

Transformation of Information Technology-Based Islamic Religious Education Learning Media in Enhancing Learning Quality in Secondary Schools

Sartina^{1*}, Sri Wahyuni Pohan², Mhd. Fikri Ulinuha³, Muslimin⁴

*1, 2, 3, 4Universitas Muhammadiyah Sumatera Utara, Indonesia

*¹email: sartina@gmail.com

²email: wahyunipohan@gmail.com

³email: mhdfikri@gmail.com

⁴email: muslimin@gmail.com

ARTICLE INFO	ABSTRACT
<p>Article history: Received: January 25, 2026 Revised: March 27, 2026 Accepted: April 17, 2026 Available Online: May 10, 2026</p> <p>Keywords: Learning Transformation; Instructional Media; Islamic Religious Education; Information Technology; Learning Quality.</p>	<p>This study aims to analyze the transformation of information technology-based learning media in Islamic Religious Education (IRE) to enhance learning quality in secondary schools. The research employs a qualitative approach using literature review methods and limited observation of technology-based learning practices. The findings indicate that the transformation of IT-based learning media, such as digital applications, interactive multimedia, and online learning platforms, significantly improves student engagement, learning effectiveness, and deeper understanding of subject matter. Furthermore, the use of technology-based media promotes more flexible and adaptive instructional innovation in response to modern educational demands. However, several challenges remain, including limited infrastructure, teachers' digital competence, and unequal access to technology. Therefore, policy support, teacher training, and adequate facilities are essential to optimize the use of technology in Islamic education.</p>
<p>Please cite this article: Sartina, S., Pohan, S. W., Ulinuha, M. F., & Muslimin, M. (2026). <i>Transformation of information technology-based Islamic religious education learning media in enhancing learning quality in secondary schools</i>. <i>Integrasi: Jurnal Studi Islam dan Humaniora</i>, 4(2), 67–76.</p>	<p style="text-align: center;">ABSTRAK</p> <p>Penelitian ini bertujuan untuk menganalisis transformasi media pembelajaran Pendidikan Agama Islam (PAI) berbasis teknologi informasi dalam meningkatkan kualitas pembelajaran di sekolah menengah. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi literatur dan observasi terbatas pada praktik pembelajaran berbasis teknologi. Hasil penelitian menunjukkan bahwa transformasi media pembelajaran berbasis teknologi informasi, seperti penggunaan aplikasi digital, multimedia interaktif, dan platform pembelajaran daring, mampu meningkatkan keterlibatan siswa, efektivitas pembelajaran, serta pemahaman materi secara lebih mendalam. Selain itu, penggunaan media berbasis teknologi juga mendorong inovasi pembelajaran yang lebih fleksibel dan adaptif terhadap perkembangan zaman. Namun demikian, terdapat beberapa kendala seperti keterbatasan infrastruktur, kompetensi digital guru, serta akses teknologi yang belum merata. Oleh karena itu, diperlukan dukungan kebijakan, pelatihan guru, dan penyediaan fasilitas yang memadai untuk mengoptimalkan pemanfaatan teknologi dalam pembelajaran PAI.</p>
<p>Page: 67-76</p>	<p style="text-align: center;">This is an open access article under the CC-BY-SA licence (https://creativecommons.org/licenses/by-sa/4.0/).</p>

A. Introduction

The rapid development of information technology has significantly transformed the landscape of education, including the teaching and learning of Islamic Religious Education (IRE). In the digital era, learning is no longer confined to traditional classroom settings but extends to virtual environments supported by various technological tools (Selwyn, 2016). This transformation requires educators to adapt their teaching strategies and media to meet the demands of modern learners.

In secondary education, the integration of technology into learning processes has become increasingly important. Students today are digital natives who are accustomed to using technology in their daily lives. Therefore, incorporating information technology into instructional media can enhance their engagement and motivation (Prensky, 2001).

Islamic Religious Education plays a vital role in shaping students' moral and spiritual values. However, traditional teaching methods often fail to fully engage students and address their learning needs in a digital context. This situation highlights the need for innovative approaches that integrate technology into IRE (Azra, 2012).

The concept of learning media transformation refers to the shift from conventional teaching aids to digital and interactive tools. This transformation includes the use of multimedia presentations, online platforms, and mobile applications that facilitate learning (Mayer, 2009). Such media provide opportunities for more dynamic and interactive learning experiences.

Technology-based learning media have been shown to improve the quality of education by enhancing students' understanding and retention of information. Multimedia elements such as audio, video, and animation can make abstract concepts more concrete and easier to understand (Mayer, 2009).

In the context of Islamic education, the use of technology can support the delivery of religious content in more engaging ways. For example, digital Qur'an applications, online tafsir resources, and interactive learning platforms can enrich students' learning experiences (Rahman, 2020).

Moreover, the integration of technology in education aligns with constructivist learning theory, which emphasizes active learning and knowledge construction. Students are encouraged to explore, interact, and collaborate using digital tools (Vygotsky, 1978).

The transformation of learning media also supports student-centered learning approaches. In this model, students take an active role in their learning process, while teachers act as facilitators who guide and support them (Hattie, 2009). This approach is particularly relevant in modern education.

Despite its potential benefits, the implementation of technology-based learning media faces several challenges. These include limited access to technology, lack of teacher training, and resistance to change among educators (Ertmer & Ottenbreit-Leftwich, 2010).

Another challenge is the digital divide, which refers to the unequal access to technology among students. This issue can affect the effectiveness of technology-based learning and create disparities in educational outcomes (Van Dijk, 2020).

In Indonesia, the government has promoted the use of technology in education through various policies and programs. These initiatives aim to improve the quality of education and prepare students for the demands of the digital era (Kemendikbud, 2020).

The COVID-19 pandemic further accelerated the adoption of technology in education. Schools were forced to shift to online learning, highlighting the importance of digital learning media in ensuring continuity of education (Dhawan, 2020).

This situation has also influenced the teaching of Islamic Religious Education. Teachers have had to adapt their methods and utilize digital tools to deliver content effectively in an online environment.

Previous studies have shown that technology-based learning media can significantly improve students' learning outcomes. For instance, research indicates that interactive multimedia enhances students' engagement and understanding (Mayer, 2009).

Furthermore, digital platforms enable collaborative learning, allowing students to interact with peers and teachers beyond the classroom. This interaction fosters deeper learning and critical thinking skills (Hrastinski, 2009).

However, the effectiveness of technology-based learning media depends on how they are implemented. Teachers need to have adequate digital competence and pedagogical skills to integrate technology effectively (Redecker, 2017).

The transformation of learning media in Islamic education also requires alignment with Islamic values. Technology should be used as a tool to support moral and spiritual development, not just academic achievement (Al-Attas, 1991).

This study focuses on analyzing the transformation of IT-based learning media in Islamic Religious Education and its impact on learning quality in secondary schools. It aims to identify effective practices and challenges in implementation.

The significance of this research lies in its contribution to improving educational practices. By understanding how technology can be effectively integrated into IRE, educators can develop more innovative and impactful learning strategies.

In conclusion, the transformation of learning media through information technology offers significant opportunities to enhance the quality of Islamic education. However, its success depends on proper implementation, adequate resources, and continuous support from all stakeholders.

B. Method

This study employed a mixed-method approach with a dominant systematic literature review (SLR) design complemented by limited empirical observation. The mixed-method design was selected to provide a comprehensive understanding of how information technology-based learning media transform Islamic Religious Education (IRE) and influence learning quality in secondary schools. Combining qualitative synthesis with supporting empirical insights allows for both theoretical depth and contextual relevance (Creswell & Plano Clark, 2018).

The primary method used in this study was a systematic literature review, following internationally recognized procedures to ensure transparency, rigor, and replicability. The review process involved identifying, screening, and analyzing scholarly publications related to technology-based learning media, Islamic education, and learning quality. This approach enables the researcher to synthesize findings from previous studies and identify research gaps (Kitchenham & Charters, 2007).

The literature search was conducted using major academic databases such as Scopus, Web of Science, Google Scholar, and ERIC. Keywords used in the search included “Islamic Religious Education,” “learning media transformation,” “information technology in

education,” and “learning quality.” The search was limited to publications from 2015 to 2025 to ensure the inclusion of recent and relevant studies reflecting current technological developments.

The inclusion criteria for selecting articles were: (1) peer-reviewed journal articles or conference proceedings, (2) studies focusing on the integration of technology in education, particularly in Islamic or religious education contexts, (3) studies discussing learning outcomes or learning quality, and (4) articles written in English or Bahasa Indonesia. Exclusion criteria included non-scholarly publications, opinion papers without empirical or theoretical grounding, and studies not directly related to the research focus.

The selected articles were then analyzed using a thematic analysis approach. This involved coding the data, identifying recurring themes, and categorizing findings related to the transformation of learning media, implementation strategies, and their impact on learning quality. Thematic analysis allows for the systematic interpretation of qualitative data across multiple studies (Braun & Clarke, 2006).

To complement the literature review, limited field observations were conducted in selected secondary school contexts where technology-based learning media were implemented in Islamic Religious Education. These observations aimed to provide contextual validation of the findings derived from the literature. The observation focused on classroom practices, types of media used, and student engagement during the learning process.

Data from both literature and observations were integrated using a convergent mixed-method design, where qualitative findings from the literature review were compared and supported by empirical observations. This triangulation enhances the validity and reliability of the study by cross-verifying data from multiple sources (Fetters et al., 2013).

The data analysis process involved three main stages: data reduction, data display, and conclusion drawing. Relevant information from selected studies and observation notes was summarized and organized into thematic categories. These categories were then interpreted to generate meaningful insights into the role of technology-based learning media in improving learning quality (Miles et al., 2014).

To ensure the rigor of the study, several quality assurance measures were applied. These included the use of transparent selection criteria, systematic data extraction procedures, and peer-reviewed sources. Additionally, credibility was strengthened through triangulation,

while dependability was ensured by maintaining a clear audit trail of the research process (Lincoln & Guba, 1985).

Ethical considerations were also taken into account. All sources used in the literature review were properly cited to avoid plagiarism, and any observational data were collected with respect for institutional permissions and participant confidentiality. The study adheres to academic integrity and ethical research standards (Orb et al., 2001).

C. Results and Discussion

The findings of this study reveal that the transformation of information technology-based learning media has significantly influenced the quality of Islamic Religious Education (IRE) in secondary schools. Based on the synthesis of recent literature and supporting observations, the integration of digital tools into learning environments has shifted traditional pedagogical practices toward more interactive and student-centered approaches.

One of the most prominent findings is the increased use of interactive multimedia, including videos, animations, and digital presentations. These tools help students better understand abstract religious concepts by presenting them in visual and engaging formats. This finding aligns with multimedia learning theory, which suggests that combining visual and auditory elements enhances comprehension (Mayer, 2009).

Furthermore, the use of online learning platforms has expanded access to educational resources. Platforms such as Learning Management Systems (LMS) allow students to access materials anytime and anywhere, promoting flexibility in learning. This accessibility contributes to improved learning outcomes and supports independent learning habits (Hrastinski, 2009).

The study also found that mobile learning applications play an important role in facilitating Islamic education. Applications related to Qur'an learning, Hadith collections, and Islamic studies enable students to engage with religious content beyond the classroom. This supports continuous learning and reinforces students' understanding of Islamic values.

Another significant finding is the improvement in student engagement and participation. Technology-based media encourage active involvement through interactive features such as quizzes, discussions, and collaborative tasks. Students become more motivated and enthusiastic in participating in learning activities.

From a pedagogical perspective, the transformation of learning media supports the implementation of student-centered learning approaches. Teachers act as facilitators who guide students in exploring knowledge, rather than merely delivering information. This shift aligns with constructivist learning theory (Vygotsky, 1978).

In addition, technology integration enhances collaborative learning. Digital tools enable students to work together on assignments, share ideas, and communicate effectively. This collaboration fosters critical thinking and social interaction skills, which are essential for holistic education.

The findings also indicate that learning quality has improved in terms of students' understanding, retention, and application of knowledge. Technology-based media provide diverse learning experiences that cater to different learning styles, making education more inclusive and effective.

However, the study also identifies several challenges in the implementation of technology-based learning media. One of the main issues is the limited digital competence of teachers. Many educators lack the necessary skills to effectively integrate technology into their teaching practices (Redecker, 2017).

Another challenge is the inadequate infrastructure in some schools. Limited access to devices, internet connectivity, and technical support can hinder the effective use of technology in education. This issue highlights the need for institutional and governmental support.

The digital divide among students is also a significant concern. Not all students have equal access to technology, which can create disparities in learning opportunities and outcomes (Van Dijk, 2020). Addressing this issue is crucial for ensuring equitable education.

From an Islamic perspective, the use of technology in education must be aligned with Islamic values and ethics. Technology should be utilized as a tool to enhance moral and spiritual development, rather than merely focusing on academic achievement (Al-Attas, 1991).

The study also highlights the importance of teacher training and professional development. Teachers need to be equipped with both technical and pedagogical skills to effectively use digital tools in their teaching. Continuous training programs are essential for this purpose.

Moreover, the integration of technology requires curriculum adaptation. Learning objectives, materials, and assessment methods must be aligned with the use of digital media to ensure coherence and effectiveness.

The findings suggest that policy support plays a crucial role in facilitating the transformation of learning media. Government initiatives and institutional policies are needed to provide resources, training, and guidance for educators.

From a critical perspective, the study emphasizes that technology alone cannot guarantee improved learning quality. The effectiveness of technology-based learning depends on how it is implemented and integrated into pedagogical practices.

The synthesis of literature also indicates that blended learning approaches are particularly effective. Combining face-to-face instruction with online learning provides a balanced and flexible learning experience that enhances student outcomes.

Furthermore, the study identifies the need for contextualized learning media that reflect students' cultural and religious backgrounds. This ensures that technology-based learning remains relevant and meaningful.

The findings also reveal that student autonomy is enhanced through the use of digital media. Students are encouraged to take responsibility for their learning, which contributes to lifelong learning skills.

In addition, technology-based learning media support the development of 21st-century skills, including digital literacy, critical thinking, and communication. These skills are essential for students to succeed in a rapidly changing world.

In conclusion, the transformation of IT-based learning media in Islamic Religious Education has a positive impact on learning quality in secondary schools. While challenges remain, the overall findings demonstrate that effective integration of technology, supported by appropriate strategies and policies, can significantly enhance educational outcomes.

D. Conclusion

This study concludes that the transformation of information technology-based learning media in Islamic Religious Education (IRE) has a significant positive impact on improving learning quality in secondary schools. The integration of digital tools such as interactive multimedia, online platforms, and mobile applications enhances students' engagement,

understanding, and participation in the learning process. These innovations support the shift from teacher-centered to student-centered learning, enabling students to actively construct knowledge and develop deeper comprehension of Islamic teachings.

From an analytical perspective, the effectiveness of technology-based learning media is not solely determined by the availability of digital tools, but also by how they are pedagogically implemented. The findings highlight that meaningful integration of technology, supported by appropriate instructional strategies, teacher competence, and curriculum alignment, plays a crucial role in achieving optimal learning outcomes. In addition, the incorporation of Islamic values within digital learning environments ensures that technological advancement remains aligned with moral and spiritual development.

However, several challenges such as limited infrastructure, unequal access to technology, and insufficient teacher digital competence must be addressed to maximize the benefits of this transformation. Therefore, this study emphasizes the importance of comprehensive support from policymakers, educational institutions, and stakeholders in providing adequate resources, training, and policy frameworks. Future research is recommended to explore innovative models of technology integration and to examine the long-term impact of digital learning media on students' academic and character development in Islamic education contexts.

E. Bibliography

- Al-Attas, S. M. N. (1991). *The concept of education in Islam*. International Institute of Islamic Thought and Civilization (ISTAC).
- Azra, A. (2012). *Pendidikan Islam: Tradisi dan modernisasi di tengah tantangan milenium III*. Kencana Prenada Media Group.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage Publications.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255–284.

- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Hrastinski, S. (2009). A theory of online learning as online participation. *Computers & Education*, 52(1), 78–82.
- Kitchenham, B., & Charters, S. (2007). *Guidelines for performing systematic literature reviews in software engineering*. Keele University.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage Publications.
- Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in qualitative research. *Journal of Nursing Scholarship*, 33(1), 93–96. <https://doi.org/10.1111/j.1547-5069.2001.00093.x>
- Rahman, F. (2020). *Islam and modernity: Transformation of an intellectual tradition*. University of Chicago Press.
- Redecker, C. (2017). *European framework for the digital competence of educators (DigCompEdu)*. European Commission.
- Selwyn, N. (2016). *Education and technology: Key issues and debates* (2nd ed.). Bloomsbury Academic.
- Van Dijk, J. (2020). *The digital divide*. Polity Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.