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THE ROLE OF DIGITAL TEACHING MATERIALS IN IMPROVING STUDENT ECONOMIC LEARNING OUTCOMES

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Abstrack

An abstract is Learning economics through digital teaching materials is an innovation that utilizes advances in information and communication technology to improve the effectiveness of the teaching and learning process. Data were collected through a literature study with a qualitative descriptive approach, involving sources such as journals, books, and articles related to the application of digital media in economics learning. The analysis shows that the use of digital media such as videos, simulations, and online platforms contributes to improving students' understanding of concepts, material retention, and learning motivation. Despite facing obstacles such as limited infrastructure and teacher readiness, the application of digital teaching materials has great potential to improve the quality of economics learning in the digital era.

Keywords: Digital Teaching Materials, Economics Learning, Digital Media

I. INTRODUCTION

Advances in science and technology have a significant impact on various sectors, including education. In the modern era, the rapid advancement of information and communication technology has increasingly optimized the role of technology in the teaching and learning process, expanding access, increasing effectiveness, and strengthening interaction between educators and students. The presence of technology has changed the way individuals obtain information, communicate, and understand learning materials. The use of technology in the teaching and learning process creates new opportunities for students and educators to improve the quality of education and achieve maximum learning outcomes. As a tool in learning in the digital era, technology has an important role in various aspects, such as increasing accessibility, encouraging interaction, adapting learning to individual needs, strengthening collaboration, and developing digital skills.

Education needs to continue to innovate in order to develop and adapt to advances in various fields. The learning process using technology has both positive and negative impacts (Ambarwati et al., 2022). However, with effective collaboration from various parties, negative impacts can be reduced so that technology can be utilized optimally according to learning objectives. Technology as a learning medium has created new opportunities and created a more dynamic and interesting learning experience for students.

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Critical thinking and problem-solving skills are very important skills in the world of education. Therefore, in this digital era, innovation is needed in the system technology-based learning. To create quality learning, the selection of teaching materials is an important factor. Teaching materials play a role as the main element in achieving learning objectives. Dantas (2020) also emphasized that the effectiveness of the learning process is greatly influenced by the use of innovative and quality teaching materials so that teaching and learning activities can take place optimally. The use of digital teaching materials provides flexibility in the learning process and helps students build understanding independently.

Teaching materials can be interpreted as a collection of materials or sources of information that are arranged based on the applicable curriculum to support the learning process. Teaching materials have a role as an instructional guide for educators in designing and implementing teaching and learning activities. In the learning process, educators function as facilitators who help students build understanding by utilizing various available learning resources. Economics subjects play a role in producing quality human resources and supporting the advancement of science. According to Inanna (2020), economic learning includes production, distribution, and consumption, thus requiring individuals to adapt and apply economic principles in everyday life. Economic education helps students understand and apply concepts practically, especially in materials that require in-depth understanding. Thus, in addition to broadening horizons, economic education also trains critical and analytical thinking skills in facing economic challenges.

Research shows that adaptive technology-based digital teaching materials can improve students' understanding by up to 35% compared to traditional methods (Hwang et al., 2020). Sun and Rueda (2019) also found that the integration of game-based learning and augmented reality in digital teaching materials increased students' motivation and learning outcomes. In addition, a study by Barlian et al. (2021) revealed that interactive digital teaching materials have the potential to improve students' academic achievement in Microeconomic Theory. These findings confirm that the use of technology in teaching materials not only enriches the learning experience but also improves understanding and academic achievement.

The use of digital learning materials has been proven to have a positive impact on student learning outcomes. Brown (2019) stated that technology helps improve student retention by strengthening their

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understanding and memory. Lai and Bower (2020) also emphasized that the integration of simulations and interactive videos in learning can develop critical and analytical thinking skills, especially in understanding complex economic concepts. In addition, digital learning materials allow students to learn independently and explore the material more interactively. Thus, technology plays an important role in improving students' understanding and academic achievement.

This study discusses the role of digital teaching materials in improving student learning outcomes in economics subjects. Technological developments have driven innovation in learning methods, so that the process of delivering material becomes more effective and efficient (Salsabila et al., 2021). Digital teaching materials are equipped with features such as simulations, educational videos, and digital-based exercises that not only facilitate understanding of economic concepts but also increase student motivation. In addition, technology allows students to learn independently, adjust the pace of learning, and explore the material in more depth. Therefore, this study aims to analyze the contribution of digital teaching materials and their effectiveness and implementation strategies in economics learning.

II. METHOD

The method used in this study is the result of a literature study with a qualitative descriptive approach. Literature study is a systematic activity process by identifying, evaluating, and synthesizing the results of previous research to obtain a theoretical basis in a study (Creswell, 2018). Reference sources in this study use scientific journals, articles, books and other reference sources related to the use of digital teaching materials in economics learning. The information and data that have been collected will be evaluated and synthesized into a qualitative descriptive research discussion. Based on this study, the author aims to provide a theoretical basis for how the effectiveness of the role of digital teaching materials can improve economic learning outcomes.

III. RESULTS AND DISCUSSION

3.1 Concept and Characteristics of Digital Teaching Materials in Economics Learning

Digital teaching materials refer to the development results of conventional teaching materials by utilizing digital technology to present learning materials. Every educator certainly needs the right teaching materials to achieve learning goals. Teaching materials must be arranged based on the applicable curriculum and the characteristics of students.

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The Ministry of National Education (2008: 145), defines teaching materials as all forms of written or unwritten materials that are arranged in a structured manner by educators to achieve the learning objectives set. The purpose of arranging teaching materials is to provide clear, interesting, and relevant information, as well as to facilitate interaction between teachers and students.

In the 21st century, digital teaching materials are one of the relevant innovations to support interactive, flexible, and modern teaching and learning activities. According to Prastowo (2015), digital teaching materials are electronic-based learning media that can increase the effectiveness and efficiency of the learning process. The form can be e-books, digital modules, animations, simulations, or internet-connected platforms. In addition, Arsyad (2013) identified several main characteristics of digital teaching materials, namely interactive, flexible to use, attractive, and easy to access. These teaching materials integrate text, audio, images, learning videos, graphics, interactive simulations and others that can increase students' learning independence. Digital teaching materials can be accessed via electronic devices such as computers, tablets, or smartphones.

Textbooks are a common learning resource used in schools. However, according to Tasmiyah et al. (2023), in the current digital era, the use of teaching materials in the form of textbooks or textbooks alone is not enough because the presentation of the material tends to be boring for students. In addition, these printed teaching materials are instant and ready to use, without involving educators' efforts in planning and compiling them creatively. On the other hand, according to Qona'ah et al. (2024: 6573) digital teaching materials have been proven to be more effective in increasing students' interest and understanding of the subject matter.

In learning activities, especially economics, interaction between educators and students is an important aspect in improving student understanding. Economics subjects are closely related to everyday life, such as inflation, taxes, government economic policies and others. The concepts in economics are not just theories, but also require contextual understanding. Based on this, digital teaching materials can support a deeper understanding of economic concepts and contribute to improving overall learning outcomes.

3.2 Theoretical Basis of Learning That Supports the Use of Digital Teaching Materials

Ki Hadjar Dewantara's Philosophical Theory, Constructivism (Vgotsky) and multimedia learning theory are learning

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theories that can be used as a basis for designing effective teaching materials (Praditya, 2024). These three theories can be a conceptual basis for using digital teaching materials in economics learning.

1. Ki Hadjar Dewantara's Philosophy in Using Digital Teaching Materials

Ki Hadjar Dewantara said that educators have three main roles in the education process, namely as an example, motivator, and companion. An educator is expected to be able to provide a good example for students (ing ngarsa sung tulada), raise enthusiasm and motivation to learn (ing madya mangun karsa), and guide students in understanding the material more deeply (tut wuri handayani).

This philosophy is very relevant to the application of digital teaching materials in economic learning. By utilizing technology, educators can present economic concepts more interestingly and according to the needs of students. Economic materials can be arranged in various formats, such as animation, interactive videos, and digital simulations, making it easier for students to understand the theory and apply it in everyday life.

2. Constructivism (Vygotsky) in the Use of Digital Teaching Materials

Constructivism theory emphasizes that learning is an active process in which learners construct their understanding based on social interactions and direct experiences. Vygotsky (1978) introduced the concept of the Zone of Proximal Development (ZPD), which indicates that learners can achieve higher levels of understanding with the help of more experienced individuals. In using digital learning materials, this principle is realized by creating an interactive and authentic learning environment in economics lessons.

3. Constructivism (Vygotsky) in the Use of Digital Teaching Materials

Multimedia learning theory developed by Mayer explains that the combination of visual, audio, and animation elements in digital learning materials can improve student understanding, especially when understanding complex concepts. Mayer identified several main principles in the design of multimedia-based learning materials, such as the principles of modality, redundancy and cohesion. This digital technology helps students not only understand the theory, but also gain a deeper learning experience.

3.3 The Influence of Digital Teaching Materials on Students' Economic Learning Outcomes

1. Impact on understanding economic concepts

Digital teaching materials play an important role in helping students understand economics material more easily. By utilizing various forms of presentation such as e-books,

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learning videos, simulations, and online learning platforms, the material presented becomes more diverse and easier to follow. For example, through interactive simulations, students can see in real terms how price and demand changes occur in the market, so that they can more easily grasp the explanations in the textbooks.

Digital learning materials allow each student to learn at a pace that suits their individual needs. Students can review material they don't understand yet without the pressure of keeping up with the class' pace, while learning videos and supporting images play a vital role in improving memory by presenting clear and easy-to-understand examples.

In addition, digital teaching materials encourage students to be more active in the learning process. Students do not only receive information passively, but are also given the opportunity to try interactive exercises. This method makes the learning atmosphere more enjoyable and helps students remember the material that has been taught. Through discussions and questions and answers on online platforms, students can also share opinions and seek common understanding of the economic concepts being studied.

Thus, the use of digital teaching materials in economics learning provides many benefits, especially in helping students understand the material in a simpler and more memorable way. This supports improved learning outcomes and prepares students to be better prepared to face economic problems in everyday life.

2. Impact on student motivation and engagement

Digital teaching materials have a positive influence on students' motivation and engagement in economics lessons. With online videos, simulations, and quizzes, students become more interested and avoid boredom. These features also present materials that are closer to everyday life, so students feel that learning economics is relevant and useful.

Digital teaching materials not only provide various exercises that allow students to learn independently, but also encourage their activeness in asking questions and seeking explanations for things that are not clear. In addition, the existence of online forums or classrooms provides direct support, so that students feel more involved in the learning process.

With an interesting way of delivery and various supporting features, digital teaching materials can increase students' enthusiasm for learning. Students not only absorb material from teachers passively, but are also given space to try it themselves and experience firsthand how economic concepts

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work. This condition makes them more motivated to follow each lesson session and more confident when completing the tasks or questions given.

Overall, the use of digital teaching materials has a significant impact on increasing student motivation and engagement. With a more interactive and engaging approach, students can experience a more enjoyable learning experience and gain a better understanding of economics material.

3. Results of a literature study on the effectiveness of digital teaching materials in economics learning (Comparison of student learning outcomes using digital teaching materials vs. traditional methods)

The use of digital teaching materials in learning is increasingly being applied at various levels of education. Various studies have been conducted to see how effective it is compared to traditional learning methods. Here are some of the results of studies that discuss this comparison.

Table 1. Results of a literature study on the effectiveness of digital teaching materials in economics learning (Comparison of student learning outcomes using digital teaching materials vs. traditional methods)

No.	Judul Penelitian	Metode Pembelajaran	Hasil Penelitian
1	Comparison of the Effectiveness of Using Digital Tablets and Textbooks as Learning Resources on Learning Outcomes in Fiqh Subjects	Digital Tablets VS Textbooks	Based on the n-gain analysis, the increase in learning outcomes in the group using digital tablets was more significant compared to the group using textbooks.
2	Effectiveness of Using Interactive Digital Teaching Materials Based on Blogs in Improving Student Learning Outcomes	Interactive Digital VS Traditional	In the research conducted, the increase in student learning outcomes reached 22.16%, with an n-gain value of 0.54 which is categorized as moderate. This finding shows that the use of interactive digital teaching materials has proven effective in improving learning outcomes in microeconomic theory courses.
3	Comparison of the Effectiveness of Traditional Learning and Video-Based Learning in High Schools	Traditional VS Video Based	Video media in learning plays a role as a complement to traditional methods which significantly increases students' understanding and retention of material.
4	Comparison of the Effectiveness of Digital Books Versus Printed Books in Improving Learning Performance	Digital Books VS Printed Books	Due to the difficulty in reading and exploring the content of digital books, 35.18% of respondents prefer printed books. Meanwhile, the majority of respondents, namely 69.9%, choose digital books as a reading medium to improve learning outcomes.

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3.4 Challenges and Opportunities in Implementing Digital Teaching Materials to Improve Learning Outcomes

The implementation of interactive digital teaching materials in learning faces various challenges that must be overcome in order to be effective. Ermawan, et al. (2024) in their research explain the challenges faced in the implementation of digital teaching materials. One of the main obstacles is the limited technological infrastructure in some schools, including limited access to devices such as computers, tablets, and stable internet networks. In addition, certain areas still experience limited electricity and internet connectivity, which makes it even more difficult to use technology in learning.

In addition, teachers also face challenges in developing interactive digital teaching materials that suit students' needs. Teachers who lack the ability to compile interactive digital teaching materials can result in less effective learning and not optimal in improving student learning outcomes. In the digital era, teachers are faced with various challenges as well as opportunities in learning. These challenges are not obstacles, but rather encouragement to continue to improve professional competence. With an adaptive and proactive attitude, teachers can utilize technology optimally to support learning effectiveness (Saerang, et al., 2023).

The use of technology allows access to various learning resources, interactive media, and innovative teaching methods. Therefore, teachers need to develop professionalism through training, workshops, seminars, and certification in the field of digital learning. In addition, collaborative forums such as KKG, PKG, and MGMP can be effective forums for improving skills. The ability to create creative and interactive digital teaching materials is also key to improving professionalism, making teachers not only teachers, but also facilitators of technology-based learning.

Financial constraints are a major challenge in implementing interactive digital teaching materials. Procuring devices such as computers, tablets, and internet access requires large costs, especially for schools with limited budgets. In addition, many digital learning platforms require subscription fees, further increasing the financial burden. Teacher training in developing and using digital teaching materials also requires a significant investment. If not managed properly, these financial constraints can hinder the optimal implementation of digital teaching materials. In addition to the cost aspect, time constraints are also an obstacle for teachers in compiling and implementing interactive digital teaching materials. The

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process of creating interesting and innovative learning materials takes quite a long time, while teachers also have to carry out other teaching and administrative tasks. High workloads can reduce the effectiveness of implementing digital teaching materials. Therefore, an appropriate strategy is needed in managing time and resources so that the implementation of digital teaching materials can run smoothly without reducing the quality of learning.

The use of digital teaching materials contributes to improving student learning outcomes by presenting more interactive and easy-to-understand materials. Technology provides flexibility in learning, encourages active student involvement, and facilitates monitoring of their progress (Mustika et al., 2024). Through its interactive features, digital teaching materials create a more innovative and effective learning experience. With technology, they can access various learning resources, such as educational videos, interactive simulations, and digital platforms. This ease of access allows students to deepen their understanding of the material and learn independently according to their individual needs and level of understanding.

One of the main advantages of digital learning materials is that digital learning materials provide easy access for students to learn materials anytime and anywhere. With this flexibility, they can adjust the learning process according to their own rhythm and preferences, repeat difficult parts, and seek additional resources to deepen their understanding. This allows for a more tailored learning experience to individual needs.

In addition, digital teaching materials provide various interactive media, such as educational videos, simulations, and online quizzes, which make the learning process more interesting and less monotonous. The use of this technology can increase student participation and motivate them to understand the material more deeply. For teachers, digital teaching materials also play a role in increasing the efficiency of learning time, so that face-to-face interactions can be more focused on discussions, practice questions, and solving more complex problems. In addition, the automatic evaluation system in digital teaching materials allows teachers to monitor student progress more easily. Data obtained from this system can be used to identify student learning difficulties and provide appropriate interventions to improve their learning outcomes.

IV. CONCLUSION

The use of digital teaching materials in economics learning brings significant positive changes. By utilizing information and communication technology, educators can

present economic materials through digital media such as videos, simulations, and online platforms that are more interesting and easy for students to understand. This approach also supports the active role of students in the learning process, in accordance with the principles of modern learning that emphasize interaction and the use of various multimedia elements. Although there are still challenges, such as limited infrastructure, costs, and teacher readiness, the synergy between improving educators' abilities and support from various parties is expected to overcome these obstacles. Thus, the application of digital teaching materials is considered a strategic step to improve the quality of learning and prepare students to face economic developments in the digital era.

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