Profetika
JURNAL STUDI ISLAM
P-ISSN: 14110881 | E-ISSN: 25414534
Vol. 26, No. 1, 2025, pp. 245-258
https://doi.org/10.23917/profetika.v26i01.11744

Technological Mastery and Competence Development of Islamic Religious Education Teachers in Wonogiri: Supporting SDG 4 on Quality Education

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Received January 11, 2025; Revised June 17, 2025; Accepted July 21, 2025

Abstract

Objective: This research aims to analyse the importance of technology mastery in improving the competence of Islamic Religious Education teachers who are members of the Teacher Working Group Forum to support the achievement of SDG 4. **Theoretical Framework:** Serves as a conceptual foundation that explains the relationship between mastery of technology, increasing the competence of Islamic Religious Education teachers, and the role of the Teacher Working Group Forum as a forum for developing teacher professionalism. **Literature Review:** To review various theories and previous research relevant to technology mastery, improving the competence of Islamic Religious Education teachers, and the role of the Teacher Working Group Forum in supporting teacher professional development related to SDG 4. **Methods:** This study used a qualitative method, the analysis of which involved the content of the technology mastery text, the competence of Islamic Religious Education teachers, and the Teacher Working Group Forum. Data were collected through document analysis and interviews with Islamic Religious Education teachers, the head of the teachers' working group forum, school principals, and policymakers. **Results:** Islamic Religious Education teachers have a positive perception of technology mastery, as it helps them access more Islamic learning resources, reach a wider range of students, especially in distance learning, and make learning more interactive; in addition, the Teachers Working Group Forum plays a role in helping them learn technology gradually, although there are still challenges such as the lack of technical training, limited technology facilities in schools, the low level of digital literacy of Islamic Religious Education teachers, and concerns about the negative impact of technology use. **Implications:** In addition, this research contributes to the achievement of the SDGs, particularly in quality education (SDG 4), technological innovation in education (SDG 9), reducing disparities in access to education (SDG 10), and strengthening partnerships in the development of technology-based education (SDG 17). **Novelty:** Overall, this research brings a new perspective to the field of Islamic religious education by highlighting how mastery of technology can improve the competence of Islamic Religious Education teachers, as well as how the Teacher Working Group Forum can act as a catalyst in digital transformation for religious educators.

Keywords: technology, competence, sdgs, islamic education teachers, development.

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INTRODUCTION

In the era of the Fourth Industrial Revolution, technological mastery has become an essential component of professional competence, particularly in the education sector. The ability of teachers to integrate technology into their teaching practices is no longer optional—it is a necessity. This is especially true for Islamic Religious Education (IRE) teachers who are expected to not only deliver religious knowledge but also to cultivate critical thinking, digital literacy, and global awareness among students. However, in many rural or semi-urban areas, such as Wuryantoro Sub-district in Wonogiri Regency, the integration of technology in religious education remains limited. Preliminary observations and interviews with members of the IRE Teacher Working Group Forum reveal that many teachers still rely on conventional teaching methods, lacking adequate training, confidence, or access to digital tools [1].

This research addresses a critical gap: while much has been written about technology in general education, studies specifically focusing on IRE teachers' technological competence—especially within the context of local teacher forums—are scarce. Moreover, there is limited investigation into how such competence development contributes directly to the achievement of Sustainable Development Goal (SDG) 4: Quality Education, which emphasizes inclusive, equitable, and lifelong learning for all. Therefore, this study seeks to examine the importance of technological mastery in enhancing the professional competence of IRE teachers in Wuryantoro-Wonogiri. By highlighting the current challenges and potential strategies for integrating technology into religious education, this research aims to offer insights that can guide teacher development programs and policy formulation. Ultimately, strengthening the digital competence of IRE teachers is not only vital for improving classroom outcomes but also instrumental in advancing national and global educational goals in line with the SDGs framework [2].

Information and Communication technology includes all technical equipment for processing and delivering information. The rapid development of information and communication technology in recent decades has brought about major changes in various aspects of life, including education. Even policymakers are advised to encourage investment in the development of information and communication technology infrastructure, develop and implement modern information systems, and use the financial sector to design policies regarding funding for information and communication technology projects. In the context of Islamic religious education, mastery of technology is very important to improve the quality and competence of teachers, especially in teaching theoretical and practical materials [2].

The integration of innovative technologies in the professional practice of secondary school teachers plays a crucial role in the modern educational process. It not only supports more effective learning but also helps teachers and students adapt psychologically and emotionally to the various challenges faced in today's academic landscape. Islamic Religious Education teachers are faced with the challenge of adapting teaching methods that are relevant to the times so that they can provide more effective and interesting learning for students. Mastery of Technological Pedagogical Content Knowledge is very important for teachers to achieve quality learning [3].

According to Badrah Uyun, by adopting teaching techniques inspired by the techniques used by the Prophet Muhammad, educators not only acquire knowledge but also discover themselves spiritually and morally. Mastery of technology provides many benefits for Islamic Religious Education teachers. First, technology allows teachers to access a wider range of learning resources, both in the form of religious literature and scientific references that can support learning. Teachers' beliefs change to recognize technology as a pedagogical tool that can support constructive approaches and deepen students' learning experiences [4]. In addition, various digital

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platforms such as learning applications, learning videos, and social media can be used as a means to deliver teaching materials in a more interactive and fun way. Information and Communication Technology can improve interaction between students and teachers and offer more imaginative answers to many learning questions in the teaching and learning process [5].

This is very important to motivate students to be more active and involved in the learning process of Islam. Second, with the existence of technology, Islamic Religious Education teachers can improve their professional abilities through various online trainings or courses that can be accessed anytime and anywhere. Several studies reveal that teachers' EdTech professionalism includes a proactive approach to technology, continuous professional growth based on practice and reflection, and adaptation of teaching methods in response to evolving technology and learner needs. It helps teachers to keep abreast of the latest developments in education and religion and enriches their knowledge and skills in teaching [6].

Technology also allows teachers to share experiences and discuss with peers or experts in the field of religious education, thus opening up opportunities to improve teaching quality. Professional development can reshape teachers' beliefs and interest in learning activities, which also develops their pedagogical knowledge and enables the use of technology in a more constructivist approach. Third, in this digital era, students are increasingly accustomed to technology in their daily lives. Therefore, mastery of technology by Islamic Religious Education teachers is very important so that they can teach the material in a way that suits the needs and learning styles of today's students. By using the right technology, Islamic Education teachers can introduce Islamic concepts more interestingly and understandably, such as through the use of multimedia, animation, and interactive videos. In religious education classes, school teachers can use computer-based iterative teaching, practice and application, digital storytelling with animation, inclusive role modelling, visual impression preaching, recitation with audio technology, and film dialogue methods to increase motivation and engagement [7].

However, although technology provides many benefits, the challenge faced by most Islamic Religious Education teachers is limited mastery of the technology itself. According to Abedi in his research in Ghana, this expectation for technology integration is proving difficult to achieve for many teachers, often due to the nature of technology professional development programs, which lack research attention. Mitev's research shows that the loss of teaching identity has a direct negative impact on digital mastery, the successful transition of teaching roles, and student-teacher relationships. Many teachers do not fully understand or are familiar with the use of technological tools in learning, due to a lack of training or limited access to such facilities. Therefore, it is important to provide sufficient training for Islamic Religious Education teachers to master technology, as well as provide them with digital tools and platforms that can support the learning process of Islam effectively [8].

This study aims to determine the importance of technology mastery in improving the competence of Islamic religious education teachers in the teachers' working group forum, a forum for Islamic Religious Education teachers at the elementary school level to improve professionalism, competence, and quality of learning. The Islamic Religious Education Teachers Working Group serves as a means of sharing experiences, discussions, training, and developing more effective learning strategies through the applicable curriculum. The Islamic Religious Education Teachers' Working Group is usually established at the cluster, sub-district, or district/city level and is supported by the education office and the Ministry of Religious Affairs. With the existence of the Islamic Religious Education Teachers Working Group, it is hoped that Islamic Religious Education teachers can continue to develop and provide quality learning for students [9].

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Mastery of technology in improving the competence of Islamic Religious Education teachers is not only a necessity but also a demand in this modern era. Improving teacher competence through technology can result in a higher quality, relevant, and interesting learning process for students, as well as contributing to a deeper and more contextualized understanding of Islam. Professional development in technology needs to shift from a focus that overemphasizes the training of discrete technical skills to a balanced attention to the development of pedagogical knowledge for teachers. This is important so that they can effectively facilitate student-centred learning and teaching by leveraging digital technologies [10].

Implications and Novelty. This study presents significant implications for both educational practice and policy-making, particularly in the context of improving the professional competence of Islamic Religious Education (IRE) teachers through technological mastery. The findings underscore the critical role of technology as a transformative tool in religious education, not only in enhancing instructional quality but also in supporting lifelong learning and inclusive education. This directly supports the realization of SDG 4 (Quality Education), which emphasizes equitable access to effective learning opportunities. The study implies that teacher professional development programs must prioritize digital literacy, not as a supplementary skill, but as an integral component of teacher competence. The Teachers' Working Group Forum (KKG) serves as a promising platform for continuous professional learning, enabling peer-to-peer support and collaborative growth. However, to maximize its impact, stakeholders must address structural challenges such as the lack of technical training, limited access to ICT facilities, and low digital confidence among some educators. This points to the need for sustained and structured training programs that combine technical, pedagogical, and content knowledge—an approach aligned with the TPACK framework in teacher education [11].

Furthermore, the implications of this study extend beyond the classroom. By equipping IRE teachers with technological competence, this research also contributes to SDG 9 (Industry, Innovation, and Infrastructure) by fostering innovation in teaching strategies and encouraging investment in educational technologies. Likewise, it supports SDG 10 (Reduced Inequalities) by highlighting the disparities in technological access and capabilities among rural and semi-urban teachers, and advocating for equal opportunities in digital education. The role of the KKG as a collective, grassroots-driven initiative also reflects the principles of SDG 17 (Partnerships for the Goals), demonstrating the importance of collaboration among educators, local governments, and educational institutions in achieving systemic change. In terms of novelty, this study contributes new insights by focusing on a relatively understudied area: the integration of technology in the professional development of Islamic religious educators in semi-rural Indonesia. Most existing literature emphasizes general education or urban settings, often overlooking the unique challenges faced by IRE teachers in remote areas. This research bridges that gap by demonstrating how localized teacher forums such as KKGs can serve as effective catalysts for digital transformation, even in contexts with limited infrastructure [11].

Moreover, the study introduces a nuanced understanding of how digital tools—when appropriately introduced—can support rather than replace traditional religious pedagogies. This intersection of faith-based education and digital innovation offers a novel contribution to the discourse on culturally relevant and technologically integrated instruction. Ultimately, by positioning IRE teachers as agents of educational reform, this study highlights the transformative potential of empowering teachers through technology in support of national priorities and global development targets.

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LITERATURE REVIEW

The integration of technology in education has been widely recognized as a transformative factor in improving the quality of teaching and learning. In general education, numerous studies have emphasized the positive impact of digital tools on teacher effectiveness, student engagement, and learning outcomes. However, the literature focusing specifically on the mastery of technology among Islamic Religious Education (IRE) teachers remains limited, especially within the context of rural or semi-urban educational settings [12].

Technological competence among teachers is not solely about operating digital devices, but also includes the ability to select appropriate tools, design interactive learning materials, and manage online and blended learning environments. In the context of IRE, this becomes even more important as teachers are expected to deliver religious content in a way that is both relevant and relatable to the digital generation. Unfortunately, the available literature suggests that many IRE teachers still rely on traditional, lecture-based methods, often due to a lack of access to technology, insufficient training, or resistance to change [13].

Moreover, while the global educational discourse increasingly emphasizes digital inclusion as part of the Sustainable Development Goals (SDG 4), IRE teachers are rarely included in policy discussions or development programs aimed at technological empowerment. This gap indicates a need for more inclusive educational reforms that consider religious educators as key agents in achieving equitable and quality education. Some studies suggest that teacher forums or professional learning communities can serve as effective platforms for peer-based training and innovation in instructional methods. However, research is still lacking on how these forums specifically support the technological upskilling of IRE teachers. Therefore, this study seeks to fill that gap by exploring how teacher collaboration in the Wuryantoro-Wonogiri area can facilitate technology integration and support broader educational development goals [14].

Technological advances in the digital era indirectly influence all aspects of human life, both in the fields of economy, culture, politics, and even in the field of education. Technological progress is something that cannot be avoided by society in modern times like today. Due to the advancement of science, the development of technology will also be more advanced. Technological advances have created a global learning environment associated with technological networks. So that students are in a position the learning process surrounded by various learning resources and electronic learning services that are electronic. In today's digital era, in education, technology is one of the sources of knowledge and reference in the learning process. Therefore, technology is integrated into education to promote the implementation of more diverse learning and show ways for students to learn how to use technology in completing their learning tasks. Therefore, the term educational technology, often called outreach, emerged [15].

Educational technology is defined as an inclusive term for tools used in the delivery of materials, processes, and theoretical foundations that support the learning and teaching process. One of the benefits of educational technology is to enhance classroom learning with face-to-face collaboration and online learning. Educational technology is the ethical practice of facilitating learning and improving performance by creating, using, and managing technology that meets the needs of resources [16]. In addition, educational technology is also defined as a combination of human and machine elements, procedures, ideas, and management. In this case, educational technology is defined as an integrated and complex process involving people, ideas, procedures, equipment, and organizations in analyzing problems, finding solutions to

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problems, assessing, implementing, and managing problem-solving that includes all elements of human learning [17].

Educational technology can also be interpreted as a systematically arranged method used in designing, implementing, and evaluating the entire process of learning, as well as combining learning resources to learn to be more effective [18]. From some of the above opinions, it can be concluded that the definition of educational technology is an approach that is systematically arranged and critical about education through a problem-solving process using technology-based methods in solving educational problems.

METHODOLOGY

This research is qualitative. Sutama stated that qualitative research is research that aims to describe and analyze natural phenomena, events, and social activities. The subject of this research is the Islamic Religious Education teachers' working group forum in the Wuryantoro Wonogiri sub-district. The Islamic Religious Education Teacher Working Group Forum is a very important organization for the realization of the pattern and model of education expected by the community with optimal output and outcome. The teachers' working group is a forum to improve teachers' competencies and skills, both inside and outside the classroom [19].

In this qualitative research, the key instrument in the research is the researcher himself [20]. Through this approach, researchers describe the conditions that occurred at the time the research was conducted and examine the causes of the conditions studied. Data were obtained through observation, structured interviews, and documentation, as well as relevant literature results. In analyzing the data, researchers used the Miles and Huberman analysis model called interactive analysis. This analysis is divided into several stages, namely data collection, data reduction, data presentation, and conclusion drawing. With interactive analysis techniques, the analysis process starts from data collection and continues until all data is collected [21].

RESULTS AND DISCUSSION

Perceptions of Islamic Religious Education Teachers on the Importance of Mastery of Technology in Improving Their Competence in the Teacher Working Group Forum

This study aims to determine the perceptions of Islamic Religious Education teachers regarding the importance of mastering technology in improving their competence in the Teacher Working Group Forum. The results showed that the majority of Islamic Religious Education teachers have a positive perception of mastery of technology as a means to improve their professional competence, although some have concerns about technological advances. Most teachers recognize that technological advances have a significant impact on the learning process of Islamic Religious Education. They feel that by mastering technology, they can be more effective in delivering teaching materials, improving interaction with students, and enriching learning methods by using various applications and digital media. 92% of teachers stated that information technology media provides more interesting, varied, and communicative learning tools [22]. Some teachers also noted that technology allows them to access a wider range of learning resources, such as learning videos, online modules, and e-learning platforms that support Qur'an and Hadith teaching. Other research shows that the use of AI can expand teacher leadership by providing tools for personalization, curriculum development, automating administrative tasks, and supporting professional development [23].

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Islamic Religious Education teachers' perceptions of the importance of mastering technology in improving their competence can be seen from various perspectives, both positive and negative. In the Teacher Working Group Forum, Islamic Religious Education teachers often discuss the challenges and opportunities of using technology for religious learning. Here are some concrete examples of their perceptions according to the table below:

Table 1. Perceptions of Islamic Religious Education Teachers

Positive Perception of Technology Mastery	Sceptical Perception of Technology Mastery
Technology helps me access more Islamic learning resources	I'm used to teaching conventionally, and technology is too complicated.
With technology, I can make learning more interactive	Technology can make students play more than learn.
I can reach more students, especially in distance learning.	Not all schools have adequate technology facilities.
The Teacher Working Group helps me learn technology gradually	Using technology in religious education can reduce the traditional value of Islamic learning.

Islamic Religious Education teachers' perceptions of the importance of mastering technology in improving their competencies can be seen from various perspectives, both positive and negative. In the Education system in Ghana, technology integration has become a requirement in the educational process. Thematic analysis of the findings revealed four main beliefs that integration becomes: a productivity tool for teaching and lesson preparation; developing students' ICT skills; meeting curriculum expectations; and engaging students in authentic teaching. In the Teacher Working Group Forum, Islamic Religious Education teachers often discuss the challenges and opportunities of using technology for religious learning. One teacher realized that technology allows them to obtain additional references, such as digital kitab, e-books, Islamic journals, and video lectures from credible scholars. Teachers who have mastered technology feel more confident in using educational apps such as Quizizz, Kahoot, or Google Classroom to create interactive quizzes on tajweed, morals, or Islamic history. After the pandemic, many teachers realized that the use of platforms such as Zoom, Google Meet, and WhatsApp Groups were very helpful in providing materials to students who could not attend class. In the Teacher Working Group forum, Islamic Education teachers share experiences and learn together about how to create engaging presentations, learning videos, or Islamic-based educational content to improve student understanding [24].

In reality, not all Islamic Religious Education teachers readily accept technology as part of their teaching. Some are still sceptical or face difficulties in mastering the technology. Some senior teachers feel that the lecture method and writing on the blackboard are effective enough and find it difficult to adapt to digital devices. There are concerns that the use of technology could make students more tempted to open social media, play games, or access content that is not in line with Islamic teachings. Teachers in remote areas often complain about limited internet access and a lack of technological devices such as laptops or projectors to support digital learning. Some teachers still think that religious learning should be done directly with face-to-face interaction so that adab and ethics are easier to instil. The perception of Islamic Religious Education teachers towards mastering technology in improving their competence is very diverse [24].

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Some have realized the importance of technology and tried to master it, but some still find it difficult or worry about its impact. Several studies in the Middle East emphasize the need for targeted professional development, collaborative efforts between educators and policymakers, and ethical considerations to ensure responsible and effective integration of AIED. Understanding teachers' perspectives is critical for informed decision-making and encouraging a balanced approach that optimizes the contributions of AIEDs while upholding the principles of effective and inclusive education in the rapidly evolving Saudi educational landscape [25].

Teachers' Working Group forums are an important venue for helping Islamic Religious Education teachers understand the benefits of technology, overcome challenges, and build their digital skills. The Ukrainian study formulated recommendations for improving the use of modern IT in teaching, in particular for teacher training and attracting additional resources [26]. With the right approach, technology can be an effective tool to improve the quality of Islamic learning without losing the traditional values that must still be maintained. Abedi's research shows that most teachers adhere to teacher-centred ICT beliefs, which implies the need for transformative professional development that enables a change in teachers' beliefs to embrace the view of technology as a pedagogical tool that can facilitate constructive pedagogy and deep student learning. The existence of the Teachers Working Group is a forum for Islamic Religious Education teachers to share experiences and overcome obstacles in mastering technology. This forum provides an opportunity for teachers who still lack confidence to get training and guidance from peers [27].

Challenges Faced by Islamic Religious Education Teachers in Mastering Technology to Improve Their Competence in The Teachers' Working Group Forum

In today's digital era, mastery of technology is an important requirement for teachers, including Islamic Religious Education teachers. Technology can help in delivering materials, evaluating learning, and improving teachers' skills in managing the classroom more interactively and effectively. A study in Ghana explains that this study recommends equipping teachers with the competencies needed in the use of Wi-Fi technology through professional development programs, training, and the implementation of ICT-based curriculum policies in schools. These policies and support will encourage and increase the effective use of Wi-Fi technology among teachers, enabling them to shift from traditional learning to more technologically inclined student-centred learning. While most teachers recognize the importance of mastering technology, the study also revealed some challenges. Some teachers complained about the lack of adequate technical training, limited technology facilities in schools, and the low level of digital literacy among some Islamic Religious Education teachers. In addition, there were also concerns about the negative impact of excessive use of technology on the direct relationship between teachers and students and on the effectiveness of more traditional learning processes [28].

Table 2. Challenges faced by Islamic Religious Education Teachers

Findings	Description
Lack of technical training	Many Islamic Religious Education teachers have not received sufficient training in the use of technology, both in the creation of digital materials, the use of interactive media, and the use of online learning platforms.

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Limited technology facilities at the school	In some schools, the limitations of technological devices such as computers, the internet, or projectors are the main obstacles for teachers in utilising technology to the fullest.
Low level of digital literacy of Islamic Religious Education teachers	Teachers' limited ability to understand, use, and utilise digital technology in the learning process.
Concerns about the negative impact of technology use	Concerned about the adverse effects that may arise from the use of technology in everyday life, including in the world of education

The results also show teachers' willingness to continue learning and keeping up with technology to support their competency development. Teachers mainly utilise technology efficiently to prepare lessons and deliver direct instruction. They see technology as an important productivity tool to support traditional teaching tasks that focus on the role of the teacher [29]. Many teachers suggested that the Teachers' Working Group Forum should become a forum for sharing technology knowledge and skills among fellow Islamic Religious Education teachers. Some teachers also suggested that technology training for Islamic Religious Education teachers be conducted in a more structured and sustainable manner. Overall, the results of this study indicate that Islamic Religious Education teachers' perceptions of the importance of mastering technology are quite high, although there are still challenges that need to be overcome to achieve a more optimal application of technology in learning. Support from schools and educational institutions, as well as increased training, will be very helpful in improving the competence of Islamic Religious Education teachers in this digital era [30].

In today's digital era, technology plays an important role in education, including in teaching Islamic Religious Education. However, one of the challenges that many Islamic Religious Education teachers still face is the lack of technical training in technology mastery. This can hinder learning effectiveness and lead to a lack of innovation in teaching methods. Research conducted on mobile-based training at the Provincial Institute of Teacher Education (PITE) Sindh on Investigating factors affecting teacher training through mobile learning: A task-technology fit perspective found that these factors collectively positively influenced teacher satisfaction and performance, improving content knowledge, pedagogical skills, and professional dispositions. This holistic approach to mobile learning positively influenced teacher satisfaction and, ultimately, improved overall teacher performance [31]. Another research study also explains that several factors need to be improved in teachers in training: (a) teachers' knowledge of hardware configuration, (b) knowledge of educational applications, and (c) quality of internet connection. Technology can help Islamic Religious Education teachers create more interactive and interesting learning. The use of media such as learning videos, digital presentations, interactive quiz applications, and e-learning platforms can increase students' understanding and interest in the material being taught. In addition, technology also enables distance learning, which is increasingly relevant in the modern world of education [32].

The government and educational institutions need to provide periodic training for Islamic Religious Education teachers in the use of technology, such as the creation of digital learning media, the use of educational applications, and the use of Learning Management Systems. Gupta explained in his research that contextual learning technology enhances the learning experience. This technology facilitates the seamless integration of authentic and digital learning resources [33]. Teane in his research in the North West Province that teachers lacked technological knowledge and skills and therefore did not use blended learning approaches in their daily teaching. A

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partnership between the University of South Africa (Unisa) and schools in the district was formed to train teachers to acquire technological knowledge and skills [34]. Schools should be supported with good technology infrastructure, including stable internet access, computers, and other supporting devices. Another study explained the importance of complex support mechanisms to integrate technology into teaching practices. The findings highlighted the importance of continuous and proactive support for educators to improve their technical competence for innovative strategies [35]. Research in secondary schools in Tanzania explained in its findings that if adequate infrastructure is available and science teachers are equipped with ICT knowledge, teaching and learning of science subjects will be effective [36].

Digital literacy is not only about how to use technological devices such as computers or smartphones, but also includes an understanding of digital resources, safety in the use of technology, and the utilization of digital media to improve learning effectiveness. Many Islamic Religious Education teachers are not familiar with e-learning platforms, digital learning applications, or software that can be used to support religious teaching. So, technology integration as experienced by teachers is often overlooked [37]. Teachers with low digital literacy tend to have difficulty creating digital-based learning materials, such as interactive presentations, educational videos, or online quizzes. This digital media can help improve students' understanding of concepts in Islamic Religious Education. The use of Information and Communication Technology in teaching has the potential to transform higher education. It is a dynamic approach to education. When compared to conventional learning methods with chalk and talk, it offers additional advantages. Digital literacy also includes an understanding of ethics and safety in the use of technology. Islamic Religious Education teachers who lack understanding of digital safety may not filter learning resources critically, so there is a risk of disseminating information that is less valid or not to the correct teachings of Islam [38].

For Islamic Religious Education teachers, concerns about the use of technology in learning are often related to several things, for example, the Internet provides a large amount of information, but not all of the information is from Islamic teachings. Research in the country using the Concern-Based Adoption Model to assess teachers' stages of concern about ICT adoption and integration in the classroom found results that teachers' concerns were most intense in the awareness, management, and information stages, respectively, and lowest at the collaborative and consequence levels. Further examination of the results also showed a significant relationship between stages of concern and teachers' attributes such as teaching experience, age, and the grade level they teach. Islamic Religious Education teachers are concerned that students may access content that contradicts religious values, such as hoax news, deviant religious understanding, or cultures that contradict Islamic law [39].

With technology-based learning, students have more freedom in accessing the internet. Teachers are concerned that students will use technology for unproductive things, such as playing games or using social media during learning. Excessive use of technology can reduce direct interaction between teachers and students, as well as among fellow students. Research conducted by Crawford found that the use of AI chatbots can indeed be associated with unfavourable social outcomes. When a student chooses to seek help from an AI rather than interact with a human, such as a librarian, professor, or student advisor, this can have interesting implications for learning and teaching policy. We explore such implications with a focus on student success and their sense of belonging. In Islamic education, the teacher-student relationship is crucial in moral formation. If learning relies too much on technology, it is feared that moral values and manners will not be conveyed optimally [40].

There is a concern that the constant use of technology in learning will make students and teachers too dependent on digital devices. If at any point the technology

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experiences a disruption (e.g. power outage or internet network disconnection), the learning process could be hampered. Uncontrolled use of technology can distract students from the subject matter. For example, when learning is done through digital devices, students may be tempted to open other applications that are not related to learning.

Analysis

The study illustrates that technological mastery is a vital element in enhancing the professional competence of Islamic Religious Education (IRE) teachers, particularly those in the Wuryantoro-Wonogiri Teachers Working Group. The findings show that most IRE teachers possess a positive perception of technology, recognizing its role in improving learning interactivity, accessing broader Islamic educational resources, and adapting to digital platforms, especially for distance learning. This aligns directly with Sustainable Development Goal (SDG) 4: Quality Education, which emphasizes inclusive, equitable, and lifelong learning opportunities for all. The Teacher Working Group Forum (KKG) serves as a collaborative platform for continuous learning and peer support. It helps address digital gaps among teachers by facilitating gradual technology adoption and professional development. However, challenges remain. Many teachers face limited access to training, inadequate infrastructure in schools, low digital literacy levels, and fears regarding the cultural implications of digital learning. These barriers hinder optimal implementation of technology-based religious education [40].

Beyond SDG 4, this study contributes to SDG 9 (Industry, Innovation, and Infrastructure) by encouraging investment in educational technology and innovation in learning delivery. It also supports SDG 10 (Reduced Inequalities) by focusing on improving education access in semi-rural areas and promoting equal digital opportunities for religious educators. Furthermore, through collaborative teacher forums and institutional support, the study aligns with SDG 17 (Partnerships for the Goals), emphasizing the need for multi-stakeholder cooperation in teacher training and infrastructure provision. The integration of digital tools—such as e-learning platforms, Islamic apps, multimedia content, and communication technology—has the potential to revolutionize religious education, making it more relevant and engaging for today's tech-savvy students. However, without structured, sustainable training and equitable access to resources, digital transformation in Islamic education will remain uneven. Therefore, the study highlights the urgent need for government, schools, and religious institutions to work together in enhancing teachers' digital capacity. Investment in infrastructure, regular technology training, and culturally sensitive digital resources are key strategies. By empowering IRE teachers through technological mastery, Indonesia can foster more competent educators, better learning environments, and stronger alignment with the SDGs—ultimately creating a modern, inclusive, and sustainable educational ecosystem.

CONCLUSION

This study highlights the importance of technology mastery in improving the competence of Islamic Religious Education teachers in the teachers' working group forum to support the achievement of the Sustainable Development Goals (SDGs). The findings show that Islamic Religious Education teachers have a positive perception of technology mastery, as it helps them access more Islamic learning resources, reach a wider range of students, especially in distance learning, and make learning more interactive; in addition, the Teachers' Working Group Forum plays a role in helping them learn technology gradually, although there are still challenges such as the lack of technical training, limited technology facilities in schools, the low level of digital literacy of Islamic Religious Education teachers, and concerns about the negative impact of technology use. Recommendation. Policy Integration: To improve the digital competence of Islamic

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Religious Education teachers, efforts from various parties are needed. Islamic Religious Education teachers are encouraged to continuously improve their digital literacy through training, online courses, and webinars, and to be active in the Teachers Working Group Forum to share experiences and learn together. The Teachers Working Group Forum needs to provide regular training on educational technology, including the utilization of learning applications and digital content creation. Schools should support this by providing adequate technology facilities, such as access to intercommunication facilities.

Acknowledgments

With sincere gratitude, we would like to express our deepest appreciation to all those who have contributed to this research. First, we extend our thanks to the authors and previous researchers whose insights and references have provided a strong foundation for this study. Their work and ideas have greatly enriched our understanding and analysis. Second, we are grateful to the Wuryantoro Sub-district Teachers' Working Group for providing the necessary facilities and resources throughout the research process. Their support was instrumental in ensuring the smooth collection and analysis of data. We also extend our heartfelt thanks to The Aga Khan High School, Mombasa, Kenya, for its collaborative spirit and valuable comparative insights, which have significantly broadened the international perspective of this study.

Author Contribution

All authors contributed equally to the main contribution to this paper, some are as chairman, member, financier, article translator, and final editor. All authors read and approved the final paper.

Conflicts of Interest

All authors declare no conflict of interest.

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