

An Analysis of Islamic Education Teachers' Readiness in Using Educational Technology at the Madrasah Ibtidaiyah (Islamic Elementary School) Level

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Abstract: An Analysis of Islamic Education Teachers' Readiness in Using Educational Technology at the Madrasah Ibtidaiyah (Islamic Elementary School) Level

Objective: This study analyzes teachers' readiness to use learning technology in religious clumps at MI Muhammadiyah Ketepung. **Methods:** This study used a qualitative method with an analytic descriptive approach. Data were collected through observation, interviews, and documentation. Data analysis through four stages: data collection, data reduction, data presentation, and conclusion drawing. **Results:** Teacher readiness is still limited due to a lack of understanding of technology, access, facilities, and infrastructure. It is recommended that educational institutions provide intensive training and mentoring, improve access to technology, and develop policies that support the use of technology. **Conclusion:** Although Islamic education teachers in Madrasah Ibtidaiyah are willing to use learning technology, they face various obstacles in its implementation. **Contribution:** This research provides practical input for Islamic education teachers in Madrasah Ibtidaiyah to improve the quality of their teaching by utilizing learning technology on the characteristics of religious subjects.

Keyword: Islamic Education Teachers; Learning Technology; Elementary School Level

Abstrak: Analisis Kesiapan Guru Pendidikan Agama Islam dalam Penggunaan Teknologi Pembelajaran tingkat Madrasah Ibtidaiyah

Tujuan: Penelitian ini bertujuan untuk menganalisis kesiapan guru dalam penggunaan teknologi pembelajaran pada rumpun keagamaan di MI Muhammadiyah Ketepung. **Metode:** Penelitian ini menggunakan metode kualitatif dengan pendekatan deskriptif analitik. Data dikumpulkan melalui observasi, wawancara, serta dokumentasi. Analisis data melalui empat tahapan yaitu pengumpulan data, reduksi data, penyajian data, serta penarikan kesimpulan. **Hasil:** Kesiapan guru masih terbatas karena kurangnya pemahaman teknologi, akses, serta sarana dan prasarana. Disarankan agar lembaga pendidikan memberikan pelatihan dan pendampingan intensif, meningkatkan akses teknologi, dan mengembangkan kebijakan yang mendukung penggunaan teknologi. **Kesimpulan:** Meskipun guru pendidikan agama Islam di Madrasah Ibtidaiyah berkeinginan untuk menggunakan teknologi pembelajaran, namun mereka masih menghadapi berbagai kendala dalam implementasinya. **Kontribusi:** Penelitian ini memberikan masukan praktis bagi guru Pendidikan Agama Islam di Madrasah Ibtidaiyah untuk meningkatkan kualitas pengajaran mereka dengan memanfaatkan teknologi pembelajaran yang sesuai dengan karakteristik mata pelajaran agama.

Kata Kunci: Guru Pendidikan Agama Islam; Teknologi Pembelajaran; Tingkat Sekolah Dasar

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A. INTRODUCTION

In Islamic education, *Madrasah Ibtidaiyah* shapes students' character and moral foundations. As educational institutions increasingly prioritize quality and relevance in response to contemporary demands, the era of rapid digitalization significantly influences all aspects of life, including education (Iivari et al., 2020). Technology is widely recognized as a tool to enhance the efficiency and effectiveness of learning processes (Lacka et al., 2021). Educational technology enables teachers to deliver instructional materials in ways that are more engaging, interactive, and aligned with students' learning needs (Darling-Aduana & Heinrich, 2018). Consequently, managing digital media and technology is essential, particularly in delivering religious content in *Madrasah Ibtidaiyah*. The synergy between media and technology in the learning environment facilitates the transmission of knowledge, the internalization of values, and the development of essential student competencies (Chan & Nyback, 2015).

The successful integration of technology in education heavily depends on teachers' readiness, encompassing their understanding of technological concepts, operational proficiency with educational tools and applications, and their attitudes and motivation toward using technology (Nelson et al., 2019). In this digital era, educational systems globally are shifting toward technology-enhanced learning, innovative pedagogies, and student-centered approaches (Chen & Tsai, 2021). While traditional Islamic education has long emphasized memorization and conventional teaching practices, contemporary educational strategies highlight critical thinking, problem-solving, and interactive learning. Therefore, *Madrasah Ibtidaiyah* must adequately bridge the gap between traditional values and modern pedagogical approaches to prepare students for current and future challenges.

One of the critical challenges facing Islamic elementary education is the insufficient readiness of teachers to adopt modern teaching practices, particularly regarding the use of educational technology (Ayanwale et al., 2022). Many educators lack comprehensive training in digital pedagogy, interactive learning tools, and effective strategies for technology integration, which can hinder teaching effectiveness (Soeharto & Csapó, 2022). As *Madrasah Ibtidaiyah* evolves, it must balance preserving the core tenets of religious education and embracing educational innovations. Enhancing teacher readiness, integrating relevant technologies, and reforming curriculum frameworks are essential steps toward ensuring that *Madrasah Ibtidaiyah* remains a robust institution capable of spiritually and intellectually preparing students. Future research and educational policy should strengthen teacher competencies, expand digital access, and foster innovation to build a more adaptive and future-ready Islamic educational system.

MI Muhammadiyah Ketepung is a *Madrasah Ibtidaiyah* located in a rural area distant from urban mobility and technological infrastructure. Despite its geographical and infrastructural limitations, this Islamic educational institution remains committed to delivering quality education. In light of this commitment, it is crucial to ensure that teachers are adequately prepared to integrate learning technologies into their instructional practices. However, the institution still faces several challenges in optimizing the use of educational technology, including limited infrastructure, insufficient teacher training, and ongoing curriculum reforms that require integrating digital tools.

Given these challenges, the researchers are interested in analyzing whether such limitations have affected the readiness of Islamic Education teachers at MI Muhammadiyah Ketepung particularly during the second semester of the 2023/2024 academic year. This study examines whether these constraints have caused delays in adapting to the rapidly evolving technological landscape. By understanding the level of teacher readiness, the research seeks to identify steps that Islamic Education teachers must take to improve technology integration in the classroom.

The main research questions addressed in this study are: (1) How do Islamic Education teachers at MI Muhammadiyah Ketepung understand the concept of learning technology?; (2)

What efforts has the institution made to enhance teacher readiness for utilizing educational technology during the 2023/2024 academic year?

As of 2024, numerous studies have confirmed that learning technology significantly enhances educational effectiveness across different levels. Prior research has examined various aspects of technology use in Islamic education, including media and technology integration (Nawi, 2020; Hartati et al., 2022; Kurniawan, 2021), teacher readiness (Fajri et al., 2023; Mardiana et al., 2021; Mutia et al., 2023), and curriculum development (Amin et al., 2018). These studies have highlighted common barriers Islamic education teachers face, such as limited digital competence, lack of training, and inadequate infrastructure to support technology-based learning.

However, there remains a significant research gap concerning the readiness of Islamic Education teachers at the *Madrasah Ibtidaiyah* level. Most existing studies have focused on general or secondary education settings, with limited attention given to the specific context of elementary Islamic schools. Furthermore, while several studies assess teachers' technical proficiency, few delve into psychological readiness (e.g., motivation, resistance to change) and pedagogical readiness (e.g., adaptation of Islamic instructional content through technology).

This study offers several contributions to the field: (1) A comprehensive analysis of Islamic Education teacher readiness in *Madrasah Ibtidaiyah*; (2) Exploration of the integration of technology with Islamic-based teaching methods; (3) Strategic recommendations for improving teacher readiness; (4) Emphasis on the real-world implementation of educational technology within the *Madrasah Ibtidaiyah* context. This research complements and extends the existing literature by addressing these aspects, providing a deeper and more practical perspective on teacher readiness for technology integration in Islamic elementary education.

B. METHOD

This research employs a qualitative method with a descriptive-analytic approach. Qualitative research is designed to explore specific cases or problems based on factual data, which are then interpreted through systematic collection, analysis, and explanation (Pappas & Woodside, 2021). The descriptive-analytic approach describes and analyzes data through detailed written and verbal accounts gathered from informants and direct observations of relevant events.

This study is classified as field research, meaning that data are collected directly from the setting where the phenomena occur. The researcher investigates the natural environment, documenting, analyzing, and reporting findings before concluding.

The subjects of this research are individuals with relevant knowledge of the variables under investigation. Specifically, the subjects include Islamic Education teachers at MI Muhammadiyah Ketepung, the primary data sources. The object of the study is the teachers' understanding and readiness to integrate technology into learning activities at MI Muhammadiyah Ketepung during the 2023/2024 academic year.

Two primary methods were employed to collect the necessary data: observation and interviews. Observations were conducted systematically to record visible behaviors and environmental elements relevant to the research focus. Interviews were used to gain in-depth insights from participants. This method is particularly useful for exploring problems and understanding informants' perspectives, especially when the number of respondents is limited.

The research procedure began with preparation, including determining the theme and title, selecting research subjects, and preparing instruments such as interview questions. This was followed by the implementation phase, which involved conducting interviews and observations. The data collected were then analyzed to generate meaningful conclusions.

The research was conducted in April and May 2024 at MI Muhammadiyah Ketepung, located in Dusun Gombong, Ketepung Village, Kebonagung Subdistrict, Pacitan Regency, East Java Province. The initial stage involved general observation of the school environment

and preliminary interviews with Islamic Education teachers. Further data were gathered through in-depth interviews with additional Islamic subject teachers and the Islamic Education Supervisor (PPAI) of Kebonagung Subdistrict, who happened to be visiting the school during the data collection period.

To ensure data validity, this study utilized source triangulation. This involved comparing and cross-checking data collected through different methods and at different times. For instance, observation data were compared with interview responses, public statements were contrasted with private ones, and interview data were verified against official documents. This method strengthens the credibility and reliability of the findings.

The data analysis process followed four main stages: (1) Data Collection, from interviews, observations, and documentation (including audio recordings, videos, and photographs). After data collection, any inconsistencies or irrelevant information were removed to maintain focus. The filtered data were then organized and presented. Once deemed complete, the conclusions were drawn.

Data were collected from three main sources: interviews with informants, field observations, and documentation (including audio recordings, videos, and photographs). After data collection, any inconsistencies or irrelevant information were removed to maintain focus. The filtered data were then organized and presented. Once deemed complete, the conclusions were drawn.

C. RESULTS AND DISCUSSION

Result

This research was conducted at MI Muhammadiyah Ketepung, RT.02 RW.12 Gombong Hamlet, Ketepung Village, Kebonagung District, Pacitan Regency, and East Java Province. This madrasah divides Islamic subjects into four units: Akidah Akhlak, Al-Qur'an Hadith, Jurisprudence, and Islamic Cultural History. The following is the data of teachers who teach Islamic subjects at MI Muhammadiyah Ketepung:

Table 1. List of Teachers of Religious Subjects MI Muhammadiyah Ketepung school year 2023/2024

| No. | Teachers | Subjects | Classes Taught |
|-----|-----------------|----------------------------------|----------------|
| 1 | Ahmad Hariyanto | Akidah Akhlak | 3, 4, 5, 6 |
| 2 | Septiyani | Al-Qur'an Hadits | 3, 4, 5, 6 |
| 3 | Sri Kasranti | Fikih | 3, 4, 5, 6 |
| 4 | Subroto | History of Islamic Culture (SKI) | 3, 4, 5, 6 |

Researchers conducted interviews with several Islamic Education teachers at MI Muhammadiyah Ketepung. One of the respondents explained the available resources and the implementation of existing technology in the classroom:

"Implementing technology-based learning is more interesting and encourages teachers to be more creative in supporting the teaching and learning process. However, our madrasah has not been able to integrate technology optimally due to limited facilities. I usually design student worksheets using applications such as Canva and MindMeister, which are then printed as printed media. If I want to display them using a projector, unfortunately, our madrasah does not yet have one – it will only be budgeted for in the 2024/2025 academic year. However, the Wi-Fi network at this madrasah has been very helpful for creating learning media and carrying out summative assessments." (Interview, January 30, 2024)

Mr. Subroto, an Islamic Cultural History (SKI) teacher at MI Muhammadiyah Ketepung, also shared his perspective on the use of technology in his subject area:

"Technology is essential in learning, especially for religious subjects like Islamic Cultural History (SKI). Students easily become bored if taught only through lectures because SKI primarily consists of historical stories. Therefore, I engage students by showing films or videos related to the material."

Although our madrasah lacks facilities such as projectors and other equipment, I manage it using a laptop. Since the number of students is small, this method still captures their interest." (Interview, January 30, 2024)

The Head of MI Muhammadiyah Ketepung, Mr. Imam Dasuki, stated:

"As the head of the madrasah, I encourage all teachers – both general and religious subject teachers – to regularly participate in the KKG (Teacher Working Group) forum held once a month to upgrade their IT skills for administrative tasks and the creation of learning media. In addition, they also participate in online training through the 'Kemenag Pintar' application, which serves as a platform for teacher training." (Interview, January 30, 2024)

Finally, the Islamic Education Supervisor (PPAI) for the Kebonagung District, Mrs. Endang Sukesi, expressed the following during her visit to the school:

"We continuously strive to improve teacher quality, especially in understanding and integrating educational technology, through a dedicated forum called KKG (Teacher Working Group), held at least once a month. MI Muhammadiyah Ketepung is an active member of this forum. Apart from discussing administrative and instructional strategies, we also focus on using technology in the learning process, adapted to the specific conditions of each madrasah. We provide training to ensure that teachers are at least familiar with Learning Management Systems (LMS) and other applications or web tools that support creative and effective learning." (Interview, December 7, 2023)

The results of interviews with Islamic Education teachers at MI Muhammadiyah Ketepung show that although teachers recognize the importance of technology in learning, its implementation is still hindered by limited facilities, such as the lack of projectors. Some teachers, like Mr. Subroto, use limited technology, such as laptops, to engage students, particularly in teaching Islamic Cultural History. The school principal, Mr. Imam Dasuki, supports the development of teachers' technology skills through the KKG forum and online training. The PPAI supervisor, Mrs. Endang Sukesi, also emphasizes the importance of training and the use of applications to improve the quality of teaching. While there are efforts to use technology, greater support in facilities and training is needed to optimize technology-based learning at this madrasah.

Discussion

In Madrasah Ibtidaiyah, Islamic religious subjects play a crucial role in shaping students' understanding of the moral and religious values that Muslims uphold. Islamic education aims to shape the character of Muslims who believe in and fear Allah. As technology advances rapidly, integrating technology into education becomes increasingly important. Technology is seen as a valuable resource that can enhance the quality of Islamic education. However, the successful adoption and implementation of educational technology depend on the readiness of the existing learning components.

Traditional learning systems rely solely on monotonous and contextually limited methods and are considered less effective. Creativity, ability, and intelligence have evolved significantly with technological advancements and communication (Van Laar et al., 2017). These developments influence the need for improvements in conventional learning systems. In traditional systems, knowledge transfer occurs mainly through a blackboard, with the classroom structured in a static format and the teacher acting as the sole expert (teacher-centered learning). This highlights the need for a shift in perspective on Islamic education, motivating teachers to develop their competencies continuously. Such changes are crucial due to the numerous innovations required for effectively teaching Islamic subjects.

Integrating religious and general subjects is a defining characteristic of Madrasah Ibtidaiyah institutions, setting them apart from regular schools (Bujangga, 2022). While Madrasah Ibtidaiyah combines both subjects, religious education remains a primary focus compared to general subjects. The curriculum in Madrasah Ibtidaiyah includes Islamic subjects such as Al-Qur'an Hadith, Akidah Akhlak, Jurisprudence, and Islamic Cultural History (SKI). At MI

Muhammadiyah Ketepung, each of these subjects is taught by a dedicated teacher, as indicated in the research findings table.

The influence of globalization and the rapid pace of technological advancement have driven significant changes in various sectors, including education. One of the major developments is the widespread use of technology, which has become an essential part of daily life (Mardiana et al., 2021). Technology, including electronic devices such as smartphones, is ubiquitous in everyday activities and has been integrated into educational practices for teaching and administrative purposes (Mutia et al., 2023).

In today's modern era, technology is integral to almost every aspect of life, including education (Burbules et al., 2020). In education, technology has opened up new opportunities to enhance the effectiveness and efficiency of learning. Information and communication technology has expedited the learning process in Indonesia and globally. The challenges posed by the Industrial Revolution 4.0 compel all elements of education to innovate and develop new learning methods relevant to current times (Oke & Fernandes, 2020). The use of technology in education, whether through e-learning, online learning, or blended learning, is expected to help Generation Z achieve optimal results, enhancing their knowledge of technology, data, and people. Therefore, Islamic education teachers are expected to develop teaching methods incorporating technology as much as possible.

According to Ertmer, several factors have been identified as determinants of teachers' readiness to adopt technology in the learning process. These factors include technology resources, institutional support, adequate training, and perceptions of technology's usefulness and ease of use (Ertmer, 2005). Teachers who feel supported by their schools, receive adequate facilities and training and have confidence in using technology tend to be more ready to implement learning technology (Amin et al., 2022). In light of these factors, researchers analyzed the readiness of Islamic religion teachers at MI Muhammadiyah Ketepung, focusing on integrating technology into the learning process, particularly in Islamic education. Since Islamic religious subjects can become monotonous for students when taught using conventional methods, Islamic education teachers must strive to innovate and be as creative as possible in their teaching approaches.

The availability of hardware, software, and the necessary infrastructure can assess the readiness factor concerning technology resources in Islamic learning. When the equipment is adequate, teachers and students will be more equipped to integrate learning technology (Amin et al., 2018). However, if technology resources are minimal, teachers and students may lack the access needed to support effective technology-based learning. Technological resources in this context include hardware such as computers, laptops, tablets, printers, or smartphones and software, applications, and internet connections required to access and utilize the technology (Hennessy et al., 2022). When these resources are limited or inadequate, Islamic education teachers face challenges implementing technology-based learning (Mohammadi, et al., 2015).

Based on the results of observations and interviews regarding technological resource factors, MI Muhammadiyah Ketepung still faces limitations in hardware, such as the lack of projectors and a limited number of laptops available for the institution to support the learning process. The internet network is adequate, as a Wi-Fi facility is used to create learning media and conduct summative assessments for higher grades. Despite these limitations, Islamic education teachers still find ways to make the most of the available resources in the learning process. For example, they create printable student worksheets using learning applications, play movies or videos related to the learning materials using laptops, and implement summative assessments using Android devices for higher grades.

Institutional support is also crucial for successfully integrating learning technology in Madrasah Ibtidaiyah. Support from the principal or school management in encouraging the use of technology in Islamic education can significantly impact teachers' readiness (Ayanwal

et al., 2022). Without sufficient support from school leadership, teachers may feel less motivated or supported in adopting technology for the learning process (Fryer & Bovee, 2016).

In learning technology, principals play an essential role in establishing and providing technology-based school services, cultivating a technology-based learning culture, and offering opportunities for teachers to enhance their ability to innovate in teaching through training (Admiraal et al., 2017). The lack of principal support in technology-based Islamic education can hinder progress and limit technology adoption in teaching (Hartati et al., 2022). Therefore, school principals must recognize the importance of technology in the learning process, prioritize its integration into Islamic education, provide adequate technological resources, and support teacher training and development (Farid et al., 2015). This was emphasized by the Head of MI, Muhammadiyah Ketepung, who encouraged all teachers in general science and religious science to participate in online and offline training activities to improve their skills in developing administrative tasks and interactive learning media.

Islamic education teachers' knowledge and skills significantly influence their readiness to implement technology-based learning (Behl et al., 2022). Limited competence in information technology may lead to feelings of insecurity or difficulty in adopting such learning models (Li et al., 2021). Therefore, providing capacity-building programs through training, seminars, and webinars organized by relevant institutions or forums is essential.

As conveyed by the Head of MI Muhammadiyah Ketepung, the Center for Education and Training of Technical and Religious Education under the Research and Development Agency has utilized available opportunities by developing distance learning through the PINTAR application. PINTAR, which stands for *Pusat Informasi Pelatihan dan Pembelajaran* (Training and Learning Information Center), is an online training platform based on the Massive Open Online Course (MOOC) model. This model allows for open-access training with unlimited participants, providing wider access for users to enhance their competencies and workplace performance. PINTAR is an independent, certified training platform managed by the Ministry of Religious Affairs' Center for Education and Training. It represents a learning innovation in the context of the Industrial Revolution 4.0. It is accessible to State Civil Apparatus (ASN), including PPPK and PN-ASN, and community members who support the Ministry's functions. Teachers of Islamic Education at MI Muhammadiyah Ketepung have taken part in various training sessions offered through this application, particularly those related to the use of educational technology.

Moreover, based on interviews with the Islamic Education Supervisor (PPAI) of the Kebonagung sub-district, it was revealed that the PPAI has actively introduced and trained teachers in educational technology through various platforms, including the *Kelompok Kerja Guru* (KKG) forum, which MI Muhammadiyah Ketepung teachers also attended. Mrs. Endang Sukesi, the PPAI of the Kebonagung sub-district, emphasized that while participation in KKG is beneficial, it is important for Islamic education teachers to continuously improve their technological skills to keep pace with the rapid advancement of the times.

Furthermore, interview results regarding teachers' perceptions of technology's usefulness and ease of use indicate a positive outlook. Islamic education teachers at MI Muhammadiyah Ketepung believe that technology use in the learning process can increase student engagement, encourage greater creativity in lesson planning, and simplify the creation of teaching media, administrative tasks, and assessment processes.

D. RESEARCH IMPLICATIONS AND CONTRIBUTIONS

1. Research Implications

The results of this study provide important insights for educators regarding the need to shift attitudes and enhance motivation in response to the challenges posed by digitalization in education. It emphasizes the need for efforts to change teachers' perspectives and encourage them to embrace technology as a tool for effective teaching. The study also highlights the

significance of developing a curriculum and teaching materials to integrate technology into Islamic education effectively.

Furthermore, the findings suggest that developing educational policies supporting technology integration in Madrasah Ibtidaiyah learning processes is crucial. These policies should also ensure adequate facilities and infrastructure for technology-based teaching and learning. By addressing these key areas, the study offers a foundation for enhancing the quality and relevance of Islamic education in the digital era.

2. Research Contribution

This study contributes significantly to understanding Islamic Education teachers' readiness to utilize learning technology at the Madrasah Ibtidaiyah (Islamic Elementary School) level. The primary novelty of this research lies in its in-depth analysis of the preparedness of Islamic Education teachers to integrate technology into their teaching practices. This specific area has not been widely explored in the literature.

This study examines various facets of teacher readiness, including teachers' knowledge and skills related to technology and their attitudes and motivations toward incorporating technology into their teaching. Unlike previous studies, which have predominantly focused on technology integration in higher education, this research provides valuable insights into the challenges and potential of using technology at the primary education level, specifically within Islamic education.

Additionally, this research offers practical recommendations for educational policy development and teacher professional development initiatives aimed at enhancing the effectiveness of technology integration in Islamic Education. By addressing these crucial areas, the study not only enriches the literature on educational technology in Madrasah Ibtidaiyah but also makes a significant contribution to advancing more innovative, relevant, and effective Islamic Education that is in line with modern educational developments.

E. RECOMMENDATIONS FOR FUTURE RESEARCH DIRECTIONS

Further research can explore the effect of technology in learning Islamic Education on student learning outcomes in Madrasah Ibtidaiyah. Further research can expand the understanding of teacher readiness to use technology, deepen the analysis of factors that influence technology adoption, and provide more appropriate implementation strategies for improving the quality of education in Madrasah Ibtidaiyah.

F. CONCLUSION

Based on the analysis of teacher readiness in utilizing learning technology within the Islamic education sector at MI Muhammadiyah Ketepung, it is evident that most teachers possess a solid foundation for integrating technology into the learning process. However, this potential is significantly hindered by the lack of adequate facilities and infrastructure. Consequently, a more substantial effort from educational institutions, teachers, and other stakeholders is essential to enhance teacher readiness in adapting to the digitalization era.

Improvements in infrastructure and technological support are crucial to ensure that the learning process at MI Muhammadiyah Ketepung becomes more aligned with the demands of modern education. By investing in these resources, the school can better equip its teachers to engage with digital learning tools and enhance their teaching methods.

The readiness of teachers to adopt learning technology is influenced by factors such as teaching experience, access to technology, and the extent of training received. While most teachers are eager to use technology, many still face challenges related to technical skills and insufficient infrastructure.

Technology has the potential to significantly enhance Islamic education by increasing student motivation, improving material comprehension, and facilitating interaction through

digital learning tools such as e-learning platforms, interactive applications, and multimedia resources. However, the successful integration of technology into Islamic education heavily depends on teacher competency and institutional support in providing the necessary resources.

This study underscores that while Islamic education teachers at Madrasah Ibtidaiyah are open to learning technology, various obstacles, particularly around infrastructure and technical skills, impede its full implementation. Therefore, the study recommends that continuous professional development for teachers, increased infrastructure support, and the formulation of policies promoting the digitalization of Islamic education are necessary steps to optimize technology and improve the overall quality of education at MI Muhammadiyah Ketepung.

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AUTHOR CONTRIBUTIONS STATEMENT

All authors provided critical feedback and helped shape the research, analysis and manuscript. NA: Conceptualization, Methodology, Research framework & Writing - Original Draft. MCH: Writing - Review & Editing.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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