

ISLAMIC RELIGIOUS EDUCATION LEARNING IN THE DIGITAL ERA: A DESCRIPTIVE SURVEY OF TEACHERS' PERSPECTIVE

Adlan Subki

Universitas Hasyim Asy'ari, Jombang, Jawa Timur, 61471,
Indonesia.

Email: adlansubki@mhs.unhasy.ac.id

Muhammad Abu Yazid Basthomi

Universitas Hasyim Asy'ari, Jombang, Jawa Timur, 61471,
Indonesia.

Email: abuyazidbasthomi@mhs.unhasy.ac.id

Mohammad Syihabul Irfani

Universitas Hasyim Asy'ari, Jombang, Jawa Timur, 61471,
Indonesia.

Email: syihabul@mhs.unhasy.ac.id

Khoirotul Idawati

Universitas Hasyim Asy'ari, Jombang, Jawa Timur, 61471,
Indonesia.

Email: khoirotulidawati@unhasy.ac.id

Rofiatul Hosna

Universitas Hasyim Asy'ari, Jombang, Jawa Timur, 61471,
Indonesia.

Email: rofiatulhosna@unhasy.ac.id

ABSTRACT

Digital transformation in the era of the Industrial Revolution 4.0 and Society 5.0 has significantly influenced educational practices, including Islamic Religious Education (IRE). However, empirical evidence regarding teachers' perspectives on technology integration in IRE remains limited. This study examines the use of digital technology in IRE learning, its impact on students' motivation and character development, and the challenges faced by teachers. A

descriptive survey was conducted involving 12 Islamic Religious Education teachers from various educational institutions. Data were collected through a structured questionnaire based on relevant literature distributed via Google Forms and analyzed using descriptive statistics. The findings show that most teachers use digital technologies such as laptops, projectors, PowerPoint, and Canva. Most respondents believe that technology enhances learning motivation and supports the integration of Islamic values. However, challenges remain, including limited access to digital devices, infrastructure constraints, and the need to improve students' digital literacy. The study also highlights the importance of creativity, adaptability, and digital communication skills for IRE teachers. These findings emphasize the need to strengthen teachers' digital competencies and promote technology-integrated IRE that balances Islamic values, digital ethics, and character formation.

Keywords: *Digital Literacy, Digital Technology, Islamic Religious Education, Learning Strategies, Society 5.0*

How to Cite Subki, A., Basthomi, M. A. Y., Irfani, M. S., Idawati, K., & Hosna, R. (2026). Islamic Religious Education Learning In The Digital Era: A Descriptive Survey Of Teachers' Perspective. *Al-Mubtadi: Jurnal Pendidikan Guru Madrasah Ibtidaiyah*, 4(1), 611–628. <https://doi.org/10.58988/almubtadi.v4i1.1186>

INTRODUCTION

The phenomenon of educational digitalization and the paradigm shift in Islamic Religious Education (PAI) learning in the era of Industrial Revolution 4.0 and Society 5.0 necessitates adjustments in educational strategies, the roles of educators, and value orientations within the educational process (Carayannis & Morawska-Jancelewicz, 2022). Recent reports also emphasize that the development of an effective digital education ecosystem requires the integration of technology, teacher competence, institutional support, and digital learning policies (Organisation for Economic Co-operation and Development, 2023). The success of digital technology integration in education is strongly influenced by teachers' readiness, digital competence, and trust in educational

technologies, including artificial intelligence (AI) (Viberg et al., 2025).

This transformation is not merely technical in nature but also encompasses the philosophical and pedagogical dimensions of Islamic education in shaping students' character (Nasikin & Khojir, 2021). These changes reinforce the need for Islamic education to move beyond purely normative-textual approaches and to connect Islamic teachings with social realities and technological developments. Islamic Religious Education should be directed toward fostering reflective, adaptive, and contributive religious awareness that responds to the challenges of modern civilization (Muttaqin, 2024). This perspective aligns with the view that Islamic education should holistically integrate the dimensions of faith (iman), knowledge ('ilm), and practice ('amal) in students' daily lives.

Furthermore, the rapid flow of digital information has significantly influenced students' learning patterns and ways of thinking. Students now live within a digital ecosystem characterized by an abundance of information, not all of which embodies educational or authentic Islamic values. This situation requires Islamic Religious Education to function as a space for clarification, value internalization, and reinforcement of Islamic teachings, ensuring that students do not lose their spiritual direction amidst the complexities of modern life (Rahmawati & Supriyanto, 2023). At the same time, global challenges such as moral crises, ethical degradation, and the weakening of religious identity further emphasize the strategic importance of Islamic Religious Education. PAI should not merely serve as a normative subject but also as an instrument for character formation and the development of students' social awareness. Therefore, PAI learning strategies must be designed innovatively and contextually to address contemporary needs while maintaining the substance of Islamic values.

Against this backdrop, the role of PAI teachers has undergone a significant transformation alongside the expansion of the digital ecosystem in education. PAI teachers are no longer positioned solely as transmitters of religious knowledge; rather, they serve as learning facilitators and spiritual mentors who guide

students in understanding Islamic teachings contextually. In this regard, mastery of technology-based pedagogical competencies has become an urgent necessity to ensure that the learning process remains relevant to the characteristics of the digital generation (Munawarsyah & Suratin, 2026). Additionally, PAI teachers are expected to possess the ability to critically filter and validate digital religious sources in order to protect students from misleading or extremist interpretations of Islam (Fitrianti et al., 2024).

On the other hand, the integration of technology into PAI learning provides opportunities for the development of more participatory and meaningful learning models. The utilization of digital media, such as educational videos, online discussion platforms, and interactive applications, enables students to actively engage in the learning process. Such approaches have been shown to enhance learning motivation and strengthen students' reflective capacities in understanding Islamic values. Through well-designed instructional strategies, technology can become an effective medium for connecting PAI content with students' social realities and everyday experiences (Fitrianti et al., 2024).

Nevertheless, the success of technology-based transformation in PAI learning largely depends on the readiness of the educational system as a whole. Institutional policy support, the development of adaptive curricula, and continuous professional development for teachers are crucial factors in ensuring the optimal utilization of technology. Without systematic planning, technology integration risks becoming merely symbolic and may fail to produce a significant impact on educational quality (Nasikin & Khojir, 2021). Therefore, PAI learning in the era of Industrial Revolution 4.0 and Society 5.0 should be designed as a long-term strategy that integrates Islamic values, twenty-first-century competencies, and students' character development (Fitrianti et al., 2024).

Although numerous studies have discussed technology integration in Islamic Religious Education and the challenges of Society 5.0, previous research has primarily emphasized conceptual frameworks, digital literacy, and the potential benefits of technology-enhanced learning. Other studies have examined the role of digital media in supporting Islamic learning and character

education; however, these studies generally provide theoretical discussions rather than empirical evidence derived from teachers' experiences. Furthermore, limited attention has been given to teachers' perspectives regarding technology utilization, its impact on students' motivation and character development, and the practical challenges of technology integration across different educational settings. Consequently, empirical evidence on how Islamic Religious Education teachers respond to digital transformation in the context of the Industrial Revolution 4.0 and Society 5.0 remains insufficient. This gap highlights the need for further investigation focusing on teachers' experiences and perceptions as key actors in the implementation of technology-based Islamic education.

Therefore, this study seeks to investigate the perspectives of Islamic Religious Education teachers regarding digital-based learning strategies in the era of the Industrial Revolution 4.0 and Society 5.0. Specifically, this study aims to examine the utilization of digital technology in PAI learning, identify its impact on students' motivation and character development, explore the challenges faced during technology integration, and analyze the competencies required for PAI teachers in responding to contemporary educational transformations. By providing empirical evidence from teachers across different educational institutions, this study contributes to the growing discourse on technology-integrated Islamic Religious Education and offers practical insights for improving digital learning practices in the Society 5.0 era.

METHOD

This study employed a descriptive survey approach to explore Islamic Religious Education (PAI) learning strategies in the era of the Industrial Revolution 4.0 and Society 5.0. The research focused on examining teachers' perspectives regarding the utilization of digital technology, the integration of Islamic values in digital learning environments, and the challenges encountered in technology-based learning practices (Nartin et al., 2024).

Participants were selected using purposive sampling. The selection criteria included Islamic Religious Education teachers

who were actively teaching at educational institutions and had experience utilizing digital technology in learning activities. Due to the exploratory nature of this study and limited research time, the survey involved 12 teachers from different educational levels, including elementary schools, junior high schools, senior high schools, vocational schools, and higher education institutions.

Data were collected through a structured questionnaire distributed via Google Forms. The respondents had teaching experience ranging from two to eight years, providing diverse perspectives on the implementation of digital technology in PAI learning.

The questionnaire was developed based on previous studies on digital learning, educational technology integration, digital literacy, and Islamic Religious Education in the digital era (Viberg et al., 2025). Prior to distribution, the questionnaire items were reviewed by two academics with expertise in Islamic education and educational technology to ensure content relevance, clarity, and alignment with the research objectives.

The questionnaire consisted of ten items covering several aspects, namely the use of digital technology in learning, preferred digital media, the impact of technology on student motivation, strategies for integrating Islamic values, challenges of technology utilization, students' digital literacy, information verification practices (tabayyun), competencies required for PAI teachers in the Society 5.0 era, the influence of technology on students' character development, and future expectations for PAI learning.

The collected data were analyzed using descriptive analysis techniques. Responses were categorized based on frequency and percentage distributions to identify dominant patterns and tendencies among respondents. The results were subsequently interpreted to explain teachers' experiences, perceptions, and challenges regarding digital-based PAI learning. The findings were then interpreted and discussed in relation to previous studies concerning Islamic education, digital literacy, educational technology, and Society 5.0. This approach enabled the researchers to obtain a comprehensive understanding of current practices and challenges in digital-based Islamic Religious Education learning (Mohajan & Mohajan, 2022)

Table 1.

Respondent Characteristics		
No.	Characteristics	Description
1.	Number of Respondents	12
2.	Profession	Islamic Religious Education Teachers
3.	Educational Institutions	Elementary School, Junior High School, MTs, MA, MAN, SMK, University
4.	Teaching Experience	2–8 Years
5.	Data Collection Technique	Google Forms Questionnaire
6.	Research Approach	Descriptive Survey Research

Source: Research Data (2026)

Table 1 presents the characteristics of the respondents involved in this study. The respondents consisted of 12 Islamic Religious Education teachers from various educational institutions with different teaching experiences.

RESULTS AND DISCUSSION
Utilization of Digital Technology in Islamic Religious Education Learning

Table 2.
Summary of Research Findings

No.	Aspect	Main Finding	Percentage
1.	Technology Utilization	Laptop, Projector, PowerPoint	83.3%
2.	Preferred Digital Media	Canva and PowerPoint	58.3%
3.	Impact on Learning Motivation	Significant positive impact	75.0%
4.	Integration of Islamic Values	Videos and digital case studies	33.3%
5.	Digital Literacy Strategy	Teaching tabayyun and source verification	83.3%
6.	Main Challenge	Limited student devices	41.7%
7.	Students' Digital Competence	Adequate but still requires guidance	75.0%
8.	Key Teacher Competency	Creativity	50.0%
9.	Impact on Character	Both opportunities and risks	66.7%
10.	Future Expectation	Balance between technology and character formation	58.3%

Source: Research Data (2026).

As presented in Table 2, digital technology has become an important component of Islamic Religious Education (PAI) learning in the era of the Industrial Revolution 4.0 and Society 5.0.

The findings indicate that digital technology has become an important component of Islamic Religious Education (PAI) learning in the era of the Industrial Revolution 4.0 and Society 5.0. Among the twelve respondents involved in this study, 10 out of 12 respondents (83.3%) reported frequently utilizing basic presentation technologies such as laptops, projectors, and PowerPoint in classroom learning. Meanwhile, only a small

proportion of respondents reported using Learning Management Systems (LMS) and other digital learning platforms.

Given the limited number of respondents, these findings should be interpreted as exploratory indications rather than generalizable conclusions regarding all Islamic Religious Education teachers.

Regarding preferred digital media, 7 out of 12 respondents (58.3%) identified Canva and PowerPoint as their primary instructional tools, while 4 out of 12 respondents (33.3%) preferred interactive quiz applications such as Quizizz and Kahoot. These findings suggest that the integration of technology in PAI learning is still largely concentrated on presentation-based learning rather than the extensive use of advanced digital learning platforms.

Furthermore, 9 out of 12 respondents (75%) stated that the use of digital technology significantly increases students' motivation and participation in learning activities. According to respondents, digital media make learning more attractive, interactive, and relevant to students' daily experiences. This finding supports previous studies which emphasize that technology-based learning can enhance student engagement and learning effectiveness (Muttakin, 2024).

The results indicate that PAI learning is gradually shifting from conventional teacher-centered approaches toward more student-centered learning environments. Digital technology enables teachers to provide more varied learning experiences through visual presentations, interactive activities, and collaborative learning opportunities. These findings are consistent with the view that contemporary Islamic education should integrate technological innovation while maintaining the core values of Islamic teachings (Rahmawati & Supriyanto, 2023).

Therefore, the transformation of PAI learning in the digital era is not merely reflected in the adoption of technological tools but also in the changing roles of teachers and students. Teachers are increasingly expected to function as facilitators and learning designers, while students are encouraged to become active participants in constructing knowledge and internalizing Islamic values through meaningful learning experiences.

Integrating Digital Technology to Strengthen Islamic Character Development

The findings demonstrate that Islamic Religious Education (PAI) teachers actively utilize digital technology not only for instructional purposes but also as a medium for strengthening students' Islamic character. Regarding the integration of Islamic values into digital learning, 4 out of 12 respondents (33.3%) reported using inspirational videos that present exemplary stories of Prophets, companions, and Islamic scholars. Another 4 out of 12 respondents (33.3%) employed digital quizzes and case studies to encourage students to reflect on the practical application of Islamic values in everyday life. Meanwhile, 2 out of 12 respondents (16.7%) assigned collaborative digital projects to foster honesty and cooperation, while another 2 out of 12 respondents (16.7%) incorporated moral guidance and advice during digital learning activities.

These findings indicate that teachers seek to balance technological innovation with character education. Digital technology is not merely utilized as a medium for content delivery but also as a pedagogical tool that supports the internalization of Islamic values. Through visual media, interactive activities, and collaborative learning experiences, students are encouraged to understand and practice Islamic teachings in relevant and meaningful ways. This finding supports previous studies emphasizing that technology-based learning can strengthen students' moral awareness and social responsibility when implemented within an appropriate pedagogical framework (Nasikin & Khojir, 2021).

The study also reveals that digital literacy plays an important role in strengthening students' Islamic character. A majority of respondents, 10 out of 12 teachers (83.3%), stated that they teach the principle of *tabayyun* (verification of information) and provide students with references to credible Islamic websites and social media accounts. Meanwhile, 2 out of 12 respondents (16.7%) reported discussing viral religious content together with students in order to evaluate its accuracy and relevance. These findings suggest that teachers prioritize critical thinking and

responsible information consumption rather than merely restricting students' access to digital media.

Furthermore, respondents acknowledged that technology has both positive and negative implications for students' character development. While 3 out of 12 respondents (25%) perceived technology as contributing positively to students' critical thinking and broader Islamic understanding, 8 out of 12 respondents (66.7%) emphasized that technology presents both opportunities and risks, particularly regarding excessive gadget use and reduced concentration. This finding indicates that the successful integration of technology requires continuous guidance and supervision from teachers to ensure that students utilize digital resources responsibly and ethically.

Therefore, the integration of digital technology into PAI learning should be directed toward strengthening Islamic values, digital ethics, and character development. Technology should function as a supporting medium for moral and spiritual growth rather than becoming an end in itself. Through value-oriented learning strategies, teachers can help students develop religious awareness, critical thinking skills, and responsible digital behavior that are consistent with the objectives of Islamic education.

Challenges of Technology Integration in Islamic Religious Education Learning

The findings reveal that despite the growing adoption of digital technology in Islamic Religious Education (PAI) learning, several challenges continue to hinder its effective implementation. Among the respondents, 5 out of 12 respondents (41.7%) identified the limited availability of digital devices among students as the primary obstacle. Additionally, 3 out of 12 respondents (25%) reported infrastructure-related problems, including unstable internet connections and inadequate technological facilities in schools. Other challenges mentioned by respondents included limited preparation time for developing digital learning materials (2 out of 12 respondents; 16.7%) and insufficient technical training for teachers (2 out of 12 respondents; 16.7%).

These findings indicate that successful technology integration depends not only on teachers' willingness to utilize

digital tools but also on the availability of adequate resources and institutional support. This finding suggests that technological readiness in PAI learning is influenced not only by individual teacher competencies but also by systemic factors such as infrastructure availability, institutional support, and equitable access to digital resources. Limited access to devices may reduce students' opportunities to participate fully in technology-based learning activities, thereby creating disparities in learning experiences. Similar challenges have been highlighted in previous studies emphasizing the importance of infrastructure readiness in supporting educational digitalization (Rahmawati & Supriyanto, 2023).

The study also examined teachers' perceptions regarding students' digital competence. The results show that 9 out of 12 respondents (75%) considered students sufficiently skilled in using technology for learning purposes, although they still require considerable guidance from teachers. Meanwhile, 2 out of 12 respondents (16.7%) viewed students as highly proficient, whereas 1 out of 12 respondents (8.3%) believed students still lacked adequate digital skills for educational activities.

These findings suggest that digital literacy should not be understood merely as the ability to operate technological devices. Students require guidance in utilizing technology critically, ethically, and responsibly, particularly when accessing religious information from digital platforms. The role of teachers therefore remains essential in directing students toward productive and meaningful uses of technology. This finding supports previous studies which emphasize that digital competence should be accompanied by critical thinking skills and ethical awareness.

Therefore, overcoming the challenges of technology integration in PAI learning requires collaborative efforts among teachers, educational institutions, and policymakers. Improvements in infrastructure, increased access to digital devices, continuous professional development for teachers, and the strengthening of students' digital literacy are necessary to ensure that technology contributes positively to learning quality and character development.

Reorienting the Role of Islamic Religious Education Teachers in the Society 5.0 Era

The findings indicate that the role of Islamic Religious Education (PAI) teachers in the Society 5.0 era extends beyond delivering religious knowledge. Among the respondents, 6 out of 12 respondents (50%) identified creativity as the most important competency for PAI teachers, while 3 out of 12 respondents (25%) emphasized adaptability. In addition, 2 out of 12 respondents (16.7%) highlighted digital communication skills, whereas only 1 out of 12 respondents (8.3%) considered digital literacy as the primary competency. These findings suggest that respondents place greater importance on teachers' ability to design engaging and meaningful learning experiences rather than merely mastering technological tools.

The emphasis on creativity reflects the growing expectation that PAI teachers should be capable of transforming traditional religious content into attractive and contextual learning materials. Through innovative approaches, teachers can connect Islamic teachings with students' daily experiences and enhance students' engagement in the learning process. This finding supports previous studies emphasizing that technology integration in education requires not only technical competence but also pedagogical creativity and innovation (Munawarsyah & Suratin, 2026).

These findings may also be interpreted through the Digital Competence Framework for Educators (DigCompEdu) developed by Redecker (2017). The framework emphasizes that teachers are expected to possess not only technological skills but also the ability to effectively integrate digital technologies into teaching and learning processes. In the context of Islamic Religious Education, the emphasis on creativity, adaptability, and digital communication skills reflects the competencies required for educators to design engaging learning experiences, facilitate student participation, and utilize digital resources responsibly. Therefore, the competencies identified by respondents indicate that effective technology integration in PAI learning requires a combination of pedagogical innovation, digital competence, and value-oriented educational practices (Redecker, 2017).

The study also reveals that technology has both positive and negative implications for students' character development. A majority of respondents, 8 out of 12 respondents (66.7%), stated that technology provides educational benefits while simultaneously creating risks such as excessive gadget use and reduced learning focus. Meanwhile, 3 out of 12 respondents (25%) perceived technology as having a positive influence on students' critical thinking and Islamic understanding. These findings indicate that technology should be utilized carefully and accompanied by appropriate guidance to ensure that its benefits outweigh its potential risks.

Regarding future expectations, 7 out of 12 respondents (58.3%) emphasized the importance of maintaining a balance between technological innovation and direct character formation. Additionally, 3 out of 12 respondents (25%) highlighted the need for continuous digital training programs for PAI teachers. These findings demonstrate that respondents view technology as a supporting tool rather than a substitute for the moral and spiritual dimensions of Islamic education.

Therefore, the reorientation of the role of PAI teachers in the Society 5.0 era should focus on strengthening creativity, adaptability, and ethical guidance in digital learning environments. Teachers are expected to serve not only as facilitators of learning but also as mentors who guide students in developing digital literacy, Islamic values, and responsible character in an increasingly complex technological era (Fitrianti et al., 2024).

Conceptual Framework of Technology-Integrated PAI Learning

Based on the findings of this study, a conceptual relationship can be proposed between teacher competencies, technology integration, digital literacy, Islamic values, and students' character development. Teacher competencies such as creativity, adaptability, and digital communication skills support effective technology integration in Islamic Religious Education learning. Effective technology integration enhances students' digital literacy, particularly in the practice of *tabayyun* and responsible information verification. Furthermore, digital literacy facilitates the internalization of Islamic values through technology-based learning

activities, which ultimately contributes to students' character development. Therefore, technology should be viewed not merely as an instructional tool but as a medium for strengthening Islamic values and fostering responsible digital citizenship among students.

CONCLUSION

This study reveals that digital technology has become an integral component of Islamic Religious Education (PAI) learning in the era of the Industrial Revolution 4.0 and Society 5.0. The findings show that most teachers utilize presentation-based technologies such as laptops, projectors, PowerPoint, and Canva to support learning activities. Furthermore, the majority of respondents believe that digital technology significantly enhances students' learning motivation and facilitates the integration of Islamic values through digital media.

The study also indicates that Islamic character development remains a central concern in technology-based learning. Most respondents emphasized the importance of teaching *tabayyun* (information verification), digital ethics, and responsible technology use as part of Islamic Religious Education. In addition, creativity, adaptability, and digital communication skills were identified as essential competencies for PAI teachers in responding to the challenges of Society 5.0.

Despite these positive developments, several challenges remain, particularly the limited availability of digital devices among students, infrastructure constraints, and the need for continuous guidance in developing students' digital literacy. Therefore, effective technology integration requires not only technological readiness but also pedagogical innovation, institutional support, and the reinforcement of Islamic values. Finally, respondents highlighted the importance of maintaining a balance between technological innovation and direct character formation. Consequently, future development of PAI learning should focus on integrating technology, digital ethics, and Islamic character education in order to produce students who are religious, responsible, and adaptive to contemporary societal changes.

This study contributes to the growing discourse on digital pedagogy in Islamic Religious Education by providing empirical evidence from teachers' perspectives regarding technology integration in the context of the Industrial Revolution 4.0 and Society 5.0. The findings demonstrate that effective technology integration in PAI learning extends beyond the use of digital tools and requires the integration of digital literacy, Islamic values, and character education. This study also highlights the importance of balancing technological innovation with the moral and spiritual objectives of Islamic education.

The findings also have practical implications for curriculum developers, educational institutions, and policymakers. Curriculum development should incorporate digital literacy, *tabayyun*, and Islamic digital ethics as essential components of PAI learning. Furthermore, educational institutions should provide continuous professional development programs to strengthen teachers' digital competencies, creativity, and pedagogical innovation in technology-based learning environments.

This study is limited to 12 Islamic Religious Education teachers from various educational institutions and relies primarily on questionnaire-based data collection. In addition, the questionnaire instrument was reviewed for content relevance but did not undergo formal validity and reliability testing. Therefore, the findings cannot be generalized to all Islamic Religious Education teachers in Indonesia. Future studies are encouraged to involve larger samples and employ interview or mixed-method approaches, as well as more rigorous instrument validation procedures, to obtain a more comprehensive understanding of technology integration in Islamic Religious Education learning. Further research may also investigate the effectiveness of specific digital learning models, explore students' perspectives on technology-based Islamic learning, and examine the relationship between digital literacy, Islamic values, and character development in different educational contexts.

REFERENCES

- Carayannis, E. G., & Morawska-Jancelewicz, J. (2022). The Futures of Europe: Society 5.0 and Industry 5.0 as Driving Forces of Future Universities. *Journal of the Knowledge Economy*, 13(4), 3445–3471. <https://doi.org/10.1007/s13132-021-00854-2>
- Fitrianti, E., Annur, S., & Afriantoni. (2024). Revolusi Industri 4.0: Inovasi dan Tantangan dalam Pendidikan di Indonesia Eka. *Journal of Education and Culture*, 4(1), 28–35. <https://ejournal.indrainstitute.id/index.php/jec/index>
- Mohajan, D., & Mohajan, H. K. (2022). Exploration of Coding in Qualitative Data Analysis: Grounded Theory Perspective. *Research and Advances in Education*, 1(6), 50–60. <https://doi.org/10.56397/rae.2022.12.07>
- Munawarsyah, M., & Suratin, S. I. (2026). Transformasi Peran Guru Pendidikan Agama Islam dalam Menghadapi Ekosistem Pembelajaran Berbasis Artificial Intelligence. *Jurnal Studi Pendidikan Agama Islam*, 02(01), 113–125. <https://jurnalalkhairat.org/ojs/index.php/jspai%0ATTRANSFORMASI>
- Muttaqin, Z. (2024). Efektivitas Penggunaan Teknologi dalam Pembelajaran Pendidikan Agama Islam: Studi Kasus Implementasi Platform E-Learning. *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan*, 18(3), 2153–2168. <https://jurnal.stiq-amuntai.ac.id/index.php/al-qalam>
- Nartin, Faturrahman, Deni, A., Heru, Y., & Paharuddin. (2024). *Metode Penelitian Kualitatif* (P. T. Cahyono, Ed.; Vol. 2). Yayasan Cendikia Mulia Mandiri.
- Nasikin, M., & Khojir. (2021). Rekonstruksi Pendidikan Islam Di Era Society 5.0. *Cross-Border*, 4(2), 706–722.
- Organisation for Economic Co-operation and Development. (2023). OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem. In *OECD Publishing*. <https://doi.org/10.1787/c74f03de-en>
- Rahmawati, N. A., & Supriyanto, S. (2023). Tantangan Dan Pembaharuan Pendidikan Islam Kontemporer Pada Era Revolusi Industri 4.0. *Journal Of Human And Education (JAHE)*, 3(4), 34–44. <https://doi.org/10.31004/jh.v3i4.408>

- Redecker, C. (2017). *European Framework for the Digital Competence of Educators: DigCompEdu* (Y. Punie, Ed.). Luxembourg Publications Office of the European Union, 2017.
- Viberg, O., Cukurova, M., Feldman-Maggor, Y., Alexandron, G., Shirai, S., Kanemune, S., Wasson, B., Tømte, C., Spikol, D., Milrad, M., Coelho, R., & Kizilcec, R. F. (2025). What Explains Teachers' Trust in AI in Education Across Six Countries? *International Journal of Artificial Intelligence in Education*, 35(3), 1288–1316. <https://doi.org/10.1007/s40593-024-00433-x>