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Development of Physics Learning Media : A Literature Review

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ABSTRACT

Objective: The primary objective of this study is to investigate the development of physics learning tools by comparing the forms of digital and conventional media, along with their respective impacts. **Method**: The employed methodology involves a comprehensive literature review, defined as an inquiry into scholarly articles, books, and other sources related to the issue, research field, or specific theory. Literature review is characterized by providing a general overview, summarization, and evaluation of scholarly works. The research method encompasses multiple steps, including: (1) Identifying topics related to Assessment as Learning and metacognitive skills. (2) Searching and selecting relevant articles through Scopus and Google Scholar. (3) Analyzing and synthesizing literature. (4) Organizing the text. **Results**: The findings reveal the existence of 40 journals elucidating on physics learning media, encompassing both digital and conventional forms. Commonly utilized digital learning media include Adobe Flash, websites, e-modules, and interactive tools. Digital learning media is evaluated to enhance student learning outcomes and understanding. It enables students to perceive, hear, and interact with the material dynamically, thereby triggering a deeper understanding. The effectiveness of learning media has been substantiated to improve students' comprehension of physics and also heighten their interest in the subject matter. **Novelty**: This research offers insights into designing interactive and modern learning media to enhance students' understanding and learning outcomes in physics, contributing to the achievement of educational objectives.

INTRODUCTION

Physics learning is a teaching and learning process conducted by educators to contemplate distinctive phenomena through observation and discovery of facts, concepts, standards, and hypotheses that can influence the physics learning process Physics has become a subject that dreaded and disliked by students. This inclination often stems from the student learning groups, creating an impression that physics is a challenging subject, appears very serious, always requires conceptual understanding toward the subject, and a practical perspective (Larsson & Danielsson, 2023; Lathwesen & Belova, 2021; Mawas et al., 2020).

To address these challenges, learning media play a crucial role in preparing physics-related learning materials. Media serves as the presentation of data between the source and the recipient. Media can become medium of educational, if it conveys messages or data for educational contains educational goals (Gaol & Sitepu, 2019; Hasanah et al., 2022; Shiong et al., 2023; Sumandiyar et al., 2021; Vera et al., 2022). The development of Industry 4.0 influences the foundation of new innovations in the field of education and has implications that need particular attention, especially in the physics learning process (Bongomin et al., 2020; Elayyan, 2021; Hernandez-de-Menendez et al., 2020; Javaid et al., 2021; Li, 2020). This is particularly related to learning efficiency, time productivity, and other supporting facilities.

Learning media is a crucial component in the learning process. The use of learning media should be an engaging part of teaching activities (Ansari & Khan, 2020; Manca, 2020; Rapanta et al., 2020; Simamora, 2020; Wang et al., 2020). However, a lack of diversity and suboptimal utilization of learning media can lead to a decreased interest in learning among students, which is unfortunate. This contradicts the purpose of learning media, which is intended to be a tool to enhance the learning process and make it more effective. Learning media comprises various types, and one commonly used type in schools is print learning media. This medium is widely used due to its perceived practicality, adaptability to students' abilities, and ease of distribution. However, it has limitations, as it cannot display specific objects such as sound, moving images, or three-dimensional objects. This poses a challenge in physics education, where certain phenomena or objects are hard to comprehend without visualization. For instance, in physics topics like renewable energy, effective learning requires media that can present images and moving sounds to explain the daily-life phenomena related to energy (Benek & Şekercioğlu, 2023; Çırakoğlu et al., 2022; Georgiou et al., 2021; Ispal & Ishak, 2022; Kholifah et al., 2020).

As technology advances, the limitations of print learning media can be minimized, notably through the utilization of augmented reality technology. This technology can bridge the virtual and real worlds in real-time when supported by devices such as computers, tablets, and smartphones (El-Haggar et al., 2023; Liberty et al., 2024; Yousef, 2021). With suitable devices like smartphones and augmented reality technology, print-based learning media can represent not only two-dimensional objects on paper but also three-dimensional ones through video and audio, commonly known as multimedia. With the increasing development of technology, the number of users of devices such as tablets and smartphones is expected to rise. Multimedia has the potential to propel advancements in science and technology education, offering new experiences for both students and teachers (AlGerafi et al., 2023; Carambas & Espique, 2023; Kotiash et al., 2022; Marougkas et al., 2023; Onu et al., 2023; Oubibi et al., 2022). The use of multimedia can enhance learning efficiency, stimulate students to engage in learning, and provide comprehensive information to improve learning outcomes (Haryana et al., 2022; Sekarwangi et al., 2021; Ullah & Anwar, 2020; Yeung et al., 2021).

Teachers can use or create media that aligns with the teaching material, student conditions, and school environments. Commonly used learning media today include virtual labs, Schoology, augmented reality, e-modules, animations, page-flipping, websites, digital microscopes, PowerPoint, picture cards, Adobe Flash, and scrapbooks. Hence, the use of digital learning media is highly essential in the current era. Aside from aiding teachers in facilitating the teaching-learning process, in this modern age, we have abundant information about the potential of primary school students, enabling them to develop easily and rapidly. Therefore, this research will focus on the development of learning media, particularly digital media in physics education. We will evaluate various types of learning media used to teach this subject and seek to understand how the utilization of these learning media influences students' understanding and interest in physics learning. Thus, this study aims to provide valuable insights into which learning media can be effectively used in physics education and contribute positively to future education.

RESEARCH METHOD

This research used a literature review method as the research approach. The literature review method allows researchers to identify, collect, summarize, and analyze relevant

literature already existing on the identified topic or issue in the research (Wahyuni, 2022). Literature sources were found through searching articles in research journal databases and internet searches. Google Scholar was the database used, with the search period spanning from 2014 to 2024. Keywords used in the search were also included in the data collection process, such as "learning media," "Physics," and "students."

In this literature review, data from relevant literature were extracted and then analyzed using a narrative method. The data were categorized based on common findings and results relevant to answering the research objectives that align with inclusion criteria (Saphira, 2022; Saphira et al., 2023). The data were then processed to create a summary of journals that includes information about the researcher, year of journal publication, the country of the research origin, research title, research method used, and the main findings or results of the journal. This research method involves several steps, including (1) identifying the topic, (2) searching and selecting relevant articles, (3) analyzing and synthesizing literature, and (4) organizing the text. The type of data used is secondary data. Secondary data sources are data obtained by reading, studying, and understanding through other media sourced from literature, books, and documents. The method steps are illustrated in Figure 1.

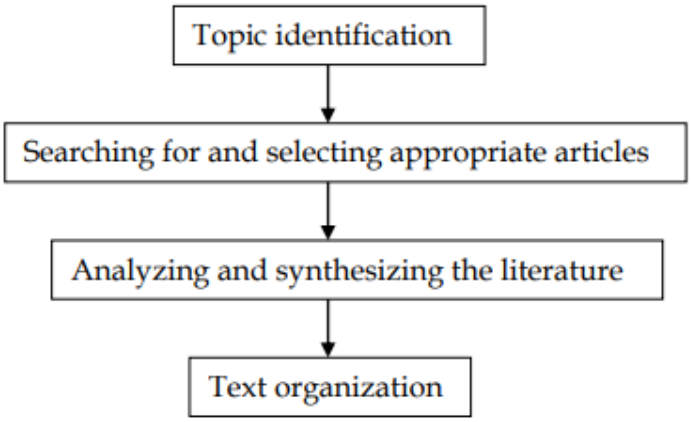

Figure 1. Research flowchart.

RESULTS AND DISCUSSION

Results

Based on the secondary data collected from 15 articles, several are relevant to metacognitive skills and the implementation of Assessment as Learning. The obtained data is recorded in Table 1.

Table 1. Matrix of data search results from articles.

Title and Researchers	Objective	Results
Learning Media Development Energy Renewable for Increase Ability Think Critical (Miroah et al., 2015)	Study aims to develop learning media specifically for the topic of Renewable Energy, focusing on water energy. Test and non-test results indicate that the	The test and non-test results demonstrate that the significant development of renewable energy learning media can enhance critical thinking abilities.

Title and Researchers	Objective	Results
	significant development of renewable energy learning media can enhance critical thinking abilities.	
Creation of Interactive E-Modules with SETS (Science, Environment, Technology, and Society) approach with Utilization of the Lectora Inspire Program on Source Material Energy Renewable for Class XII at School Upper-Intermediate (Azzahra et al., 2022)	This study aims to develop interactive E-modules for the physics lesson on the topic of renewable energy, using the SETS (Science, Environment, Technology, and Society) approach. The development will utilize the Lectora Inspire software for device soft, targeting class XII students in Higher Schools.	Products created using Lectora Inspire can be published in both online and offline formats. Additionally, the product includes an evaluation component that offers feedback for responses and provides scores or evaluation values.
Development of Interactive Physics Learning Media based on Smart Apps Creator to Improve Students' Critical Thinking Skills and Learning Motivation (Murtianingsih & Astono, 2023)	This research aims to develop an interactive physics learning media based on Smart Apps Creator that is suitable for instructional purposes. It seeks to determine the significant improvement in students' critical thinking abilities and identify the categories of increased learning motivation among students after using the interactive physics learning media based on Smart Apps Creator.	The research results indicate that the interactive physics learning media based on Smart Apps Creator in the form of energy and effort learning applications is suitable for enhancing students' critical thinking abilities and learning motivation. The improvement in students' critical thinking abilities falls into the high category with a gain value of 0.70, and the increase in students' learning motivation is also in the high category with a gain value of 0.71.
Smart Hydroponic Design as a Learning Medium Physics Material Energy Renewable (Mudhofir et al., 2022)	This study aims to provide a description of the design of learning media for the physics material on renewable energy.	Before being utilized as a learning medium, this smart hydroponic media underwent an evaluation to assess its feasibility and validity. Trial results of the designed tool indicate its effectiveness and efficiency for application in the cultivation of lettuce vegetables.

Title and Researchers	Objective	Results
E-Learning Review for Technology New Renewable Energy in Indonesian Higher Education (Kurniawati et al., 2020)	This article provides a comparison of several existing e-learning platforms for educational materials related to energy.	E-learning platforms like Energy University, Power Energy Lab E-learning, and others were presented, and a qualitative comparative analysis was conducted among these platforms. Generally, these platforms utilize dynamically created websites either manually or through Content Management Systems.
Deep Learning for Renewable Energy Forecasting: A Taxonomy, And Systematic Literature Review (Ying et al., 2023)	To efficiently identify real-time energy production and demand within a diverse renewable energy system, the implementation of a reliable and capable management framework is essential.	The findings of the study suggest that deep learning methods show promising potential for making insightful discoveries in the field of energy predictions. Additionally, the research results emphasize relevant aspects and offer suggestions for future studies to address anticipated challenges.
Development of Physics Learning Media Assisted by 3D Application Scratch on the Topic of Vibration and Waves to Improve Student Learning Outcomes (Wakidawantama & Perdana, 2024)	The main objective of this research is to address the learning difficulties of students in the subject of physics, particularly in the topics of vibrations and waves, by utilizing the user-friendly features of Scratch as a learning media.	The evaluation was conducted using the SBi method by converting ordinal data to interval data through MSi analysis. The research results indicate that the developed learning media can be categorized as suitable. Therefore, this learning media can be effectively used in physics learning activities, assisting learners in understanding the concepts of vibrations and waves.
Development of Digital Learning Media for Renewable Energy Subject Based on Concepts Understanding of Electrical Engineering Department's Students State University of Malang (Rahmawati et al., 2020)	The research and development objectives are as follows: (1) Designing and constructing digital learning media for renewable energy; (2) Designing and creating simulations based on the conceptual understanding of renewable energy; (3)	The learning media and simulations for renewable energy are highly feasible for use. Digital learning media and renewable energy simulations are also capable of providing students with an understanding of the system draft for generating electricity from renewable energy sources.

Title and Researchers	Objective	Results
	Evaluating the feasibility of digital learning media and renewable energy simulations.	
Analysis Ability Mastery Draft Ipa Integrated and Caring Environment Student Through Use of Teaching Materials for Sugarcane Processing Energy Renewable (Nuraini et al., 2022)	The purpose of this study is to describe the mastery of integrated science concepts and the level of environmental concern among students after learning using teaching materials on the processing of sugarcane as a renewable energy source.	The research results reveal that the mastery of Integrated Science concepts among students has improved by 0.43 and falls within the medium category.
Clean, Not Green: The Effective Representation Of Renewable Energy (Keramitsoglou et al., 2016)	The research objectives mentioned in the text above aim to examine the nuanced differences in the intuitive understanding or pre-existing perceptions associated with the terms "green" and "clean," particularly in relation to colors representing renewable energy sources (RES).	The research results indicate a distinct age-based difference: younger children tend to choose white and yellow colors along with the descriptor "energy clean" to represent RES, while these preferences gradually shift towards the color green and the descriptor "energy green" with increasing age.
Development of Physics Learning Media Based on Articulate Storyline with the Topic of Linear Motion (Hadza et al., 2024)	The research on the development of Articulate Storyline-based media on linear motion aims to create physics learning media. The primary objective is to investigate whether the learning outcomes in terms of cognitive aspects and skills in the physics learning process differ based on students' initial abilities through guided learning using web-based or application-based modeling.	The feasibility test of the Articulate Storyline-based interactive learning media on linear motion yielded a result of 82.00%. Student responses to the learning media obtained a 85.00% result with a highly positive criterion. It can be concluded that the Articulate Storyline-based interactive learning media is highly suitable for instructional purposes.

Title and Researchers	Objective	Results
Development of Interactive High School Physics Learning Media Based on Adobe Animate CC on the Topic of Newton's Law of Gravity (Pratama et al., 2023)	This study aims to develop interactive high school physics learning media based on Adobe Animate CC for the topic of Newton's Law of Gravity. The research method used the Nieveen development design, including the preliminary study, design stage, and assessment stage.	The conclusion of this study is that the high school physics interactive learning media based on Adobe Animate CC meets the criteria of being highly valid and very effective for use in teaching the abstract topic of Newton's Law of Gravity in physics.
The Influence of Worksheets on Inquiry Strategies Guided Based Reasoning to Skills Student Decision Making High School in Energy Materials Renewable (Maryani, 2018)	The study aims to investigate the influence of worksheets on guided inquiry strategies based on reasoning skills for high school students in decision-making regarding renewable energy materials.	The research findings indicate that worksheets incorporating guided inquiry strategies based on reasoning can enhance decision-making skills for high school students regarding renewable energy materials.
The development of Interactive Multimedia Physics Learning Media Using Scratch to Improve Student Learning Outcomes (Ma'rifah et al., 2023)	The aim of this study is to develop interactive multimedia learning media using Scratch that is valid, practical, and effective in improving students' learning outcomes. This research follows the Research and Development (R&D) approach, utilizing the ADDIE development model.	The developed media meets the criteria for effectiveness in improving students' learning outcomes, as indicated by the normalized gain from pre-test to post-test, which is 0.64, falling into the moderate category. Therefore, it can be concluded that the developed interactive multimedia learning media based on Scratch is suitable for use.

Discussion

The Impact of Learning Media on Physics Subject Material

Physics learning is conducted by connecting concepts with phenomena present in students' daily lives. However, some concepts are inherently abstract and cannot be directly presented to students during lessons, making them challenging to comprehend. Hence, teachers use learning media as a means of communication with students. Learning media serves as a conduit between the message from the learning source and the students. By utilizing learning media, abstract concepts in Physics can be well understood by learners (Asmawati, 2020; Harjono et al., 2020; Husna & Fajar, 2022;

Susanti et al., 2020; Wati & Widiansyah, 2020). One particularly crucial physics topic in today's education, such as renewable energy, necessitates the use of digital learning media to facilitate the display of specific objects like sound and moving images.

Digital learning media harnesses cutting-edge technology. Teachers can use digital learning media to assist students in understanding materials with phenomena that cannot be brought into the classroom due to size, distance, or being beyond reach (Jamilah et al., 2023; Lupton, 2021; Mandasari, 2022; Simamora et al., 2020; Winarto et al., 2020). The development of learning media is tailored to class needs, leading to varied objectives. Objectives for the development of science learning media include enhancing cognitive abilities, scientific literacy, critical thinking, process skills, and creative thinking. Based on the above article review, an analysis can be conducted regarding the effects of learning media implementation. This analysis can be utilized to examine factors influencing advantages, disadvantages, improvement efforts, and threats to be addressed in sustainable management. Here is an analysis of the advantages and disadvantages of the development of digital learning media that has been undertaken so far:

1. Advantages
   - Facilitates the delivery of complex and abstract materials.
   - Customizable to meet the specific needs of the classroom.
   - Adaptable to various learning models and strategies.
   - Available in both tangible and digital formats, enhancing student engagement.
   - Can be utilized to enhance specific skills.
2. Disadvantages
   - Lacks support for independent use without guidance from a teacher.
   - Requires additional technological devices for access, such as Android devices and laptops.
   - Dependency on internet access, which may be limited for some students.

The evaluation of the suitability of learning media in teaching physics material is a key step in ensuring effective learning. According to Suru et al. (2021), in this context, it is crucial to consider which media are used in line with the teaching material and available to help students understand complex principles of physics. First and foremost, learning media should have accurate and relevant content concerning physics material. The information presented should align with current scientific advancements and reflect best practices in the field of physics. As long as the content is precise and accurate, learning media will be suitable for the material. The suitability of learning media is also related to language and the approach to delivering information (Mukti et al., 2022). The media must be able to communicate physics principles in language understandable to the target audience, which may consist of various age groups and educational backgrounds. Clear and straightforward presentation is essential to ensure that information can be conveyed effectively.

Types of Learning Media

The following is a percentage comparison of modern or digital learning media with conventional ones from 15 analyzed journals. In Figure 2, it can be observed that the development trend of science learning media is predominantly in digital form, accounting for 87.00%. Meanwhile, the development of physics learning media in conventional form is 13.00%. The development of digital physics learning media is carried out by leveraging the latest technology, such as Android devices, websites, and interactive tools.

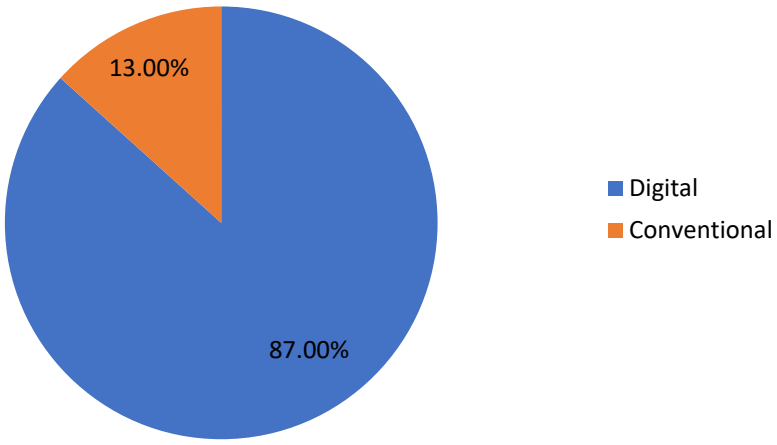

Figure 2. Comparison of digital and conventional media percentages.

The conventional teaching method is an approach that has long been utilized in the education system to transfer knowledge from teachers to students through traditional means such as lectures, assignments, and exams. However, this method often proves less effective in teaching evolving subjects like physics. Conventional teaching methods frequently fall short in bridging the understanding gap in physics. The subject matter is often complex, and students may struggle to comprehend it solely through passive learning without involving more interactive teasching methods (Maryani, 2018). Physics learning often requires practical experiences, such as testing equipment or field experiments. Conventional methods may not effectively facilitate these experiences (Altmeyer et al., 2020; Hamilton et al., 2021). Physics content often evolves rapidly with technological and research advancements. Conventional methods struggle to keep pace with these changes, leaving students lagging behind in understanding the latest developments in the field. The lack of student engagement in conventional teaching methods also contributes to a decline in students' interest in physics. Students are more likely to be motivated to understand the subject if they are actively involved in the learning process (Dinantika et al., 2019).

In conventional methods, teachers often play the role of the sole source of knowledge. However, in physics learning, a wealth of information is available through online sources, scientific literature, and independent research. Conventional methods are unlikely to encourage students to become independent learners. Learning physics also involves an understanding of environmental issues, sustainability, and social impacts (Putri et al., 2019). Conventional methods tend to focus on basic information without delving into deeper issues. They often overlook practical aspects, such as the technical skill requirements in the physics industry. Students may struggle to apply the knowledge they acquire in real-world situations. Conventional teaching methods may not be effective in teaching physics holistically and in a contemporary context. To enhance students' understanding of this subject, a more interactive approach, the use of modern technology, and practical application skills are needed.

To teach physics materials using percentage graphs or supporting graphics, several PowerPoint media can be used, commonly used as a ubiquitous learning aid for

presenting materials through graphs and tables. The effectiveness of learning media is also contingent upon its alignment with students' learning styles. Some students may be more responsive to visual media, while others might excel in more practical or audio-based learning approaches (Suryani et al., 2019). Digital learning media is accessible flexibly, allowing students to learn anytime and anywhere, thereby enhancing the measurability and accessibility of physics materials. Research has explored the effectiveness of learning media across various age groups, ranging from elementary school students to professional training participants, aiding in determining the most suitable media for specific audiences. The development of digital media can leverage various cutting-edge technologies, such as websites, Adobe Flash, and Macromedia Flash software with the assistance of LCD projectors, 3D PageFlip Professional, Edmodo, Edu-Media, all of which can be used to display media in front of students. Additionally, there are media in the form of Android-based applications like SISTA, Appypie, and augmented reality.

Despite the strong evidence regarding the effectiveness of various types of learning media, rigorous evaluation is often necessary to measure the impact accurately. This includes assessing comprehension, retention, and behavioral changes related to physics. The effectiveness of learning media also depends on the role of the teacher or instructor in the learning process (Hardiansyah & Sumbawati, 2016). Teachers need to facilitate the appropriate use of these media and guide students in understanding the material. However, the judicious and effective use of learning media can be a valuable tool in supporting students' understanding and interest in physics.

In studying physics, the use of various types of learning media plays a crucial role in assisting students in understanding concepts and principles. According to Azzahra et al. (2022), print media such as textbooks, guides, and brochures can provide fundamental information about physics. These media serve as accessible reference sources for students and also serve as guides for teachers in their instruction. Visual media, including images, diagrams, and graphs, are effective tools for visualizing physics concepts. According to Rainbow (2020), this aids students in understanding how various types of physics technology operate and interact with the environment. Audio media, such as sound recordings or podcasts, can be utilized to elucidate complex concepts with clear voice and narration. This enhances students' understanding through auditory means, particularly suitable for physics topics involving natural sounds such as wind or water.

Digital media, including slide presentations, videos, and accessible through computers or mobile devices, provides flexibility in teaching and allows users to interact with the material in a more dynamic way. Computer simulations are powerful tools for explaining physics principles (Arifin & Wardani, 2020). They enable students to conduct virtual experiments, illustrate how physical systems operate, and understand their impact on the environment. Animated graphics can be used to illustrate physics concepts in a more visual and engaging manner, making it easier for students to comprehend the physics processes (Fadhilah et al., 2023). Specifically designed educational games can be a fun and effective tool in physics learning. These media allow students to learn while playing and participate in real-life physics problem simulations.

Based on Table 1, the use of digital-based learning media has an impact on students' learning outcomes. There are numerous tools available for creating digital learning media, ranging from utilizing social media on Android, using educational apps, incorporating features in e-modules, to educational websites provided by the ministry to support the current students' learning process. The utilization of digital-based learning

media can serve as a support for students to master critical thinking skills. According to the analysis of journals in Table 1, several types of learning media have been developed or used for physics subjects, as in Table 2.

Table 2 Types of physics learning media.

Learning Media	Amount
E-Modul	5
Interactive tools	4
Website	3
Application	1
Student worksheet	2

Among the various types of interactive learning media, it has embraced the era of Technology 4.0, utilizing digital learning implementations. Therefore, evaluating the effectiveness of learning media in teaching physics becomes a crucial aspect. This research has examined 15 selected articles involving various interactive learning media such as websites and e-modules to assess the extent to which these learning media can enhance students' understanding and interest in physics. The results indicate that there are various types of Interactive learning media suitable for improving students' understanding of physics concepts. For instance, according to Mahardika et al. (2021), interactive simulations can help students understand how solar energy is generated or how wind turbines operate, surpassing traditional text explanations. Engaging learning media, such as animations or educational games, often enhance students' interest in physics. They feel more involved in the learning process and tend to explore more deeply.

Digital and interactive media enable a more dynamic learning experience. Students can click, slide, or interact with content, making the learning process more active and triggering better comprehension (Mudhofir et al., 2022). E-modules assist teachers in visualizing concepts through animations that are easily grasped by students. These animations can be accessed by students through various applications. When using 3D Pageflip Professional, teachers can create modules that provide a realistic flipping effect like a book. Websites can be used by teachers to conduct evaluations regarding students' knowledge improvement and can also host materials, exams, and online experiments. Website-based learning media is particularly suitable for physics, involving numerous experiments, allowing schools to overcome concerns about the lack of physical laboratory equipment by transitioning to digital experiments via websites. Additionally, media development incorporates a combination of tangible and digital media. This combination involves PowerPoint presentations and illustrated cards. PowerPoint displays content, while illustrated cards present short descriptive questions.

For topics involving complex concepts, such as one of the energy change subjects, learning media must be capable of clearly visualizing these concepts. According to Triprayogo et al. (2020), graphics, animations, and illustrations should be adequate. If interactive learning media is used, it should be well-designed to encourage student participation. Effective interactivity can enhance understanding and capture students' interest. The evaluation of learning media suitability may involve comprehension tests after students use the media. This can help assess the extent to which learning media has successfully conveyed physics concepts (Prakoso, 2020). Additionally, feedback from students and teachers can provide valuable insights into the suitability of learning media.

Effective physics teaching media must align with content, be easily understood, relevant, and context-appropriate. When evaluating the suitability of learning media, it is important to consider these various aspects to ensure that the media can have a positive impact on students' understanding of physics.dapat memberikan dampak positif terhadap pemahaman siswa terkait fisika.

According to the cone of experience theory, learning through audiovisual methods and practical application can result in a material absorption rate of 90.00% (Dale, 1969). Therefore, the development of more effective science learning media involves the use of interactive multimedia. Lastly, the use of learning media helps reduce the learning speed gap among students in the class, thereby improving the quality of students' learning. Additionally, the use of media can mitigate the failure rates in the communication process during learning.

CONCLUSION

Findings: Physics learning, the use of various types of l media plays a crucial role in assisting students in understanding concepts and principles. Learning media, such as print, visual, audio, digital, interactive, and innovative technological media, each have their advantages and roles in effectively conveying scientific information. Implications: Digital learning media enable students to see, hear, and interact with material in a more dynamic way, thereby triggering deeper understanding. The effectiveness of learning media has been proven to enhance students' understanding of physics and increase their interest in the subject. **Limitations**: The learning media referred to, whether print, visual, audio, digital, interactive, or innovative technological media, each has its advantages and roles in effectively conveying scientific information. These media allow students to see, hear, and interact with material in a more dynamic way, triggering deeper understanding. **Further Research**: A suggestion for future research is to explore and categorize modern and conventional learning media to make it easier to identify types of learning media and their impact levels.

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