



Transformation of Digital Animation Videos in Islamic Religious Education Learning to Improve Students' Understanding at MI Az-Zainiyah II

Moh. Ulum¹, Umi Kulsum²

^{1,2} Islamic Religious Education, Nurul Jadid University, Probolinggo, Indonesia

Article Info

Article history:

Received Jan 16, 2026

Revised Mar 3, 2026

Accepted Apr 4, 2026

Online First Apr 12, 2026

Keywords:

Digital Animation Videos
Islamic Education
Learning Transformation
Student Understanding

ABSTRACT

Purpose of the study: This study aims to analyze how Islamic Religious Education (IRE) learning has undergone a transformation in the digital era through the use of digital animated videos and its implications for student understanding at MI Az-Zainiyah II. The background of this research begins with digitalization, which encourages IRE teachers to utilize technology to improve the quality of learning processes and outcomes, in line with the Independent Curriculum.

Methodology: This study uses a qualitative approach with a case study approach. Data were collected in the odd semester of 2025/2026 through participant observation, interviews with three key informants (the principal, curriculum department, and fiqh teacher) and students, documentation of teaching materials, and a literature review. Data validity was strengthened through triangulation of sources and techniques, as well as member checking with informants. Analysis was conducted through data reduction, presentation, and drawing conclusions.

Main Findings: The research results show that this transformation is perceived positively because digital media innovations create engaging learning environments, reduce boredom, enrich interactions, and encourage imagination and practice. However, negative impacts were also identified, including the risk of assessment inaccuracy when devices are used in semester exams and a tendency for students to be reluctant to write. Therefore, madrasas are implementing digital adoption selectively and gradually.

Novelty/Originality of this study: The novelty of this research lies in its analysis of the transformation of Islamic Religious Education (IRE) learning through digital animated videos based on constructivism and dual coding theory, which emphasizes active student involvement in constructing understanding. This research focuses not only on media effectiveness but also on institutional readiness, infrastructure limitations, and teacher competency in the context of elementary madrasahs.

This is an open access article under the [CC BY](https://creativecommons.org/licenses/by/4.0/) license



Corresponding Author:

Moh. Ulum

Islamic Religious Education, Nurul Jadid University, Jl. PP Nurul Jadid, Tj. Lor Hamlet, Karanganyar, Paiton District, Probolinggo Regency, East Java 67291, Indonesia

Email: mohulum001@gmail.com

1. INTRODUCTION

Digitalization is driving changes in the implementation of education, including the implementation of Islamic Religious Education (IRE) learning, so educators need to integrate technology as an instrument to improve the quality of the learning process and increase student learning outcomes [1], [2]. Based on the National Education System, national education emphasizes that the development of faith and piety must be

Journal homepage: <http://cahaya-ic.com/index.php/IJoER>

strengthened in line with the pace of progress in science and technology [3]. The implementation of the Independent Curriculum has also accelerated the use of digital learning through the use of online platforms, the provision of electronic learning resources, and the implementation of more adaptive and student-centered learning designs. However, this acceleration does not necessarily guarantee the effectiveness of practices across all educational units. Differences in teacher readiness levels, the availability and quality of infrastructure, and the character of learning cultures are often determining factors in successful implementation.

Learning as a system composed of interacting components, namely educators, students, teaching materials, facilities, supporting devices, and implementation procedures that are integrated to direct the achievement of educational goals [4]. Within this systemic framework, the quality of student understanding is a marker of success because understanding represents the relationship between the knowing subject and the known object [5]. Understanding does not stop at recognizing information, but also on the ability to re-elaborate ideas, provide illustrations, and transfer concepts to solve problems in new contexts. Therefore, changes in media and learning strategies should be evaluated based on their contribution to the formation of understanding, not solely on technological novelty or merely the fulfillment of procedures. This orientation is the basis for preventing normative claims that are not supported by the value of classroom practice.

Pedagogically, knowledge acquisition occurs gradually and is determined by the design of the learning experiences experienced by students [6]. Knowledge from a constructivist perspective is not transferred passively, but through the active involvement of students when exploring experiences, asking questions and reflecting, so that educators function to design a learning ecosystem and facilitate the formation of meaning [7], [8]. In the transformation of learning, learning media should support the process of constructing meaning by presenting visualizations, as well as stimulating dialogue and feedback. In line with this, Dual Coding Theory emphasizes that information is processed through verbal and nonverbal channels, so that the integration of text, voice narration and visual representation has the potential to strengthen understanding [9]. This theory is the basis for explaining animated videos that can be more effective on certain materials than monomodal presentations. However, its effectiveness needs to be tested by considering the suitability of the objectives and character of the material, so that visuals are not merely decorative, but rather help students' conceptual reasoning in the classroom.

Transformation is a gradual process of change that results in a new, more established form within a system [10]. In the realm of Islamic Religious Education (IRE), digital transformation needs to be managed in a planned manner to remain aligned with the goals of Islamic education and not reduce the function of fostering values and character. Latif emphasized that IRE must adapt so as not to be left behind by the flow of digitalization, however, the role of teachers remains crucial as guides, directors of learning experiences and guardians of the accuracy of circulating information [11]. The use of technology opens up opportunities to enrich learning methods, expand the variety of learning resources and increase access to relevant materials, but at the same time presents challenges in content selection, strengthening the ethics of device use, and addressing access gaps between students [12]. Therefore, the implementation of digitalization in IRE needs to be accompanied by digital literacy policies and mentoring so that the benefits of innovation are achieved without ignoring the value dimension.

One of the media frequently used in learning is digital animated video. This media combines moving images, text, and sound so that the presentation of material becomes more interesting for students [13]. As an audio-visual tool, animated video can simplify abstract concepts through visualization, while providing dual stimuli that align with how the brain processes information. At the elementary level, the characteristics of students' cognitive development make visual representations important for maintaining attention, fostering motivation, and reducing the need for lengthy explanations [14]. However, the success of using animated video is not automatic and cannot be separated from the implementation context. According to Tugtekin and Dursun, animated video is influenced by the suitability of the material and objectives, the duration of the broadcast, the quality of the narrative design, and the teacher's support strategy during the screening [15]. In addition, the design displayed needs to pay attention to the integration of the message and cognitive load so that the animation can clarify the structure of the concept.

Based on observations and interviews with Mrs. M on October 14, 2025, Islamic Religious Education (IRE) learning at MI Az-Zainiyah II still relies on lectures and text-based assignments, resulting in predominantly one-way classroom communication, low student participation, and minimal variety of learning stimuli. This situation is exacerbated by limited equipment such as projectors, speakers, and gadgets, unstable internet connections, and inadequate access to curated digital learning resources. As a result, material that should be visualized is instead re-explained at length, leading to boredom, reduced focus, and making it difficult for some students to understand abstract concepts. The observation results indicate that institutional readiness and infrastructure support function as mediating variables that determine the functionality of animated videos, while also requiring teacher competence in selecting content according to Islamic Religious Education (IRE) objectives and student developmental characteristics. This gap is also evident in evaluations, as assessments emphasize memorization rather than interpretation, application, and reflection on students' religious behavior.

The results of research by Depita and Fajrianti et al., confirm that technology can improve the quality of interaction and student engagement and encourage active learning [16], [17]. Another study by Alfi et al., shows that the integration of technology in Islamic Religious Education needs to be adjusted to the character of students so that religious understanding is truly strong [12]. Kotimah also stated that the use of animated videos as audio-visual media is able to present material in a more structured and interesting way, thus helping to clarify concepts through a combination of visuals, text and sound [13]. In line with that, Yuliana et al., emphasized that at the basic level, visual representation can maintain focus and increase motivation [14].

Although several previous studies have shown that technology integration, when implemented appropriately, can strengthen the quality of interactions, increase student engagement, and encourage active, student-centered learning, these studies are still general in nature at the level of technology utilization, so they have not yet elaborated explicitly on the transformation of Islamic Religious Education learning practices through digital animated videos at the elementary madrasah level. This gap is primarily due to the lack of explanation of the mechanism of the shift from lecture-text patterns to audio-visual interactions and their relationship to increased student understanding amidst limited facilities and varying institutional readiness. Therefore, the current study positions MI Az-Zainiyah II as the object of research to describe the form of transformation in the use of digital animated videos, the dynamics of teacher roles, student learning responses, and the inhibiting and supporting factors that mediate the strengthening of understanding. Thus, this study aims to analyze institutional perceptions of digital transformation, examine its implementation at the classroom level, evaluate its impact on student understanding, and identify various challenges that arise during implementation.

2. RESEARCH METHOD

This research uses a qualitative approach with a case study type to describe the transformation of Islamic Religious Education learning through the use of digital animated videos and its implications for student understanding [18]. The research design is descriptive analytical, because it focuses on interpreting learning practices, infrastructure readiness and the dynamics of teachers' roles in a digital context. The research subjects were determined purposively, including key informants (IRE teachers) and supporting informants (students who participated in learning using animated videos, as well as school officials if needed to confirm the context) with consideration of direct involvement in the learning process and knowledge of changes in learning practices in the classroom. The research was conducted at MI Az-Zainiyah II as an educational unit that in the initial observation was still dominated by lecture strategies and limited access to technology. Data collection was carried out in the odd semester of the 2025/2026 academic year, starting from a preliminary interview on October 14, 2025, then continued until early December 2025.

The research instrument was the researcher as the main instrument, supported by observation guidelines, semi-structured interview guidelines, and documentation check sheets to trace consistency between planning, implementation, and evaluation of learning. Data collection techniques included participatory observation of the learning process, interviews with Islamic Religious Education teachers and students, documentation of teaching materials, and a literature review related to the transformation of Islamic Religious Education and audiovisual media [19]. The research procedure included pre-field, field, and post-field stages, with field notes taken to maintain a research audit trail. Data validity was ensured through triangulation of sources and techniques, as well as member checks with key informants. Data analysis followed the steps of data reduction, data presentation, and drawing conclusions with thematic coding to identify patterns of animated video use, implementation barriers, and indicators of increased understanding of student assignment results. In addition, the researcher compiled a matrix of findings, compared sources, and presented quotations to strengthen arguments and transparency of the research analytical process.

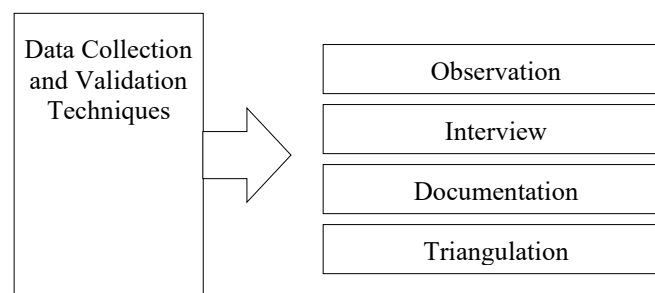


Figure 1. Data Collection and Validation Techniques
Source: Masuwai et al. [19]

3. RESULTS AND DISCUSSION

3.1 Results

The presentation of the research results is organized into four themes to clarify the flow of findings from the institutional level to its impact on students, namely (1) Institutional Perceptions of Digital Transformation, (2) Implementation at the Classroom Level, (3) Impact on Student Understanding, and (4) Emerging Challenges. Data were obtained through semi-structured interviews and observations of key informants in the school environment (Principal, Vice Principal for Curriculum and Fiqh Teacher) who have a mandate in planning, implementing, and evaluating Islamic Religious Education learning. All transcripts were analyzed by data reduction through breaking down statements into meaningful units, grouping codes and drawing themes, then strengthened by back confirmation with informants so that the categories created represent field experiences. The following presentation links direct quotes to each theme, so that the relationship between institutional perceptions, classroom practices, impacts on understanding and implementation challenges can be read coherently as a process of learning transformation.

Table 1. Interview Data of Islamic Religious Education Transformation in the Digital Era

Tema	Informant	Theme Direct Quote	Code
Informant perceptions of digital transformation	Headmaster	The transformations that have occurred have had positive impacts, but also negative ones that require special attention. However, in terms of innovation, these changes are engaging, creating a learning environment that keeps students engaged and engaged	Institutional perception: transformation has a double impact (positive-negative)
Institutional Perceptions of Digital Transformation	Deputy Head of Curriculum	While the transformations experienced in the digital era, particularly in learning media, are considered positive, these changes help make the learning process more engaging and varied.	Institutional recognition: media transformation is considered beneficial
Implementation at Class Level	Fiqh Teacher	At our school, interactive media is a key learning tool. It helps reduce student boredom and fatigue, and lessons are interspersed with icebreakers.	Classroom practice: interactive media plus a variety of learning strategies
Impact on Student Understanding	Fiqh Teacher	With the presence of visual media and animation, children find it easier to imagine, especially in terms of practice.	Impact indication: understanding of practice is aided through visualization or animation
Impact on Student Understanding	Headmaster	The use of innovative learning media makes the learning atmosphere less boring for students.	Affective impact as a prerequisite for understanding: increased focus or motivation
Challenges That Emerge	Deputy Head of Curriculum	However, there are impacts that need to be considered, for example, the use of digital media during semester exams makes assessments less accurate regarding student abilities and triggers laziness in writing.	Evaluation challenges: assessment accuracy and learning behavior (writing dependency or laziness)

3.2 Discussion

a. Transformation of Islamic Religious Education (IRE) Learning in the Digital Era at MI Az-Zainiyah

The acceleration of digitalization in various domains of life requires Islamic Religious Education (IRE) learning to adapt to remain relevant to the characteristics of digital-generation students, both in terms of strategies, media, and learning interaction patterns [20]. Adaptation is not only about transferring material to an online format, but also about developing learning designs that utilize technology to enrich experiences and facilitate collaboration [21]. The transformation of IRE, as a shift from conventional practices to the integration of digital tools oriented toward pedagogical and institutional perceptions, indicates that this change is viewed as both an opportunity and a risk. The principal emphasized that the transformation has had positive impacts, but also has negative impacts that require special attention. However, in terms of innovation, the changes are engaging, creating a learning environment that encourages students to avoid boredom. According to Djunaini, innovation must maintain the goal of internalizing Islamic teachings, so that the cognitive, affective, and behavioral dimensions develop in balance [22].

The transformation of IRE learning at MI Az-Zainiyah II is reflected in the strengthening of educator capacity through online-based development, including webinars, virtual study groups, and training on media design. Innovation is also evident in evaluations, where teachers integrate educational games as assessment tools to obtain feedback, increase motivation, and reduce boredom. At the institutional level, the Vice Principal for Curriculum stated that, while the transformation experienced in the digital era is considered positive, particularly in learning media, these changes help make the learning process more engaging and varied. This statement emphasizes that transformation is not understood solely as the use of devices, but rather as an effort to enrich the representation of concepts and the variety of activities that stimulate active student responses. Furthermore, the selection of digital learning resources is filtered to align with the madrasah curriculum, and device usage procedures are established to maintain classroom discipline and student privacy. This pattern aligns with the findings of a study by Maskin et al., which states that interactivity in Islamic Religious Education (IRE) learning must be student-centered and adapt to the characteristics of the digital generation without shifting the orientation towards moral development [23].

The implementation of digitalization at MI Az-Zainiyah II has been implemented in stages and operationalized as an innovation in Islamic Religious Education (IRE) learning according to the needs and level of institutional readiness. This policy is implemented as a risk prevention measure, considering that the use of technology has the potential to affect learning discipline, assessment accuracy, and the formation of students' academic habits. Madrasahs consider infrastructure availability, variations in teacher and student digital literacy, disparities in access at home, and data security aspects to ensure implementation does not create learning inequities and remains aligned with the daily rhythm of Islamic boarding school activities. Furthermore, schools set limits on device use, determine applications relevant to Islamic Religious Education (IRE) objectives, and implement evaluations that can still be directly monitored by teachers through strengthening classroom procedures and monitoring learning activities. This practice trend aligns with the findings of Al-Banjari et al., who found that learning technology is most impactful when tied to school governance, while without regulation, volatile technology weakens assessment integrity [24].

From a curriculum management perspective, the transformation of Islamic Religious Education (IRE) in the digital era presents an opportunity to strengthen moral values as long as there is synergy between curricular outcomes, technology, and the realities of student learning [25]. This integration requires designing objectives, materials, methods, and assessments that utilize digital media as a means of internalization, such as video-assisted reflection and documented service projects, rather than simply transferring teaching materials to online platforms [26]. To ensure these practices maintain educational value, Islamic Religious Education teachers need to master digital literacy, which encompasses selecting credible sources, designing activities, and protecting data. These competencies also encourage teachers to instill media ethics, guide religious dialogue, and integrate cognitive evaluation with attitudinal and behavioral indicators. At the implementation level, according to Eraku et al., this alignment needs to be supported by school policies, parental collaboration, and regular monitoring to ensure the sustainability of the innovation and its measurable impact [27].

b. Transformation of Islamic Religious Education Learning through the Use of Digital Animated Videos at MI Az-Zainiyah

The digital transformation in education has triggered a renewal of learning approaches, including in Islamic Religious Education (IRE). Previously lecture-centered practices are slowly shifting toward experience-based and contextual strategies, requiring IRE to provide space for exploration, reflection, and the application of values in real-world situations [28]. Mapping of initial conditions at MI Az-Zainiyah II shows that the use of animated videos as a digital learning medium has not been optimal, with learning activities still dominated by oral explanations and reading texts due to limited infrastructure support, such as projection devices and internet access. Consequently, the variety of learning stimuli and opportunities for active student involvement is low, and learning feedback tends to be less rich. In a class that has begun implementing interactive media, a Fiqh teacher stated, "In our school, the use of interactive media has become a learning tool. This media provides a solution to reduce student boredom and fatigue, and learning is also interspersed with icebreakers during breaks, demonstrating that the implementation of video or animation is framed as managing attention and participation, not simply showing videos.

Conventional learning approaches often position students as passive recipients of information. Therefore, animated videos are effective because they present concepts concretely, organize information in an easy-to-follow sequence, and add auditory-visual stimuli that maintain student focus. In practice, animated videos present information through both verbal and nonverbal channels, thus strengthening students' mental representations and making them more accessible when asked to explain or apply the concept. Therefore, the effectiveness of videos lies not only in their appeal but also in activating two processing pathways that reinforce each other, especially when Islamic Religious Education (IRE) material contains abstract concepts or worship procedures that are more easily understood through visual examples [29]. Conceptually, animated videos combine moving images, text, and sound into one unit, allowing learning messages to be presented more vividly,

coherently, and easily understood, while reducing the cognitive burden associated with teacher explanations [30].

The use of digital animated videos requires special attention from schools to accommodate the diversity of student learning styles because they combine auditory and visual stimuli, as well as activity components that can translate into kinesthetic engagement [31]. In Islamic Religious Education learning that targets cognitive, affective, and psychomotor achievements, learning media utilizing animated videos needs to be positioned as a trigger, not the center of activity. After the video is played, the teacher facilitates a question-based, directed discussion, asking students to write down reflections on values and organize simple practices, so that understanding moves from concepts to internalization of attitudes and actions. Based on the views of the fiqh teacher, that with the presence of visual and animated media, children find it easier to imagine, especially in terms of practice. Meanwhile, the Principal emphasized that the use of innovative learning media makes the learning atmosphere of students not bored. This implies that animated videos work effectively when combined with teacher pedagogy, so that adjusting teaching methods to students' learning needs has an impact on increasing Islamic Religious Education understanding, especially when combined with class interaction [30].

c. Challenges for Educators in Islamic Religious Education Learning at MI Az-Zainiyah in the Digital Era

The challenges for Islamic Religious Education educators at MI Az-Zainiyah in the digital era arise from the need to reposition the role of teachers, not merely as deliverers of material, but as designers of learning experiences that utilize technology to improve the quality of the process and outcomes, while maintaining the goals of fostering faith, piety, and morals. Research findings confirm that learning still relies heavily on lectures and text sources, resulting in relatively passive student activity and sporadic use of digital media across classes. This unevenness is influenced by variations in digital literacy, device availability, and limited time to prepare content, which limit opportunities for interactive learning and assessment. Therefore, according to Voronin et al., digital transformation requires strategies to strengthen pedagogical capacity, including media design training, practical mentoring, developing application usage standards, and data-driven evaluation [32]. Furthermore, collaboration with madrasah leaders and parents is necessary to monitor media ethics and the consistency of Islamic boarding school values in daily classes. Jamil and Isiaq also identified a similar challenge, namely that disparities in teacher competency and school readiness determine whether video or technology enhances understanding or widens the learning gap [33].

The next challenge relates to the readiness of the learning ecosystem at MI Az-Zainiyah. Limited device availability, unstable internet connections, and a lack of digital teaching materials impact the consistency of digital media use in the classroom. Teachers often adapt lesson plans situationally and revert to lectures or texts when resources are unsupported. Outside of school, disparities in technology access at home also impact the sustainability of digital-based assignments and potentially widen the gap in achievement between students. In response to these conditions, the madrasah implemented policies that limit device use, establish applications relevant to Islamic Religious Education (IRE) objectives, and implement teacher monitoring mechanisms to ensure that innovations do not create learning inequities and remain aligned with the pesantren culture, which emphasizes discipline and spiritual development. These conditions emphasize that the effectiveness of animated videos depends on the availability of infrastructure, regulations, and institutional support [34].

In the pedagogical realm, educators face challenges in maintaining learning discipline and assessment integrity amidst easy digital access that allows students to obtain answers instantly. The Deputy Head of Curriculum emphasized that impacts that need to be considered include the use of digital media during semester exams, which results in inaccurate assessments of student abilities and triggers laziness in writing. This situation suggests the need for a supervised evaluation design that combines instruments that measure the learning process and product, such as performance observations, portfolio assignments, quizzes, and project-based assignments equipped with rubrics. In this dynamic, teachers' digital literacy is a prerequisite for maintaining educational value in digitalization, encompassing the ability to select credible sources, design activities that require creative thinking, and instill media ethics in students [35]. In line with this, implementation strategies are needed, including device usage regulations, strengthened supervision, and learning about academic honesty, as emphasized in the study of challenges and solutions to utilizing technology in Islamic Religious Education (IRE) learning by Mustapa et al. [36].

Thus, this study enriches the study of Islamic Religious Education (IRE) learning transformation by integrating a constructivist perspective to explain why animated videos can strengthen understanding through active student engagement. Practically, the research findings serve as implementation guidelines for schools, demonstrating that animated videos are effective when selected in accordance with Islamic Religious Education (IRE) objectives, combined with discussions and practices, and supported by school governance to increase motivation without compromising assessment integrity. The limitations of this research lie in its qualitative case study design in a single location with limited informants, so generalizations and quantitative measurements of improved learning outcomes cannot be confirmed. Furthermore, infrastructure constraints and variations in

digital literacy influence the consistency of implementation. Therefore, further research needs to test the effectiveness of animated videos through experiments or mixed methods, comparing several madrasahs, assessing the impact on writing habits and academic honesty, and formulating animation design guidelines that manage cognitive load.

4. CONCLUSION

Based on the research data described previously, the transformation of Islamic Religious Education (IRE) learning through the use of digital animated videos can improve student understanding through the use of animated videos that align with the goals of fostering faith, piety, and morals. The push for digitalization requires teachers to utilize technology to strengthen the quality of the learning process and outcomes. Animated videos as an interactive medium that combines moving images, text, and sound helps present concepts more concretely, maintains focus, and motivates student engagement. However, at MI Az-Zainiyah II, implementation is not evenly distributed because learning is still dominated by lectures and text, affected by limitations in devices, networks, and access to digital learning resources. This condition encourages schools to implement digital adoption selectively by limiting device use and selecting relevant applications. Practically, the use of videos needs to be designed in stages, considering the readiness of facilities, and teacher training to ensure activities remain participatory.

REFERENCES

- [1] L. K. Kalyani, "The role of technology in education: Enhancing learning outcomes and 21st century skills," *Int. J. Sci. Res. Mod. Sci. Technol.*, vol. 3, no. 4, pp. 5–10, 2024.
- [2] S. Ritonga, "Transforming Islamic Education in the Digital Age: Methodological Analyses, Challenges and Opportunities Based on Current Research," *Anshara Int. J. Educ. Sci.*, vol. 2, no. 1, pp. 19–23, 2025.
- [3] Undang-Undang No. 20 Tahun 2003, *Sistem Pendidikan Nasional*, 2003.
- [4] W. Nwankwo, C. Umezuruike, and C. C. Njoku, "Enhancing learning systems using interactive intelligent components," *Int. J.*, vol. 9, no. 3, 2020.
- [5] I. S. Anggreini, M. Muhyi, I. Ketut, and S. Suratno, "Hakikat ilmu dan pengetahuan dalam kajian filsafat ilmu," *J. Ilm. Wahana Pendidik.*, vol. 9, no. 17, pp. 396–402, 2023.
- [6] A. Grubišić *et al.*, "A common model for tracking student learning and knowledge acquisition in different e-Learning platforms," *J. E-learning Knowl. Soc.*, vol. 16, no. 3, pp. 10–23, 2020.
- [7] K. Andriushchenko, V. Kovtun, O. Cherniaieva, N. Datsii, O. Aleinikova, and A. Mykolaiets, "Transformation of the educational ecosystem in the singularity environment," *Int. J. Learn. Teach. Educ. Res.*, vol. 19, no. 9, pp. 77–98, 2020.
- [8] N. T. Azzahra, S. N. L. Ali, and M. Y. A. Bakar, "Teori Konstruktivisme Dalam Dunia Pembelajaran," *J. Ilm. Res. Student*, vol. 2, no. 2, pp. 64–75, 2025.
- [9] A. Susana, *Pembelajaran Discovery Learning Menggunakan Multimedia Interaktif*. Bandung: Tata Akbar, 2019.
- [10] Y. Rahmawati, A. Mu'ti, S. Suyanto, and N. L. R. Herianingtyas, "Pembelajaran Mendalam: Transformasi Pembelajaran Menuju Pendidikan Bermutu," *J. Penelit. Kebijak. Pendidik.*, vol. 18, no. 1, 2025.
- [11] A. Latif, "Pemanfaatan aplikasi YouTube sebagai media pembelajaran Pendidikan Agama Islam di era digital," *J. Tahsinia*, vol. 4, no. 2, pp. 387–400, 2023.
- [12] A. M. Alfi, A. Febriasari, and J. N. Azka, "Transformasi pendidikan agama islam melalui teknologi," *Relig. J. Agama, Sos. dan Budaya*, vol. 2, no. 4, pp. 511–522, 2023.
- [13] E. K. Kotimah, "Efektivitas Media Pembelajaran Audiovisual Berupa Video Animasi Berbasis Powtoon Dalam Pembelajaran Ipa," *Katera J. Sains dan Teknol.*, vol. 1, no. 1, pp. 5–12, 2024.
- [14] Y. Yuliana, H. Hartono, and M. Tibrani, "Analisis Potensi Kebutuhan Pengembangan Video Animasi Konsep Jaring-Jaring Makanan Berbasis Canva Pada Pelajaran IPAS Kelas V SD," *Sci. J. Inov. Pendidik. Mat. dan IPA*, vol. 5, no. 2, pp. 797–807, 2025.
- [15] E. Barut Tugtekin and O. O. Dursun, "Effect of animated and interactive video variations on learners' motivation in distance Education," *Educ. Inf. Technol.*, vol. 27, no. 3, pp. 3247–3276, 2022.
- [16] T. Depita, "Pemanfaatan teknologi dalam pembelajaran aktif (active learning) untuk meningkatkan interaksi dan keterlibatan siswa," *TARQIYATUNA J. Pendidik. Agama Islam Dan Madrasah Ibtidaiyah*, vol. 3, no. 1, pp. 55–64, 2024.
- [17] A. Fajriati, W. Wisroni, and C. Handrianto, "Pemanfaatan teknologi Artificial Intelligence (AI) dalam pembelajaran berbasis peserta didik di era digital," *WAHANA Pedagog. J. Ilm. Pendidik. Dan Pembelajaran*, vol. 6, no. 2, pp. 71–85, 2024.
- [18] N. Ulfatin, *Metode Penelitian Kualitatif di Bidang Pendidikan*. Malang: Media Nusa Creative, 2022.
- [19] A. Masuwai, H. Zulkifli, and M. I. Hamzah, "Self-assessment of secondary school Islamic education teacher: validity and reliability of qualitative study," *Int. J. Eval. Res. Educ.*, vol. 14, no. 2, pp. 961–974, 2025.
- [20] S. Anisa and N. Khasanah, "Transformation of the Islamic Religious Education Curriculum in the Digital and Globalization Era," *TATHO Int. J. Islam. Thought Sci.*, pp. 39–49, 2026.
- [21] H. X. Vu, "Leveraging technology for higher-order thinking development: Instructional design strategies in higher education," *Int. J. Technol. Learn.*, vol. 32, no. 2, p. 25, 2025.
- [22] A. Djuaini, "Internalization of Islamic religious education values in moral development of students in Madrasah," *Afkaruna Int. J. Islam. Stud.*, vol. 3, no. 1, pp. 1–17, 2025.

- [23] M. Maskin, B. Riadi, S. Saidina, L. Marlina, and F. Febriyanti, "Digital Transformation in Islamic Education Management: Strategies of Madrasah Principals in Improving the Quality of Technology-Based Learning," *Int. J. Educ. Lit.*, vol. 4, no. 3, pp. 319–328, 2025.
- [24] F. Al-Banjari, W. Wahab, and N. Mujahidah, "The Contemporary Islamic Religious Education (PAI) Curriculum: Synergy Between Religious Values And Technology," *MSJ Major. Sci. J.*, vol. 3, no. 3, pp. 212–218, 2025.
- [25] M. S. Shobirin and N. Efendi, "Integrating Islamic Values Into Digital Character Education: Managing Curriculum Innovation In The Era Of Education 5.0," *Int. J. Educ. Manag. Relig.*, vol. 2, no. 2, pp. 141–161, 2025.
- [26] L. A. Aryani, E. Silpi, and H. P. Sari, "Globalisasi dan Transformasi Pendidikan Islam: Menyongsong Era Digital," *IHSAN J. Pendidik. Islam*, vol. 3, no. 2, pp. 426–434, 2025.
- [27] S. S. Eraku, M. K. Baruadi, S. P. D. Anantadjaya, S. Fadjarajani, U. Supriatna, and A. Arifin, "Digital literacy and educators of Islamic education," *Edukasi Islam. J. Pendidik. Islam*, vol. 10, no. 01, pp. 569–576, 2021.
- [28] I. Jafar, "Creative Strategies of Teachers in Teaching PAI and Their Implications on Students' Learning Interest," *Int. J. Islam. Educ. Stud.*, vol. 1, no. 2, pp. 99–110, 2025.
- [29] M. Noetel *et al.*, "Video improves learning in higher education: A systematic review," *Rev. Educ. Res.*, vol. 91, no. 2, pp. 204–236, 2021.
- [30] M. Hanif, "The Development and Effectiveness of Motion Graphic Animation Videos to Improve Primary School Students' Sciences Learning Outcomes.," *Int. J. Instr.*, vol. 13, no. 3, pp. 247–266, 2020.
- [31] M. S. Alzboun, N. Z. Halalsheh, F. M. Alslaiti, H. Aldreabi, and N. K. S. Dahdoul, "The Effect of Digital Content Designed Based on Learning Styles on Academic Achievement and Motivation toward Learning.," *Int. J. Educ. Math. Sci. Technol.*, vol. 11, no. 6, pp. 1405–1423, 2023.
- [32] D. M. Voronin, V. G. Saienko, and H. V. Tolchieva, "Digital transformation of pedagogical education at the university," in *International Scientific Conference "Digitalization of Education: History, Trends and Prospects" (DETP 2020)*, 2020, pp. 757–763.
- [33] M. G. Jamil and S. O. Isiaq, "Teaching technology with technology: approaches to bridging learning and teaching gaps in simulation-based programming education," *Int. J. Educ. Technol. High. Educ.*, vol. 16, no. 1, p. 25, 2019.
- [34] J. Bello-Bravo, J. Payumo, and B. Pittendrigh, "Measuring the impact and reach of informal educational videos on YouTube: The case of Scientific Animations Without Borders," *Heliyon*, vol. 7, no. 12, pp. 1–11, 2021.
- [35] O. Wohlfart and I. Wagner, "Teachers' role in digitalizing education: an umbrella review," *Educ. Technol. Res. Dev.*, vol. 71, no. 2, pp. 339–365, 2023.
- [36] K. Mustapa, Y. B. M. Gagaramusu, E. H. Palandi, A. W. Syakhrani, and H. Towpek, "Technology-enhanced education: Nurturing the digital generation-experiences in Islamic schools in Indonesia," *Int. J. Teach. Learn.*, vol. 1, no. 1, pp. 16–40, 2023.