LEARNING INNOVATION: IMPROVING EDUCATIONAL EFFECTIVENESS IN THE DIGITAL AGE

Muhammad Mustafa[1], Moh. Jasri[2], Muhammad Zaki Maulana[3]
[1,2,3]Universitas Nurul Jadid, East Java, Indonesia
Email: mustafabond12@gmail.com[1], mohjasri@unuja.ac.id[2],
zakimaulana0304@gmail.com[3]

Abstract:

The development of digital technology has had a significant impact on the education sector. Using technology in learning enables innovations to improve the effectiveness of the learning process. This article aims to analyze learning innovations that can enhance the effectiveness of education in the digital era. A literature review was conducted to explore the concept of learning in the digital era, identify the advantages and challenges faced in implementing technology in education, and examine the development of teaching innovations in the digital era. The research method used is a literature review of related research and an analysis of relevant data and findings. The results of this study provide a better understanding of the effectiveness of learning innovations in the digital era. Factors that influence the effectiveness of learning innovations are also analyzed to provide a comprehensive picture of the influence of technology in education. The discussion of this article highlights the effectiveness of learning innovations in the digital era, considering the advantages and challenges that arise. The implications of the findings of this study for learning practices are identified and presented, and relevant recommendations are provided to support the effective use of learning innovations in the context of digital education. This study concludes that learning innovations can improve the effectiveness of education in the digital era. However, it is essential to consider the factors that influence the success of these innovations, such as teacher technological competence, infrastructure availability, and adequate policy support. This article makes an essential contribution to understanding technology use in education and provides a basis for further research in this area.

Keywords: *learning innovation, educational effectiveness, digital technology, education in the digital era.*

INTRODUCTION

Education is a key element in the development of society and plays a vital role in preparing future generations. However, the challenges faced by the education system never stop. One of the main challenges faced today is adapting to the rapid changes in digital technology. The digital era has brought significant changes in the way we live, work, and learn. Learning innovation in the digital era is an effort to improve the effectiveness of education by utilizing the potential of information and communication technology (ICT) (Bransford et al., 2000; Dede, 2010; Hattie, 2009). Learning innovation in the digital era includes various approaches, such as the use of technology, online learning platforms, game-based learning, and many more. These approaches promise the potential to enrich the learning experience, increase student engagement, and prepare them for the increasingly complex demands of the future (Johnson et al.,

2014; Siemens & Tittenberger, 2009). In this context, it is important to understand the effectiveness of learning innovation in the digital era and how it can improve the quality of education. Previous studies have identified the benefits of learning innovations in the digital age, including increased learning motivation, increased accessibility, development of 21st century skills, and improved student learning outcomes (Kozma, 1991; Means et al., 2014).

However, a more comprehensive understanding of the effectiveness of learning innovation in the digital era is still needed. A comprehensive literature review can provide deeper insight into various digital learning approaches, the advantages and disadvantages of each approach, and the factors that influence the successful implementation of learning innovation in the digital era (Puentedura, 2013; Zhao, 2009). In this study, we will use a literature study approach to compile a comprehensive literature review of learning innovation in the digital era. We will refer to reliable and relevant scientific literature (Bransford et al., 2000; Dede, 2010; Hattie, 2009; Johnson et al., 2014) to gain a better understanding of the effectiveness of learning innovation and its contribution to improving education. Thus, this study is expected to provide valuable insights for education practitioners, policy makers, and researchers in understanding learning innovation in the digital era and how to optimize its benefits to improve educational effectiveness.

RESEARCH METHODS

This study was conducted using a literature review approach to investigate learning innovations in the digital era and analyze their effectiveness in improving education. This approach involves searching, selecting, and analyzing relevant literature to gain an in-depth understanding of the research topic. In the data identification stage, a literature search was conducted through academic databases such as scientific journals, peer-reviewed articles, textbooks, conferences, and research reports (Bransford et al., 2000; Dede, 2010; Hattie, 2009; Johnson et al., 2014). The keywords used include "learning innovation", "education in the digital era", "educational technology", "online learning platforms", "game-based learning", and so on. After the search was conducted, a selection of literature that was in accordance with the research topic was carried out based on the abstract, title, and content summary (Kozma, 1991; Means et al., 2014; Siemens & Tittenberger, 2009). Relevant articles and literature were selected for further analysis. Next, a literature analysis was conducted on the selected literature. The analysis includes identifying the main themes, differences, similarities, advantages, and disadvantages of various learning innovations in the digital era (Puentedura, 2013; Zhao, 2009). The data and findings found in the literature were then synthesized to obtain a comprehensive understanding of the effectiveness of learning innovations. In the literature analysis process, relevant references were used to strengthen the arguments and support the findings presented in the study (Schrum & Levin, 2013). The references used include reliable sources and are related to the research topic..

RESULTS AND DISCUSSION

Effectiveness of Learning Innovation in the Digital Era

The effectiveness of learning innovation in the digital era is a focus of attention in efforts to improve the quality of education. Various learning innovations using information and communication technology (ICT) have been implemented with the aim of achieving better learning outcomes. In this discussion, we will outline several aspects that influence the effectiveness of learning innovation in the digital era along with explanations and references. The opinion of Prof. Anies Baswedan, Minister of Education and Culture of the Republic of Indonesia, provides an important view on the application of technology in education. He stated that technology can be a catalyst for positive educational change, enabling learning that is more effective and relevant to the times (Baswedan, 2020). In his perspective, learning innovation in the digital era is not just

the use of technology, but also a paradigm shift in the learning approach.

In the context of Islamic education, Prof. Dr. Muhadjir Effendy emphasized the importance of integration between technology and Islamic values in learning. He argued that learning innovation in the digital era must remain rooted in religious and moral values. This approach harmonizes the development of technological skills with a strong understanding of religious values (Effendy, 2019). In learning innovation in the digital era, the following aspects play an important role in increasing learning effectiveness:

Accessibility and Affordability, Learning innovation in the digital era provides opportunities for students and educators to access learning resources widely (UNESCO, 2020). In Prof. Anies Baswedan's perspective, technology can expand access and increase the affordability of education (Baswedan, 2020). Interactive and Interesting, Learning innovations in the digital era offer interactive and interesting learning experiences through the use of multimedia elements, simulations, and games (Johnson et al., 2014). Prof. Anies Baswedan's opinion emphasizes the importance of creating interesting and active learning experiences (Baswedan, 2020).

Personalization of Learning, Learning innovation in the digital era allows educators to provide learning materials that are tailored to the ability level, learning style, interests, and learning needs of each student (Vander Ark & Schneider, 2019). Prof. Anies Baswedan's opinion encourages a personalized learning approach (Baswedan, 2020). Real-time Evaluation and Feedback, Learning innovations in the digital era provide the ability to collect learning data in real-time and provide immediate feedback to students (Hattie, 2009). In the view of Prof. Anies Baswedan, timely evaluation and feedback are important in improving learning (Baswedan, 2020). In the Indonesian context, the views of Prof. Anies Baswedan and Prof. Muhadjir Effendy are an important foundation in understanding the importance of learning innovation in the digital era and its relevance in increasing the effectiveness of education. From an Islamic perspective, the integration of technology and religious values provides a strong moral and spiritual foundation for students.

Factors that Influence the Effectiveness of Learning Innovation In the era of reform in Indonesia, there are several educational figures who provide important views on the factors that influence the effectiveness of learning innovation in the digital era. Prof. Dr. Anis H. Bajrektarevic emphasizes the importance of a paradigm shift in education in the digital era, by encouraging students to become active, critical, and creative learners (Bajrektarevic, 2018). This is in line with the view of Prof. Dr. Arief Rachman who emphasizes the importance of skills-based learning in the digital era, by developing 21st century skills (Rachman, 2007). In addition, in the Society 5.0 era, Prof. Dr. Sugata Mitra provides an important perspective by prioritizing the self-organized learning environment (SOLE) approach, which encourages students to learn independently and collaborate in finding solutions to the challenges they face (Mitra, 2018).

The opinions of these education figures show that the effectiveness of learning innovation in the digital era is greatly influenced by changes in learning paradigms, the development of 21st century skills, and student empowerment in the learning process. In facing global changes and technological demands, education in Indonesia needs to adopt an inclusive, active, and collaborative approach, which allows students to develop skills and competencies that are relevant to the future. The opinions of education figures from the reform era and the Society 5.0 era provide diverse but complementary perspectives. By integrating the views of these figures, we can gain a more comprehensive understanding of the factors that influence the effectiveness of learning innovation in the digital era. The following is a discussion of the factors that influence the effectiveness of learning innovation in the digital era, complete with references.

Technology Infrastructure, the main factor influencing the effectiveness of learning innovation in the digital era is the available technological infrastructure. This factor includes stable internet access, the availability of hardware such as computers or tablets, and the reliability of online learning platforms (UNESCO, 2020). Without

adequate technological infrastructure, the implementation of learning innovation in the digital era can be hampered. Educator Competence, Educators' competence in using technology and implementing learning innovations in the digital era has a crucial role in its effectiveness (Kearney et al., 2012). Educators who have a good understanding of technology and the ability to integrate it effectively into the learning process can improve student learning outcomes. Relevant Learning Design, learning design that is relevant to the context of learning in the digital era also plays an important role in the effectiveness of learning innovation (Johnson et al., 2014). Learning design that considers student needs, is interesting, and activates student engagement can increase learning effectiveness. Institutional Support,

Support from educational institutions and school management is also an important factor in the effectiveness of learning innovation in the digital era (Alzaza & Yaakub, 2019). This support includes the provision of resources, educator training, supportive policies, and effective management in managing the implementation of learning innovation. These factors interact with each other and contribute to influencing the effectiveness of learning innovation in the digital era. In implementing learning innovation, it is important to pay attention to and manage these factors in order to achieve optimal learning outcomes. Hopefully, this discussion provides a comprehensive picture of the factors that influence the effectiveness of learning innovation in the digital era. Implications of Findings for Learning Practices, In the context of education in the digital era, Indonesian education figures and Islamic figures in Indonesia provide relevant views. Dr. Anies Baswedan, Minister of Education and Culture of the Republic of Indonesia, stated the importance of utilizing digital technology in the learning process to improve the quality and accessibility of education in Indonesia (Baswedan, 2019). Dr. Anies Baswedan also emphasized the importance of developing 21st-century skills so that students are ready to face changes in the world of work influenced by technology (Baswedan, 2019). On the other hand, Prof. Dr. Quraish Shihab, an Islamic figure in Indonesia, emphasized the importance of integrating Islamic values in learning in the digital era. He emphasized that digital technology must be used wisely to support learning based on Islamic values (Shihab, 2017).

These views underscore the importance of leveraging technology in learning, developing 21st-century skills, and aligning Islamic values with learning approaches in the digital era. In implementing learning practices, educators can combine the use of technology with an inclusive, collaborative, and Islamic-value-based approach. By considering the views of Indonesian education figures such as Dr. Anies Baswedan and Islamic figures such as Prof. Quraish Shihab, educators can design learning practices that are relevant, innovative, and effective in facing the challenges of learning in the digital era, while upholding Islamic values and preparing students for a future filled with technological advancements. The findings from the literature review and data analysis of this study have significant implications for learning practices in the digital era. These implications can provide direction and guidelines for educators in improving the effectiveness of learning in the digital era. Here are some implications of the findings. Integration of Technology in Learning: Research findings show that the use of digital technology can increase student engagement and motivation in learning. Therefore, educators need to integrate technology wisely in their learning practices. This can be done through the use of online learning platforms, mobile applications, and other interactive tools that can increase student interaction and participation in the learning process (Johnson et al., 2017; Kebritchi et al., 2017).

Active Learning Approach: Research findings show that active learning approaches, which engage students in exploration, collaboration, and problem-solving activities, are more effective in improving students' understanding and skills. Therefore, educators need to implement learning methods that encourage students to actively participate in the learning process, such as group discussions, problem-based projects, and simulations (Prince, 2004; Hmelo-Silver et al., 2007). Collaborative Learning: Research findings suggest that collaborative learning, where students work together to

achieve learning goals, can improve students' social skills, problem solving, and understanding. Educators need to create learning environments that support collaboration, both in the form of physical group work and through online collaborative platforms (Dillenbourg, 1999; Kirschner et al., 2018). Formative Evaluation and Quality Feedback: Research findings suggest that continuous formative evaluation and quality feedback can help students improve their understanding and performance. Educators need to implement evaluation strategies that allow them to track individual student progress, provide constructive feedback, and facilitate student reflection on their learning (Hattie & Timperley, 2007; Black & Wiliam, 2009).In implementing these implications, it is important for educators to consider the context, needs, and characteristics of their students. Educators also need to keep abreast of technological developments and digital learning trends to ensure that their learning practices remain relevant and effective. Thus, implementing these implications in learning practices in the digital era can help improve the effectiveness of student learning and prepare them to face the demands of the future marked by technological advances.

CONCLUSION

The character of the students at the Tebuireng Science Islamic Boarding School before the presence of a supervisor in their midst was like that of teenagers in general, namely, they were easily influenced and carried away by the outside world, their attitudes were still unstable, they prioritized their emotions in their actions, and they tended to be apathetic and indifferent to their environment. surroundings, so that when they enter the world of Islamic boarding schools there will be many things they have to adapt and get used to regarding all the attitudes and characters they bring from their previous environment.

Various characters that can be formed by a coach for students at the Tebuireng Science Islamic Boarding School include good manners, independence, discipline, social spirit, hard work, sincerity and patience, and self-confidence, and all of this can be formed inseparable from the coach's intervention with various efforts and educational patterns that are built to create students with character and strength from outside and inside The impact of the presence of a coach in the formation of the character of the students at the Tebuireng Science Islamic Boarding School is that there is good cooperation and coordination between all lines, including the guardians of the santri, the administrators and the boarding school leaders, who are directly mediated by the coach as the main companion of the students who also doubles as a parent and teacher. , older brother, friend, and bodyguard for the students at the boarding school, the coach with all his efforts and prayers will build, familiarize, and instill various characters in the students, which in the future it is hoped can continue to be applied and taught to the environment in the future.

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