (Zuliani & 4H, n.d.) Learning resources utilized include elementary school science textbooks, digital media such as applications, videos, and websites, the surrounding environment through observation and experimental activities, and official online platforms such as the Ministry of Education and Culture and Education.

Based on observations in class V of SDIT Ibnu Rusyd, a number of problems were found related to student learning outcomes that tended to decline. The causal factors came from internal aspects, such as low learning motivation, lack of interest in science material, and difficulty understanding concepts; as well as from external aspects, namely limited teaching quality, inadequate learning facilities, and unsupportive learning environment conditions. If this condition is allowed to continue, students' thinking power will decrease, thus hindering the development of their potential. This is evident from the results of daily tests, where learning completeness has not reached the Learning Objective Achievement Criteria (KKTP) of 75. Of the 26 students, only 10 students (38.46%) completed the course, while 16 students (61.54%) have not achieved completeness.

Some of the problems faced in learning are the use of media that are not appropriate to the characteristics of students. The learning process is still centered on the teacher, making students easily bored and less motivated to participate actively. Learning activities tend to only emphasize mastery of the material, so that students view the subject of science as limited to understanding basic concepts without any encouragement to develop them further. This condition indicates the need for improvements in the implementation of science learning in grade V of elementary school. Winata showed that the media is valid and practical to use so that it is suitable as a learning support. (Winata et al. 2024) Therefore, this study was conducted with the aim of improving student learning outcomes, so that they not only understand the theory, but also are able to develop analytical and critical thinking skills, problem-solving skills, logical thinking, observation and experimentation skills, the ability to collect and analyze data, work together in groups, and utilize technology effectively.

One alternative media that teachers can utilize to support learning and improve student learning outcomes is Powtoon-based animation media. This media is considered effective in supporting student understanding, especially in the science subject of the earth's surface. As an audio-visual medium, Powtoon is equipped with attractive animations, making it more interactive than conventional presentations such as PowerPoint. The integrated use of audio and visuals makes the presentation of material more lively and helps prevent learning boredom. In addition, the Powtoon application is easy to use because it is designed simply without reducing the quality of the display. Aulia showed that

the use of Powtoon-based animation media significantly increased student interest in learning and learning outcomes. (Aulya et al., n.d.) Its flexibility allows teachers to adjust learning content according to needs, anytime and anywhere. Material presented through Powtoon also tends to be short and interactive, so it can maintain student focus and motivation in following the learning process.

2 RESEARCH METHODS

This study uses a Classroom Action Research (CAR) model with a qualitative approach. The selection of CAR is based on the research objective, which is to improve and enhance student learning outcomes in the subject of Science, Getting to Know Our Earth. CAR is considered relevant because it is implemented directly in the classroom, with the main goal of improving teacher learning practices, increasing student engagement, and testing the effectiveness of new, more innovative learning media. In this study, Powtoon-based animation media is used as an action to address the problem of low learning interest and lack of student understanding of the Science material. CAR is implemented directly in the classroom, with the main goal of improving teacher learning practices. (Mertler 2009) A qualitative approach was chosen so that researchers can describe the learning phenomenon comprehensively, analyze student and teacher activities, and conclude results based on empirical data obtained during the research process.

The CAR model used is based on the Kemmis and McTaggart spiral (Kemmis et al. 2013), which consists of four main stages: planning, action, observation, and reflection. These stages are carried out repeatedly in several cycles until results are obtained that meet the success criteria. In the planning stage, the researcher developed a Learning Implementation Plan (RPP), prepared Powtoon media, and compiled research instruments in the form of observation sheets, test questions, and field notes. In the action stage, the teacher implemented the science learning by displaying Powtoon media according to the prepared plan. Next, the observation stage was carried out by recording student activities, their participation in learning activities, and the results of the concept understanding test. Finally, in the reflection stage, the researcher and the teacher analyzed the data obtained, identified deficiencies, and designed improvements for the next cycle.

This research was conducted in class V of SDIT Ibnu Rusyd with a total of 26 students, consisting of 12 male students and 14 female students. The research location was chosen because based on the results of initial observations it was found that student learning outcomes in the Science material, especially the theme Getting to Know Our Earth, were still low and learning tended to be monotonous. The research took place during the even semester of the 2024/2025 academic year, namely from October 2024 to January 2025. The research stages included preparation activities, preparation of instruments, implementation of actions in three cycles, and preparation of the research report.

The data sources in this study are divided into two, namely the main data sources and supporting data sources. Hafizah emphasized the importance of alignment between the problem formulation, variables, and types of data sources/instruments used so that the research results are valid. (Hafizah et al. 2025) The main data sources are the fifth grade students of SDIT Ibnu Rusyd who are the research subjects. Meanwhile, supporting data sources include class teachers, school documentation, and reflective notes from teachers and researchers. Research data were collected through several techniques, namely: (1) observation, to observe student and teacher activities during the learning process; (2) learning outcome tests, in the form of multiple choice questions designed according to competency indicators; (3) field notes, which are used to record important things during the learning process; and (4) documentation in the form of photos, videos, and value archives relevant to the research.

The data obtained were analyzed using qualitative descriptive analysis combined with percentage calculations. Observational data were analyzed to determine the level of student activity in learning. Meanwhile, test data were analyzed to calculate the percentage

of student learning completion. Students were declared to have completed the learning individually if they obtained a minimum score of 75, while classical completion was achieved if at least 85% of students obtained a passing score. To maintain data validity, this study used triangulation techniques, both source and method triangulation. Data obtained from students, teachers, and supporting documents were compared with the results of observations, tests, and field notes, then verified through discussions with class teachers. The criteria for research success were determined based on the improvement in student learning outcomes in the subject of science, namely if the average student score had reached a minimum KKTP of 75 individually and at least 85% of students achieved classical completion. If these criteria were not met in the first cycle, the research was continued in the next cycle with improvements based on the results of reflection.

3 RESULT AND DISCUSSION

3.1 Pre-Action Results

In the pre-cycle stage, researchers conducted initial observations to obtain a picture of the actual conditions of science learning in grade V. The results of the observations showed that the classroom atmosphere was still dominated by lecture methods, with the teacher as the center of information and students tended to passively receive the material. The learning media used were simple and less interesting, so that most students appeared to get bored quickly, lack focus, and minimal participation in learning activities. If the media were made interactive & interesting, it could improve student participation. (Ndun and Appulembang 2024)

When given evaluation questions, many students had difficulty answering questions, especially those related to understanding the concept of the earth's layers and the phenomena of the earth's surface. Of the 26 students, only 10 students (38.46%) managed to achieve the Learning Objectives Achievement Criteria (KKTP), while the other 16 students had not completed it. This low percentage of learning completion shows that student learning outcomes are still far from the expected target. With these conditions, researchers together with class teachers concluded that there is a need for media innovation and learning strategies that are more interactive and appropriate to student characteristics so that they can more easily understand the material and are motivated to learn.

3.1.1 Cycle I Results

Cycle I began with the implementation of Powtoon-based animation learning media designed by the researcher. At this stage, the teacher delivered the material "Getting to Know Our Earth" using a Powtoon animation video containing a visual explanation of the Earth's surface, complemented by an engaging audio narration. The presence of this media successfully piqued students' curiosity, as evidenced by their increased attention when the video was played. The Powtoon animation media was deemed highly feasible and effective in improving conceptual understanding. (Akmalia et al. 2021a) Some students even began to take notes on important information from the video, although active involvement in asking questions or discussing was still limited to a small number of brave students. After the lesson ended, the researcher administered a formative test to measure students' understanding.

The test results showed an improvement compared to the pre-cycle, with 14 students (54%) achieving completion, while 12 students still had not achieved the KKTP. Although not optimal, this achievement demonstrates that the use of Powtoon has a positive impact on improving learning outcomes. However, through reflection, the researchers found that student engagement was still uneven, some students were still passive, and the time allocation was used inefficiently. This serves as the basis for strategic improvements in the next cycle.

3.1.2 Cycle II Results

Entering cycle II, the researchers made several improvements based on the results of reflections on the previous cycle. The teacher provided a greater portion of interaction, for example by increasing question-and-answer sessions, group discussions, and providing a variety of practice questions so that students could hone their understanding more deeply. The resulting Powtoon media was deemed valid/very appropriate by the media and material validators, as well as effective. (Akmalia et al. 2021b) The Powtoon video was also enhanced with the addition of more engaging animations and a simpler explanation flow to suit the comprehension of fifth-grade students.

This change in strategy had a significant impact on class dynamics; students appeared more enthusiastic about participating in the learning process, were more active in answering teacher questions, and expressed their opinions in discussions. Group activities went quite well, with students collaborating to identify simple geological phenomena displayed on Powtoon. Evaluation results showed a significant improvement compared to the previous cycle, with 20 students (77%) achieving completion, while only 6 students did not meet the KKTP (Competency Minimum Competency). This improvement was not only evident in test scores but also in changes in students' learning attitudes, who became more motivated, confident, and more willing to express their ideas. However, researchers found that some students still had difficulty understanding more complex concepts, necessitating the need for more varied learning strategies to accommodate differences in student abilities in the next cycle.

3.1.3 Cycle III Results

In cycle III, the researcher refined the learning by adding more varied activities, including interactive quizzes and simple reflection activities that involved students. In addition to showing Powtoon, the teacher also gave students the opportunity to compile a summary of the material in the form of images or short notes. This activity made students more active in processing the information they received, while also fostering a sense of responsibility for their own learning outcomes. The use of media such as Powtoon can make learning more interesting and students more motivated, especially if the media is designed creatively. ("Improving Student Learning Outcomes Using Powtoon Media Apps" 2025) The classroom atmosphere looked more lively, almost all students actively participated in the activities, both when answering questions, discussing, and completing quizzes.

The final test results of the cycle showed a very good improvement, with 24 students (92%) achieving completeness and only 2 students still not meeting the KKTP. This figure exceeds the established research success criteria, both individually and classically. In addition, the improvement in the quality of learning is also reflected in the attitudes of students who are more confident, enthusiastic, and show a higher interest in science lessons. Thus, in cycle III the indicators of research success have been achieved, so that the action can be stopped and declared successful in improving student learning outcomes through the use of Powtoon-based animation media.

3.2 Sub Discussion

Teacher activity during the three research cycles showed significant improvement. In Cycle I, teachers began implementing Powtoon media as the primary tool in science learning. Teachers attempted to display interactive animation displays to introduce the Getting to Know Our Earth material. Observation results showed that teacher activity was in the "Good" category with an average of 78%. This indicates that teachers were able to implement the learning according to plan, although they still needed to add a variety of strategies to ensure more even student attention. In Cycle II, teacher activity increased to 86% with the "Very Good" category. Teachers became more skilled at utilizing Powtoon animation features, adding variations in explanations, and providing motivation and guidance to students. In Cycle III, teacher activity reached 94% with the "Very Good" category consistently. This condition is in accordance with Susanto's theory which states that learning success is influenced by teachers' abilities in managing the class and utilizing

media as a means of increasing learning effectiveness. (Susanto, n.d.) Teachers manage the class optimally so that learning takes place actively, interestingly, and enjoyable.

Student activity also experienced significant development from cycle to cycle. In the initial stages of the study, some students still showed a passive attitude, lacked focus, and tended to get bored quickly when participating in learning. After being given treatment in Cycle I, student engagement increased with an average of 65% in the "Sufficient" category. Some students began to enthusiastically participate in activities, although some were still not actively participating. In Cycle II, student activity increased to 79% in the "Good" category. This increase is in line with Maulana's opinion which emphasizes that learning will be more effective if students are actively involved through interaction with the media and their environment. (Maulana 2019) Students were more enthusiastic about participating in learning, enthusiastically watching Powtoon shows, and actively asking and answering questions. In Cycle III, student activity reached 89% in the "Very Good" category. Almost all students were involved in activities, whether when watching videos, discussing, or working on evaluation questions.

Student learning outcomes showed consistent improvement from the first cycle to the end of the study. In Cycle I, student learning completion only reached 54% with an average score of 68.23. This result indicates that most students still need guidance in understanding the concept of science and natural sciences. In Cycle II, learning completion increased to 77% with an average score of 73.65. This improvement occurred because the use of Powtoon media was able to help students understand the material more clearly through a combination of audio and visuals. In Cycle III, learning completion reached 89% with an average score of 82.11, exceeding the research success criteria of at least 85% of students achieving KKTP. This finding is in line with Darman's opinion which emphasizes that learning media, especially audio-visual, can strengthen memory, clarify concepts, and increase student learning motivation. (Darman 2020) Thus, the research target was achieved, indicating that Powtoon media is effective in improving students' science and natural science learning outcomes.

Therefore, the application of Powtoon media in science learning has proven successful in improving the quality of learning. Teachers are increasingly optimal in carrying out their roles, students are more active in learning activities, and learning outcomes experience significant improvements from cycle to cycle. This achievement is in line with Adam's theory, which states that student learning motivation can be increased through external factors, such as encouragement, rewards, and the use of engaging learning media. With the Powtoon animation display, students are more motivated to learn, so that academic achievement can gradually improve.

4 CONCLUSION

Based on the results of the research conducted through three learning cycles with the application of Powtoon animation media in the subject of science, a significant increase was obtained in both activity and student learning outcomes in each cycle. In the implementation of Cycle I, student learning completeness only reached 53.85% or 14 students out of a total of 26 students, while 12 other students (46.15%) still did not meet the KKTP. Student activity was also still relatively low, namely 57.69%, because they were not used to participating in learning using Powtoon media so that their involvement in the learning process was not optimal.

Entering Cycle II, the condition began to show real improvements. Student learning completion increased to 76.92% or as many as 20 students, with only 6 students (23.08%) still not completing. Student activity also increased from 57.69% to 76.92%, which indicates that the Powtoon-based learning strategy increasingly motivates students to be more active and involved in learning. In Cycle III, learning achievement increased significantly to 92.31% or as many as 24 students successfully completed, while only 2 students (7.69%) did not reach the KKTP. Student activity was in the very good category

with an average engagement reaching 92.31%, indicating that they were fully involved in learning activities. The minimum target of classical completion of 85% was also achieved in this cycle, so the research could be stopped without the need for additional cycles.

These positive changes were also clearly visible in observations of student activity. While initially, most students were passive and awkward in participating in learning using Powtoon, their engagement increased rapidly as the cycle progressed. In Cycle III, students appeared enthusiastic about participating in the learning process, actively engaged in discussions, were able to answer questions correctly, and demonstrated a better understanding of concepts. Teacher performance also improved along with the implementation of the interventions. Teachers became more skilled in managing the classroom, utilizing Powtoon as a learning aid, and providing motivation that could spark students' interest in learning. Overall, the use of Powtoon animation media proved effective in increasing student activity and learning outcomes in the science subject, particularly in the topic "Getting to Know Our Earth."

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