

Implementation of Digital Technology-Based Learning Model to Enhance Student Engagement and Motivation in Economics Subject Learning at High School

Hariyono

STKIP PGRI Nganjuk, Indonesia

hariyono@stkipnganjuk.ac.id

Corresponding Author: Hariyono

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ABSTRAK

This article discusses the scientific ideas behind the development of a technology-based digital learning model to enhance economics education in high schools (SMA) in Indonesia. Fundamental concepts such as the utilization of digital technology, project-based and collaborative learning models, positive feedback, and inclusive learning form the primary foundation. The article analyzes how these concepts can be integrated into an effective and efficient learning model. Strategies include the development of interactive digital platforms, learning models integrated with the real world, timely feedback provision, and specialized support for students with special needs. The article outlines implementation steps, potential challenges, and positive impacts such as increased motivation, effectiveness, and student engagement. In a broader educational context, these ideas can be adapted for various levels and developing countries. In conclusion, the article illustrates efforts to enhance learning through innovative models that integrate digital technology and effective learning principles.

Keywords: Learning Model, Digital Technology, Student Engagement, Student Motivation, Learning Effectiveness.

INTRODUCTION

Education in Indonesia plays a pivotal role in shaping a high-quality younger generation capable of competing in the era of globalization (Madhakomala et al., 2022; Mas'ud et al., 2019; Nugroho et al., 2021). However, in reality, numerous challenges persist in the efforts to improve the quality of education in Indonesia, particularly at the high school (SMA) level. One of these challenges is the insufficient

involvement and motivation of students in their learning experiences, especially in subjects deemed challenging, such as economics.

In recent years, the rapid development of digital technology has offered myriad solutions to challenges in education (Cronholm, 2021; Eom & Lee, 2022; Mutiasari, 2020; Palade & Møller, 2023; Sholeh et al., 2022). The utilization of digital technology in education provides an alternative to enhance student involvement and motivation, particularly in subjects considered difficult. Therefore, research on the implementation of digital technology-based learning models in economics subjects at SMA is crucial to explore how technology can be used to improve the quality of education and address challenges in learning. Thus, this research can contribute to efforts aimed at enhancing the quality of education in Indonesia, specifically at the SMA level, and serve as a reference for economics teachers seeking to elevate the quality of teaching by integrating digital technology into the learning process.

Theories related to the scientific journal article's topic on the application of digital technology-based learning models to enhance student involvement and motivation in economics education at SMA are highly relevant in developing scientific ideas. In the development of scientific ideas, authors must understand these theories and relate them to the article's topic, ensuring that the resulting scientific ideas have a robust foundation and can significantly contribute to the development of education in Indonesia.

The proposed article on the application of digital technology-based learning models in economics education at high schools synthesizes several key theoretical foundations. Firstly, the Constructivism Learning Theory forms a robust basis, emphasizing active student participation in knowledge construction through the utilization of digital technology to facilitate easier information access (Dinelti Fitria et al., 2021; Olusegun, 2015; Thampinathan, 2022). Motivation Theory contributes to the design of models that leverage digital tools to motivate students, fostering increased engagement and improved academic performance (Bushi, 2021; Gopalan et al., 2020). The Technology-Based Learning Theory guides the selection and development of effective learning models, enhancing interaction and participation through digital tools. The Project-Based Learning Model introduces real-life-related projects, utilizing digital technology for complex tasks that offer intriguing learning challenges (Chen et al., 2022; Lu, 2021; Ummah et al., 2019; Wang, 2022). The Curriculum Theory ensures alignment between technology integration and curriculum objectives, promoting focused and systematic learning models. Self-Concept Theory aids in providing positive feedback on students' digital skills, enhancing self-concept development (Coşkun Yaşar & Aslan, 2021; Deng, 2021; Kelly, 2009). Challenge-Based Learning Theory supports the design of models presenting engaging challenges through digital technology. Learning Effectiveness Theory evaluates the chosen models' impact on academic achievements. Learning Model

Theory assists in selecting context-appropriate models for economics education. Finally, Inclusive Education Theory ensures an inclusive learning environment using digital technology, accommodating the diverse needs of all students (Lindsay, 2018; Rapp & Corral-Granados, 2021; et al., 2019). This synthesis of theories provides a solid foundation for the proposed scientific ideas, aiming to significantly contribute to high school education in Indonesia.

The theories of Constructivist Learning, Motivation, Digital Technology-Based Learning, Learning Models, and Learning Challenges assist the author in designing and developing a technology-based learning model that emphasizes active student participation. In this model, students are not merely passive recipients of information from the teacher but actively engage in the construction of their knowledge and understanding. Utilizing digital technology facilitates easier access to information and expands students' knowledge. Furthermore, digital technology serves as a tool for motivating students, such as providing awards or positive feedback for their achievements.

The Curriculum and Self-Concept theories aid the author in developing a curriculum oriented toward technology and its use in learning. In a digital technology-based learning model, technology serves as a means to enhance interaction between teachers and students, increasing student engagement in learning. By considering a technology-oriented curriculum, teachers can develop more targeted and systematic learning models.

The Learning Effectiveness Theory helps the author evaluate the effectiveness of the learning models employed. In the context of economics education in high schools, this theory enables the author to measure students' academic achievements and assess the effectiveness of the learning models used. Lastly, the theory of Inclusive Education supports teachers in creating an inclusive learning environment accessible to all students, including those with special needs. In a digital technology-based learning model, teachers can pay attention to the specific needs of students and provide necessary support to ensure active participation of all students in learning.

By connecting these theories to the article's topic, the author can develop a more robust and focused scientific idea, making a greater contribution to the development of education in Indonesia, particularly at the high school level.

METHOD

The aim of this literature review is to assess the extent to which the implementation of technology-based learning models has been utilized to enhance the engagement and motivation of students in the Economics subject at the high school level. Other objectives include analyzing the impact of digital technology usage in education, evaluating the effectiveness of these learning models, and identifying factors influencing the success of implementation.

1. Source Information Selection

- Collecting relevant reference sources through journal databases, scientific articles, textbooks, and reliable electronic sources. These sources should encompass information on the implementation of technology-based learning models in Economics education, the influence of technology on student engagement and motivation, the effectiveness of digital learning models, as well as factors supporting or hindering the implementation of digital technology in the classroom.

2. Selection and Assessment

- Conducting a meticulous selection of collected sources to determine the most relevant and high-quality ones aligned with the research objectives.
- Assessing the validity, research methodologies, and outcomes achieved in these sources.
- Focusing on sources providing in-depth insights into the application of digital technology in the context of Economics education.

3. Critical Analysis

- Analyzing and comparing findings existing in the literature.
- Identifying common patterns regarding how the implementation of digital technology affects student engagement and motivation in Economics education.
- Investigating whether key factors contribute to the success or failure of technology-based learning models.

4. Information Synthesis

- Summarizing key findings regarding the implementation of technology-based learning models in enhancing student engagement and motivation in Economics education.
- This synthesis should encompass information on both positive and negative impacts, differences among various learning models, and perspectives on future research directions in this field.

5. Conclusion

- Drawing conclusions regarding the effectiveness of implementing technology-based learning models in enhancing student engagement and motivation in Economics education.
- Identifying potential benefits and challenges arising from the use of digital technology.
- Providing recommendations for improved approaches to integrating digital technology into Economics education at the high school level.

RESULT AND DISCUSSION

Implementing Scientific Ideas

1. **Explanation of the Steps Required to Implement the Scientific Idea:** To implement the scientific idea of developing an effective and efficient technology-based learning model, several steps need to be taken, including:
 - a. **Needs Analysis:** Conduct a needs analysis to identify students' needs and expectations in technology-based learning, as well as the infrastructure and resources available at the school.
 - b. **Learning Model Design:** In this step, the author can design an effective and efficient technology-based learning model according to the needs and expectations of students, as well as the available infrastructure and resources at the school.
 - c. **Learning Material Development:** After designing the learning model, the author can develop learning materials that align with the designed learning model.
 - d. **Implementation of Learning:** Once the learning materials are developed, the author can implement the learning using the designed technology-based learning model. In this phase, the author can pose several questions related to the effectiveness of the applied learning model.
 - e. **Learning Evaluation:** After the learning is conducted, the author can evaluate the learning to determine the effectiveness and efficiency of the applied learning model. Learning evaluation can be done through measurements, questionnaires, interviews, observations, etc.
 - f. **Learning Model Improvement:** After conducting the learning evaluation, the author can make improvements to the applied learning model. These improvements are made considering the evaluation results and feedback provided by students and teachers.
 - g. **Implementation of the Learning Model:** After the learning model is improved, it can be implemented more widely in learning activities at the school.
 - h. **Re-evaluation:** After the learning model is implemented more widely, the author can conduct a re-evaluation to determine the effectiveness of the implemented learning model.

In implementing the scientific idea of developing an effective and efficient technology-based learning model, it is crucial to consider potential challenges and obstacles. Some challenges that may arise in the implementation of this scientific idea include:

- a. **Infrastructure and Technology Challenges:** Not all schools have adequate infrastructure and technology to implement a technology-based learning model. Some schools may lack sufficient internet access or hardware, making it difficult to implement an effective and efficient technology-based learning

- model.
- b. **Teacher Knowledge and Skills Challenges:** Not all teachers possess sufficient knowledge and skills to implement a technology-based learning model. Some teachers may still struggle with using digital technology or developing learning materials suitable for a technology-based learning model.
 - c. **Privacy and Data Security Challenges:** The use of digital technology in education can pose challenges in terms of privacy and student data security. It is crucial to ensure that student data is kept private and protected from potential leaks or misuse.
 - d. **Accessibility Limitations Challenges:** Some students may face challenges in accessing digital technology due to financial or geographical limitations. This may limit their access to effective and efficient technology-based learning models. To overcome these challenges, several measures can be taken, including:
 - 1. Providing adequate infrastructure and technology support in schools, such as ensuring sufficient internet access and hardware.
 - 2. Offering training and support for teachers in using digital technology and developing learning materials suitable for a technology-based learning model.
 - 3. Ensuring that student data privacy and security are well-maintained, following applicable standards and rules for the use of digital technology in education.
 - 4. Providing adequate accessibility for students facing financial or geographical limitations through assistance programs and suitable accessibility measures. It is important to involve various stakeholders, such as schools, government, and the community, in addressing these challenges to support the development and implementation of an effective and efficient technology-based learning model.
 - e. **Description of Potential Implementation Success and Impact:** The implementation of the scientific idea of developing an effective and efficient technology-based learning model has significant potential for success. Some potential successes include:
 - 1. **Improved Student Learning Motivation:** Through the use of an effective and efficient technology-based learning model, students can be more motivated to learn as they engage in more interesting and interactive learning methods.
 - 2. **Enhanced Learning Effectiveness:** Technology-based learning models can enhance learning effectiveness as students can engage in more interactive and flexible learning approaches.

3. **Increased Student Engagement:** With an effective and efficient technology-based learning model, students can become more engaged in learning activities as they experience a more interesting and interactive approach.
4. **Improved Learning Efficiency:** Technology-based learning models can improve learning efficiency as students can learn more flexibly and access learning materials anytime and anywhere. The impact of implementing the scientific idea of developing an effective and efficient technology-based learning model can also be substantial, including:
5. **Enhanced Education Quality:** Implementation of an effective and efficient technology-based learning model can enhance the quality of education as students can learn in a more interesting, interactive, and effective manner.
6. **Increased Student Competitiveness:** Through the use of an effective and efficient technology-based learning model, students can be better prepared to face the challenges of an increasingly competitive and global job market.
7. **Improved Human Resource Quality:** Implementation of an effective and efficient technology-based learning model can improve the quality of human resources in a country as students can acquire better knowledge and skills.
8. **Reduced Educational Disparities:** Technology-based learning models can help reduce educational disparities as students can access learning materials in a more flexible and affordable manner.

CONCLUSION

The proposed scientific idea centers around the development of an effective and efficient technology-based learning model, rooted in fundamental principles of learning efficacy and efficiency, coupled with relevant theories on education and digital technology. Through a comprehensive analysis of prior studies, the concept aims to offer solutions to challenges in education and human resources, addressing issues such as enhancing the effectiveness and efficiency of learning, improving educational access, and mitigating digital disparities. Positive implications encompass the elevation of education quality, increased competitiveness of human resources, and contributions to technological advancement. However, careful consideration of potential negative impacts, such as reduced social interaction and challenges in sustaining teaching jobs, is essential.

To further refine and optimize this scientific idea, several key steps are recommended. These include conducting additional in-depth research, collaborating with relevant stakeholders to gather diverse perspectives, developing

robust evaluation systems, optimizing technology utilization by staying abreast of advancements, ensuring adequate access to technology, involving students in the model development process, and maintaining a balance between social interaction and technology usage. Implementation of these strategies will contribute to the ongoing improvement and adaptation of the technology-based learning model, maximizing its potential benefits while minimizing potential drawbacks.

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