JEC (JURNAL EDUKASI CENDEKIA)
Volume 8 Issue 1, 2024 P-ISSN: 2549-2861 E-ISSN: 2715-3371
Journal Website: https://www.jurnal-umbuton.ac.id/index.php/JEC

IMPROVING LEARNING OUTCOMES BY USING AUDIO VISUAL MEDIA IN ELEMENTARY SCHOOL STUDENTS

Acoci[1]*, Farisatma[2], Nur Jannah[3], Irman Matje[4], Jufri Agus[5]

[1,2,3,4,5]Fakultas Keguruan dan Ilmu Pendidikan, Universitas Muhammadiyah Buton, Indonesia

Email koresponden: acoci4sri@gmail.com

ABSTRACT

Audio visual media also helps teachers in delivering materials systematically and efficiently. With the help of this media, students can focus more on the core of learning and easily connect theory with practice. The purpose of this study is to improve student learning outcomes in the subject of science by using audio visual media in grade IV students of SD Negeri 2 Nganganaumala. This study is a PTK (classroom action research) study. Each task that will be carried out as part of the PTK in this study will use the Kemmis and MC Tanggart Spiral model which states that the task in question is one that involves a cycle of eight components including: (a) planning, (b) implementation, (c) observation, (d) reflection. The results of the study showed a significant increase in student learning outcomes after corrective actions. In the pre-cycle, the majority of students had not completed, but after cycle I, the number of students who completed increased, accompanied by an increase in average scores. This proves that the interventions implemented began to have a positive impact. In cycle II, almost all students achieved completion with a higher average score. This shows that the learning strategies implemented are effective in improving student understanding and achievement, and can be used as a reference for improving future learning.

Keywords: Learning Outcomes, Social Studies, Learning Media, Audio Visual.

1. Introduction

Student learning outcomes in Natural and Social Sciences subjects are the main indicators in assessing understanding and mastery of concepts that have been taught. This subject integrates natural and social sciences to form a holistic understanding of the surrounding environment and the phenomena that occur in it. Student learning outcomes can be influenced by various factors, such as the learning methods used by teachers, student learning readiness, and the availability of learning resources that support understanding of the material (Winata, 2023) (Albana & Hartayu, 2023) (Insani et al., 2023). With the right approach, such as project-based learning or direct experiments, students can more easily understand IPS concepts in more depth and application (Pardiyana, 2020). In addition to internal factors originating from students themselves, learning outcomes in IPS subjects are also influenced by the school environment and support from families (Simanjuntak et al., 2019). Teachers who apply interactive methods, such as group discussions and the use of digital learning media, can increase students' interest and motivation in learning (Intaniasari et al., 2023). In addition, parental involvement in supporting learning at home also plays an important role in improving student learning outcomes (Faizah & Wati, 2021). Periodic evaluations through daily tests, project assignments, and other formative assessments help measure the extent to which students understand the material being taught. With a combination of effective learning strategies and a supportive environment, student learning outcomes in IPS subjects can improve optimally (Dharmoyo, 2020).

Audio-visual media is one of the effective learning tools in improving the understanding of fourth grade students, especially in presenting abstract or complex materials (Ramadhania & Adnan, 2022). This media combines elements of sound and images so that it can attract students' attention, clarify concepts, and increase their involvement in the learning process (Warisman & Liansary, 2021). In fourth grade learning, audio-visual media can be in the form of educational videos, interactive animations, multimedia presentations, or simulations that help students understand the material more easily and enjoyably (Putri & Marhamah, 2022). The use of this media also supports different learning styles, both for students who are more responsive to visuals and those who understand more easily through hearing. In addition, the application of audio-visual media in fourth grade learning can increase students' learning motivation and help them remember information longer (Septiani et al., 2023). For example, in the subject of Natural and Social Sciences (IPS), documentary videos about ecosystems or science experiments can provide a more real learning experience than just reading textbooks (Amalia & Astuti, 2023). Teachers can combine the use of this media with group discussions, Q&A, or project assignments to ensure that students really understand the material presented. With proper use, audio-visual media not only improves student learning outcomes but also makes the learning process more interesting and interactive (Mahama & Arifin, 2021).

The use of audio-visual media in learning Natural and Social Sciences (IPS) has a significant positive impact on the learning outcomes of fourth grade students. This media is able to increase the appeal of learning materials by combining sound and image elements, making it easier for students to understand abstract concepts (FAJARİ et al., 2020) (Rahayu et al., 2019). Through this media, students can learn interactively and be more actively involved in the learning process, which ultimately helps them to absorb information better and improve critical thinking skills. In addition, audio-visual media also helps teachers in delivering materials systematically and efficiently (Widiastuti et al., 2022) (Yusnan & Aminu, 2022) (Ariyanti, 2020). With the help of this media, students can focus more on the core of learning and easily connect theory with practice. The use of audio-visual media also supports more inclusive learning by considering the needs of students who have visual or auditory learning styles (Yulianingrum, 2020). As a result, the use of this media can improve overall student learning outcomes and create a more meaningful learning experience (Darmawan & Wuryandani, 2022).

Learning of Natural and Social Sciences (IPS) at SD Negeri 2 Nganganaumala is still dominated by lecture methods and the use of textbooks. This approach causes a lack of active involvement of students in understanding abstract concepts, especially in materials that require visualization such as the water cycle, energy changes, or ecosystem processes. Students often have difficulty connecting theory with its application in everyday life, so that their learning outcomes tend to be low. One of the main obstacles in learning IPS in grade IV is the lack of variation in learning media that can increase student interest and understanding. Many students have difficulty understanding the material because the methods

used are less interactive and uninteresting. In addition, limited tools and supporting facilities, such as audio-visual devices, are also factors that cause the learning process to be less effective. As a result, student learning outcomes are not optimal and many have not yet achieved the expected competency standards.

The use of audio-visual media can be an effective solution. This media can help students understand the material more easily through a combination of interesting images, sounds, and animations. With the use of learning videos, digital simulations, and interactive presentations, students can be more active in exploring the concepts of science and natural sciences. In addition, teachers can also use simple technology, such as playing educational videos or infographics, which can increase student involvement in the learning process. The implementation of audio-visual media in science and natural sciences learning is expected to significantly improve student learning outcomes. Students will find it easier to understand the material because it is presented in a more interesting and easy-to-digest way. In addition, the use of technology in learning can also increase students' learning motivation, make them more active, and improve their memory of the material being studied. Thus, the application of audio-visual media can be an innovative step in improving the quality of learning at SD Negeri 2 Nganganaumala.

2. Methods

This study uses a qualitative research type with a descriptive approach to explore the role of teachers in the use of learning media to improve collaboration in class IV of State Elementary School 2 Kaobula. The descriptive approach was chosen because it allows for an in-depth analysis of the various strategies and techniques applied by teachers in utilizing learning media as a tool to encourage collaboration between students. The focus of this study lies in how teachers plan, implement, and evaluate the use of these media in the learning process. The subjects of the study were class IV teachers of State Elementary School 2 Kaobula who were responsible for implementing learning in the class. Teachers became the center of attention because of their role as designers and main drivers in the implementation of learning media.

This research is a PTK (classroom action research) research. Each task that will be carried out as part of the PTK in this study will use the Kemmis and MC Tanggart Spiral model which states that the task in question is one that involves a cycle of eight components including: (a) planning, (b) implementation, (c) observation, (d) reflection. The research was conducted in Class IV of SD Negeri 2 Nganganaumala. The research time was carried out in the odd semester of the 2023/2024 academic year. The subjects of this study were students of class IV of SD Negeri 1 Nganganaumala with a total of 18 students, namely 9 male students and 9 female students. Based on the research that the researcher took, namely Classroom Action Research using the Kemmis and Mc Tagart models. This research has research stages in the form of cycles, this research uses 1 cycle, if the first cycle is unsuccessful, then it is continued to the next cycle. This research was

carried out in 4 stages, namely: (1) planning stage, (2) implementation, (3) observation and (4) reflection (Rahmawati & Indarini, 2023).

Data collection in this study was conducted using several instruments to obtain accurate and relevant results related to improving student learning outcomes in the subject of science and natural sciences using audio-visual media in class IV of SD Negeri 2 Nganganaumala. The instruments used include observation sheets, consisting of teacher and student observation sheets, used to observe student involvement and responses to the use of audio-visual media in learning. In addition, test sheets are used to measure students' understanding of the science and natural sciences material that has been delivered, so that the effectiveness of this learning media in improving their learning outcomes can be analyzed (Rusnilawati et al., 2023). In addition to observations and tests, this study also uses interview instruments to dig deeper into information related to the experiences of teachers and students in learning science and natural sciences with audio-visual media. Documentation is also an important part of data collection, where various documents such as observation sheets, learning process notes, and photos of activities in class are used as supporting evidence. With this combination of data collection methods, the study is expected to provide a clear picture of the influence of the use of audio-visual media in improving the learning outcomes of class IV students of SD Negeri 2 Nganganaumala.

Data analysis was conducted to determine the level of achievement of student learning outcomes during the teaching and learning process. In this analysis process, there are several formulas used to measure student learning outcomes. The final score of each student can be calculated using the formula Final Score = (Score obtained / Maximum score) × 100, which shows how much the student has achieved compared to the maximum score available. In addition, to determine the overall class performance, the formula Average score = (Sum of student scores / Number of students) is used, which provides an overview of the average achievement of students in one class. Furthermore, the level of learning completion classically can be analyzed using the formula Percentage Completed = (Number of students completed / Total number of students) × 100%, which shows the percentage of students who have achieved the Minimum Completion Criteria (KKM) score. By applying these formulas, teachers can evaluate the effectiveness of learning and determine the steps needed to improve student learning outcomes.

3. Results and Discussion

3.1. Results

Pre Cycle

The pre-cycle of student learning outcomes in the Natural and Social Sciences (IPS) subject in grade IV of SD Negeri 2 Nganganaumala shows that most students still have difficulty in achieving learning completion. Based on the data obtained, only 4 students or around 21.05% achieved the completion score, while 15 other students or 78.95% have not met the minimum completion standard (KKM). These results indicate that students' understanding of the IPS material is

still low, so that efforts are needed to improve the learning process. The high percentage of students who have not completed can be caused by various factors, such as less interesting learning methods, limited learning resources, and different levels of student understanding. In addition, student involvement in learning can also affect their learning outcomes. If learning is still monotonous and less interactive, students tend to have difficulty understanding the IPS concepts taught. Therefore, it is necessary to apply more innovative learning strategies, such as the use of visual media, simple experiments, or group discussion-based approaches.

To improve student learning outcomes, teachers can apply a more active and student-centered learning approach. In addition, periodic evaluation of the learning methods used is also important to ensure their effectiveness in improving student understanding. With improvements in the learning process, it is expected that the number of students who achieve learning completion can increase significantly, so that the quality of science learning in grade IV of SD Negeri 2 Nganganaumala becomes more optimal.

Cycle I

Cycle I has used audio-visual media in science learning in grade IV of SD Negeri 2 Nganganaumala showing an increase in student learning outcomes compared to the pre-cycle. Of the 19 students who participated in the learning, 12 students or 63.16% had achieved completion, while 7 other students or 36.84% had not yet completed it. This increase shows that the use of audio-visual media helps students understand the material better, because the presentation is interesting and easier to understand than conventional methods. Although there was an increase in learning completion, there were still some students who had not reached the minimum standard. This could be caused by individual factors, such as different levels of understanding, lack of focus during learning, or difficulty in adjusting to new methods. Therefore, in subsequent learning, teachers need to pay more attention to students who have not completed it, for example by providing additional guidance or adjusting the material to their learning style to make it more effective.

To further improve learning outcomes, improvements are needed in the use of audio-visual media. Teachers can optimize its use by adding interactive exercises, group discussions, or video-based quizzes so that students are more active in learning. With this strategy, it is hoped that in the next cycle the number of students who complete the course will increase, so that the effectiveness of science learning in grade IV of SD Negeri 2 Nganganaumala will be more optimal.

Cycle II

Cycle II in the use of audio-visual media in science learning in grade IV of SD Negeri 2 Nganganaumala showed a significant increase in learning outcomes. Of the 19 students who participated in the learning, 18 students or 94.74% had achieved completion, while only 1 student or 5.26% had not yet completed it. These results indicate that the improvement of learning strategies applied in this

cycle succeeded in increasing students' understanding of the material being taught. Improvements in the use of audio-visual media, such as the addition of interactive exercises and group discussions, contributed greatly to helping students understand the concept of science better. Success factors in Cycle II can also be associated with increased student involvement in the learning process. More interactive audio-visual media make students more focused and motivated to learn. In addition, teachers also pay special attention to students who have not previously achieved completion, by providing additional guidance and adjusting learning strategies according to student needs. This proves that interesting and interactive learning methods can significantly improve learning outcomes.

The results that almost achieved perfect completion, science learning using audio-visual media can be said to be effective in improving student learning outcomes. This success shows that the method can be used as a sustainable learning approach. However, evaluation still needs to be done to ensure its effectiveness in the long term and maintain student learning motivation. By continuing to develop and adjust learning strategies, it is hoped that student achievement will continue to increase and science learning will become more meaningful.

Table 1. Comparison of Pre-Cycle and Cycle I and Cycle II Recapitulation Results

Category	Fre	Persen	Fre	Persen	Fre	Persen
Complete	4	21.05%	12	63.16%	18	94.74%
Not Completed	15	78.95%	7	36.84%	1	5.26%
Average Score		47		62		81
Highest Score		80		80		100
Lowest Score		30		50		60

The table shows a comparison of the recapitulation results at the pre-cycle, cycle I, and cycle II stages in a learning process. At the pre-cycle stage, the number of students who achieved learning completion was only 4 people or 21.05%, while students who had not completed reached 15 people or 78.95%. The average score obtained by students at this stage was 47, with the highest score of 80 and the lowest score of 30. These results indicate that before the corrective actions, the majority of students had not achieved the expected completion standard. After the corrective actions were carried out in cycle I, there was a significant increase. The number of students who achieved completion increased to 12 people or 63.16%, while students who had not completed decreased to 7 people or 36.84%. In addition, the average student score also increased from 47 to 62, with the highest score remaining at 80, but the lowest score increasing to 50. These results indicate that the corrective actions implemented in cycle I had a positive impact on student learning outcomes. In cycle II, student learning outcomes improved even further. The number of students who completed the course increased to 18 or 94.74%, while only 1 student or 5.26% had not yet achieved completion. The average student score also increased to 81, with the highest score increasing to 100 and the lowest score reaching 60. These data indicate that the corrective actions taken in cycle II were increasingly effective in improving student learning outcomes, so

that almost all students achieved the expected learning completion. The graph in this study:

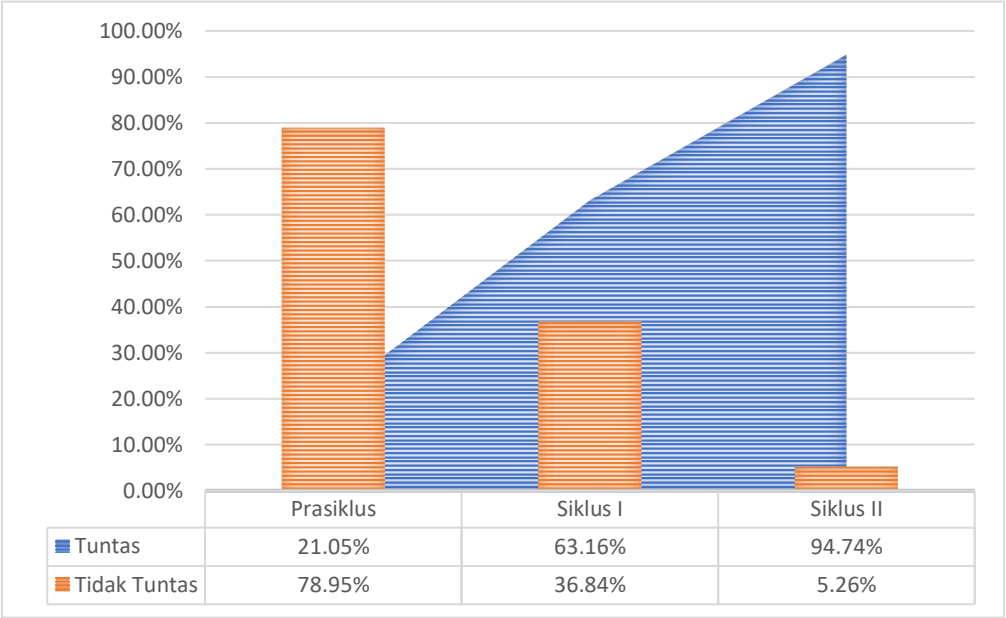

Figure 1. Graph of Pre-Cycle and Cycle I and Cycle II Recapitulation Results

Based on the percentage graph of student learning outcomes, there was a significant increase in learning completion from pre-cycle to cycle II. In the pre-cycle, only 21.05% of students achieved completion, while 78.95% had not completed. After corrective actions in cycle I, the completion rate increased to 63.16%, while students who had not completed decreased to 36.84%. This shows that the intervention implemented began to have a positive impact on student learning outcomes. Further improvement occurred in cycle II, where the percentage of students who completed reached 94.74%, while students who had not completed were only 5.26%. These results show the effectiveness of the learning strategies implemented in improving student learning completion as a whole. Thus, the intervention carried out can be considered successful in significantly improving student academic achievement.

3.2. Discussion

The pre-cycle results show that the level of student learning completion in the subject of science is still low. Most students have difficulty in understanding the material, which is likely caused by less varied learning methods and lack of active involvement in the learning process. This indicates that the approach used previously was not fully effective in helping students master the concepts taught. With the obstacles in student understanding, more innovative learning strategies are needed to improve learning outcomes. The use of more interesting media, such as audio visuals, can be a solution to help students understand the material better. In addition, a more interactive approach and actively involving students in learning is expected to increase their motivation and improve academic achievement in the next stage.

Pre-cycle in classroom action research is the initial stage to identify problems faced by students in the learning process before intervention or improvement is given. According to constructivism theory, learning that does not involve students actively tends to make it difficult for them to understand concepts in depth. In addition, behaviorism theory also emphasizes that stimuli in the form of learning media that are less interesting can affect student motivation and learning outcomes (Hayati & Hasanah, 2023) (Chafid et al., 2022) (Fuad & Sa'bandiyah, 2023). If the method used is still conventional and less interactive, then students' understanding of the material will be limited. Therefore, in an effort to improve learning outcomes, a more effective approach is needed, such as the use of audio-visual media that can stimulate interest in learning and help students understand concepts more concretely (Aryanti et al., 2022).

The results of Cycle I showed an increase in student learning outcomes after the application of audio-visual media in science learning. Students became more enthusiastic and motivated to understand the material because the presentation was more interesting and interactive. Compared to previous conditions, this method has been proven to help most students master the concepts taught. However, there are still some students who have not achieved completion, which is likely due to differences in the level of understanding and learning abilities of each individual. Although there has been an increase, learning still requires some adjustments so that the results are more optimal. Teachers need to pay more attention to students who are still experiencing difficulties, for example by providing additional guidance or using a variety of media that are more appropriate to their learning styles. With improvements and refinements to learning strategies, it is hoped that all students can achieve completion in the next stage, so that learning outcomes will increase and the learning process will be more effective.

Cycle I in classroom action research refers to the multimodal learning theory, which emphasizes that the use of various forms of media, such as audio-visual, can improve students' understanding more effectively. According to the theory of cognitivism, learning that involves visual and auditory stimuli helps the brain process information better, so that students can more easily understand the concepts being taught (Pathuddin et al., 2021) (Ulfayantik et al., 2022) (Novianti & Kurniawan, 2023). In addition, the theory of constructivism also supports that interactive and experience-based learning will increase student engagement and strengthen their understanding of the material. Thus, the application of audio-visual media in science learning in Cycle I shows that this method can be an effective strategy to improve student learning outcomes (Marfiana & Ramadan, 2021).

The results of Cycle II showed a significant increase in student learning outcomes after improvements were made in the use of audio-visual media. Students were more active, enthusiastic, and found it easier to understand the material because the learning method was more interactive and interesting. With a better approach, most students managed to achieve learning completion,

indicating that the strategies implemented were effective in improving their understanding of the science subject. The success in Cycle II proves that the use of optimized audio-visual media can improve the quality of learning. Although there are still a few obstacles, the results achieved are very good and can be the basis for implementing similar methods in other learning. Continuous evaluation and development are still needed to ensure long-term effectiveness, so that student motivation and achievement are maintained and the learning process becomes increasingly qualified.

Cycle II in classroom action research reflects the effectiveness of experiential learning theory, which emphasizes that active involvement of students in the learning process will improve their understanding. According to constructivism theory, interactive and multimedia-based learning allows students to construct their own knowledge better. In addition, cognitivism theory explains that the use of audio-visual media can strengthen memory and understanding because information is presented in various forms of stimuli, such as images, sounds, and animations (Hertati, 2022) (Zaifaro et al., 2018). The success in Cycle II shows that with more refined strategies, learning becomes more effective, relevant, and appropriate to students' needs, thereby increasing their motivation and learning outcomes (Rohmanurmeta & Dewi, 2020).

4. Conclusion

Based on the results of the pre-cycle, cycle I, and cycle II recapitulation, it can be concluded that there was a significant increase in student learning outcomes after corrective actions were taken. In the pre-cycle stage, the majority of students had not achieved learning completion, with average scores still low. However, after the actions were taken in cycle I, the number of students who completed the learning increased more than twofold, and the average score increased quite significantly. This shows that the interventions implemented began to have a positive impact on students' understanding and academic achievement. In cycle II, the increase in learning outcomes was increasingly optimal, with almost all students achieving completion and higher average scores. These results indicate that the learning strategies implemented in cycles I and II were effective in improving student learning outcomes. Thus, it can be concluded that the method used in this study contributed positively to improving student understanding and achievement, and can be used as a reference for improving learning in the future.

Reference

Albana, I., & Hartayu, W. (2023). E-learning as a Learning Media in the Form of Educational Games for Elementary School Students. In *Journal of Multimedia Trend and Technology* (Vol. 2, Issue 1, pp. 1–9). Universitas AMIKOM Purwokerto. https://doi.org/10.35671/jmtt.v2i1.20

Amalia, R., & Astuti, R. (2023). Use of Educational Games to Improve Science Learning Outcomes of Elementary School Students. In *Academia Open* (Vol. 8, Issue 1). Universitas Muhammadiyah Sidoarjo. https://doi.org/10.21070/acopen.8.2023.5100

Ariyanti, S. D. (2020). Improvement of Student Learning Outcomes in Analysis of Heavy Standard Units Through Model Problem Based Learning Assisted with Audio Visual Media. In *Social, Humanities, and Educational Studies (SHEs): Conference Series* (Vol. 3, Issue 3, p. 1253). Universitas Sebelas Maret. https://doi.org/10.20961/shes.v3i3.46645

Aryanti, S., Nurrizalia, M., Setiyo, E., Helmi, H., & Azhar, S. (2022). Powtoon-Based Learning Videos to Improve Learning Outcomes at Background Services in Elementary School Students. In *Halaman Olahraga Nusantara (Jurnal Ilmu Keolahragaan)* (Vol. 5, Issue 1, p. 217). Universitas PGRI Palembang. https://doi.org/10.31851/hon.v5i1.6805

Chafid, A., Santoso, S., & Widjanarko, M. (2022). The Effectiveness Of Sikajari Media In Distance Learning For Elementary School Students. In *Jurnal Prakarsa Paedagogia* (Vol. 5, Issue 1). Universitas Muria Kudus. https://doi.org/10.24176/jpp.v5i1.8669

Darmawan, L. A., & Wuryandani, W. (2022). How Picture Storybook Improve Creative Thinking Skills and Learning Outcomes of Elementary School Students? In *Journal of Education Research and Evaluation* (Vol. 6, Issue 3, pp. 529–537). Universitas Pendidikan Ganesha. https://doi.org/10.23887/jere.v6i3.45566

Dharmoyo, D. (2020). Use of Learning Video Media to Improve Student Learning Outcomes of Grade 5 Elementary School Thematic Online Learning. In *Social, Humanities, and Educational Studies (SHEs): Conference Series* (Vol. 3, Issue 3, p. 1). Universitas Sebelas Maret. https://doi.org/10.20961/shes.v3i3.45676

Faizah, J., & Wati, T. L. (2021). The Relationship between Motivation and Learning Outcomes of Grade IV Elementary School Students. In *Academia Open* (Vol. 4). Universitas Muhammadiyah Sidoarjo. https://doi.org/10.21070/acopen.4.2021.1716

FAJARİ, L. E. W., SARWANTO, S., & CHUMDARİ, C. (2020). The effect of problem-based learning multimedia and picture media on students' critical-thinking skills viewed from learning motivation and learning styles in elementary school. In *İlköğretim Online* (pp. 1797–1811). Elementary Education Online. https://doi.org/10.17051/ilkonline.2020.735165

Fuad, A. J., & Sa'bandiyah, E. (2023). The Effect of Audio Visual Media and Learning Style On Students' Learning Achievement in Class IV Thematic Learning at Fourth Islamic Elementary School Nganjuk. In *eL Bidayah: Journal of Islamic Elementary Education* (Vol. 5, Issue 2, pp. 114–125). Institut Agama Islam Tribakti Kediri. https://doi.org/10.33367/jiee.v5i2.4092

Hayati, R., & Hasanah, F. N. (2023). *Development of Android-Based "Megowan" Learning Media (Knowing Animals) for Class V Elementary School Students*. Universitas Muhammadiyah Sidoarjo. https://doi.org/10.21070/ups.1186

Hertati, E. (2022). Android-Based Social Science Educational Game Media in Elementary Schools: The Effect of Media on Student Learning Outcomes. In

International Journal of Social Science and Human Research (Vol. 5, Issue 6). Everant Journals. https://doi.org/10.47191/ijsshr/v5-i6-05

Insani, P. N., Su'ad, S., & Hariyadi, A. (2023). Development of Blended Learning-Based Science Module on Sound Material to Improve Learning Outcomes of Fourth-grade Elementary School Students. In *AL-ISHLAH: Jurnal Pendidikan* (Vol. 15, Issue 2, pp. 2182–2191). STAI Hubbulwathan Duri. https://doi.org/10.35445/alishlah.v15i2.2791

Intaniasari, Y., Subiyantoro, S., & Suparti, S. (2023). Application of the Quiz Team Method to Improve Learning Outcomes of Elementary School Students on the Material of Mutual Cooperation Lifestyle. In *Indonesian Journal of Instructional Media and Model* (Vol. 5, Issue 1, pp. 15–25). Universitas Veteran Bangun Nusantara Sukoharjo. https://doi.org/10.32585/ijimm.v5i1.4141

Mahama, S., & Arifin, M. B. U. (2021). The Effect of Using Image Media to Increase English Learning Outcomes for Class 6 Students at Elementary School. In *Academia Open* (Vol. 4). Universitas Muhammadiyah Sidoarjo. https://doi.org/10.21070/acopen.4.2021.3050

Marfiana, R., & Ramadan, Z. H. (2021). ICT-Based Learning Media in the Form of Powerpoint for Grade IV Elementary School Students. In *International Journal of Elementary Education* (Vol. 5, Issue 2, p. 350). Universitas Pendidikan Ganesha. https://doi.org/10.23887/ijee.v5i3.35494

Novianti, L., & Kurniawan, M. I. (2023). *Popup Book Learning Media On Learning Outcomes Of Grade Iv Elementary School Students*. Universitas Muhammadiyah Sidoarjo. https://doi.org/10.21070/ups.2976

Pardiyana, P. (2020). The Cooperative Learning Model with STAD Type to Improve Science Learning Outcomes of Class IV Elementary School Students. In *BIO-INOVED : Jurnal Biologi-Inovasi Pendidikan* (Vol. 2, Issue 2, p. 87). Center for Journal Management and Publication, Lambung Mangkurat University. https://doi.org/10.20527/bino.v2i2.9094

Pathuddin, P., Rochaminah, S., & Hidayatullah, R. (2021). Implementation of Van Hiele Learning Model Assisted By Manipulative Media in Circle Materials to Improve the Learning Outcomes of Violent Students Inpres Palupi Elementary School. In *International Journal of Research and Innovation in Social Science* (Vol. 5, Issue 1, pp. 6–14). International Journal of Research and Innovation in Social Science. https://doi.org/10.47772/ijriss.2021.5101

Putri, A. R. A., & Marhamah. (2022). Audio-Visual-Based Learning Media through Canva Application for Eight Grade Students. In *Jurnal Ilmiah Pendidikan Profesi Guru* (Vol. 5, Issue 2, pp. 331–342). Universitas Pendidikan Ganesha. https://doi.org/10.23887/jippg.v5i2.51336

Rahayu, G., Arga, H., Altaftazani, D., & Bernard, M. (2019). Effect of VBA Learning Media to Improve Students Decision Making Skill of Elementary School. In *Proceedings of the 2019 Ahmad Dahlan International Conference Series on Education & Learning, Social Science & Humanities (ADICS-ELSSH*

2019). Atlantis Press. https://doi.org/10.2991/adics-elssh-19.2019.10

Rahmawati, A. A., & Indarini, E. (2023). Application of Polya Strategy Assisted by Concrete Media to Improve Numeracy and Learning Outcomes in Elementary School Students. In *Edunesia : Jurnal Ilmiah Pendidikan* (Vol. 5, Issue 1, pp. 263–277). Natural Aceh. https://doi.org/10.51276/edu.v5i1.588

Ramadhania, S., & Adnan, H. (2022). Crossword Puzzle Learning Media to Improve Indonesian Vocabulary Mastery for Grade 2 Elementary School Students. In *Journal of Innovation and Research in Primary Education* (Vol. 1, Issue 2, pp. 50–55). Paguyuban Panalungtik Sunda. https://doi.org/10.56916/jirpe.v1i2.177

Rohmanurmeta, F. M., & Dewi, C. (2020). Developing Digital Comics as Character Learning Media for Elementary School Students. In *Jurnal Ilmu Pendidikan* (Vol. 26, Issue 2, p. 47). State University of Malang (UM). https://doi.org/10.17977/um048v26i2p47-53

Rusnilawati, Iqbal, M. M., Rahman, F., Amalia, N., Tadzkiroh, U., & Kusuma, R. R. (2023). Combining active knowledge sharing with audio visual media to improve geometry learning outcomes in elementary school students. In *AIP Conference Proceedings* (Vol. 2766, p. 20096). AIP Publishing. https://doi.org/10.1063/5.0141756

Septiani, W., Hendrawan, B., & Permana, R. (2023). Development of Android-Based Sikair Interactive Learning Media to Improve Learning Outcomes of Class V Elementary School Students on the Material of the Water Cycle. In *JETISH: Journal of Education Technology Information Social Sciences and Health* (Vol. 2, Issue 2, pp. 999–1006). Rayyan Jurnal. https://doi.org/10.57235/jetish.v2i2.909

Simanjuntak, L. Y. A., Perangin-Angin, R. B., & Saragi, D. (2019). Development of Scientific Based Learning Video Media Using Problem Based Learning (PBL) Model to Improve Student Learning Outcomes in 4Th Grade Students of Elementary School Parmaksian, Kab. Sambair Toba. In *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal* (Vol. 2, Issue 4, pp. 297–304). Budapest International Research and Critics Institute. https://doi.org/10.33258/birle.v2i4.517

Ulfayantik, S., Jatmiko, B., & Supardi, Z. A. I. (2022). Development of Online Learning Media using Guided Inquiry to Improve Science Process Skills of Elementary School Students Assisted by Microsoft Office 365. In *JPPS (Jurnal Penelitian Pendidikan Sains)* (pp. 142–151). Universitas Negeri Surabaya. https://doi.org/10.26740/jpps.v11n2.p142-151

Warisman, B., & Liansary, V. (2021). The Relationship Between Learning Readiness and Learning Outcomes of Grade II Elementary School Students. In *Academia Open* (Vol. 4). Universitas Muhammadiyah Sidoarjo. https://doi.org/10.21070/acopen.4.2021.1817

Widiastuti, T., Fathurohman, I., & Ismaya, E. A. (2022). Herobot Learning Media

for Grade IV Elementary School Students. In *Journal for Lesson and Learning Studies* (Vol. 5, Issue 2, pp. 244–251). Universitas Pendidikan Ganesha. https://doi.org/10.23887/jlls.v5i2.52097

Winata, A. (2023). Learning Media in Active Learning Time of Elementary School Students. In *Tadbir : Jurnal Studi Manajemen Pendidikan* (Vol. 7, Issue 2, p. 403). STAIN Curup. https://doi.org/10.29240/jsmp.v7i2.8161

Yulianingrum, D. (2020). The use of Learning Video Media to Improve Science Skills in Fifth Grade Elementary School Students. In *Social, Humanities, and Educational Studies (SHEs): Conference Series* (Vol. 3, Issue 3, p. 500). Universitas Sebelas Maret. https://doi.org/10.20961/shes.v3i3.45901

Yusnan, M., & Aminu, N. (2022). Audio Visual Media Learning Guidance using Wondershare Filmora as Elementary School Teacher Professional Development in Batupoaro District Baubau City. In *Room of Civil Society Development* (Vol. 1, Issue 2, pp. 38–44). Lembaga Riset dan Inovasi Masyarakat Madani. https://doi.org/10.59110/rcsd.13

Zaifaro, Z., Muhari, M., & Jatmiko, B. (2018). The Effectiveness of Science Learning using Contextual Teaching and Learning to Improve Elementary School Students' Critical Thinking Skills. In *Proceedings of the 1st International Conference on Education Innovation (ICEI 2017)*. Atlantis Press. https://doi.org/10.2991/icei-17.2018.104