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INTEGRATING TECHNOLOGY IN LEARNING IN MADRASAH: TOWARDS THE DIGITAL AGE

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Abstract

Madrasas have a crucial role in providing a strong foundation for individual development and societal progress. Madrasas have an important role in teaching critical skills and information literacy. In this digital age, information is abundant and easily accessible to anyone. Madrasas in the digital age must encourage creativity and collaboration. Optimizing learning by integrating technology is something that millennial teachers hope to implement. By utilizing information technology and integrating it in learning, it will make it easier for teachers to convey knowledge. Apart from that, learning can be more fun and interactive. In facing the challenges of the digital age, madrasas have an important role in preparing future generations and fueling the spirit of innovation. One of the main challenges facing madrasas in the digital age is the digital divide among students. Not all students have access to the necessary technology or internet connection outside the madrasah environment. This research is a library study research, by looking at literary sources, books, notes, and various reports related to the problem to be solved. This research discusses the importance of integrating technology in education, the challenges faced by madrasas in adopting technology for learning, and the importance of facing the digital age in madrasas.

Keywords: Integrating technology, madrasah, digital age

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INTRODUCTION

Education is a key foundation in the development of a society. Madrasas as one of the Islamic educational institutions have an important role in shaping the character of the younger generation and supporting the understanding of religious values. However, currently, the world is experiencing a significant transformation in the form of the digital age. This period is marked by significant social shifts as well as the incorporation of cutting-edge technology like big data, the Internet of Things (IoT), and artificial intelligence (AI) into daily life. Luneto (2023) defines the digital age as a global message conveyed by Japan to future generations. Although other countries have made progress in implementing energy-management models and smart city projects in the West, the digital age is a local Japanese concept for the future of future generations. There are two aspects emphasized in this concept. First, the digital age is a vision of an advanced, technology-based society supported by Japanese technological expertise. Second, with concerns that capitalism could lead to greater polarization, the digital age offers a human-centered vision of a technologically advanced society. The rapid development of an information-based society has not been able to meet all of society's needs and has actually given rise to greater economic and social inequality (Iqbal et al., 2023). In order to address this, the digital era—which makes use of information technology and incorporates it into every part of life—is suggested as a solution. In this way, society can meet life's needs efficiently and sustainably, and the overall quality of life will improve. The transformation of madrasas in the digital era is very important because madrasas need to align themselves with rapid changes in social and technological paradigms. The growth of artificial intelligence, extensive connection, and the integration of advanced technologies are the hallmarks of the digital age. Therefore, madrasas need to transform to produce graduates who not only have a deep understanding of religious values, but are also able to compete in an increasingly connected and complex world.

This transformation is needed to ensure that the education provided is relevant to the demands of the times, strengthens digital literacy, develops technology skills, and creates an adaptive and innovative learning environment. By transforming, madrasas can play a significant role in forming a generation that is not only superior in the religious aspect, but is also able to contribute to social and economic development driven by technology in the digital era. Digital transformation of madrasas in the digital era can be implemented in digital transformation internally and external.

Internal in the sense of offering knowledge about the human resources of madrasas, delivering services that are focused on the digital world, and creating curricula that are centered around the digital world. In the meantime, externally, in the sense of how the industry's growth in the digital age can be applied to the sphere of education as output as media for madrasa branding. This can be applied to da'wah media and digital marketing (Megawati et al., 2023). The use of the latest technology such as Metaverse, 5G networks, and Blockchain in the digitization and virtualization of education opens up opportunities for improving education (Abubakar, 2021). Mastery of technology in the digital era is very important for teachers, so that teachers can access various information to develop teachers' insight and abilities in implementing learning (Rohman et al., 2023). Technology plays an important role in improving the teaching profession where teachers must be able to adapt to various kinds of technology that have developed rapidly (Siskandar, 2020). Technology in education can be used to manage or implement systematic education. Technology in education is abstract as a process (Santosa, 2022). Increasing teacher competency is an important step in responding to the demands of technological development and ensuring that Islamic education remains relevant and effective in this digital age.

Madrasas need to strengthen the technology and science education components in their curriculum. Madrasas can supplement the curriculum with subjects such as programming, robotics, artificial intelligence, graphic design, and an understanding of renewable energy applications, which will provide significant benefits for students. Apart from that, increasing digital literacy is also one of the focuses of madrasas. This includes students' ability to use information and communication technology intelligently and wisely (Pham et al., 2020). The importance of technology and science education is not only creating technologically skilled students but also preparing them to contribute to society 5.0 which is increasingly connected and automated. An understanding of programming, robotics and artificial intelligence is becoming a very valuable skill amidst the industrial revolution and rapid technological development.

Technology allows students to learn at their pace, level, style and needs. according to their interests, needs and goals. Technology can also provide feedback, guidance and support to students in learning. Adaptive learning systems can adjust student performance and progress (Liao et al., 2017). Online platforms can also offer various learning options, such as videos, podcasts,

games, quizzes, simulations. These are provided to suit different learning preferences and modalities.

Technology can increase access and equality in education. Provide learning opportunities to anyone, anywhere, anytime. Technology can reduce barriers such as cost, distance, time, language, disabilities that can prevent students from getting an education. Online courses can offer flexible and financially affordable learning. Assistive technology can also help students with special needs to participate in learning activities (Sun Y et al., 2017).

Students can interact with diverse perspectives and cultures, and develop global competencies. The online platform allows students to work with friends from different countries. Video conferencing tools allow students to engage in discussions with experts from different fields or domains.

Technology can foster creativity and innovation by sharing their own content and knowledge. Students can be inspired to explore ideas and solve problems creatively. Digital storytelling tools enable students to express their thoughts and emotions through image, audio, video, etc. formats. Programming platforms allow students to design and develop their own applications or games. Challenges in integrating education with technology (Ghavifekr, S., & Rosdy, 2015).

There is still a significant gap between the use of digital technology. This gap is caused by various factors such as infrastructure, cost, availability, quality, literacy, skills. The digital divide can exacerbate inequalities in educational opportunities and outcomes. Students who do not have access to technology may miss out on the resources available online. Students who have limited digital skills or literacy have difficulty using technology to learn.

Pedagogical integration is essential in incorporating technology into education. Just providing devices or software to students and teachers is not enough. It is necessary to use technology in accordance with learning objectives, outcomes and assessments. In addition, a supportive culture is needed that values innovation, experimentation and risk taking (Kebritchi wt al., 2017).

RESEARCH METHOD

This research is a library study, where books, notes, reports, and literary materials pertaining to the subject at hand are examined. A library study is one in which facts and information are gathered using a variety of resources found in libraries, including books, documents, tafsir, periodicals, hadith, and so on. (Cahya & Ahmadi, 2020). The data sources for research or material to be

researched are books, theses and journals related to topics related to integrating technology in learning in madrasas: welcoming the digital age.

RESULT AND DISCUSSION

The Importance of Integrating Technology in Education

According to research by Akram et al. (2021), technology integration in education is essentially a need that we cannot resist. We are unable to ignore the speed at which technology is advancing, though. Technology may give us as educators access to a wide range of educational resources, allow us to customize instruction to each student's pace and learning style, and facilitate remote collaboration between teachers and students. In the meantime, technology helps students acquire the critical thinking, creativity, and problem-solving abilities necessary to meet the demands of a more digital workplace. If we are not the ones who support students' digital abilities and skills. For this reason, we need to integrate technology in teaching as much as possible.

Technology integration is the conscious and planned combination or use of technology in the learning process in the classroom. Technology integration in learning can take the form of using software, hardware and various other digital tools (Raja & Nagasubramani, 2018).

By integrating technology into classroom teaching, we can improve learning efficiency, encourage active student participation, and create more engaging and relevant learning experiences. In essence, the role of technology in education is to improve the quality of teaching and learning and prepare students to face the challenges of the ever-growing digital world.

Optimizing learning by integrating technology is something that millennial teachers hope to implement. By utilizing information technology and integrating it in learning, it will make it easier for teachers to convey knowledge (Ratheeswari, 2018). Apart from that, learning can be more fun and interactive. Students will be more interested in being actively involved in the learning process. For this reason, teachers need to upgrade themselves with information and knowledge related to technology-based learning, in order to provide meaningful learning for students.

Facilitating access to a range of educational resources for both teachers and students is one of the functions of technology in the classroom. For this reason, the integration of technology in learning can be done using applications and online platforms, for example, so that collaboration between teachers and students can run better. Following are several strategic steps that we can take according to González et al (2017), that is:

1. Careful Planning
   We need to have a comprehensive plan in place before implementing new technology in teaching and learning. What are the goals for learning? Which technology is suitable given the learning goals? How can technology be included into lesson plans? We need to be mindful of all of this when creating resources and assessing student learning.
2. Training and Development
   Smart Teacher, don't be afraid to participate in training on the newest technology tools so that we can optimize their advantages in the learning process. Computers and other devices for information and communication, such as laptops, shouldn't be novel tools used in classroom instruction. Instructors can use ICT to make learning materials more accessible, make learning more engaging, and help students and teachers become more proficient with technology.
3. Use of Appropriate Technology
   One example of not so new technology integration in the classroom is the usage of smart whiteboards. Though operating procedures for various types of smart whiteboards may vary, in general, teachers are not required to move from the whiteboard during instruction.
4. Collaboration and Student Involvement
   In addition to teachers using ICT, the 21st century learning paradigm is "anyone is a teacher, anyone is a student, and anywhere is a class." In the current digital environment, the teacher-centered learning model is no longer valid. As a result, we need to be able to motivate kids to participate fully in their education.

In the current era of information technology, in the world of education Indonesia has utilized technology in the learning process. There have been many educational institutions ranging from kindergarten to tertiary level that are competing to utilize technology in order to improve their teaching and learning performance. Utilizing technology by integrating technology in learning will help teachers and students achieve learning with the use of technology. Technology integration aims to build "knowledge-based society habits" such as the ability to search, process/manage information, convert it into new knowledge and communicate it to others. Technology integration also develops skills in using ICT and increases the effectiveness and efficiency of the learning process. Integrating technology will provide opportunities for teachers to introduce learning using technology to students. In integrating technology,

there are important influencing factors, namely the availability of facilities or technological supporting facilities, the ability to integrate technology and the characteristics of the learning environment (Stromquist, 2014).

We can determine the extent to which technology integration in learning can be done. Instead of focusing on the complexity of integration, what we cannot ignore is the value of collaboration and student engagement through this technology in the classroom. Our role is to facilitate more interactive learning, strengthen students' collaborative skills, and prepare students for an increasingly digitally connected work environment.

In the end, the use of technology as a teaching medium still requires evaluation and adjustment. We must also be able to measure the impact of using technology in the learning that has been carried out. We must be able to evaluate the effectiveness of the technology and make ongoing adjustments. In this way, we have certainty that technology integration truly provides maximum benefits for learning.

Challenges faced by Madrasas in Adopting Technology for Learning

In the current digital age, the education sector is developing rapidly. Technology has changed the way we communicate, work, and school, including this trend. Madrasas, Islamic educational institutions, face unique challenges in adapting to the digital era while maintaining religious values and teachings (Fathurrochman, 2021). One of the main challenges facing schools in the digital era is the digital divide among students. Not all students have access to the necessary technology or internet connection outside the madrasah environment. These gaps can lead to unequal opportunities for learning and engagement. To overcome this problem, schools can collaborate with local communities or organizations to provide technology resources to underprivileged students. Initiatives such as raising donations for laptops or tablets can bridge the gap and ensure equal access to educational materials. Additionally, schools can explore partnerships with telecommunications companies to provide subsidized internet packages for low-income students.

Another big challenge is effectively integrating technology into the school curriculum. Madrasas have a responsibility to equip students with Islamic knowledge and digital literacy skills. However, there is often a lack of guidance or resources for teachers to incorporate technology into their learning. To address these challenges, schools can invest in professional development programs for teachers to improve their digital literacy skills. Workshops, online courses, or partnerships with educational technology

experts can equip teachers with the knowledge and skills necessary to integrate technology into their teaching practices.

Madrasahs may face challenges such as a lack of student engagement, difficulty in understanding complex concepts, or the need to make learning more interactive and engaging. The solution could be gamification, which can help increase student engagement, facilitate understanding of concepts through games, and make the learning process more fun and interesting (Al-Hasari et al., 2017).

Implementing gamification in madrasas can pose several challenges. For example, there may be a lack of technological resources and stable internet access, a lack of training for teachers on how to effectively use gamification in teaching, and challenges in finding or creating games that fit the curriculum and values taught in madrasas. Additionally, there may be resistance from some who feel that a game-based approach may not be as engaging as traditional teaching methods.

Apart from facing existing challenges, it is necessary for us to find solutions to face these problems in order to continue to develop and progress. The following is the solution according to Golam & Kusakabe (2018), namely:

1. Utilizing Digital Learning Resources: Madrasas need to adapt themselves by utilizing available digital learning resources. Madrasahs can develop online learning platforms that provide access to religious books, studies and relevant learning materials. And can provide physical books by placing books in the library.
2. Technology Skills Training: To overcome the lack of technology skills, it is important for Madrasas to provide technology skills training to teachers and educators. This training can include the use of hardware, software and online learning platforms as well as understanding what is currently viral, so that students do not get bored with learning that is too monotonous.
3. Digital Ethics Education: It is important to provide strong digital ethics education to Madrasah students. They need to be given a good understanding of how to use technology responsibly and maintain the integrity of their religion in a digital environment.
4. It is important for madrasas to integrate digital education elements in their curriculum. This can be done by including subjects related to technology and the use of digital media in religious learning, such as the use of applications or e-learning platforms. Apart from that, madrasas also need to update their curriculum content regularly to cover the latest issues relevant to digital life

The Importance of Facing the Digital Age in Madrasas

In the digital age which continues to develop rapidly, madrasas face significant challenges as well as tempting opportunities in the 21st century. Digital technology has completely changed the educational landscape, changing the way we learn, access information and interact with the world around us. In this context, it is important to understand the role of digital technology in the transformation of madrasas and how challenges and opportunities can influence the way we spread and understand the Islamic religion. Madrasas in the digital era offer unlimited opportunities to expand accessibility, develop innovative learning methods, and strengthen religious understanding (Rusdarti et al., 2023).

In an increasingly interconnected world, digital technology can be a potent instrument for deepening religious understanding and closing educational disparities. Global accessibility is one of the major opportunities for Islamic education in the digital age. People from all around the world can now access excellent Islamic educational resources thanks to digital technology.

Digital technology also opens the door to more interactive, creative and interesting learning methods in Islamic education (Syaipudin et al., 2024). With multimedia, such as videos, animations and images, religious concepts can be presented in a more visual and engaging way. Online platforms and social media enable direct interaction between students and educators, facilitating discussion, exchange of ideas, and collaboration between fellow Muslims around the world. It creates a space to share knowledge, solve problems together, and strengthen understanding of religion. The digital generation has broader knowledge about technology compared to the older generation because they grew up and live in a digital era filled with rapid technological developments. Rapid technological advances, such as the internet, mobile devices and social media, have given the digital generation easier and more intensive access to technology, so that they are more skilled and accustomed to using it.

The digital generation also tends to have a deeper understanding of various technological applications and utilize them in various aspects of life, including education, communication and entertainment.1 However, with advances in digital technology also comes a number of challenges that need to be overcome. One of them is the authenticity and reliability of content delivered via digital technology. In an era of information that is so fast and abundant, the spread of content that is false, inaccurate, or not in accordance with Islamic teachings can easily occur. Therefore, there needs to be stricter

monitoring and verification of content to ensure that what is conveyed via digital technology is in accordance with the principles of the Islamic religion.

Madrasas have a crucial role in providing a strong foundation for individual development and societal progress. However, in the digital era which continues to develop rapidly, education faces new challenges that require rapid adaptation and transformation. In an increasingly connected and complex world, the role of madrasas is becoming increasingly important in preparing future generations (Hariyadi, 2023).

According to Indra (2020), one of the main roles of madrasas in the digital age is to provide skills that are relevant to the demands of the times. The digital world has changed the job and business landscape drastically, where information technology skills and digital expertise have become much needed. Education must be able to accommodate these changes by providing a curriculum that includes learning about technology, problem solving skills, programming, and digital literacy. In this way, individuals will be ready to face the demands of future work and be able to adapt to ever-changing technological developments.

Apart from that, madrasas also have an important role in teaching critical skills and information literacy. In this digital era, information is abundant and easily accessible to anyone. However, not all existing information can be considered valid or correct. Therefore, education must provide quality teaching on how to carry out critical analysis of the information encountered, distinguish between facts and opinions, and respect reliable sources of information. In this way, individuals will be able to make wise decisions and not be easily influenced by inaccurate information.

Furthermore, madrasas in the digital age must also encourage creativity and collaboration. The existence of technology such as computers, the internet and social media provides new space for collaboration between individuals and the creation of creative content. Through education that supports these skills, individuals will be taught to think critically, face problems innovatively, and work together in teams. In an increasingly complex and rapidly changing world, this capability becomes an invaluable added value.

Lastly, madrasas in the digital age must promote equal access and inclusion for all individuals. Advances in information and communication technology should leave no one behind. Education must ensure that access to quality education can be enjoyed by all individuals, regardless of geographic, economic or physical boundaries. In this way, there will no longer be educational gaps that hinder individual and societal development.

In facing the challenges of the digital age, madrasas have an important role in preparing future generations and fueling the spirit of innovation. Rapid change requires adaptive and progressive education, with a focus on learning technology skills, information literacy, creativity, and collaboration. Only through inclusive education will individuals have equal opportunities in facing an increasingly complex and global future (Hastutik, 2024).

Madrasas, as educational institutions with a focus on Islamic religious education, are experiencing an important transformation in the digital era. Madrasa reforms include using technology to enhance learning outcomes in addition to curriculum modifications. Madrasas play a vital role in Muslim education, but reform is required if they are to stay relevant in the digital age. Madrasas need to enrich their religious curriculum with an emphasis on digital literacy, science, technology and foreign languages to create competitive students.

The use of digital technology can open the door to wider educational resources. Madrasas can utilize online platforms to provide access to diverse learning resources, additional courses and ongoing teacher training. Madrasa reform in the digital age must focus on developing critical and creative thinking skills. Technology can be a tool for teaching students to analyze, understand, and solve complex problems that are relevant to their life context (Iqbal et al., 2023).

The digital age opens up access to diverse global perspectives and knowledge. Madrasas that are open to technology can broaden students' insight into the world, facilitate intercultural dialogue, and enrich understanding of religion and universal values. The use of technology in madrasas can provide students with access to adequate resources, such as digital libraries, e-learning platforms, and interactive learning tools. This supports a dynamic and interesting learning process for students. Madrasah reform in the digital era also requires developing teacher competency. Training related to the use of technology, innovative learning strategies, and strengthening understanding of religion and modern science are the keys to success in updating the curriculum and learning approaches (Lina et al., 2023).

Madrasah reform in the digital era is a must. The integration of technology allows madrasas to provide education that is more holistic, relevant to the demands of the times, and prepares students to contribute to an ever-changing global society.

CONCLUSION

One of the main roles of madrasas in the digital age is to provide skills that are relevant to the demands of the times. The digital world has changed the job and business landscape drastically, where information technology skills and digital expertise have become much needed. Education must be able to accommodate these changes by providing a curriculum that includes learning about technology, problem solving skills, programming, and digital literacy. Optimizing learning by integrating technology is something that millennial teachers hope to implement. By utilizing information technology and integrating it in learning, it will make it easier for teachers to convey knowledge. Apart from that, learning can be more fun and interactive.

Madrasas in the digital age must also encourage creativity and collaboration. The existence of technology such as computers, the internet and social media provides new space for collaboration between individuals and the creation of creative content. Through education that supports these skills, individuals will be taught to think critically, face problems innovatively, and work together in teams. In an increasingly complex and rapidly changing world, this capability becomes an invaluable added value. In facing the challenges of the digital era, madrasas have an important role in preparing future generations and fueling the spirit of innovation.

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