

Utilization of Audio Visual Media to Improve Motivation and Learning Outcomes in Natural Sciences

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ABSTRACT

This study aims to analyze the effect of the use of audio-visual media on students' motivation and learning outcomes in Natural Sciences (IPA) learning. The research method used is the Systematic Literature Review (SLR) approach, with articles selected based on inclusion criteria, such as a focus on the use of audio-visual media in science education, relevance to motivation, and learning outcomes. Articles were obtained from leading academic databases, such as Google Scholar, ERIC, Scopus, and JSTOR. The results of the study indicate that the use of audio-visual media can significantly increase students' learning motivation. This media presents learning materials in a more interesting, interactive, and easy-to-understand way through visual and audio elements. In addition, audio-visual media also has a positive impact on learning outcomes, as seen from the increase in post-test scores which are higher than conventional learning methods. Visualization of abstract concepts through video, animation, and simulation makes it easier for students to understand and remember learning materials. Routine use of audio-visual media is recommended to create a more dynamic and effective learning experience. These findings provide practical recommendations for educators to utilize learning technology in improving the quality of science education. In addition, this study also emphasizes the importance of teacher training in developing and using audio-visual-based learning media so that the results obtained are more optimal.

Keywords: Audio Visual Media, Learning Motivation, Learning Outcomes, Natural Sciences

INTRODUCTION

Natural Science Education (IPA) plays an important role in shaping students' critical and analytical thinking patterns. Natural Science Education (IPA) plays a very important role in shaping students' critical and analytical thinking patterns (Irsan, I. 2021). Science teaches students not only to memorize facts, but also to understand concepts, explain natural phenomena, and solve problems with a scientific approach. In the science learning process, students are invited to observe, identify, and analyze various events or objects around them (Sutrisna, N., & Gusnidar, G. 2022). This process develops critical thinking skills, because students must be able to evaluate information, ask relevant questions, and find solutions based on existing evidence or data (Sari, et al. 2022, December). In addition, science also encourages students to think analytically, namely the ability to break down complex problems or phenomena into simpler parts and then connect them to find conclusions. Through experiments and investigations, students learn to design experiments, collect data, and analyze the results. These skills are very important in everyday life and in various future professional fields, where the ability to think critically and analytically is essential to solve complex problems (Nurdini,



Creative Commons Attribution-ShareAlike 4.0 International License: https://creativecommons.org/licenses/by-sa/4.0/ et al. 2022). Overall, science education not only provides knowledge about the world of the universe, but also develops thinking skills that can be applied in various contexts, thus forming students who are able to think systematically, critically, and logically in facing various challenges. Science not only provides theoretical knowledge, but also teaches scientific thinking skills that are very necessary in everyday life. However, the challenge faced in science learning is the lack of student motivation to learn, which can affect their learning outcomes. Many students find it difficult to understand abstract science concepts, making them less interested and motivated in following the lessons. This makes the science learning process less effective and difficult for some students (Kartikasari, BD 2024).

One effective way to overcome the challenges in increasing student motivation and attention is to utilize interesting learning media. Audio-visual media, such as videos, animations, and interactive presentations, have the ability to activate various student senses at once, thereby increasing their interest and involvement in learning. The use of audio-visual media in learning has several advantages (Wulandari, T., & Mudinillah, A. 2022). First, this media can make learning materials more interesting and fun, thereby increasing students' interest in learning. Second, by using images, sounds, and animations, difficult concepts can be explained more easily and clearly. Third, students tend to remember information conveyed through audio-visual media more easily because it involves more senses. Fourth, this media can make students more actively involved in the learning process, either through discussions, questions and answers, or other interactive activities. Finally, audio-visual media can support various student learning styles, be it visual, auditory, or kinesthetic. The use of audio-visual media can make learning materials that were previously considered boring or difficult to understand more interesting, relevant, and easily accessible. Videos and animations, for example, can present abstract concepts in a more concrete and visual way, helping students better understand the material being taught. Interactive presentations also provide opportunities for students to be actively involved in the learning process, such as answering guizzes, discussing, or conducting simulations relevant to the topic being studied. This not only improves their understanding but also stimulates curiosity and motivation to learn further (Andini, SA, & Kurniawati, W. 2023).

In addition, audio-visual media can create a more dynamic and varied learning atmosphere, which can reduce student boredom and boredom in learning. By presenting more enjoyable and interesting learning, this media can help increase students' interest in learning, strengthen their memory, and ultimately encourage better learning outcomes. Therefore, the use of audio-visual media is a very effective strategy in creating a more interesting learning experience and has a positive impact on student motivation and learning outcomes. This type of media allows students to access information in a more interesting and enjoyable way, and is easier to understand because it presents material using audio and images that support theoretical explanations. In addition, audiovisual media can stimulate students to participate more actively in the learning process (Darmayanti, NWS, & Widiani, NL 2024).

The importance of audio-visual learning media in increasing student motivation cannot be underestimated, because this media has the power to create a more interesting and interactive learning experience. Previous studies have shown that the use of audiovisual media can have a significant impact on the learning process, especially in increasing student attention, accelerating understanding of the material, and increasing retention of information learned (Fatihah, 2023). Audio-visual media can increase student attention because it presents material more lively and dynamically. By utilizing images, sound, and animation, this media is able to attract students' attention and maintain their involvement in learning activities. When students are actively involved in the learning process, they are more focused and more easily absorb the information provided. In addition, audio-visual media also accelerates students' understanding of the subject matter. By visualizing abstract concepts through relevant videos, animations, or illustrations, students can more easily understand material that is difficult to understand with only text or verbal explanations (Mj, HD 2023). The use of this media allows students to see firsthand how a phenomenon or concept works, which can clarify their understanding. Furthermore, audio-visual media has been shown to increase information retention, namely the ability of students to remember the material that has been studied. Research shows that information delivered through media that involves the senses of sight and hearing tends to be more easily remembered by students than information that is only delivered verbally or in writing. This is due to the more multisensory processing of information, which strengthens the brain's connection to the material being studied (Rumbewas, M. 2023). Thus, the use of audio-visual media in learning can not only increase students' motivation and attention, but also help them understand and remember information more effectively. Therefore, audio-visual media is a very important tool in creating a more enjoyable and beneficial learning experience for students. This will certainly have an impact on better student learning outcomes. In other words, audio-visual media not only has a positive impact on student motivation, but also contributes to improving the quality of learning and more optimal learning outcomes.

From previous research on the Use of Audio Visual Media to Improve Motivation and Learning Outcomes, it has been proven effective in improving student motivation and learning outcomes. By utilizing visual and audio elements, learning becomes more interesting, interactive, and easy to understand. Therefore, educators are advised to consider using audio visual media in the learning process to create a more dynamic and effective learning environment. (Antoro, WD, & Sridiyatmiko, G. 2022). However, although many studies have shown the effectiveness of audio visual media in education, the application of this media in science learning in Indonesian schools is still limited. Many teachers have not fully utilized audio visual media in their teaching, or may find it difficult to choose media that suits students' needs. Therefore, this study aims to explore more deeply how the use of audio visual media can affect students' motivation and science learning outcomes, and how it impacts the learning process in the classroom. In this context, it is important to conduct more in-depth research on the effect of audio visual media on students' motivation and learning outcomes in science subjects. Through this study, it is hoped that empirical evidence can be found that supports the use of audio visual media in improving the quality of learning and student learning outcomes. In addition, the results of this study can also provide recommendations for educators in selecting and applying appropriate learning media to improve student motivation and learning outcomes.

METHODS

This study uses a Systematic Literature Review (SLR) approach to explore the effect of audio-visual media utilization on motivation and learning outcomes of Natural Sciences (IPA). The main research question that is the focus is how the use of audio-visual media can improve motivation and learning outcomes of science in students. The articles included in this literature review were selected based on inclusion criteria, namely research that discusses the use of audio-visual media in the context of science education, involving elementary to secondary students, and published. In addition, only studies that measure motivation and learning outcomes as the main variables will be considered. Articles that are not relevant or do not meet these criteria will be excluded from the analysis. Data search sources come from leading academic databases such as Google Scholar, ERIC, Scopus, and JSTOR, using relevant keywords such as "audio-visual media," "motivation," "learning outcomes," "science education," and variations of other keyword combinations. Article selection was carried out by checking the abstract and the suitability of the content with the established criteria, carried out by two researchers independently to reduce bias. Next, articles that meet the criteria will be analyzed to identify the impact of using audio-visual media on students' motivation and learning outcomes in science lessons, as well as the methodology used in the study. The results of the analysis will be synthesized and arranged thematically to describe the patterns that emerge, and to provide a more comprehensive picture of the influence of audio-visual media on the science learning process. The final conclusion will summarize the main findings and provide recommendations for educational practice and suggestions for further research.

RESULTS AND DISCUSSION

In this section, we will discuss the results obtained from research on the use of audio-visual media to improve motivation and learning outcomes in Natural Sciences (IPA) learning, as well as an analysis of the factors that influence the effectiveness of the media.

Increasing Learning Motivation

The results of the study showed that students who used audio-visual media in science learning had higher levels of motivation compared to students who used conventional learning methods. This can be seen from the increase in motivation scores recorded in the questionnaires filled out by students before and after using audio-visual media. Overall, the use of audio-visual media in science learning provides a more interesting, interactive, and easy-to-understand learning experience, which contributes directly to increasing student motivation. With increased motivation, students become more active in learning and more interested in studying science material more systematically (Wulandari, et al. 2020).

Audio-visual media, such as experimental videos or scientific animations, are very effective in making difficult-to-understand Natural Science (IPA) materials more interesting and easier to understand. Abstract concepts, such as physical changes, the process of photosynthesis, or the water cycle, can be visualized concretely through videos or animations, so that students can more easily understand the processes that occur (Aini, RP 2024). In addition, the use of this media can also increase students' interest in learning, because dynamic and interactive visual elements are more interesting than conventional learning methods. Students become more active in following lessons, discussing, and participating in experiments. That way, audio-visual media not only makes science learning more fun, but also helps students understand and remember the material better. In addition, audio-visual media can stimulate students' curiosity. When students see animations or simulations about science topics, interesting and interactive visualizations can raise new questions in their minds (Nisa, EK 2019). This encourages students to dig deeper and look for additional information about the topics they see, so that they are more motivated to understand the material more deeply. For example, after watching a simulation about the water cycle, students may become curious about the factors that influence the process or want to know more about its impact on the environment. This curiosity leads to increased student engagement in class discussions, asking questions to the teacher, or seeking additional learning resources, which ultimately increases their level of participation in learning. Thus, audio-visual media not only makes the material more interesting but also encourages deeper exploration and understanding of the science topics being studied.

Improving Learning Outcomes

Based on the results of the pre-test and post-test conducted, students who used audio-visual media in science learning showed a significant increase in their learning outcomes. This increase is reflected in students' ability to understand previously difficult science concepts, as well as their ability to answer more complex questions after learning using audio-visual media (Sae, H., & Radia, EH 2023). For example, students who previously had difficulty understanding concepts such as force, motion, or energy changes, after participating in learning with audio-visual media, were able to explain these concepts more clearly and applicably. In the post-test, the experimental group using audio-visual media scored higher in terms of understanding and application of concepts compared to the control group that only participated in learning with the traditional lecture method. This shows that audio-visual media not only improves students' understanding but also facilitates them in applying science concepts in more practical and complex situations. Improved learning outcomes are also driven by the ability of audio-visual media to present information systematically and attractively. By combining images, sound, and text, this media simplifies complex information so that it is easier for students to understand (Syamsudin, et al. 2023).

Student Interaction and Engagement

One of the factors that influences the increase in motivation and learning outcomes is the level of student interaction and involvement in learning. When students are actively involved in the learning process, they tend to understand the material better and have higher motivation. Audio-visual media, such as video or animation, can increase this involvement in an effective way (Hudaya, et al. 2024). Audio-visual media has the power to present material in a more interesting way, because it combines elements of sound, images, and movement that can stimulate students' visual and cognitive appeal. This allows students to more easily understand difficult or abstract concepts in a more concrete and interesting way. However, the use of this media does not stop at presenting information passively. In learning activities involving video or animation, students are expected not only to watch, but also to actively participate. This can be done through discussion, analysis, and evaluation of the material presented. This process encourages students to think critically, collaborate with their friends, and develop deeper thinking skills. Thus, the use of appropriate audio-visual media can create a more interactive and participatory learning atmosphere, which in turn can increase student motivation and learning outcomes.

Active involvement in learning plays a major role in helping students understand the material better, remember information longer, and apply the knowledge they have learned in real situations. When students are actively involved in learning, they not only receive information, but also interact with the material, think critically, and relate the concepts learned to everyday life experiences or contexts. This process strengthens their understanding, improves memory, and allows them to more easily apply what they have learned in various situations (Dewi, et al. 2021). In the context of Natural Science (IPA) learning, this active involvement can be realized through experimental simulations or the use of experimental videos. Many concepts in science, such as chemical reactions or natural processes that occur over a long period of time (for example, the water cycle or rock formation), are difficult to do directly in the classroom. The use of simulations or experimental videos gives students the opportunity to witness and understand processes or experimental results that they may not be able to experience directly (Suryani, Y. 2024).

For example, experiments involving chemical reactions that result in changes in color, temperature, or gas can be very interesting and provide a deeper understanding of how these reactions occur. However, these experiments may be difficult or risky to conduct in a classroom with a large number of students. Video experiments or simulations allow students to clearly see the process, understand the stages, and gain deeper insights. In addition, they can see experiments that take place over a long period of time, such as environmental changes or other natural processes, which cannot be demonstrated in a short time in class. In this way, students not only learn theory but also gain visual and practical experiences that enrich their understanding. This kind of active involvement improves the quality of learning and helps students apply their knowledge in real life.

Diversity of Audio Visual Media Types

In addition to providing fun variations, the diversity of audio-visual media types also allows for more effective and efficient delivery of material. For example, learning videos can provide clear and in-depth visual illustrations of concepts that are difficult to understand through text alone. Animations can help explain dynamic and complex processes or phenomena in a way that is easier to understand. Multimedia presentations, which combine text, images, sound, and video, can create a more interactive and engaging learning experience. By utilizing various types of audio-visual media, students can more easily understand the subject matter, increase their involvement in the learning process, and ultimately achieve better learning outcomes. This diversity of media also allows teachers to adjust teaching methods to the different learning styles of students, so that each student can learn in the way that is most effective for them. Experimental videos or animations that illustrate science concepts provide clear and in-depth visualizations of material that is difficult to explain with words alone. For example, concepts about chemical reactions or energy changes can be displayed in the form of animations that show the process in more detail. This makes it easier for students to understand the material than just listening to verbal explanations from the teacher (Azmi, U. 2022).

Inhibiting Factors in the Use of Audio Visual Media

Although the use of audio-visual media has been proven effective in increasing motivation and learning outcomes, there are several obstacles that can affect its implementation in the classroom. One of the main obstacles is the availability and quality of adequate technological devices. Some schools may not have sufficient access to technological tools such as computers, projectors, or stable internet access to watch learning videos (Rushertanto, A. 2024). In addition, there are also obstacles in terms of teacher skills and knowledge in using the technology. Not all teachers have the ability to operate technological devices or create interesting and effective multimedia content. Adequate training and technical support are needed to overcome this obstacle. Another obstacle is the cost associated with procuring and maintaining technological devices. Schools with limited budgets may find it difficult to provide the necessary devices or update outdated devices. Finally, there is also a challenge in terms of the time required to plan and prepare audio-visual media-based learning materials. Teachers need to invest additional time to create or find content that is appropriate to the curriculum and students' needs. In addition, teachers also need to have skills in managing the use of audio-visual media so that it can support learning objectives. Without careful planning

and proper management, audio-visual media can become a distraction rather than an effective aid (Jannah, DRN, & Atmojo, IRW 2022).

Recommendations for Using Audio Visual Media

Based on the findings above, it is recommended that audio-visual media be used routinely in science learning to maintain interest and improve student understanding. The use of this media must be adjusted to the needs and characteristics of the material being taught, and accompanied by interactive teaching so that students can be more easily involved in learning. Routine use of audio-visual media can help students to be more focused and interested in the material being taught. Learning videos, animations, and multimedia presentations can provide clear and interesting illustrations, so that difficult concepts can be more easily understood (Mellinda, W. 2022). In addition, this variety of media can also prevent boredom and increase student learning motivation. It is important to ensure that the media used is in accordance with the needs and characteristics of the material being taught. For example, animation can be used to explain dynamic processes or phenomena, while learning videos can provide a more indepth explanation of certain concepts. Interactive multimedia presentations can actively involve students in the learning process, so that they can more easily understand and remember the material being taught. Thus, the use of appropriate and interactive audiovisual media can increase the effectiveness of science learning, maintain student interest, and improve their understanding of the material being taught. Teachers are expected to be trained in the use of audio-visual media, and given access to devices that support technology-based learning. Thus, the use of audio-visual media will be more optimal in increasing student motivation and learning outcomes.

CONCLUSION

Based on the results of the study, it can be concluded that the use of audio-visual media can significantly improve students' motivation and learning outcomes in Natural Sciences (IPA) learning. Audio-visual media not only makes learning more interesting, but also helps students understand and remember science concepts more effectively. Therefore, the use of audio-visual media in science learning is highly recommended to be implemented in schools. This study also shows that to improve learning outcomes, not only media factors need to be considered, but also the active role of teachers in managing learning. By utilizing the right audio-visual media, teachers can create a more enjoyable and effective learning atmosphere, which ultimately has a positive impact on student motivation and learning outcomes.

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