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Digital Transformation of the Islamic Religious Education Curriculum: a Case Study of a Senior High School in Yogyakarta, Indonesia

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Abstract

This study examines the digital transformation of the Islamic Religious Education curriculum at a senior high school in Yogyakarta, Indonesia. It focuses on how digital technology is integrated into the ISMUBA curriculum, which covers Islamic, Muhammadiyah, and Arabic education. The study aims to analyze how pedagogical, technological, and spiritual dimensions are combined in curriculum development and classroom practice. A qualitative case study design was used. Data were collected through in-depth interviews, classroom observations, and document analysis. The findings show that digital transformation in the ISMUBA curriculum is reflected in the use of online learning platforms, digital Quran applications, interactive multimedia, and digital literacy activities linked to Islamic values. These practices support student engagement, improve access to learning resources, and encourage more responsible use of technology in religious learning. The study also finds that teacher digital competence, infrastructure readiness, and an innovation-oriented school culture are key factors that support curriculum transformation. However, limited technology access and uneven teacher readiness remain important challenges. The study contributes to the discussion on Islamic education curriculum development by showing how digital transformation can connect technological innovation with religious values in secondary education.

Keywords

Digital transformation; ISMUBA curriculum; digital literacy; curriculum innovation; Islamic values; Indonesia

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Introduction

Education is a fundamental instrument for developing human resources that are capable of competing and competent in facing various future opportunities and challenges (Adisaputro 2020). In the context of Indonesia, education based on Islamic principles aims to provide in-depth knowledge of Islamic teachings as the foundation of a Muslim's worldview and way of life (Iswati 2023). In this digital era, Islamic education is facing significant transformation. Technology has revolutionized the way we learn, enabling the educational process to occur without the constraints of space and time. This change is inevitable and demands the adaptation of work methods and the perspectives of the global community. The main challenge of Islamic education today is to produce graduates who possess holistic competencies, including knowledge, skills, and personality (Rumondor, Prasetyo, and Maslukiyah 2019). Education must be able to help individuals maximize their potential, so they can utilize their environment and opportunities for the benefit of themselves and those around them.

In Indonesia, particularly in the context of Muhammadiyah schools with the ISMUBA curriculum (Al-Islam, Muhammadiyah, and Arabic), the challenges of digital transformation are even more specific. ISMUBA emphasizes not only cognitive aspects but also religious and ideological character development. The implementation of digital-based Islamic Religious Education (PAI) learning still tends to be instrumental, such as the use of presentation media or learning applications, without substantive curriculum transformation (Sari & Mulyadi, 2022).

Digital transformation has become a central issue in the development of global education systems, including in the context of Islamic Religious Education (PAI). This transformation does not simply refer to the use of technology but encompasses fundamental changes in curriculum design, pedagogical approaches, and the integration of values into the learning process. In the context of Islamic education in Indonesia, digital transformation is becoming increasingly important in line with the demands of the Society 5.0 era, which emphasizes a balance between technological advancements and humanitarian and spiritual values (Huda et al., 2020).

Rapid technological developments have had a significant impact on education. Therefore, a relevant curriculum, qualified teachers, effective use of technology, and support from families and communities are essential (Idris, 2015; Anisa, 2025). Technological advancements bring both positive and negative impacts, thus requiring the readiness of human resources, especially educators, as well as a responsive and adaptive education system (Aspi and Syahrani. 2022). Islamic education must be able to serve as a vehicle for transformation that equips individuals to develop and endure in the dynamics of changing times. In essence, Islamic education in this digital era is not merely a transfer of knowledge, but rather a process of holistic human development that can synergize spiritual values with technological advancements and the demands of the times (Syarif 2021). In this context, digital-based curriculum innovation has become a necessity to ensure that religious education is not only a means of transferring Islamic knowledge but also a tool for creating an educational ecosystem capable of integrating Islamic spirituality values, digital literacy, and character development for the Muslim youth generation (Susanda Febriani et al 2024). In this context, digital-based curriculum innovation has become a necessity to ensure that religious education is not only a means of transferring Islamic

knowledge but also a tool for creating an educational ecosystem capable of integrating Islamic spirituality values, digital literacy, and character development for the Muslim youth generation.

However, the reality on the ground shows that the implementation of the PAI curriculum is still far from ideal. Many educational institutions are still trapped in a traditional approach that tends to be static, where technology is only used as a presentation tool or merely as a medium for digitizing materials without touching on substantive methodological transformation (Wachidah, 2021). As a result, students often lose motivation, educators face limitations in digital competencies, and educational technology infrastructure fails to meet rapidly growing needs (Fauzi 2023). Resistance to changes in traditional paradigms further complicates the situation, making the relevance of Islamic Religious Education (PAI) materials to contemporary contexts increasingly disconnected, and significantly diminishing students' critical thinking and creativity.

The impact of the gap in the implementation of the digital-based Islamic Education (PAI) curriculum is very complex and multidimensional. Socially and psychologically, students experience alienation from the learning process, which should serve as a vehicle for knowledge transformation and character formation. They lose intrinsic motivation because the teaching methods are not responsive to the characteristics of the digital native generation, which requires interactive, dynamic, and meaningful learning experiences.

Identifying the problem reveals several key factors that contribute to this situation. First, the limited digital competencies of educators become the main obstacle. Many educators still do not fully understand and are unable to utilize technology as a medium for pedagogical transformation. They tend to use technology as a simple presentation tool, rather than as a strategic instrument to enhance the quality and depth of the learning process. Second, inadequate educational technology infrastructure poses a significant obstacle. Many educational institutions, especially in remote areas, do not have adequate access to modern devices and digital connectivity. This creates a digital divide that increasingly widens the gap between technological potential and the reality of implementation on the ground. Third, cultural resistance to the shift from traditional educational paradigms to digital models further complicates the situation. The education system, which is still rigid, hierarchical, and less adaptive, hinders the necessary process of innovation and methodological transformation. As a result, the PAI curriculum loses its relevance to the current context, while students miss the opportunity to develop their critical thinking and creativity skills.

Several previous studies have attempted to explore aspects of digital transformation in Islamic Education (PAI) with various focuses. Moh. Ali Aziz revealed that the integration of information technology into the PAI curriculum can increase student learning motivation by up to 42%, especially through the use of interactive digital platforms. This study highlights the potential of digitalization in enhancing student engagement, although it has not yet delved deeply into the aspect of spirituality (Aziz 2023). Meanwhile, Nurul Huda also focused his study on the digital literacy of PAI teachers, finding that 65% of educators still have low digital competence, which is the main obstacle in adapting technology (Huda 2020).

On the other hand, Mukhtar Latif highlights the need for a holistic approach in the development of technology-based curriculum. This research provides a theoretical foundation for

an adaptive curriculum model that is responsive to the times, although it has not yet been equipped with concrete implementation instruments (Latif 2021). Siti Zubaidah added a psychological dimension to this discussion, showing that digital approaches can enhance students' emotional and spiritual engagement, although the long-term effects on character formation have not yet been systematically measured (Zubaidah 2018). Then Ahmad Syafi'i, through his comparative study, showed that the success of digital transformation highly depends on infrastructure support, educator competence, and the school organizational culture (Syafi'i 2022).

These five studies have a clear common thread, namely the urgency of digital transformation in Islamic Education (PAI) that is not only responsive to technological developments but also contextual to the spiritual and social needs of students. However, these studies still have some fundamental weaknesses. Most of the research is descriptive-exploratory without producing a sustainable implementation model. Moreover, the partial focus of research on technological, pedagogical, or spiritual aspects indicates a lack of a holistic approach necessary to create a comprehensive educational transformation.

The uniqueness of this research lies in the Integrative Digital Islamic Education Transformation (IDIET) approach, which views technology not merely as an instrument but as a medium for simultaneous intellectual, spiritual, and cultural transformation. This research offers a reconstruction of Islamic education in the digital era, addressing contemporary challenges with a holistic approach that integrates spirituality, digital literacy, and character development. SMA Muhammadiyah 1 Yogyakarta is an ideal choice for the implementation of this model because it has a progressive Muhammadiyah tradition that is responsive to the changing times, supported by adequate digital infrastructure, competent educators, and an innovative academic culture. The school's commitment to the holistic development of students encompasses intellectual, spiritual, and social dimensions, in line with the principles of IDIET.

In its development, the Islamic Education (PAI) curriculum in Muhammadiyah schools has transformed into the ISMUBA Curriculum (Islam, Muhammadiyah, and Arabic Language), which is designed to meet the educational needs based on Islamic values with a more comprehensive approach (Mardhatillah STIT Ibnu Rusyd Tanah Grogot et al. 2022). This curriculum not only includes in-depth religious education but also integrates the values of Muhammadiyah ideology and mastery of the Arabic language as the main instrument for understanding Islamic texts. This transformation reflects Muhammadiyah's efforts to address the challenges of the times while maintaining its Islamic identity (Aisyiyah 2022).

This curriculum approach combines three main components. Islam as the core of the curriculum includes education in *aqidah*, worship, ethics, and sharia, designed to shape students with strong spirituality. Muhammadiyah introduces students to the history, values, and struggles of the Muhammadiyah organization, with the aim of instilling a sense of identity and social responsibility as cadres of the organization. Meanwhile, Arabic is not only taught as a language of communication but also as the key to understanding the Qur'an, hadith, and other Islamic literature, which forms the basis for Islam-based intellectual development.

In its implementation, the ISMUBA Curriculum continues to innovate, one of which is through the digitalization of learning. Digital modules rich in interactive content are now used to support material comprehension, while online learning platforms provide students with broad access to learn flexibly. The blended learning model, which combines online and offline learning, has been implemented to create a learning experience that adapts to the needs of the digital generation. This approach also emphasizes the integration of digital literacy into ISMUBA learning, aiming to shape students who are not only technologically proficient but also possess Islamic ethics in media usage. Through the ISMUBA Curriculum, Muhammadiyah schools strive to produce a generation that is not only academically accomplished but also possesses strong Islamic character, national insight, and the ability to adapt in the global era. This curriculum serves as a foundation for integrating value education, intellectual development, and 21st-century skills, making it one of the superior models of modern Islamic education.

Based on this description, there is an urgent need to explore how digital transformation is implemented in the Islamic Religious Education curriculum, particularly in the context of ISMUBA (Islamic Religious Education) in Muhammadiyah schools. This research is not only crucial for filling the literature gap but also provides a practical contribution to the development of an Islamic Religious Education (PAI) curriculum model that adapts to the digital era without compromising Islamic values.

Therefore, this study aims to examine how digital transformation is implemented in the Islamic Religious Education curriculum in a high school in Yogyakarta, with particular attention to the integration of digital literacy, pedagogical practices, and Islamic values. This research is expected to provide theoretical contributions to the development of the concept of digital transformation in Islamic education, as well as practical contributions to the development of policies and the implementation of a digital-based PAI curriculum in Indonesia.

Method

This research uses a qualitative approach with a case study method conducted at SMA Muhammadiyah 1 Yogyakarta to explore the innovation of digital-based ISMUBA curriculum development. The selection of the location was done purposively, considering that the school has an excellent reputation in the implementation of educational technology. Here is the research flow conducted by the researcher.

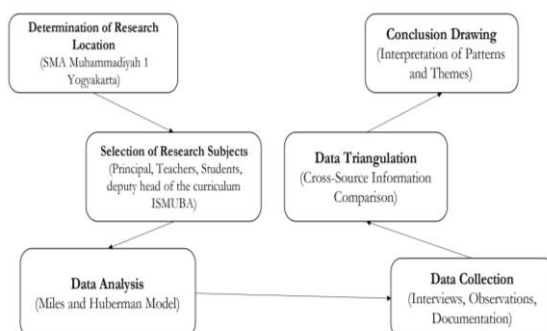


Figure 1. Research Flow

The subjects of this research are the Principal, ISMUBA Curriculum Deputy, ISMUBA teachers, and students.

Table 1. List of research subjects

Name	Gender	Position in the School
HN	Male	Principal
IN	Male	ISMUBA Curriculum Deputy
AQ	Male	ISMUBA teacher
1. BS	Male	Students
2. AS		

The research process began with data collection through triangulation techniques, including in-depth interviews with participatory observations in the school environment to observe the implementation of the digital curriculum, as well as documentation of various achievement records and learning activities. Data analysis was conducted interactively using the Miles and Huberman model, which includes data reduction through the selection and transformation of raw information, presentation of data in systematic descriptive narratives, and drawing conclusions by interpreting patterns and themes of curriculum innovation (Oktavianto and Widodo 2024). The process of data validity triangulation was carried out by comparing information across sources, methods, and theoretical perspectives.

Finding and Discussion

Finding

A. Digital-Based ISMUBA Curriculum Development Innovation

In this modern era, the learning of ISMUBA material no longer relies solely on textbooks or conventional lecture methods. SMA Muhammadiyah 1 Yogyakarta has adopted a new approach by utilizing digital technology to enhance the quality of learning. The principal of SMA Muhammadiyah 1 Yogyakarta explained, “*We are committed to making technology a partner in learning, not just a tool. In the ISMUBA curriculum, we use various digital platforms to deliver material that is relevant to students' daily lives*” (Interview, HN, 2024), he added that the use of technology also helps increase students' interest in religious education.



Figure 2. Learning Management System SMA Muhammadiyah 1 Yogyakarta

ISMUBA teachers also play a vital role in the implementation of technology. One of the ISMUBA teachers mentioned that they use interactive multimedia such as Islamic animated videos, computer-based simulations, and materials delivered through the school's special e-learning platform. The teacher said, *"We want to create a fun and interactive learning atmosphere with technology, students can learn anytime and anywhere"* (Interview, AQ, 2024). Another teacher added, *"We often use applications like Canva to create creative presentations that incorporate Islamic values, making students more interested in learning the material"* (Interview, IN, 2024).

In addition, students also feel that this approach is very helpful. A twelfth-grade student said, *"The use of technology in learning, such as LMS in religious studies, makes the material easier to understand."* (Interview, BS, 2024). For example, we can watch videos explaining Quranic verses or Arabic language lessons packaged with engaging illustrations. Other students added that the online quizzes that are often used in class make the learning process more fun and competitive. They also feel more motivated to understand ISMUBA material because technology makes learning more relevant to their daily lives.

Another student stated, *"We learn using an LMS that includes a digital Quran application with interactive tafsir and tajwid features. It really helps us to study independently"* (Interview, AS, 2024). Many students also appreciate access to additional materials through links to official Islamic education websites or AI-based applications that can instantly answer questions about ISMUBA material.

Interview results show that the innovation of the digital-based ISMUBA curriculum development at SMA Muhammadiyah 1 Yogyakarta not only enhances the quality of learning but also provides a more relevant and engaging experience for students. The principal, curriculum representative, teachers, and students all agree that technology is capable of creating a new, more effective approach to teaching Islamic values. However, challenges remain. Some teachers mentioned that not all students have adequate access to digital devices at home.

B. The Role of Teachers and the School Ecosystem in Supporting the Transformation of the ISMUBA Curriculum

The transformation of the ISMUBA curriculum at SMA Muhammadiyah 1 Yogyakarta is a significant step aimed at aligning religious education with technological advancements and the challenges of the times. By incorporating digital literacy into the ISMUBA curriculum, the school strives to create a generation that is not only intellectually smart but also possesses strong character with a solid religious foundation. In implementing this transformation, various elements of the school ecosystem such as teacher competence, infrastructure support, and a school culture that fosters innovation play a crucial role.

1. Competence in Supporting the Transformation of the ISMUBA Curriculum

Teachers are the main factor in implementing any changes in the curriculum. Therefore, Muhammadiyah 1 Yogyakarta High School actively enhances teachers' competencies to effectively integrate technology into the ISMUBA learning process. The principal, HN, explained that the development of teachers' digital competencies is the

initial step taken to support this curriculum transformation. *"We understand that to maximize the use of technology in religious education, teachers must have adequate competencies."* Therefore, we conduct regular training on the use of technology in religious education, including the use of Islamic digital applications and online platforms to support ISMUBA learning." (Interview, HN, 2024) he revealed.



Figure 3. Training to Strengthen Digital Literacy for Teachers at SMA Muhammadiyah 1 Yogyakarta

On the other hand, the Deputy Principal for Curriculum at ISMUBA revealed that the development of teacher competencies is not limited to technical training. *"In addition to training on the use of technology, we also hold discussions and seminars on how to integrate Islamic values into every use of technology. We want teachers to not only be technically skilled but also to have a deep understanding of how to guide students to use technology wisely"* (Interview, IN, 2024) he said. In this case, the competence of teachers in guiding students to use technology for good purposes is very important, so that technology is not only utilized for entertainment or unproductive activities, but for positive educational purposes.

2. Infrastructure Support in the Transformation of the ISMUBA Curriculum

Besides teacher competence, adequate infrastructure support is also a determining factor in the success of the ISMUBA curriculum transformation. SMA Muhammadiyah 1 Yogyakarta has prepared adequate facilities to support digital-based learning. Principal HN stated *"We have provided technological devices such as computers, projectors, and high-speed internet access in every classroom. Additionally, we have developed an online learning platform that allows students to access ISMUBA materials anytime and anywhere."* This is very important because we want religious education to not only take place in the classroom but also be conducted outside of school hours" he explained (Interview, HN, 2024).

In addition, to support Islamic applications used in learning, this school also collaborates with educational app developers to provide a digital Quran app, Arabic language video platforms, and other materials that students can access. In an interview with one of the students, Andi, he explained that the technology provided by the school is very helpful in deepening his religious studies. *"Now, I can learn the Quran more easily using the application on my phone."* The teacher also often directs us to watch Islamic

lectures through the LMS platform in the form of videos that we use at school,” said Andi (Interview, AS, 2024).



Figure 4. Digital Learning Infrastructure at SMA Muhammadiyah 1 Yogyakarta

However, even though the infrastructure has been provided, another challenge faced is ensuring that all students can optimally utilize the facilities. As Mr. IN stated, "We realize that not all students have equal access to technology, whether in terms of devices or skills. Therefore, we also provide additional training programs for students who need assistance in operating devices and applications." (Interview, IN, 2024) clearly. This program aims to address the technology access gap among students and ensure that all students can make the most of technology.

3. Schools that Support Curriculum Innovation

One of the important elements in supporting the success of curriculum transformation is the school culture. SMA Muhammadiyah 1 Yogyakarta builds a culture that supports innovation in learning, including the application of technology in religious education. The principal emphasized the importance of creating an environment that is open to change. "We want to create a school culture that supports the wise and innovative use of technology in religious education. We not only want to teach technology but also how it can be used to better understand Islamic values" (Interview, HN, 2024).



Figure 5. Strengthening Digital Literacy at SMA Muhammadiyah 1 Yogyakarta

Another ISMUBA teacher, Mr. AQ, revealed that the school's culture of supporting creativity greatly helps them in developing more engaging and effective teaching methods. *"In this school, we are given the freedom to innovate. We are able to try various new methods, such as using interactive Quran applications or holding online discussions about the ethics of technology use, all of which receive full support from the school management,"* (Interview, AQ, 2024) he said. This creates a conducive atmosphere for teachers to develop and try new approaches in teaching religion, as well as providing freedom for students to be more active in the learning process.

4. Challenges in Curriculum Transformation and Solutions Faced by Schools

Although the school has prepared various elements to support the curriculum transformation, there are still several challenges that need to be faced. One of the main challenges is the limited resources and the readiness of teachers to adapt to the new technology-based teaching methods. Mr. AQ explained *"Some teachers initially found it difficult to use technology in teaching. However, with the support of more experienced teachers and continuous training, this problem can be overcome"* (Interview, AQ, 2024). To address this, the school has created a mentoring program where more experienced teachers assist other teachers in the technology-based teaching process. Another challenge faced is ensuring student engagement in the use of technology to the fullest. The principal stated, *"We strive not to rely solely on social media or learning platforms that merely deliver content. We want to ensure that students can use technology to deeply explore their religion, and not just for entertainment. To achieve this, we involve students in technology-based projects related to Islamic values, such as developing Islamic applications or creating educational content based on religion"* (Interview, HN, 2024).

Based on the interview results, it can be concluded that SMA Muhammadiyah 1 Yogyakarta faces two main challenges in the transformation of the technology-based ISMUBA curriculum. First, the teachers' competence, which initially struggled with using technology in teaching, can be addressed through training programs and mentoring by more experienced teachers. Second, student involvement in maximizing the use of technology. The school involves students in technology-based projects related to Islamic values, such as the development of Islamic applications, to ensure that technology is used productively. This challenge shows that continuous support for teachers and students is crucial in optimizing the use of technology in religious education.

C. Integration of Islamic Values and Digital Literacy in the ISMUBA Curriculum

In the rapidly evolving digital era, Muhammadiyah 1 Yogyakarta High School implements an approach that integrates digital literacy with religious values in the ISMUBA curriculum. However, the overall content is the same, but there are additions of Muhammadiyah and Arabic language. This step is taken to prepare students to face the challenges of the modern era, which not only require technological skills but also a strong moral and spiritual foundation.

The principal of SMA Muhammadiyah 1 Yogyakarta explained that the main goal of this integration is to create students who are not only skilled in using technology but also have a strong understanding of how to use that technology in accordance with Islamic principles. *"We utilize digital media such as online learning platforms, Islamic educational videos, and digital Quran applications as part of the learning process"*, (Interview, HN, 2024) he revealed. In addition, programs such as seminars on the ethics of technology use and training in the development of Islamic applications for students are also an important part of this strategy. The principal emphasized that the digital literacy taught must always be based on Islamic values so that technology is not misused, but used wisely.

The vice principal of the curriculum department added that careful planning is necessary to integrate these two elements. *"We not only design a technology based curriculum but also ensure regular evaluations to assess its effectiveness"* he said (Interview, IN, 2024). Each ISMUBA subject is equipped with digital modules tailored to Islamic values and relevant contemporary issues. This allows students to not only understand religious teachings theoretically but also apply them in daily life, especially in the context of the digital world they face.

The ISMUBA teachers also play a very important role in integrating digital literacy with religious values. One of the ISMUBA teachers explained that technology is used to make learning materials more accessible and understandable for students. *"We utilize various methods, such as lecture videos, Islamic podcasts, and interactive quiz applications to make learning more engaging."* he stated (Interview, IN, 2024). Technology facilitates the delivery of complex materials, such as Quranic interpretation and interactive Arabic, through media platforms in a more visual and engaging manner. In addition, online discussions through Islamic education forums also serve as a means for students to discuss religious issues with a broader and more open perspective.

The importance of this approach is also evident in interviews with several students. One of the students, BS, said that with the presence of digital Qur'an applications and interactive learning videos, religious education feels more practical and easier to understand. *"Technology makes religious education more interesting. I can study anytime and anywhere, especially in memorizing the Quran,"* he said (Interview, BS, 2024). Another student, AS, added that they are taught to think critically about the content they encounter online, including social media. *"We often discuss religious issues that are on the internet, and it helps us understand how a Muslim should behave in the digital world,"* said Andi (Interview, AS, 2024).

Overall, the integration of digital literacy with religious values at Muhammadiyah 1 Yogyakarta High School has successfully created a learning environment that is relevant to the challenges of the times. By combining mastery of technology and deep religious understanding, students are not only equipped with the skills needed in the digital world but also with strong character based on Islamic teachings.

Discussion

A. Digital-Based ISMUBA Curriculum Development Innovation

SMA Muhammadiyah 1 Yogyakarta is developing a digital-based ISMUBA curriculum by utilizing information technology through online platforms, interactive multimedia, and digital Quran applications to create a more effective, engaging, and independent learning experience for students, while also addressing the challenges of technological advancements in the field of education.

1. Utilization of Online and Interactive Learning Platforms

One of the innovations implemented by SMA Muhammadiyah 1 Yogyakarta is the development of an LMS platform as an online learning medium that allows direct interaction between students and teachers. This platform allows students to participate in group discussions and submit assignments digitally. This provides flexibility for both students and teachers in carrying out learning activities. This technology also facilitates the efficient monitoring of student progress, allowing teachers to provide feedback more quickly and accurately. In line with the research conducted by Depita, it shows that the use of digital platforms in religious education can enhance student engagement as well as the quality of interaction between students and teachers (Depita 2024). Through the use of online learning platforms, such as those implemented at SMA Muhammadiyah 1 Yogyakarta, students can be more active in participating in lessons and feel more engaged with the material being taught. This is in line with the findings of Arikarini, which state that the use of digital technology in religious education enhances the quality of learning and makes students more enthusiastic about studying (Arikarini and Amirudin 2021).

2. The Use of Interactive Multimedia and Creative Applications

SMA Muhammadiyah 1 Yogyakarta also integrates interactive multimedia, such as Islamic animation videos and computer-based simulations, which make religious education more engaging and easier for students to understand. In addition, applications like Canva are used to create creative presentations that contain Islamic values. This approach aims to create an enjoyable learning atmosphere, where students not only study religion through texts but also through visuals and digital interactions. In line with the research conducted by Nurfadillah, it was revealed that the use of multimedia in religious education can increase students' motivation to learn because the material presented is more engaging and easier to understand. Videos, animations, and computer-based materials make learning more comprehensive and help students understand religious concepts more deeply (Nurfadillah et al. 2021).

3. Self-Directed Learning with Digital Applications

SMA Muhammadiyah 1 Yogyakarta also utilizes a digital Qur'an application equipped with an LMS (Learning Management System) that includes interactive tafsir and tajwid features. This application allows students to learn independently and access religious materials anytime and anywhere. This greatly helps students in understanding the material being taught and facilitates them to study outside of formal class hours. Muhammad Ibnu Soleh shows that digital applications can enrich students' learning experiences, allowing them to study material in a more flexible and independent manner.

The digital Al-Qur'an application used at SMA Muhammadiyah 1 Yogyakarta is very relevant to this finding, as it provides students with the opportunity to deepen their religious knowledge independently outside of scheduled class hours. This proves that digital applications can be a very effective learning tool in religious education (Sholeh 2023).

4. Technology-Based Learning Evaluation

Another innovation implemented at SMA Muhammadiyah 1 Yogyakarta is an application-based evaluation system, which allows teachers to assess students' understanding in real-time. Specialized software is used to analyze computer-based exam results and provide immediate feedback to students. This allows students to immediately identify their shortcomings and correct them in a shorter time. Research conducted by Heriyanita Rosmini et al reveals that technology-based evaluations can enhance the effectiveness of assessments in education. The use of software to provide immediate feedback to students enables teachers to deliver more timely evaluations and helps students to address their shortcomings right after the assessment is conducted (Rosmini et al. 2024).

5. Challenges and Solutions in Technology Implementation

Although technology provides many benefits in learning, challenges remain, especially related to the limited access to digital devices at students' homes. To address this, SMA Muhammadiyah 1 Yogyakarta provides technology-based learning spaces equipped with computers and internet connections that students can use for free. In addition, continuous training for teachers is also conducted so that they can optimally utilize technology. What Purnasari and Sadewo did shows that limited access to digital devices at home is one of the main challenges in the implementation of technology in education. Therefore, schools need to provide adequate technological facilities for students so that no one is left behind in digital-based learning (Purnasari and Sadewo 2021). The solution implemented by SMA Muhammadiyah 1 Yogyakarta, such as providing technology-based learning spaces, is highly relevant to the findings of the research, which suggests the importance of providing facilities to ensure all students can utilize technology.

B. The Role of Teachers and the School Ecosystem in Supporting the Transformation of the ISMUBA Curriculum

The transformation of the ISMUBA curriculum at Muhammadiyah 1 Yogyakarta High School is a strategic step that focuses on aligning religious education with technological developments and the challenges of the times. This process not only involves changes in the learning content but also in the way the material is delivered, by utilizing technology to enrich students' learning experiences. In this effort, three main elements that play a crucial role are teacher competence, adequate infrastructure support, and a school culture that fosters innovation.

1. Teacher Competence in Supporting the Transformation of the ISMUBA Curriculum

Teachers play a very crucial role in every curriculum transformation process. At Muhammadiyah 1 Yogyakarta High School, the development of teacher competencies is a top priority to integrate technology into ISMUBA learning. The principal, HN, emphasizes

the importance of intensive training for teachers to master the use of technology that can effectively support religious education. ISMUBA teachers at this school are provided with training on the use of Islamic applications, online platforms, and how to integrate Islamic values through technology. This is in line with the research conducted by Syamsudin, which shows that proper training can enhance teachers' digital skills in using technology to improve the quality of religious education (St. Johariyah and Samsuddin 2024). As stated by Mr. IN, the initial difficulties teachers face in adopting technology can be overcome with continuous mentoring and training. This is in line with Afendi's findings, which reveal that regular mentoring and training play a crucial role in accelerating teachers' adaptation to the use of technology in teaching (Afendi 2024).

2. Infrastructure Support in the Transformation of the ISMUBA Curriculum

In addition to teacher competence, adequate infrastructure support is a determining factor for the success of implementing the technology-based ISMUBA curriculum. SMA Muhammadiyah 1 Yogyakarta has prepared various technological devices, including computers, projectors, and high-speed internet access, in every classroom. In addition, the development of online learning platforms allows students to access ISMUBA materials anytime and anywhere. Munir in their research shows that the provision of adequate infrastructure is a key factor in the success of technology-based educational transformation (Munir and Zumrotus Su'ada 2024). In this case, the facilities provided by SMA Muhammadiyah 1 Yogyakarta support students to learn flexibly and more easily access various religious education materials through Islamic applications and video lecture platforms.

However, the challenge faced is the unequal access to technology among students. As explained by Mr. IN, not all students have adequate devices or digital skills. The research by Suryani and Kusumawati also mentions that the gap in technology access among students can be an obstacle in the implementation of technology-based learning (Suryani, A., & Kusumawati 2019). To address this issue, SMA Muhammadiyah 1 Yogyakarta provides additional training programs for students to ensure they can operate devices and applications effectively.

3. Schools that Support Curriculum Innovation

A school culture that supports innovation is an important element in supporting the success of curriculum transformation. SMA Muhammadiyah 1 Yogyakarta has created a culture that is open to change and encourages creativity in teaching. The principal, HN, emphasized the importance of creating an environment that supports the wise use of technology in religious education. In line with the research by Rahayu et al, which shows that schools with an innovative culture will find it easier to integrate technology into the learning process (Rahayu, Iskandar, and Abidin 2022).

Another ISMUBA teacher, Mr. AQ, stated that the freedom given by the school to innovate helps them create more engaging and effective teaching methods. This reflects the importance of providing space for teachers to experiment with various new methods in teaching, as also found in Rahayu research, which states that a school culture that supports

experimentation and innovation plays a crucial role in improving the quality of education (Rahayu, Iskandar, and Abidin 2022).

4. Challenges in Curriculum Transformation and Solutions Faced by Schools

Although Muhammadiyah 1 Yogyakarta High School has prepared various elements to support the transformation of the technology-based ISMUBA curriculum, challenges remain. One of the main challenges is the readiness of teachers to adapt to technology. This is in line with Amelia's findings, which show that many teachers find it difficult to adopt technology in their teaching (Amelia 2023). SMA Muhammadiyah 1 Yogyakarta addresses this issue by organizing training and mentoring programs among teachers, which have proven effective in helping teachers improve their technical skills.

Another challenge is ensuring that students are maximally engaged in using technology for educational purposes. In this effort, SMA Muhammadiyah 1 Yogyakarta involves students in technology-based projects related to Islamic values, such as the development of Islamic applications and the creation of religion-based educational content. Anjani in their research emphasizes the importance of involving students in technology-based activities relevant to their lives, so that they can understand the productive benefits of technology and not just for entertainment purposes (Anjani and Mutiara 2024).

C. Integration of Islamic Values and Digital Literacy in the ISMUBA Curriculum

Education in the 21st century faces significant challenges, especially with the rapid development of technology (Widodo 2023). The digital era not only demands students to master technology but also requires the ability to think critically and act wisely in dealing with it.

1. The Utilization of Digital Media in Religious Education

One significant step taken by SMA Muhammadiyah 1 Yogyakarta is utilizing various digital media to enhance the quality of religious education. Online learning platforms such as LMS (Learning Management System), digital Quran applications, Islamic educational videos, and the use of various other technological tools are utilized to support ISMUBA learning. The use of this technology aims to make religious material, which can sometimes feel difficult and rigid, more accessible, engaging, and relevant to students' daily lives, especially in the digital world they face. This is also revealed in research conducted by Oktavia on the use of technology in religious education, which shows that the use of mobile applications and digital platforms in religious learning can enhance students' motivation and understanding of religious material. In the study, it was found that technology not only helps students understand religious teachings more easily but also provides opportunities for students to learn independently, anytime, and anywhere (Oktavia and Khotimah 2023).

2. Technology-Based Curriculum Design and Islamic Values

A well-thought-out curriculum planning based on the integration of Islamic values with digital literacy is a key element in creating an effective learning process. The Deputy Principal for Curriculum at ISMUBA, Mr. IN, explained that the integration of digital literacy with the religious curriculum requires systematic planning. Periodic evaluations

are also necessary to ensure that this curriculum functions well in shaping students' character and skills. The designed curriculum not only emphasizes technical skills in the use of technology but also incorporates moral values that align with Islamic principles.

The findings of this research align with the study by Ahmad Sulaiman, which reveals that a curriculum design that combines technology with religious values can enhance students' understanding of religious teachings while simultaneously instilling moral and ethical awareness (Sulaiman 2024). In the research, it was found that a technology-based curriculum accompanied by religious values would equip students with the skills needed in the digital world, but also teach them to think critically and wisely in facing emerging issues.

3. The Role of ISMUBA Teachers in the Use of Technology for Learning

The role of teachers in integrating technology into religious education is very important. ISMUBA teachers at SMA Muhammadiyah 1 Yogyakarta utilize various technological methods, such as lecture videos, Islamic podcasts, and interactive quiz applications, to make religious education more engaging and easier for students to understand. Thus, religious material that was previously difficult to digest becomes more accessible to students. In addition, the use of technology also allows students to understand more complex religious teachings, such as the interpretation of the Qur'an, in a more visual and engaging way. This research is also in line with the study conducted by Dian Wahyu, which reveals that teachers skilled in utilizing technology to teach religion can make previously difficult-to-understand material more engaging. Teachers who use technology in the learning process can increase student engagement and make it easier for students to understand more complex topics, such as the interpretation of the Qur'an and Islamic laws (Bintang, Pertiwi, and Azainil 2024).

4. Evaluation and Development of Student Character in the Digital World

One aspect emphasized in the integration of digital literacy with Islamic values is periodic evaluation to assess the extent to which students can integrate Islamic teachings in the use of technology. This evaluation not only includes students' technical abilities in using technology but also assesses how well students understand and apply Islamic moral and ethical values in the virtual world. Therefore, continuous evaluation is very important to ensure that this education is effective in shaping students' wise and ethical character in using technology. This is also expressed by Muhammad Fauzi et al, who state that evaluation in education that integrates technology with religious values is very important to ensure that technology is used wisely and not misused (Fauzi and Arifin 2023). In the study, it was found that periodic evaluations can help determine whether students truly understand how to use technology ethically and in accordance with religious teachings.

Conclusion

The integration of digital literacy with Islamic values in the ISMUBA curriculum at SMA Muhammadiyah 1 Yogyakarta has had a significant impact in shaping students who are skilled in technology while also possessing strong morals and character. The use of digital technology, such as online learning platforms, digital Quran applications, interactive multimedia, and the involvement of

external resource persons, has improved the quality of learning and student engagement. Curriculum planning based on technology and Islamic values enables students not only to master technical skills but also to think critically and wisely in facing the challenges of the digital world. The role of skilled teachers in integrating technology into teaching and adequate infrastructure support also significantly contributes to the success of the curriculum transformation. Although challenges such as unequal access to technology among students and teachers' readiness to adapt to technology still exist, SMA Muhammadiyah 1 Yogyakarta has successfully addressed them with training programs and supportive facilities. With a school culture open to innovation, SMA Muhammadiyah 1 Yogyakarta has successfully created an environment that supports the transformation of the technology-based ISMUBA curriculum, which is not only relevant to the times but also supports the character development of students in accordance with Islamic values.

To improve the quality of the digital-based ISMUBA curriculum at SMA Muhammadiyah 1 Yogyakarta, it is necessary to continuously conduct comprehensive evaluations in developing extracurricular Islamic technology activities, collaborate with technology organizations or related institutions, then form digital learning communities for students, and hold training sessions for teachers and students more frequently. This step helps create a generation with Islamic morals who can use technology well both in school and in everyday life.

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