

Islamic religious educators in Society 5.0: Challenges and strategies for digital character formation in smart classrooms

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Abstract

This article examines how Islamic religious education cultivates digital character within Society 5.0 smart classrooms. Using a library-based study with a descriptive-analytical approach, the review maps the literature onto internal factors (competence and pedagogical paradigm) and external curricular factors (infrastructure, content, and design), and then derives operational strategies. The findings indicate that the challenges are multidimensional. Internally, teachers face uneven information and communication technology competencies, a persistent teacher-centred paradigm, and cultural resistance. Externally, infrastructural disparities, scarcity of curated digital Islamic religious education content, and curricula that rarely tether technology to Islamic values weaken classroom practice. This configuration heightens students' exposure to disinformation, cyberbullying, and soft radicalisation; risks dehumanisation; and reduces Islamic education teachers to mere device operators. The study proposes reorienting teachers as moral navigators and humanisers of technology, alongside implementing project-based learning and blended-flipped learning methods that explicitly integrate Islamic values into digital practice, so that technology consistently serves the formative aims of Islamic education.

Keywords: Society 5.0; Islamic religious education; smart classroom; digital character; Project-Based Learning

Introduction

The acceleration of educational digitalisation is transforming classroom ecosystems into smart classrooms that integrate Learning Management Systems (LMS), computing devices, and online-offline interactions (Zhang et al., 2025). Consequently, Islamic religious education teachers have shifted from mere content delivery to digital role models and designers of ethically grounded learning experiences (Pradonansyah et al., 2025). Within the Society 5.0 landscape, learning can no longer be satisfied with targeting technological literacy alone (Shahidi Hamedani et al., 2024); the central challenge is the

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formation of a digital character firmly rooted in foundational Islamic ethical values, which must be explicitly tied to Islamic religious education learning objectives and everyday classroom practice (Zainudin et al., 2025). At the same time, curriculum innovations grounded in local wisdom reveal opportunities to contextualise Islamic values in students' digital practices (Fajrussalam et al., 2020). Nonetheless, these initiatives require functional, quantifiable pedagogical frameworks that go beyond declarations. This change means that teachers must be moral guides (*murabbi*) and technology facilitators, with a professional-spiritual identity constantly being worked out in practice (Succarie, 2024).

Several studies have mapped the landscape of Islamic education in the era of Society 5.0. Zainudin et al. (2025) propose a spiral model of integration to align Islamic values with the *Kurikulum Merdeka*. Fajrussalam et al. (2020) underscore the urgency of innovation in Islamic religious education curricula based on local wisdom. Succarie (2024) shows how context-specific Islamic teacher education can shape a faith-centred professional identity. At the level of practice and technology, Hidayat et al. (2025) and Pradonansyah et al. (2025) highlight smart-classroom adoption alongside persistent challenges in technological competence and in orchestrating devices and infrastructure.

Nevertheless, prior research remains fragmented, concentrating on either curricular frameworks (Zainudin et al., 2025), local-wisdom contexts (Fajrussalam et al., 2020), or specific technological adoption challenges (Hidayat et al., 2025; Pradonansyah et al., 2025). It has not yet systematically delineated internal (paradigm, competence) and external (infrastructure, content) challenges faced by Islamic religious education teachers, analysed their implications for students' digital moral crises, or synthesised effective pedagogical strategies for smart classrooms. This study positions itself to fill that gap through a holistic, descriptive-analytical literature review.

This article aims to map the internal-external challenges of digital character formation in Islamic religious education smart classrooms and to synthesise role-revitalisation and pedagogical strategies that are implementable at both classroom and ecosystem levels. This article argues that the primary constraint is not merely technical but reflects a pedagogical-ethical paradigm shift. Accordingly, the proposed strategies do not focus on stacking tools; instead, they emphasise revitalising teachers' roles as moral navigators through a value-anchored digital pedagogy framework, so that technology consistently serves the core objective of Islamic education (moral and character formation).

Literature Review

The Society 5.0 era is characterised by a new human-centric paradigm in which advancements in Artificial Intelligence (AI), Big Data, and the Internet of Things (IoT) are utilised to improve the quality of life and tackle social issues (Martini et al., 2024). Industry 4.0 emphasises the efficacy of automation, whereas Society 5.0 prioritises the integration of cyber and physical environments to enhance the humanity of social processes, such as education (Adel, 2024). Within this framework, IoT refers to an interlinked network of devices that collect, exchange, and analyse data in real time (Rathore et al., 2018). This ecosystem culminates in the educational sector through smart classrooms, a learning environment built on integrated information systems to improve the quality of instructional processes and interactions (Pardo-Baldoví et al., 2023). On this conceptual foundation, further inquiry is needed into how implementing Society 5.0 in smart classrooms generates opportunities and challenges.

The application of Society 5.0 in smart classrooms is commonly mapped onto three domains: AI-based personalised learning, platform-mediated collaborative learning, and data-driven instruction via analytics for real-time feedback (Leon et al., 2025). Such configurations expand cognitive access, accelerate differentiation, and streamline classroom management. However, a paradox emerges: optimising technology simultaneously widens exposure to disinformation, hoaxes, and cyberbullying, while introducing risks of algorithmic bias and the dehumanisation of learning interactions. Effectiveness, therefore, is determined not merely by technological sophistication but by an ethical-pedagogical framework that keeps technology at the service of education's human ends (Matar, 2025). The key question becomes: what role must educators, particularly Islamic religious education teachers, assume so that technology transforms without eroding the value dimension?

Teacher competence standards consist of four foundational pillars: instructional, professional, personal (character), and social (Arif et al., 2025). In the digital age, these jobs are evolving from mere content broadcasters to facilitators and innovators who create significant learning experiences enhanced by technology (Mufid et al., 2025). Within the digital ecosystem, the role spectrum of Islamic religious educators widens beyond content curation and process management to include serving as moral exemplars and digital mentors who guide students in navigating cyberspace responsibly (Kurniawan & Annisah, 2025). This expanded mandate logically requires a reassessment of competencies to ensure Islamic educational values remain safeguarded in practice.

The complexity of tasks in a Society 5.0 ecosystem necessitates a fifth technological (digital) competence integrated with the original four pillars (Arif et al., 2025). Its urgency is amplified by the dual expectation that Islamic religious educators master digital pedagogy and model virtuous technology use (Ma'mun et al., 2025). Here, a problem surfaces: whereas secular teacher education often culminates in a license to teach, Islamic teacher education ought to cultivate a purpose for teaching centred on faith and the common good (Succarie, 2024). In line with this, an Islamicized Technological Pedagogical Content Knowledge (TPACK-I) framework requires integrating technology, pedagogy, and content, while explicitly safeguarding Islamic values in every design decision and in all practices of digital instruction (Pradonansyah et al., 2025). At this point, competence foundations converge with character foundations, particularly the notion of digital character.

In general scholarship, digital character is often aligned with digital citizenship: the capacity to participate responsibly in cyberspace, grounded in ethics, safety, and adequate digital literacy (Martínez-Bravo et al., 2022). From the perspective of Islamic religious education, this concept aligns with the fundamental objective of character development (*tahdhib al-akhlaq*), guiding students to embody virtuous values in both the physical and digital realms (Budiyo et al., 2024). Thus, Digital competence is not a cosmetic add-on to the curriculum but a new medium for actualising virtue. This congruence opens a pathway to marry the universal digital-citizenship framework with Islamic normative principles.

Islamic religious education integrates global frameworks and provides a normative-spiritual foundation through religious moderation (*wasatiyyah*), emphasising balance, tolerance, and opposition to extremism (Jamilah, 2021). The practice of essential digital literacy is manifested in validating information to dismiss falsehoods (*tabayyun*), managing the digital footprint as *amanah*, and creating constructive content informed by an ethos of *ihsan* (Suliman et al., 2023). Thus, digital character transcends mere technical proficiency; it serves as a conduit for enhancing students' religious motivation while ensuring that technological advancements in smart classrooms correspond with the objectives of Islamic education in cultivating character and virtue.

Method

This study employed a library research design with a qualitative descriptive-analytical approach. This design was used to map scholarly discussions of the challenges faced by Islamic religious education teachers and to synthesise pedagogical strategies for

digital character formation in Society 5.0 smart classrooms. The descriptive dimension was used to identify and organise the internal, external, and curricular challenges discussed in the literature, while the analytical dimension was used to interpret their implications for students' digital morality and the role of Islamic religious education teachers. The research was conducted through systematic reading, selection, classification, and synthesis of relevant academic sources.

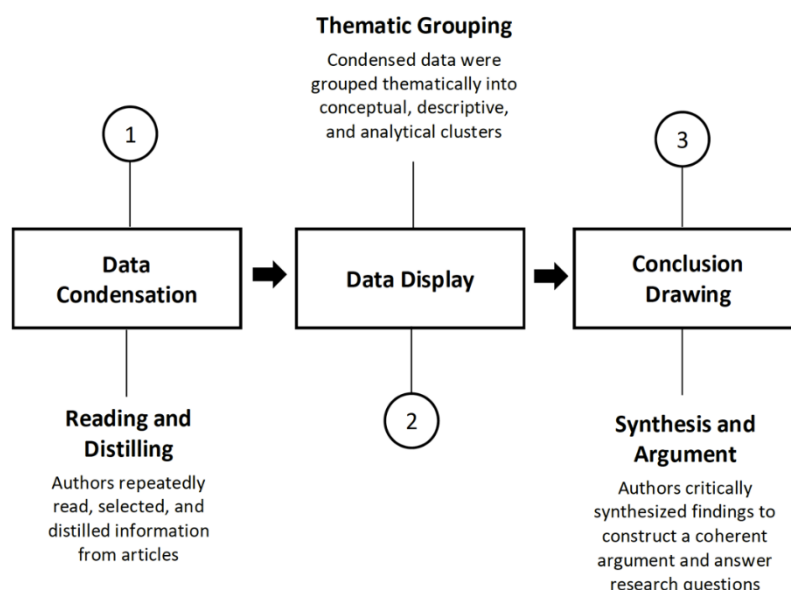
The unit of analysis in this study focused on five interconnected themes: Society 5.0, smart classrooms, Islamic religious education teachers, digital character formation, and value-based digital pedagogy. This unit of analysis was chosen because the study's object was the academic discourse and conceptual patterns that explain how Islamic religious education should respond to digital transformation. Therefore, the analysis examined how the literature frames teacher competence, pedagogical paradigm shifts, infrastructure and content challenges, student moral risks, and implementable strategies such as TPACK-I, project-based learning, and blended-flipped learning.

The data sources consisted of secondary data drawn from national and international peer-reviewed journal articles. The literature was selected purposively from indexed academic databases. The selected sources provided several types of information: theoretical discussions of Society 5.0 and smart classrooms; empirical and conceptual studies of Islamic religious education in the digital era; studies of teacher competence and digital pedagogy; and literature on digital citizenship, religious moderation, and character formation. The inclusion criteria emphasised thematic relevance, academic credibility, and publication within the last decade, particularly studies that directly addressed Islamic religious education, digital learning environments, smart classrooms, and digital character formation.

Data analysis used thematic analysis through three operational stages. First, data condensation was carried out by repeatedly reading the selected articles, extracting relevant arguments, and removing information that was not directly related to the research focus. Second, data display was conducted by grouping the extracted information into conceptual, descriptive, and analytical clusters. Third, conclusion drawing was carried out by synthesising the thematic patterns into a coherent explanation of the challenges, implications, and strategies for strengthening digital character formation in Islamic religious education smart classrooms.

Figure 1.

Thematic Analysis Process



Note. Figure processed by authors (2025).

Results and Discussion

Internal Challenges of Islamic Religious Education Teachers: Digital Competence and Paradigm Shift

At present, the most fundamental obstacles for Islamic education teachers stem from uneven technological competence and digital literacy, often described as inconsistent technological competencies (Hendawi & Qadhi, 2024). This is evident in operational difficulties with basic smart-classroom devices (laptops, interactive projectors, smart screens), uncertainty in selecting platforms appropriate to specific learning goals, and limited capacity to leverage learning analytics for formative feedback (Mufid et al., 2025). Pedagogically, low levels of digital literacy translate into procedural rather than design-minded lesson planning, so that technology is treated as an add-on rather than systematically integrated into learning flows and affective assessment. This condition produces a domino effect: value-oriented aims are difficult to translate into online activities, and the quality of interaction in cyberspace becomes fragile, particularly when teachers must make rapid decisions in smart classrooms (Pradonansyah et al., 2025).

Beyond technical issues, a teacher-centred mindset persists, with classroom decision-making relying on teacher control and one-way transmission (Bhardwaj et al., 2025). This orientation aligns with cultural resistance premised on fears that technology may erode the authenticity of Islamic values, distract students, or trigger misuse of social media (Sanusi, 2024). As a result, technology is frequently positioned as a mere presentation aid

rather than a value-conscious educational medium. Simultaneously, technology is often regarded as a mere presentation tool rather than a valuable instructional resource. Islamic education teachers face a twofold expectation: to excel in digital pedagogy while acting as ethical role models in technology use, frequently without a sufficient decision-making framework (Ma'mun et al., 2025). From a teacher-education perspective, this intersects with the distinction between a license to teach and a purpose for teaching, emphasising faith and public good as the core of pedagogical praxis (Succarie, 2024). At this juncture, the need for technological competence integrated with the other competency domains becomes increasingly evident (Arif et al., 2025).

Moreover, the internal problem is not merely a lack of skills but a lack of framing. Teachers struggle to convert digital tools into value-laden instructional practice without an integrative framework that ties technological, pedagogical, and content decisions to Islamic values (Pradonansyah et al., 2025). This framing gap traps instructional strategies at the level of tool operation rather than the design of learning experiences that explicitly cultivate Islamic digital character, such as verification (*tabayyun*), trustworthiness (*amanah*), and excellence (*ihsan*) (Permana & Hasanah, 2024). Consequently, routine classroom decisions, choosing platforms, structuring interactions, providing feedback, or assessing online participation, do not consistently align with the aims of Islamic education. This also explains why teacher performance often appears uneven despite participation in technical training. Thus, even if specific individual weaknesses are addressed, the transformative impact will remain limited if structural factors beyond the teacher, particularly infrastructure, content availability, and curricular design, do not provide adequate support.

External and Curricular Factors: Infrastructure, Content, and Learning Design

At the structural level, the preparedness of smart classrooms is influenced by the availability of devices, the dependability of connectivity, and the provision of ongoing technical assistance (Alfoudari et al., 2023). The literature highlights ongoing infrastructural inequalities between urban and rural schools, including unreliable internet access, insufficient gadgets (interactive projectors, smart screens, cameras), and inconsistent maintenance and device security (Hidayat et al., 2025). The lack of Information and Communication Technology (ICT) technicians or a school helpdesk places a dual burden on Islamic education teachers, who are required to instruct while simultaneously addressing technological issues, thereby diminishing their creative capabilities to mere basic presentation use (Thursina & Rusdi, 2024). Simultaneously, inflexible procurement regulations and inconsistent bring-your-own-device (BYOD)

initiatives exacerbate disparities in student access (Fioravanti et al., 2024). Collectively, these limitations inhibit the pedagogical potential of technology, rendering the sustainability of smart-classroom innovation challenging even post-teacher training (Pradonansyah et al., 2025).

Aside from hardware, a significant challenge is the accessibility and curation of high-quality, value-aligned digital content for Islamic education (Minarti et al., 2023). Educators frequently depend on resources distributed across public platforms (such as brief films, infographics, and blogs) but encounter issues related to validity, licensing, and alignment with values, stemming from algorithmic recommendation biases and inadequate provenance verification of sources (Sanusi, 2024). The lack of curated repositories and pedagogical-normative information (learning objectives, cognitive levels and virtue indicators) hinders alignment with Islamic education outcomes and the principles of *tabayyun* and *amanah* (Nurhayati et al., 2025). Consequently, instructional time is consumed by content selection and verification, resulting in inconsistent learning experiences across classes. Even where infrastructure is adequate, a fragile content ecosystem means smart-classroom practice does not automatically carry educational value. This leads to a design question: how can curriculum and lesson design explicitly tether technology to the aims of Islamic education?

In this context, curriculum manuals and lesson plans frequently do not explicitly connect the utilisation of technology with digital character development (Harris & Hofer, 2011). Learning outcomes are primarily cognitive, but affective markers such as *tabayyun*, *amanah*, and *ihsan* are seldom incorporated into rubrics for digital assignments. Without frameworks like TPACK-I, design decisions (platform choice, interaction types, feedback strategies and moderation mechanisms) remain untethered to Islamic values, allowing gamification to drift toward points chasing rather than virtue cultivation. This design gap makes it difficult for teachers to mobilise technology as a medium of Islamic education rather than merely as a technical aid. Accordingly, misalignment across infrastructure, content, and curriculum configures a context that directly affects the quality of students' learning experiences and the overarching mission of Islamic education.

Implications for Learners and the Mission of Islamic Education: Moral Crisis and Dehumanisation

Internal constraints (skills and attitudes) and external curricular constraints (infrastructure, content, and design) directly affect students' learning. Unfiltered information flows make students more likely to believe false information, hoaxes, and hate speech that are common on social media (Kurniawan & Annisah, 2025). In smart

classrooms, teachers and students who are not very proficient with technology encourage copy-paste learning and the consumption of shallow materials, making it harder to read deeply, think critically, and pay attention for long periods (Cladis, 2020). This process leads to information overload and decision fatigue, which means that people often make quick decisions about ethics in cyberspace, checking sources (*tabayyun*), or not sharing sensational news. As a result, the smart classroom could become a loud place that speeds up thinking but slows down the moral and intellectual reflection needed to build beneficial character.

When digital interactions are not designed and moderated with explicit value-consciousness, peer communication slides into cyberbullying, identity-based harassment, and polarisation amplified by recommendation algorithms (Sagala & Kandedes, 2024). Weak critical literacy increases the likelihood of echo chambers and filter bubbles, facilitating soft radicalisation and gradually strengthening intolerant attitudes through repeated exposure to homogeneous content (Nurhayati et al., 2025). At this point, the mission of Islamic education is impeded: rather than cultivating empathetic sensitivity and the *adab* of dialogue, cyberspace tends to normalise quick-response culture, callouts, and performative self-assertion. The smart classroom loses its capacity as a safe, value-laden arena for civil discourse without firm pedagogical–ethical intervention (Murtiningsih & Sujito, 2025).

There are more signs of moral decay: a weakening sense of modesty (*haya*) in digital self-expression; the normalisation of self-image manipulation (excessive narcissism); and a drop in honesty (*sidq*) and responsibility in online assignments (Sagala & Kandedes, 2024). Weak provenance checks and a culture of forwarding without verification have compromised information integrity. Simultaneously, content creation prioritises attracting attention over assisting (Kurniawan & Annisah, 2025). Influencer logic and virality metrics supplant moral authority, diminishing respect for educators and guardians. This trajectory contradicts *tahdhib al-akhlaq* and the notion of *insan kamil*, which require uniformity in conduct across the physical and digital realms (Zainudin et al., 2025). In other words, the issue of digital character is not just a lack of skills but also a lack of virtues or the inability to turn values into consistent online habits (Dennis & Harrison, 2021).

The accumulation of these problems culminates in two strategic consequences. *First*, the dehumanisation of the learning process: technology sets the classroom tempo, while pedagogical relationships, meant to cultivate meaning, empathy, and the habituation of *adab*, are pushed to the margins. *Second*, the role reduction of teachers, Islamic education

teachers' risk being recast as device operators and workflow managers rather than moral navigators who guide value-laden digital decision-making. If left unaddressed, the drift from the soul's formation to merely technical content transfer will harden, distancing the smart classroom from the aims of Islamic education. Hence, a suite of revitalisation strategies is required, beginning with role reorientation and adoption of the TPACK-I framework, followed by project-based pedagogical designs and ecosystem strengthening, so technology once again serves humanising purposes and character formation.

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

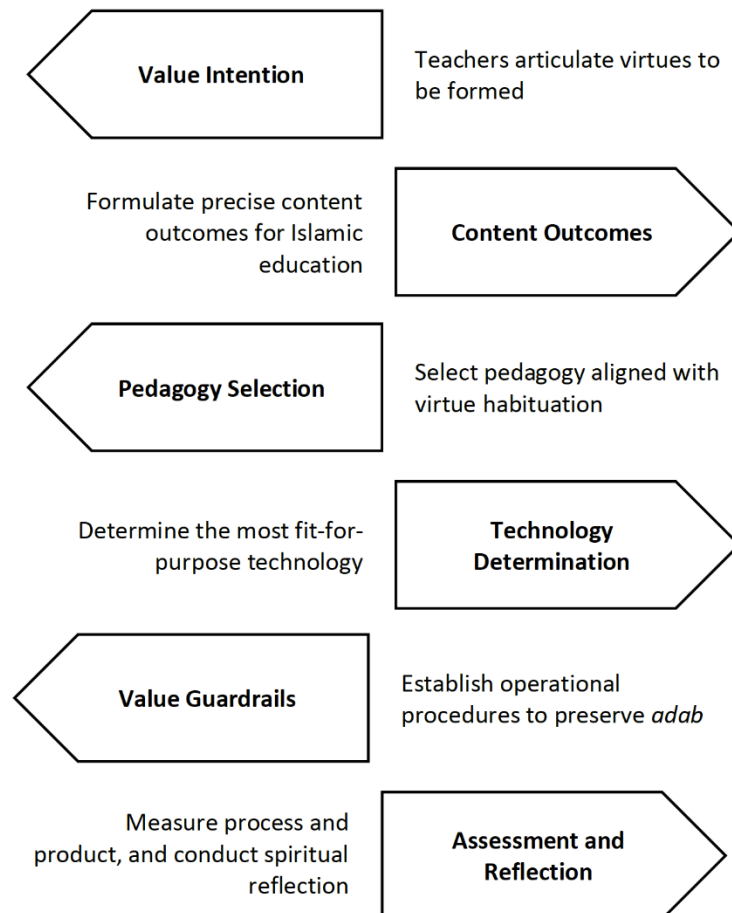
The first step in revitalising the role of Islamic religious education teachers in the Society 5.0 era is to reconfigure their professional identity from mere device managers to moral navigators, figures who guide every digital decision according to the aims of Islamic education, and humanisers of technology who ensure that tools consistently serve human dignity (Permana & Hasanah, 2024). This reorientation operates through three vantage points: the telos of Islamic education that affirms *akhlaq* formation as the primary outcome; the human-centred impact on learning processes and relationships; and the social usefulness of students' digital products/footprints. In the classroom, this identity is enacted when teachers serve as content curators (verifying provenance and value congruence) (Kessler, 2021), ethics mediators (mapping digital options to the principles of *tabayyun*, *amanah*, and *ihsan*) (Nurhayati et al., 2025), architects of interaction (designing respectful online dialogue), and models of digital hygiene (privacy, security, and responsible digital footprints) (Engeness, 2021). With this renewed identity, technology ceases to be the focal point and returns to its proper place as a medium for attaining ethical–spiritual competencies.

As a core strategy, the TPACK-I framework provides an operational decision map that explicitly binds technology, pedagogy, content, and Islamic values. Implementation begins with a value intention, in which teachers articulate the virtues to be formed, such as cultivating *tabayyun* when studying the Qur'an or Hadith. This is followed by formulating precise content outcomes for Islamic education (Arlinda, 2024), selecting pedagogy aligned with virtue habituation, such as PjBL or inquiry (Hinnant-Crawford et al., 2024), and determining the most fit-for-purpose technology (minimalist), such as LMS forums or micro-videos. Next, value guardrails are established as operational procedures that preserve *adab*: mandatory source verification, civility rules in dialogue, and citation standards as a form of scholarly *amanah*. The sequence closes with assessment and reflection: rubrics that measure both process and product (Coertjens et al., 2021), alongside sessions of spiritual reflection (*muhasabah*) to connect students'

digital experiences with intention and character (Farhan, 2025). Every technical choice is automatically tethered to a moral compass through this structured flow.

Figure 2.

TPACK-I Framework Implementation



Note. Figure processed by authors (2025).

At the classroom practice level, pedagogical strategies such as PjBL, blended-flipped learning, and gamification become effective when their success indicators are explicitly tied to *akhlaq* formation. PjBL, for instance, can direct students to produce valuable digital footprints by poster campaigns on *tabayyun* or short *da'wa* videos, where the end-to-end process teaches verification and public responsibility. Flipped learning can place basic content consumption in the pre-class phase, such as micro-videos on honesty and rectifying intention, allowing synchronous time (face-to-face or virtual) to focus on ethical coaching and practice in civil dialogue (Tian & Tsai, 2021). Likewise, gamification should prioritise the attainment of virtues to evaluate the quality and positive impact of student-produced content.

These pedagogical strategies will remain fragile without a supportive ecosystem. The LMS must be configured to be value-safe at the technological layer by implementing content moderation queues and hate-speech filters. At the content layer, schools should build curated repositories of Islamic education materials equipped with pedagogical–normative metadata (learning objectives and virtue indicators) so that teachers do not start from scratch (Askar et al., 2025). At the collaboration layer, the tri-centre integration (school, home, and community) needs to be operationalised through a parental digital covenant between parents and students, joint literacy workshops with moderate communities, and clear incident-response SOPs, such as for cyberbullying or hoaxes, to close dehumanisation gaps while educating the learning community (Hutchison et al., 2020).

For sustainability, implementation should follow a pilot-evaluate-iterate cycle. Teacher-side indicators include improved TPACK-I competence, higher-quality value-anchored lesson designs, and consistent digital role modelling. Student-side indicators include a digital-character index, the quality of the digital footprints produced, and analyses of substantive (not merely frequent) LMS participation. Assessment instruments should be varied, combining rubrics, reflective journals, and incident logs for ethical cases (Coertjens et al., 2021). These evaluation data then inform lesson study or action research to refine designs, prune unnecessary tools, and strengthen the interventions that most impact students' character.

Conclusion

The instructors of Islamic religious education in Society 5.0 smart classrooms have several problems in imparting digital character education. These challenges originate from both internal and external causes within the classroom. The primary issues are the deficiency of digital competencies and the prevalence of conventional teaching methods. The issues are exacerbated by infrastructure disparities and the lack of curated digital Islamic educational resources. The combined implications are profound: heightened student vulnerability to moral crises online, such as radicalisation and dehumanisation, and the risk that Islamic religious education teachers' roles are reduced to mere technical operators. As a response, the study recommends a role reorientation toward teachers as moral navigators, supported by a value-anchored digital pedagogy framework such as TPACK-I, along with the implementation of innovative methods, including Project-Based Learning (PjBL) and Flipped Learning.

The study enhances understanding by offering a thorough integration that connects the Society 5.0 discourse, smart-classroom pedagogy, and the character-building objectives of Islamic education, which are usually considered separately. It enhances comprehension of how technology can be effectively integrated without undermining fundamental Islamic beliefs. The study's primary practical contribution is the development of operational pedagogical strategies that integrate universal digital citizenship with Islamic normative principles, such as verification (*tabayyun*) and trustworthiness (*amanah*), ensuring that technology consistently supports the fundamental objectives of Islamic education (moral and character development).

The study's primary limitation is its classification as a solely descriptive-analytical literature review. All the problems and solutions are theoretical combinations of what we already know and have not been tested in real Indonesian Islamic religious education smart classrooms. Therefore, further research is strongly recommended to validate and assess the effectiveness of the proposed frameworks and strategies. Subsequent research should incorporate action research or multi-site case studies within educational institutions to apply the suggested pedagogical frameworks and assess their direct influence on students' digital character development.

Author Contribution Statement

Author contributions to this article: Siti Halimah and Nur Fitriah contributed as the initiator and drafter of the article, as well as the data analyst and interpreter; Naila Marissa contributed, and Alfi Nur Chasifah contributed as a validator of the data and analysis results, collected the data, and critically revised the article. All authors agree to be accountable for all aspects of this work.

Statement of Interest

All authors declare that they have no conflicts of interest.

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