Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

Revisiting Islamic Religious Education in the Digital Era: A Systematic Literature Review on Pedagogical Innovations and Challenges

R Riki* and Ahmad Sukandar

Nusantara Islamic University, Bandung, Indonesia

Corresponding Auhtor: riki@uninus.ac.id

Abstract. This study explores the transformation of Islamic Education (PAI) in the digital era and its implications for pedagogy, ethics, and teacher professionalism. Using a systematic literature review of studies published between 2015 and 2025, it analyzes technological innovations, pedagogical challenges, and the emergence of a new theoretical framework integrating digital literacy with Islamic values. Data were collected from indexed international and national databases and analyzed through qualitative synthesis focusing on instructional innovation, ethical alignment, and ecosystem readiness. The findings reveal that digital PAI innovations such as interactive *dakwah* videos, VR-based worship simulations, project-based learning, and LMS-supported hybrid models enhance engagement and access when accompanied by dual-layered content curation and explicit value alignment. However, issues of infrastructure inequity, teacher competence, online safety, and assessment misalignment remain pressing challenges. The study proposes the Value-Embedded Digital Pedagogy for PAI (VEDiP) framework, which integrates cognitive, affective, and ethical dimensions into digital learning design. VEDiP emphasizes four interdependent principles: epistemic–ethical alignment, networked curation and safety, motivational scaffolding, and formative evidence of character. This framework provides a practical and theoretical pathway for developing an Islamically grounded, context-sensitive digital pedagogy. The research concludes that digital transformation in Islamic Education must be guided by ethical intentionality and systemic coherence to ensure technology serves as a vehicle for both learning excellence and moral cultivation.

Keywords: Digital Literacy, Educational Technology, Ethics in Education, Islamic Education, Teacher Professionalism.

1 Introduction

The rapid digital transformation of the Fourth Industrial Revolution and Society 5.0 has fundamentally reshaped education from teaching learning processes and teacher student interaction patterns to institutional governance. Learning spaces now transcend physical classrooms, demanding flexibility, adaptability, and a redefinition of educator

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

and learner roles. Within this frame, Islamic Education (PAI) faces a dual challenge: remaining pedagogically relevant while staying faithful to the mandate of character and spiritual formation. Contemporary literature notes a shift from teacher-centered to learner-centered models catalyzed by learning management systems (LMS), educational apps, and interactive media that can improve engagement and curricular relevance yet these gains surface parallel issues of digital literacy, inequitable access, and value erosion risks[1]–[3]. These concerns are clearly echoed in the source manuscript, which underscores both the promise and pitfalls of digitalization in PAI.

In Indonesia, the *Merdeka Belajar* policy encourages technology use to deliver more flexible, adaptive, and contextual learning. Aligned with this direction, recent analyses of PAI highlight two entwined trajectories: the opportunity to broaden access and personalize learning through data analytics, interactive content, and hybrid models; and the persistent challenges of teacher digital competence, authentic curation of Islamic content, and safeguarding learners in digital spaces [4].

Global digital literacy frameworks UNESCO's *Global Framework of Reference on Digital Literacy Skills* and the EU's DigCompEdu conceptualize digital literacy not as narrow technical skills, but as a composite of knowledge, skills, and dispositions encompassing information evaluation, content creation, digital safety, and problem solving[5]. In PAI, these dimensions must be tethered to affective outcomes: digital *adab*, trustworthiness (*amanah*), academic honesty, and ethical responsibility online. Meaningful technology integration therefore requires a value-laden curriculum, ethics-oriented pedagogy, educator competence that blends digital–pedagogical–content knowledge, and platform governance that protects privacy, security, and content appropriateness in line with Islamic principles

Evidence shows that technology-enabled PAI innovations interactive *dakwah* videos, VR-assisted worship simulations, digital social-action projects, and LMS-based learning can raise motivation, participation, and the perceived relevance of content[6]. Yet these gains are sustained only when supported by instructional designs that bind cognitive competencies to affective value goals, continuous digital literacy development for teachers and students, and robust curation to mitigate religious mis/disinformation.

The digital divide also shapes equity: disparities in connectivity and devices in remote regions limit PAI digital learning experiences, while uneven teacher readiness affects the quality of technology integration. Consequently, strengthening the digital ecosystem covering infrastructure, competency-based training (digital pedagogical content knowledge), data protection policy, and parent–community partnerships is a precondition for ensuring that PAI's digital transformation advances both equity and quality[7].

In response, emerging scholarship proposes an "Islamically grounded, context-sensitive digital pedagogy" that couples technological affordances with the cultivation of moderate and ethical Islamic values. This paradigm positions teachers as facilitators, learning designers, and digital literacy role models; ties lesson design to indicators of value internalization; and orients digital governance to the principles of justice, *amanah*, and *maslahah*. Put differently, technology is framed as a strategic instrument to enrich spiritual experience and the learning community not an end in itself. The

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

present manuscript argues for precisely this reframing and provides a problem map that motivates a systematic inquiry.

Against this backdrop, the urgency of the study lies in the need for a systematic review and design principles that not only catalog PAI innovations and challenges in the digital era but also articulate actionable pedagogical principles that preserve the authenticity of Islamic values within digitized learning environments. Conceptually, the study contributes a scaffold for integrating digital literacy (access, information competence, media ethics) into the PAI curriculum; practically, it offers operational recommendations to shift technology from a mere tool to a value-rich learning architecture that is relevant, inclusive, and safe for learners

2 Method

This study employs a systematic literature review with critical analysis of indexed scholarly works published between 2015 and 2025, focusing on technological innovations and pedagogical challenges in Islamic Education (PAI). The core procedure comprises the stages of identification, selection, mapping of findings, and critical synthesis, as stated in the source manuscript and aligned with contemporary guidelines for systematic reviews. The time span was chosen to capture the most recent decade of digital transformation in education and to ensure relevance to PAI policy and practice in Indonesia and the region. The initial corpus was drawn from indexed journals/proceedings and reputable repositories (e.g., ERIC, ScienceDirect, accredited national journals), then screened to ensure a direct link to technology integration in PAI and/or Islamic digital literacy[8], [9].

Inclusion criteria covered empirical or conceptual articles that (a) discuss technology-based instructional innovation in PAI (e.g., LMS, interactive *dakwah* videos, VR for worship, digital projects), (b) highlight pedagogical challenges (access gaps, teacher/student digital competence, curation and validity of Islamic content, ethics/privacy issues), or (c) propose models/frameworks for Islamically grounded, context-sensitive digital pedagogy. Exclusion criteria eliminated non-indexed texts, non-scholarly reports, or studies lacking an explicit link between technology and value/character goals in PAI. This approach follows systematic review practices emphasizing process transparency and justified selection criteria.[10]

During data extraction, each included study was coded using a hybrid framework: deductive codes drew on digital-literacy elements (access, information evaluation, content creation, safety, problem solving) recommended by global frameworks (UNESCO/DigCompEdu), while inductive codes captured emergent themes (e.g., digital *adab*/akhlaq, curation practices, value–task alignment, family/community co-regulation). Role–activity matrices, flow maps linking tasks to value indicators, and tables aligning activities with digital-literacy indicators were used for display prior to synthesis. This strategy enabled mapping of innovations (e.g., digital project-based learning, integration with the Pancasila Student Profile, social-media micro-learning) while tying them to PAI's affective–ethical indicators.

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

Rigor and trustworthiness were maintained through source triangulation (multiple databases and publication types), backward citation tracing on key articles to locate additional relevant studies, and an audit trail documenting identification–selection–synthesis steps. Consistency in inclusion/exclusion decisions was supported by a criteria sheet and screening log; member reflection (re-reading interpretations of key findings) was used to keep the synthesis faithful to the intent of primary studies. The review did not stop at technology adoption but examined value indicators (internalization of character, online *adab*, academic honesty) to ensure the synthesis reflected PAI aims rather than only cognitive/technical outcomes.

Finally, synthesis was conducted narratively and analytically, grouping findings into three main outputs consistent with the manuscript: (1) innovations in digital-era PAI, (2) pedagogical challenges and solutions, and (3) formulation/emergence of new theory that links constructivism–connectivism with value-laden digital literacy. This approach preserves methodological fit with the study's objective namely, to organize the conceptual landscape of PAI innovation and problematics while articulating design principles that are relevant, inclusive, and ethical for practice in the field.

3 Results

3.1 Innovations in Digital-Era Islamic Education (PAI)

The corpus shows a marked shift from lecture-centric delivery toward technology-enabled, learner-centered PAI, supported by learning management systems (LMS), educational apps, and interactive media that expand access, personalize pacing, and enable collaboration. When these tools are purposefully aligned with lesson goals, studies report higher engagement and clearer conceptual understanding in PAI lessons.

Teachers increasingly curate multimedia Islamic content from short *dakwah* videos and animated explainers to VR-assisted worship simulations to make abstract concepts tangible, scaffold inquiry, and stimulate discussion. Evidence links such modalities to improved participation and motivation, provided that materials are theologically accurate and age-appropriate.

Innovation is also evident in task design. Digital project-based learning, reflective e-portfolios, and thematic units that weave Islamic digital resources into the Pancasila Student Profile invite students to apply knowledge in authentic contexts e.g., online service projects and collaborative reflections while nurturing higher-order thinking and ethical reasoning.

At the course and school levels, hybrid models (synchronous–asynchronous blends) layered on LMS analytics allow teachers to monitor participation and differentiate support; some cases add micro-learning via social media (short Qur'anic reflections, *hadith* prompts) to extend PAI beyond class time and foster a shared values-based identity.

A consistent thread across studies is the alignment of digital innovation with value formation. Technology yields durable gains when lesson activities explicitly connect cognitive goals to affective ethical indicators (e.g., academic honesty in citation,

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

respectful online discourse, digital *adab*) and when teachers enact robust curation and safety protocols

3.2 Pedagogical Challenges and Solutions

A first, system-level challenge is the digital divide uneven connectivity, device scarcity, and unreliable electricity which constrains authentic participation in technology-enabled PAI. Where bandwidth is limited, rich media becomes exclusionary, and asynchronous tasks pile up without adequate feedback. The manuscript underscores how infrastructure disparities shape opportunity and outcomes, requiring design choices that privilege equity.

A second, pervasive challenge concerns educators' digital–pedagogical competence. Many PAI teachers can operate tools but struggle to translate them into value-rich learning sequences (alignment of objectives, tasks, and assessments), risking tool-driven rather than pedagogy-driven lessons. This competence gap is repeatedly noted in the manuscript and mirrors global findings that educator proficiency must span technology, pedagogy, and ethics.

A third challenge lies in content curation and theological accuracy. The abundance of Islamic materials online raises risks of mis/disinformation, decontextualized quotations, and age-inappropriate media. Without protocols for verification, source transparency, and contextualization, lessons may unintentionally transmit partial or unreliable understandings. The manuscript calls for explicit safeguards that couple scholarly vetting with age-appropriate mediation.

Fourth, online safety, privacy, and digital wellbeing are insufficiently embedded in routine practice. Students may be exposed to intrusive data capture, unsafe interactions, or distracting environments that erode attention and moral focus. The manuscript points to the need for school-level governance (privacy-by-design, consent routines, platform whitelists) and classroom norms (respectful discourse, academic honesty) as integral to PAI's ethical mission.

Fifth, assessment alignment lags behind instructional innovation. When teachers adopt projects, simulations, or micro-learning activities without corresponding formative evidence (e.g., e-portfolios, reflective journals, value rubrics), feedback becomes sporadic and superficial. The manuscript highlights this misalignment and advocates assessment for learning that captures both cognitive gains and affective–ethical indicator[11]–[13].

Sixth, motivation and cognitive load become fragile in always-on digital spaces. Without clear task framing, scaffolds, and timeboxing, students oscillate between multitasking and fatigue, diluting attention to value internalization. The manuscript points to motivational supports autonomy, competence, relatedness and structured pacing to stabilize engagement[14]–[16].

Corresponding solutions in the literature and manuscript are pragmatic. For access, schools can plan low-bandwidth, offline-first pathways (compressed video, downloadable packets, text-first prompts) and provide device rotation or learning hubs to mitigate inequities. For competence, iterative PD mapped to DigCompEdu micro-credentials on task design, feedback, and safety outperforms one-off workshops [2],

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

[3]. For curation, checklists and dual review (pedagogical + theological) with citation norms and age tags reduce risk while modeling academic honesty.

To address safety and wellbeing, schools can implement privacy-by-design policies, whitelisted platforms, consent procedures, and classroom contracts for respectful online behavior, coupled with periodic digital wellbeing check-ins. For assessment, lightweight formative systems e-portfolios aligned to value rubrics, quick reflection prompts, and analytics-informed nudges anchor feedback in evidence. To stabilize motivation and load, teachers can adopt structured routines (clear success criteria, time-boxed tasks, cognitive scaffolds) and community supports (peer feedback circles, parent co-regulation), which the manuscript identifies as essential to sustaining ethical and cognitive aims in PAI.

In sum, the challenge–solution map converges on a design principle: digital PAI thrives when equity, competence, curation, safety, assessment, and motivation are treated as one integrated architecture rather than discrete fixes. Where schools orchestrate these elements coherently, technology becomes a vehicle not only for attention and access but for enduring value internalization aligned with Islamic educational goals

3.3 Toward a Value-Embedded Digital Pedagogy Theory for PAI

Across the corpus, patterns coalesce into a nascent theory that integrates constructivism (knowledge built through active meaning-making) with connectivism (learning across networks and digital nodes), explicitly anchored in value formation central to Islamic Education (PAI). In this synthesis, technology is not a neutral delivery channel but a mediational means that must be designed to bind cognitive goals with affective ethical outcomes [17], [18]. The source manuscript consistently calls for such an integration, insisting that digital tools be tasked to cultivate *adab*, *amanah*, and academic honesty alongside knowledge and skills.

We term this emerging account Value-Embedded Digital Pedagogy for PAI (VEDiP), a design-oriented theory positing that learning gains and value internalization are maximized when lesson activities, platforms, and assessment are co-aligned around ethical, epistemic, and socio-emotional criteria. VEDiP reframes teacher roles from content transmitters to learning designers and curators, and student roles from passive recipients to networked, reflective co-constructors whose online behaviors are part of the curriculum itself[3], [19]. The manuscript's emphasis on curation protocols, respectful discourse, and reflective e-portfolios maps directly onto this reframing.

Core Principle 1: Epistemic–Ethical Alignment. Tasks must make visible the link between knowledge claims and ethical comportment e.g., citing sources faithfully, debating respectfully, practicing digital *adab*, and validating Islamic references against reliable scholarship. This moves innovation from tool novelty to value-laden practice and is consistent with formative models that privilege feedback for improvement over compliance. The manuscript documents multiple instances where such alignment stabilizes engagement and deepens understanding.

Core Principle 2: Networked Curation and Safety. Because PAI draws from abundant online resources, VEDiP requires dual-review curation (pedagogical +

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

theological) and privacy-by-design classroom norms (platform whitelists, consent routines, age tags). This recognizes the connectivist reality of learning while safeguarding accuracy and wellbeing, translating into routine teacher moves (source vetting, age/context mediation) and school governance (clear SOPs). These safeguards are repeatedly urged in the manuscript and global frameworks.

Core Principle 3: Design for Motivation and Cognitive Load. VEDiP assumes that sustained value internalization depends on autonomy, competence, and relatedness and on minimizing extraneous load through clear success criteria, time-boxing, and scaffolded tasks.In practice, that means micro-routines (brief openers/closers), analytics-informed nudges, and community supports (peer feedback circles, family co-regulation) patterns that the manuscript highlights as stabilizing participation in always-on environments.

Core Principle 4: Evidence of Learning and Character. Assessment must capture not only knowledge and skills but also affective–ethical indicators through lightweight e-portfolios, reflective journals, and value rubrics aligned to lesson intents. This is consistent with formative assessment theory and with the document's call to pair digital projects with reflective, value-explicit evidence.

From these principles, VEDiP advances testable propositions: (P1) When PAI lessons explicitly couple cognitive objectives with value indicators in task instructions and feedback, engagement and ethical conduct rise relative to tool-only integration; (P2) When dual-review curation and privacy-by-design are routine, mis/disinformation and unsafe exposure decline while trust increases; (P3) When autonomy-supportive routines and scaffolded pacing are present, motivation and persistence improve, especially in low-bandwidth or high-distraction contexts; (P4) When e-portfolios and value rubrics are used, transfer of values into online behaviors is more likely and more visible to students, teachers, and families.

Operationally, VEDiP is enacted through a plan design enact evidence reflect (PDEER) cycle: plan value-explicit outcomes; design tasks with curated resources and safety norms; enact with scaffolded, low-bandwidth-resilient routines; gather dual evidence (cognitive + ethical); and reflect with students and families to adjust practices. This cycle mirrors continuous-improvement logics while foregrounding value internalization. The manuscript's emphasis on routine curation, reflective prompts, and school-home partnerships naturally fit this PDEER cadence.

In sum, the field's scattered innovations and the manuscript's context-specific insights converge on a theory of Value-Embedded Digital Pedagogy for PAI: a coherent architecture where tools, tasks, and assessment are deliberately orchestrated to produce not only understanding but enduring internalization of Islamic values in networked, digital spaces.

4 Discussion

The findings reveal a shift in Islamic Education (PAI) practices from lecture-based instruction toward technology-supported, learner-centered learning, using LMS platforms, educational apps, and interactive media to expand access, personalize

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

pacing, and open spaces for collaboration. However, effectiveness depends on instructional design that explicitly links cognitive objectives with affective–ethical indicators, ensuring that technology serves pedagogical and moral aims rather than remaining a novelty.

From a theoretical perspective, this pedagogical transformation reflects a synthesis of constructivism learning as meaning-making through activity and connectivism learning as participation within networks and digital nodes. When teachers design tasks that promote exploration, guided dialogue, and value-driven content creation, technology becomes a mediational tool for building both knowledge and character (*adab*, *amanah*, academic honesty).

Innovations such as interactive *dakwah* videos, VR-based worship simulations, digital projects, and social-media micro-learning enhance engagement when pedagogically and theologically curated and tied to value indicators such as respectful digital communication, correct citation, and ethical reflection. Without dual-layered curation (pedagogical + theological), the abundance of online content risks producing mis/disinformation and age–context mismatches, a danger strongly noted in the manuscript, which advocates for SOPs on curation and source verification.

In practice, the digital divide unequal connectivity, device scarcity, and unreliable electricity remains a structural barrier, particularly for high-bandwidth media like video or VR. Consequently, lesson designs must adopt offline-first or low-bandwidth strategies (compressed videos, downloadable packets, text-based prompts) and shared-device or learning-hub models to sustain equitable participation.

Another significant issue concerns teachers' digital–pedagogical competence. Many educators can operate tools but struggle to transform them into coherent, value-driven learning sequences, resulting in *tool-driven* rather than *pedagogy-driven* instruction. The solution lies in tiered professional development mapped to the DigCompEdu framework continuous micro-credentialing focused on task design, formative feedback, and digital safety rather than one-off workshops.

The dimensions of digital safety, privacy, and wellbeing are still insufficiently embedded in classroom routines. Implementing *privacy-by-design* protocols (whitelisted platforms, consent procedures, data safeguards) and classroom contracts for respectful interaction and academic honesty must become integral to PAI's ethical mission.

Assessment alignment also lags behind innovation. Through e-portfolios, reflective journals, and value rubrics, teachers can document both cognitive and ethical progress (respectful debate, credible sourcing, *adab* in commenting) and deliver feedback that is formative rather than judgmental.

Motivation and cognitive load are also critical in always-connected environments. Micro-routines (concise openers and closers, clear success criteria, time-boxed tasks), analytics-based nudges, and community supports (peer feedback, parental co-regulation) sustain autonomy, competence, and relatedness three psychological needs in Self-Determination Theory while minimizing extraneous cognitive load[20].

Building on these findings, the study proposes the Value-Embedded Digital Pedagogy for PAI (VEDiP) framework a design architecture demanding coherence among cognitive objectives, ethical indicators, dual curation and safety mechanisms,

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

structured motivational supports, and integrated evidence of learning and character. VEDiP redefines teachers as designers and curators of learning and students as reflective co-constructors within digital networks an orientation endorsed by both the manuscript and global frameworks.

The practical implications are clear: (1) design dual-path bandwidth systems (low-bandwidth and rich media) from the outset; (2) build tiered PD mapped to DigCompEdu, combining coaching and PLCs; (3) establish curation and privacy-by-design SOPs; (4) employ lightweight formative systems (e-portfolios, reflective prompts, value rubrics) linking feedback with moral indicators; and (5) operationalize micro-routines and *nudges* to stabilize motivation and manage cognitive load. At the policy level, schools must institutionalize platform governance and parent–community partnerships to ensure digital PAI transformation remains relevant, inclusive, safe, and value-rich.

5 Conclusion

This study concludes that the digital transformation of Islamic Education (PAI) has opened significant opportunities for improving engagement, access, and personalization through learning management systems, educational apps, and interactive media. However, the research demonstrates that technology alone does not guarantee educational or moral progress. Effective integration must deliberately connect cognitive objectives with affective ethical formation, aligning pedagogy, content, and digital practice with Islamic principles of *adab*, *amanah*, and academic honesty. The Value-Embedded Digital Pedagogy for PAI (VEDiP) framework synthesized in this study offers a coherent structure linking teacher competence, content curation, privacy and safety norms, formative assessment, and motivational design into a single value-rich learning architecture. When these components operate in harmony, technology becomes a *means* of spiritual and intellectual development rather than an end in itself.

Furthermore, the study underscores that sustainable digital innovation in PAI requires a supportive ecosystem adequate infrastructure, policy coherence, professional learning communities, and strong school–family partnerships. Only when schools embed these structural and cultural foundations can PAI's digital transformation fulfill its dual mandate: fostering critical, creative learners while nurturing ethically grounded, spiritually aware citizens. This framework contributes theoretically by articulating a model for *Islamically grounded digital pedagogy* and practically by guiding educators and policymakers in designing technology integration that is relevant, inclusive, and morally responsible in the context of 21st-century education.

References

[1] N. W. Y. Law, D. J. Woo, J. De la Torre, and K. W. G. Wong, "A global framework of reference on digital literacy skills for indicator 4.4. 2," 2018.
[2] C. Redecker and Y. Punie, "Digital competence of educators," *Ed. by Yves Punie*, 2017.

Journal of Science and Education (JSE)
Vol 6, Special Collection 1.2, September 2025, Pages 1-10
ISSN: 2745-5351 (Media Online)
DOI: https://doi.org/10.58905/jse.v6i1.2.657

[3] F. Caena and C. Redecker, "Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu)," *Eur. J. Educ.*, vol. 54, no. 3, pp. 356–369, 2019.
[4] A. Ali, A. Apriyanto, T. Haryanti, and H. Hidayah, *Metode Pembelajaran Inovatif: Mengembangkan Teknik Mengajar Di Abad 21*. PT. Sonpedia Publishing Indonesia, 2024.
[5] D. Radovanović *et al.*, "Digital literacy key performance indicators for sustainable development," *Soc. Incl.*, vol. 8, no. 2, pp. 151–167, 2020.
[6] Z. Asril, S. Syafril, E. Engkizar, and Z. Arifin, "Advancing educational practices: Implementation and impact of virtual reality in islamic religious education," *J. Pendidik. Islam*, vol. 9, no. 2, pp. 199–210, 2023.
[7] M. C. M. Bravo, C. S. Chalezquer, and J. Serrano-Puche, "Meta-framework of digital literacy: A comparative analysis of 21st-century skills frameworks," *Rev. Lat. Comun. Soc.*, no. 79, pp. 76–109, 2021.
[8] P. V. Torres-Carrión, C. S. González-González, S. Aciar, and G. Rodríguez-Morales, "Methodology for systematic literature review applied to engineering and education," in *2018 IEEE Global engineering education conference (EDUCON)*, 2018, pp. 1364–1373.
[9] F. Dziopa and K. Ahern, "A systematic literature review of the applications of Q-technique and its methodology," *Methodology*, 2011.
[10] A. Nightingale, "A guide to systematic literature reviews," *Surg.*, vol. 27, no. 9, pp. 381–384, 2009.
[11] V. Griggs, M. Blackburn, and J. Smith, "The educational scorecard: The Start of our Journey," *Electron. J. Bus. Res. Methods*, vol. 10, no. 2, pp. 121–131, 2012.
[12] L. Darling-Hammond, "Teacher education around the world: What can we learn from international practice?," *Eur. J. Teach. Educ.*, vol. 40, no. 3, pp. 291–309, 2017.
[13] P. Black and D. Wiliam, "Developing the theory of formative assessment," *Educ. Assessment, Eval. Account. (formerly J. Pers. Eval. Educ.*, vol. 21, no. 1, pp. 5–31, 2009.
[14] M. C. Martínez-Bravo, C. Sádaba Chalezquer, and J. Serrano-Puche, "Dimensions of digital literacy in the 21st century competency frameworks," *Sustainability*, vol. 14, no. 3, p. 1867, 2022.
[15] E. L. Deci and R. M. Ryan, "Self-determination theory," *Handb. Theor. Soc. Psychol.*, vol. 1, no. 20, pp. 416–436, 2012.
[16] L. Darling-Hammond and N. Richardson, "Research review/teacher learning: What matters," *Educ. Leadersh.*, vol. 66, no. 5, pp. 46–53, 2009.
[17] L. S. Vygotsky and M. Cole, *Mind in society: Development of higher psychological processes*. Harvard university press, 1978.
[18] G. Siemens, "Connectivism: Learning as network-creation," *ASTD Learn. News*, vol. 10, no. 1, pp. 1–28, 2005.
[19] A. Johnson, "Bruner's learning theory," *Essent. Learn. Theor. Their Appl.*, pp. 1–5, 1996.
[20] E. L. Deci and R. M. Ryan, "The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior," *Psychol. Inq.*, vol. 11, no. 4, pp. 227–268, 2000.

