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RELIGIOUS VALUES SHAPE DIGITAL CURRICULUM MANAGEMENT IN INDONESIAN ISLAMIC EDUCATION: AN INTEGRATIVE REVIEW

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Abstract: Digital transformation has reshaped curriculum management in Islamic educational institutions, generating tensions between technological efficiency and the spiritual-ethical foundations that define Islamic pedagogy. This study examines how digital technology integration in Islamic curriculum management generates, sustains, or resolves cognitive-spiritual tensions in Indonesian Islamic educational institutions. Using an integrative literature review methodology, 23 peer-reviewed sources published between 2017 and 2026 were systematically identified, screened, and synthesized through thematic analysis from an initial pool of 330] identified records. Findings reveal three key outcomes: first, religious and spiritual orientation consistently overrides technical factors as the primary determinant of technology adoption; second, cognitive costs of digital technology use are relatively context-independent, while spiritual-affective outcomes are highly contingent on deliberate instructional design and institutional management quality; third, productive digital curriculum management operates through three nested mechanisms, humanized instructional design, quality management systems, and institutional Islamic identity alignment. The study proposes reconceptualizing spiritual formation as an operational variable of curriculum management rather than a peripheral aspiration, offering curriculum managers an evidence-based framework that transcends the false choice between digital innovation and Islamic educational integrity.

Keywords: Islamic curriculum management; digital pedagogy; cognitive-spiritual integration; integrative literature review.

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INTRODUCTION

The rapid advancement of digital technology has fundamentally altered the landscape of education globally, and Islamic educational institutions are no exception to this transformation. Madrasah, pesantren, and Islamic higher education institutions across Indonesia are increasingly confronted with the dual imperative of embracing technological innovation while preserving the

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spiritual and ethical foundations that define Islamic pedagogy.[1] While this phenomenon is increasingly global, the present study focuses specifically on the Indonesian context, where Islamic educational institutions operate within a distinct national policy environment shaped by simultaneous pressures of curriculum reform, digital transformation agendas, and the internal imperative to maintain Islamic institutional identity, a configuration that makes Indonesia a particularly generative setting for examining these tensions. This tension is not merely administrative or infrastructural, it strikes at the core of how curriculum is designed, managed, and enacted within institutions whose identity is inseparable from their spiritual mission.

Curriculum management in Islamic educational institutions has been extensively studied from organizational and normative perspectives, examining planning, implementation, and evaluation mechanisms grounded in Islamic values.[2] Simultaneously, a growing body of literature has examined how digital technology is integrated into Islamic learning environments, documenting both its pedagogical benefits and its disruptive consequences.[3] However, these two streams of inquiry appear, on the basis of this review's own mapping of the literature, to have largely developed in parallel, an observation this review itself makes as an interpretive premise rather than a claim explicitly documented by prior meta-level scholarship, specifically, how the integration of digital technology into curriculum management generates tensions between cognitive efficiency and the cultivation of spiritual-affective dimensions of learning that Islamic education is mandated to nurture.

Existing studies point to a critical but underexplored dynamic. On one hand, digital tools such as learning management systems, e-learning platforms, and social media have demonstrated measurable benefits in expanding access to learning resources, enhancing student engagement, and supporting curriculum delivery in Islamic institutions.[4] On the other hand, neuropsychological

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[1] Wasehudin, W., Rohman, A., Wajdi, M. B. N., & Marwan, M. (2023). Transforming Islamic Education through Merdeka Curriculum in Pesantren. *Jurnal Pendidikan Islam*, *9* (2), 255–266. https://doi.org/10.15575/jpi.v9i2.28918; Yani, A., & Ulfa, M. (2025). Technology-Based Learning Management in Islamic Schools. *Journal of Social And Education Research*, *3* (3), 128–135. https://doi.org/10.63265/jser.v3i3.133

[2] Rodliyah, St., Khusnuridlo, Moh., Fauzi, I., & Baharun, H. (2024). Optimizing the quality of Islamic Senior High School graduates through curriculum management of vocational programs based on pesantrens in East Java, Indonesia. *Cogent Education*, *11* (1), 2423437. https://doi.org/10.1080/2331186X.2024.2423437; Sarpendi, S., & Komalasari, M. A. (2023). The Role of Islamic Education Management in Improving Human Resources: A Review of the Implementation of Islamic Education in Indonesia. *Bulletin of Science Education*, *3* (3), 220–227. https://doi.org/10.51278/bse.v3i3.831

[3] Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017). Smartphones usage in the classrooms: Learning aid or interference? *Education and Information Technologies*, *22* (6), 3063–3079. https://doi.org/10.1007/s10639-017-9572-7; Zakiyyah, I., Suparto, & Maswani. (2024). Learning Management of Islamic Religious Education Based on Digital Technology. *2024 12th International Conference on Cyber and IT Service Management (CITSM)*, 1–7. https://doi.org/10.1109/CITSM64103.2024.10775708

[4] Bali, M. M. E. I., & Ramadani, R. (2025). Utilizing Digital Technology to Enhance Learning Quality in Salafiyah Pesantren: A Qualitative Case Study. *INTEC Journal*, *4* (3). https://doi.org/https://doi.org/10.59562/intec.v4i3.9550; Zakiyyah et al., 2024.

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evidence suggests that intensive digital technology use impairs short-term memory and attentional capacity,[5] while qualitative investigations reveal that Islamic ethical values, particularly *adab*, are not straightforwardly maintained but rather negotiated, adapted, and at times compromised within digital learning practices.[6] Critically, one quantitative study using a modified UTAUT model (n=225, Indonesian Islamic institutions) found religious perspective to be a stronger predictor of ICT behavioral intention than performance and effort expectancy, accounting for 55.1% of variance in behavioral intention and 54.0% in usage behavior. While directionally significant, this finding derives from a single study with a modest sample, and individual path coefficients for each predictor were not available in the synthesis, precluding precise assessment of effect magnitude. It is treated here as indicative rather than definitively established.[7]

Despite these developments, the literature remains fragmented. Studies on digital integration in Islamic education tend to focus on technological adoption factors or instructional outcomes, without adequately theorizing the spiritual-affective dimension as a curriculum management concern. Studies on Islamic curriculum management, conversely, address spiritual values normatively without empirically engaging with how digitalization disrupts or transforms their enactment. This gap is particularly significant for the Indonesian context, where Islamic educational institutions are undergoing simultaneous pressures from national curriculum reform, digital transformation agendas, and the internal imperative to maintain Islamic identity.[8] Recent evidence that online Qur'anic instruction can cultivate spiritual intimacy and affective engagement when designed with empathy and structured mentorship opens the possibility that digital curriculum management, when intentionally designed, can serve rather than undermine spiritual formation.[9]

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[5] Anwar, M. (2025). The Dual Impact of Smartphone Usage on Short-Term Memory, Attention, and Academic Performance in Digital Learning Environments. *Sinergi International Journal of Psychology*, *2* (3), 135–150. https://doi.org/10.61194/psychology.v2i3.503; Small, G. W., Lee, J., Kaufman, A., Jalil, J., Siddarth, P., Gaddipati, H., Moody, T. D., & Bookheimer, S. Y. (2020). Brain health consequences of digital technology use. *Dialogues in Clinical Neuroscience*, *22* (2), 179–187. https://doi.org/10.31887/DCNS.2020.22.2/gsmall

[6] Saifudin, Aji, M., Musonif, I., Darmawan, Z. G., & Maharani, A. P. (2025). Between Adab And Digital Learning: A Qualitative Case Study In Indonesian Pesantren-Based Madrasah. *IJGIE (International Journal of Graduate of Islamic Education)*, *7* (1), 503–517. https://doi.org/10.37567/ijgie.v7i1.5146

[7] Abubakari, M. S., & Priyanto, P. (2021). Analysing Technology Acceptance for Digital Learning in Islamic Education: The Role of Religious Perspective on ICT. *Journal of Computing Research and Innovation*, *8* (1). https://doi.org/https://doi.org/10.24191/jcrinn.v8i1.344

[8] Hanif, Muh., Mukhroji, Suwito, H., Mubaroq, A. C., & Dharin, A. (2024). Pesantren Resistance to Indonesia's National Curriculum to Defend Its Curriculum Model. *Revista de Gestão Social e Ambiental*, *18* (7). https://doi.org/https://doi.org/10.24857/rgsa.v18n7-049; Rohman, A., Isna, A., Taruna, M. M., Rachmadhani, A., Atmanto, N. E., & Nasikhin, N. (2024). Challenges in Islamic Education Curriculum Development: A Comparative Study of Indonesia, Pakistan, and India. *International Journal of Learning, Teaching and Educational Research*, *23* (6). https://ijlter.org/index.php/ijlter/article/view/10351

[9] Syafii, I., & Sariyani, S. (2024). Online Tahsin and Affective Engagement: Exploring Emotional and Spiritual Experiences of Islamic Education Students. *El-Idarah: Jurnal Pendidikan dan Pembelajaran*, *12* (2). https://doi.org/https://doi.org/https://doi.org/10.19109/ejpp.v12i2.31438

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This study addresses these gaps through an integrative literature review, synthesizing empirical and conceptual evidence on how digital technology integration in Islamic curriculum management generates, sustains, or resolves cognitive-spiritual tensions in Indonesian Islamic educational institutions. Following the integrative review methodology established by Torraco[10] and refined by Whittemore and Knafl,[11] this study does not merely summarize existing findings but generates new interpretive frameworks from their synthesis. The study is guided by three research questions: (1) What patterns of digital technology integration in Islamic curriculum management have been documented in the literature, and what institutional value conditions enable or constrain such integration? (2) What cognitive-spiritual tensions emerge from this integration, and how are they negotiated? (3) What design principles or management strategies mediate productive outcomes? The contribution of this study is twofold: theoretically, it reconceptualizes the cognitive-spiritual dimension as an operational concern of Islamic curriculum management rather than a peripheral normative aspiration; practically, it offers evidence-based direction for institutional leaders and curriculum designers navigating digital transformation without sacrificing the spiritual foundations of Islamic education.[12]

METHODS

Literature This study employs an integrative literature review design following Torraco[13] and Whittemore and Knafl,[14] chosen over systematic review or meta-analysis because the research questions require synthesizing heterogeneous literature, empirical studies, conceptual frameworks, and curriculum-policy analyses, into interpretive insight rather than aggregate statistical outcomes. Unlike narrative review, it applies systematic procedures for source identification, selection, and analysis, without the clinical rigidity of protocols designed for health-science contexts.

Literature was identified through purposive searches across Google Scholar, Scopus, ERIC, and DOAJ, supplemented by reference tracking from key anchor articles. Search terms combined four Boolean clusters: ("Islamic education" OR "madrasah" OR "pesantren") AND ("curriculum management" OR "curriculum design" OR "curriculum integration") AND ("digital technology" OR "ICT" OR "e-learning" OR "digital learning") AND ("spiritual" OR "character" OR "adab" OR "religious values" OR "affective"). The search was bounded to 2017–2026, reflecting the

[10] Torraco, R. J. (2005). Writing Integrative Literature Reviews: Guidelines and Examples. *Human Resource Development Review*, *4* (3), 356–367. https://doi.org/10.1177/1534484305278283
[11] Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing, 52* (5), 546–553. https://doi.org/10.1111/j.1365-2648.2005.03621.x
[12] Torraco, 2005; Whittemore & Knafl, 2005.
[13] Torraco, 2005.
[14] Whittemore & Knafl, 2005.

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acceleration of digital-transformation discourse in Islamic education following the Fourth Industrial Revolution. Only English- and Indonesian-language sources were included, a constraint acknowledged as a limitation. Google Scholar was retained for its broad coverage of Indonesian-language and grey literature, but its results are time- and algorithm-dependent and therefore not fully reproducible; Scopus, ERIC, and DOAJ, offering more stable indexing,were used to cross-check and supplement these results, mitigating though not eliminating the concern. Web of Science was not included in this search; incorporating it in future work would further strengthen reproducibility.

Inclusion required sources to (1) appear in peer-reviewed journals or reputable edited volumes; (2) address Islamic educational institutions as the primary locus; (3) engage substantively with at least two of the three thematic clusters, curriculum management, digital technology integration, and cognitive-spiritual/affective dimensions; and (4) be retrievable in full text. Sources addressing Islamic education only peripherally, or general education without an Islamic institutional context, were excluded. After title/abstract screening, full-text eligibility was assessed against these criteria, yielding a final corpus of 23 substantively reviewed sources, predominantly peer-reviewed journal articles, with one conference paper, spanning Indonesia, Brunei, and multi-country comparative contexts, with Indonesian studies comprising 78% (n=18). Four additional theoretical/methodological references were cited as frameworks but excluded from the synthesis matrix.

A corpus of 23 may appear modest for a review spanning three broad themes. However, criterion (3) was deliberately intersectional: sources treating only one cluster in isolation, e.g., digital technology in general (non-Islamic) education, or spiritual/character education with no curriculum-management or technology dimension, were excluded regardless of individual quality. The corpus size thus reflects the emergent, intersectional nature of this literature rather than insufficient search breadth. This remains a limitation, however: single-theme studies, unpublished theses, and non-English/Indonesian sources may contain relevant insights not captured here, and the corpus should be read as indicative of an emerging field rather than exhaustive.

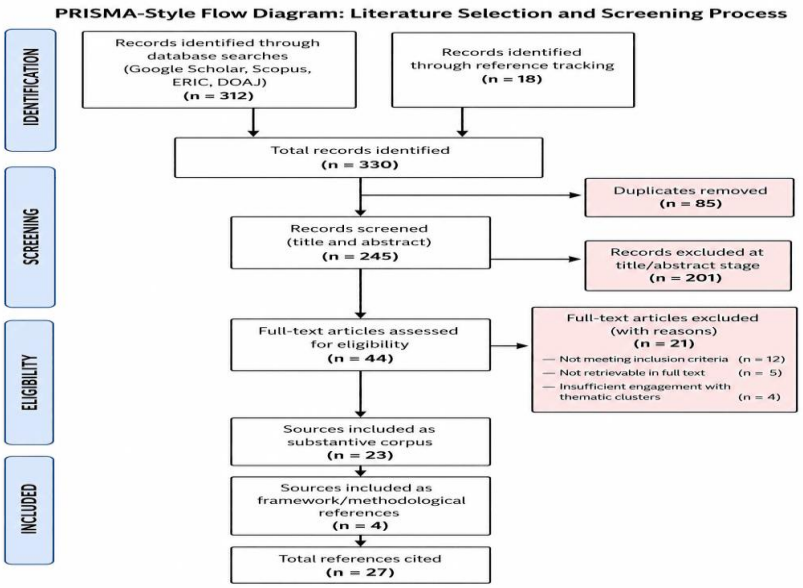
Table 1 summarizes the screening process, for transparency and assessment of selection bias. Records from database searches and reference tracking were deduplicated before title/abstract screening; full-text articles were then assessed against the criteria above, with full-text exclusions attributable to peripheral coverage of Islamic education, insufficient engagement with thematic clusters, or inaccessibility.

Table 1. Literature Screening Process

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Stage	Records
Records identified through database searches (Google Scholar, Scopus, ERIC, DOAJ)	312
Records identified through reference tracking	18
Total records identified	330
Duplicates removed	85
Records screened (title and abstract)	245
Records excluded at title/abstract stage	201
Full-text articles assessed for eligibility	44
Full-text articles excluded (with reasons)	21
— Not meeting inclusion criteria	12
— Not retrievable in full text	5
— Insufficient engagement with thematic clusters	4
Sources included as substantive corpus	23
Sources included as framework/methodological references	4
Total references cited	27

Picture 1. Literature Screening Process



Data extraction was conducted using a structured synthesis matrix adapted from Torraco,[15] recording for each source: author and year, locus and population, methodology, theoretical framework, key findings relevant to the research questions, and explicitly stated limitations and future research directions. This matrix served as the primary analytical instrument and is partially

[15] Torraco, 2005.

doi: 10.61815/alibrah.v11i1.919

reproduced in the findings section. Analysis followed a six-phase thematic synthesis procedure: (1) familiarization with the corpus through repeated reading; (2) initial open coding of findings relevant to each research question; (3) construction of descriptive themes within each code cluster; (4) development of analytical themes through cross-source comparison; (5) identification of convergences, contradictions, and silences across the literature; and (6) interpretive synthesis generating the conceptual arguments presented in the discussion. Contradictions between sources were treated not as problems to be resolved but as analytically productive sites revealing the contested nature of digital curriculum management in Islamic education, consistent with the epistemological stance of integrative review.[16] Quality appraisal was conducted informally using a three-tier scheme (high/moderate/low) based on methodological transparency, sample adequacy, and theoretical grounding, without applying clinical appraisal tools such as CASP, which are designed for health sciences and poorly calibrated for educational research contexts.

RESULTS

Overview of the Reviewed Literature

The final corpus comprised 23 substantively reviewed sources published between 2017 and 2026, drawn predominantly from peer-reviewed journals, with one conference proceedings article included. Four additional theoretical and methodological references[17] are cited as analytical frameworks and are not included in the synthesis matrix. Indonesian-context studies constituted 78% of the corpus (n=18), with remaining sources comprising one Brunei-based study (n=1), one multi-country comparative study (n=1), and three non-context-specific neuroscience or general education studies (n=3). Methodologically, qualitative studies were most prevalent (48%, n=11), followed by conceptual or literature-based studies including neuroscience reviews (30%, n=7), quantitative studies (13%, n=3), and mixed-methods designs (9%, n=2). Studies were distributed across institutional types: madrasah (34%), pesantren (28%), Islamic higher education institutions (25%), and combined or unspecified Islamic institutional contexts (13%). The synthesis matrix presenting key characteristics of included studies is provided in Table 2.

Table 2. Synthesis Matrix of Reviewed Literature

[16] Whittemore & Knafl, 2005.

[17] Torraco, 2005; Whittemore & Knafl, 2005; Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity*. Cambridge University Press; Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, *108* (6), 1017–1054. https://doi.org/https://doi.org/10.1111/j.1467-9620.2006.00684.x

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Author (s) & Year	Locus	Method	RQ	Key Finding
Anshari et al. (2017)	UNISSA, Brunei	Survey + FGD	RQ1, RQ2	Smartphones aid learning but generate distraction and dependency
Abubakari & Priyanto (2021)	Indonesia	Survey (PLS-SEM)	RQ1, RQ2	Religious perspective is the strongest predictor of ICT acceptance, surpassing performance and effort expectancy
Small et al. (2020)	General population	Neuroscience review	RQ2	Digital technology use alters brain structure and attentional function
Suyadi & Widodo (2019)	PAI institutions, Indonesia	Conceptual	RQ2	Neuroscience can strengthen the epistemological foundation of modern PAI
Ahmed et al. (2023)	Conceptual/Indonesia	Literature review	RQ1	Islamic education management must be grounded in Islamic values to navigate globalization pressures
Sarpendi & Komalasari (2023)	PAI institutions, Indonesia	Literature review	RQ1	Four Islamic value foundations determine the quality of PAI management and human resource development
Makhluf et al. (2023)	Pesantren Assalafiyyah, Indonesia	Quantitative survey	RQ1	84% of students rated "Highly Suitable" for digital readiness; digital literacy and Islamic values are not inherently contradictory

doi: 10.61815/alibrah.v11i1.919

Wasehudin et al. (2023)	PAI institutions, Indonesia	Qualitative	RQ1	Merdeka Curriculum enables pedagogical innovation in Islamic educational institutions
Zakiyyah et al. (2024)	IDN Bogor, Indonesia	Qualitative phenomenological	RQ1, RQ3	4-element digital PAI model: digital modules, LMS, teacher training, character mentoring
Hanif et al. (2024)	Pesantren, Indonesia	Qualitative	RQ1, RQ2	Pesantren actively resist national curriculum mandates as an identity preservation strategy
Rodliyah et al. (2024)	Islamic schools, East Java	Multi-site qualitative	RQ1, RQ3	Islamic curriculum management requires structured evaluation and planning systems
Rohman et al. (2024)	Indonesia, Pakistan, India	Qualitative interpretive	RQ1, RQ2	Curriculum development challenges in Islamic education are structurally and contextually determined
Septianiselly et al. (2024)	PAI institutions, Indonesia	Qualitative	RQ1	Social media is an effective and contextually relevant PAI learning medium
Arjunnajata et al. (2024)	SDN 1 Mlaran, Purworejo	Qualitative descriptive	RQ2	Tech-integrated environmental PAI positively impacts students' religious character (n=14)
Syafii & Sariyani (2024)	Universitas Terbuka, Indonesia	Mixed-methods	RQ2, RQ3	Online tahsin cultivates spiritual engagement through empathy and structured mentorship (n=30)

doi: 10.61815/alibrah.v11i1.919

Saifudin et al. (2026)	Madrasah, Banjarnegara	Qualitative case study	RQ2, RQ3	*Adab* is negotiated, not diminished, across three sites of digital practice
Anwar (2025)	General/educational	Review	RQ2	Smartphones impair short-term memory and sustained attention
Bali & Ramadani (2025)	Salafiyah pesantren, Indonesia	Qualitative case study	RQ1	Digital tools enhance learning engagement when aligned with Islamic values and local culture
Sugesti et al. (2025)	PAI institutions, Indonesia	Qualitative	RQ2, RQ3	Integrative PAI curriculum effectively develops emotional and spiritual intelligence
Hasbi et al. (2025)	IAIN Gorontalo, Indonesia	Qualitative case study	RQ3	Strong organizational culture combined with TQM significantly improves educational quality
Romlah et al. (2025)	Islamic HEIs, Indonesia	Qualitative	RQ3	OBE institutionalization improves curriculum relevance and graduate competency in Islamic HEIs
Saparudin et al. (2025)	Pesantren, Indonesia	Quantitative (SEM-SmartPLS)	RQ2	Digitalization significantly and positively enhances student character, scientific reasoning, and religious tolerance
Yani & Ulfa (2025)	Literature (Indonesia)	Literature review	RQ1, RQ3	Five institutional success factors for technology integration: leadership, teacher readiness,

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				facilities, curriculum, evaluation

RQ1: Forms and Patterns of Digital Technology Integration in Islamic Curriculum Management

Prior normative literature established that Islamic educational management must be grounded in Islamic value foundations, while comparative analysis confirms that curriculum development challenges remain structurally embedded across national contexts.[18] Building on this baseline, the present synthesis identifies four empirical patterns of digital integration. Across the reviewed literature, digital technology integration in Islamic curriculum management manifested in four recurring forms: learning management systems (LMS) and digital instructional modules, social media and mobile learning platforms, digital archival and administrative systems, and blended or hybrid learning models. The most operationally detailed integration model was identified by a study of Islamic Religious Education management in Bogor, which documented four interdependent elements: digital teaching modules, LMS infrastructure, teacher training programs, and mentoring systems specifically designed to guide student character development alongside technical skill acquisition.[19] A broader literature synthesis extending to eight studies (2012–2025) identified five institutional factors determining whether technology integration succeeds in Islamic schools: school leadership commitment, teacher readiness and competence, physical and digital facility support, curriculum alignment, and systematic learning evaluation.[20]Comparative analysis across Indonesia, Pakistan, and India further confirmed that curriculum development challenges in Islamic education are structurally embedded, not incidental.[21]

Regarding drivers of adoption, a quantitative study using a modified Unified Theory of Acceptance and Use of Technology (UTAUT) model with 225 respondents from Indonesian Islamic education institutions found that three factors significantly predicted behavioral intention to use ICT: religious perspective on ICT, personal innovativeness, and social influence. Critically, the religious perspective on ICT emerged as a stronger predictor of behavioral intention than both performance expectancy and effort expectancy, and it also directly influenced actual usage

[18] Ahmed, A., Abidin, Z., & Mahfooz, A. (2023). The Urgency of Islamic Education Management in Era Globalization. *Zabags International Journal of Education*, *1* (2), 92–101. https://doi.org/10.61233/zijed.v1i2.12; Rohman et al., 2024; Sarpendi & Komalasari, 2023.
[19] Zakiyyah et al., 2024.
[20] Yani & Ulfa, 2025.
[21] Rohman et al., 2024.

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behavior. The model explained 55.1% of variance in behavioral intention and 54.0% of variance in usage behavior.[22] Individual path coefficients for each predictor were not reported in the available source documentation, precluding precise quantification of the relative advantage of religious perspective over other predictors. Readers should therefore treat the directional finding, that religious perspective outperformed performance and effort expectancy, as qualitatively significant but not yet precisely quantified. This finding was corroborated directionally by a digital readiness assessment at Pesantren Assalafiyyah Mlangi, where 84% of surveyed students (n=75) were classified as "Highly Suitable" in terms of digital era readiness, with the majority demonstrating capacity to distinguish between positive and negative internet content, suggesting that digital literacy and Islamic value orientation are not inherently contradictory.[23]

However, integration was not uniformly embraced. A qualitative study of Indonesian pesantren found that traditional Islamic boarding schools actively resist national curriculum mandates as a deliberate strategy to preserve religious identity and pedagogical autonomy. It should be noted that this study examined curriculum resistance broadly rather than digital curriculum formats specifically; the inference that such resistance extends to digitally-mediated curriculum is plausible given the institutional context but represents an interpretive extension beyond the study's explicit findings.[24] This resistance was institutional rather than technological, revealing that the locus of tension is not technology per se but the authority over curriculum content and value formation.

RQ2: Cognitive-Spiritual Tensions Emerging from Digital Integration

The reviewed literature documented cognitive-spiritual tensions along two distinct axes: the neuropsychological axis (effects of digital technology on cognitive capacity) and the values-negotiation axis (effects of digital environments on spiritual and ethical practice).

On the neuropsychological axis, neuroscience-based reviews consistently documented adverse effects of intensive digital technology use on cognitive functioning. Digital technology use was found to alter brain structure and attentional function, with prolonged exposure associated with reduced capacity for deep focus and sustained cognitive processing.[25] A more specific review focused on smartphone use found dual impacts: while digital devices expand access to information

[22] Abubakari & Priyanto, 2021.
[23] Makhluf, A. Z., Khoerunnisa, N., Rondiyah, S. N., & Mu'aimanah, U. (2023). Digital Readiness in Islamic Education: A Case Study of Pesantren Assalafiyyah Mlangi Sleman, Indonesia. *Journal of Islamic Education Management Research*, *1* (2), 131–140. https://doi.org/https://doi.org/10.14421/jiemr.2023.12-04
[24] Hanif et al., 2024.
[25] Small et al., 2020.

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and support learning flexibility, they concurrently impair short-term memory retention and sustained attentional capacity, functions central to the kind of reflective, contemplative learning that Islamic pedagogy prioritizes.[26] Importantly, both studies were conducted on general populations in non-Islamic educational contexts. Their generalizability to Indonesian pesantren or madrasah students, who operate within structured Islamic institutional environments with distinctive motivational and social frameworks, remains uncertain. These findings are included for their theoretical relevance to the cognitive dimensions of digital learning, but should not be directly extrapolated to Islamic institutional contexts without further context-specific evidence. An earlier mixed-method study in Brunei identified distraction, dependency, and reduction in face-to-face interaction as the primary cognitive challenges of classroom smartphone integration.[27]

On the values-negotiation axis, a qualitative case study conducted at Madrasah Aliyah Roudlotut Tholibin, Banjarnegara (January–February 2026) provided the most granular account of how Islamic ethical values operate in digital learning environments. The study found that *adab*, the foundational Islamic concept of ethical comportment in knowledge-seeking, was not eroded in digital contexts but transformed through situational negotiation across three sites: digital communication practices between students and teachers, patterns of technology access and use within institutional boundaries, and shifting sources of epistemic authority as students increasingly consulted digital repositories alongside traditional scholarly texts. Institutional regulations functioned as ethical boundary-setting mechanisms, while students exhibited adaptive, context-dependent behaviors that maintained the spirit of *adab* while modifying its outward forms.[28]

Evidence on the spiritual dimension of digital Islamic learning was provided by a mixed-methods study of 30 undergraduate PAI students at Universitas Terbuka participating in online Qur'anic recitation (*tahsin*) instruction. Thematic analysis of reflective writing and survey data (20-item instrument) identified three outcome themes: enhanced motivation to correct recitation through compassionate digital feedback, strengthened spiritual engagement facilitated by tutor presence and communal ritual practices within the online environment, and deepened daily interaction with the Qur'an, evidenced by consistent independent review (*muroja'ah*), more mindful prayer, and increased voluntary worship outside instructional hours.[29] A smaller qualitative study (n=14) examining technology-integrated environmental PAI instruction at a public elementary school in Purworejo similarly found positive impacts on students' religious character, manifested

[26] Anwar, 2025.
[27] Anshari et al., 2017.
[28] Saifudin et al., 2025.
[29] Syafii & Sariyani, 2024.

doi: 10.61815/alibrah.v11i1.919
as increased environmental care behaviors interpreted through Islamic values of stewardship (*khalifah*) and cleanliness (*thaharah*).[30]

A contradictory finding emerged from a quantitative study using Structural Equation Modeling with SmartPLS, which found that digitalization significantly and positively enhanced student character, scientific reasoning skills, and religious tolerance in pesantren contexts, challenging the assumption that digital integration inevitably degrades spiritual formation.[31] This finding appears to stand in tension with the neuropsychological evidence from Small et al.[32] and Anwar,[33] and with the negotiation dynamics documented by Saifudin et al..[34] However, this apparent contradiction may partly reflect non-comparable outcome measures: the neuropsychological studies assess objective cognitive performance, memory retention and attentional function, while the SEM-based study measures self-reported character traits and religious tolerance attitudes. These constructs are not directly equivalent, and the contradiction may be less absolute than it initially appears. The tension is nonetheless analytically productive, revealing that different research traditions are measuring different dimensions of the same phenomenon rather than reporting genuinely contradictory findings about the same outcome.

RQ3: Design Principles and Management Strategies Mediating Productive Outcomes

The reviewed literature identified three clusters of emerging strategies associated with productive digital curriculum management in Islamic educational institutions. These strategies are reported predominantly from single-site qualitative case studies and should be understood as indicative patterns warranting further investigation rather than generalizable best practices with established effectiveness across contexts.

[30] Arjunnajata, R., Ibrahim Mamesah, M. F. A., & Fathurrohman, R. (2024). Dampak Pembelajaran PAI Berbasis Lingkungan dengan Integrasi Teknologi dan Media Sosial terhadap Karakter Religius Siswa SDN 1 Mlaran Purworejo. *Indonesian Journal of Education, Ethics, and Technology Integration*, *3* (2), 109–118. https://doi.org/https://doi.org/10.21927/ijeeti.2024.3 (2).109-118

[31] Saparudin, H., Susanti, S. S., & Mustopa, A. (2025). THE EFFECT OF CULTURAL DIVERSITY AND DIGITALIZATION ON THE STUDENT'S CHARACTER, SCIENTIFIC REASONING SKILL, AND RELIGIOUS TOLERANCE IN PESANTREN. *Edukasi Islami: Jurnal Pendidikan Islam*, *14* (01), 133–148. https://doi.org/https://doi.org/10.30868/ei.v14i01.7838

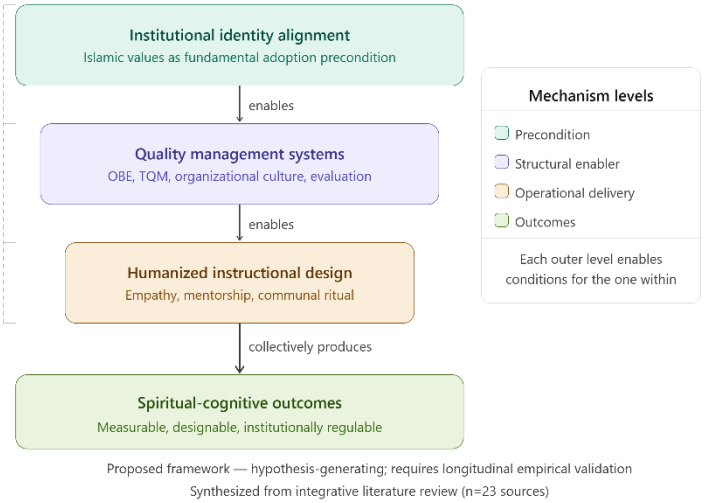
[32] Small et al., 2020.

[33] Anwar, 2025.

[34] Saifudin et al., 2026.

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Picture 1. Interelated Mediation Model



The first cluster concerned instructional design principles. Online Islamic learning environments that incorporated empathetic feedback mechanisms, structured reflective practices, and communal digital rituals produced measurable spiritual engagement outcomes.[35] The deliberate humanization of digital instruction, through responsive tutoring, mentorship structures, and practices connecting digital learning to embodied religious life, was identified as the mediating mechanism between technological delivery and spiritual formation.

The second cluster concerned institutional management frameworks. A four-element management model specifying digital modules, LMS infrastructure, teacher training, and character mentorship was associated with successful PAI learning integration.[36] At the institutional quality level, a case study at IAIN Sultan Amai Gorontalo found that strong organizational culture combined with Integrated Quality Management, involving periodic performance measurement and information technology use in evaluation processes, produced significant improvements in both academic and non-academic dimensions of institutional quality.[37] Outcome-Based Education institutionalization in Islamic higher education institutions provided a further structural framework aligning curriculum management with measurable graduate competencies.[38]

[35] Syafii & Sariyani, 2024.
[36] Zakiyyah et al., 2024.
[37] Hasbi, M., Alim, N., & Machmud, H. (2025). Transformation of Education Quality in Islamic Higher Education Institutions through Organizational Culture and Integrated Quality Management. *Munaddhomah: Jurnal Manajemen Pendidikan Islam*, *6* (3), 375–386. https://doi.org/10.31538/munaddhomah.v6i3.1921
[38] Romlah, L. S., Pahrudin, A., Fauzan, A., Kesuma, G. C., & Purnama, R. (2025). Institutionalizing OBE through Transformative Curriculum Management: Insights from an Indonesian Islamic University. *Munaddhomah: Jurnal Manajemen Pendidikan Islam*, *6* (4), 575–585. https://doi.org/10.31538/munaddhomah.v6i4.2319

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The third cluster concerned value alignment as an adoption precondition. Across both quantitative and qualitative studies, the alignment of digital tools with Islamic values, rather than their mere technical availability, emerged as the determinative condition for effective integration. Digital technology in pesantren produced enhanced learning quality specifically when it remained aligned with Islamic values and local cultural contexts.[39] Social media functioned as an effective PAI medium when positioned as contextually relevant to the demands of contemporary Islamic life rather than as a neutral delivery platform.[40] The centrality of religious perspective in technology acceptance behavior further indicated that curriculum managers who neglect the value-alignment dimension are likely to encounter adoption resistance regardless of technological quality or institutional investment.[41]

DISCUSSION

1. Digital Integration as a Curriculum Management Challenge, Not Merely a Technical One

The findings of this review collectively reframe digital technology integration in Islamic educational institutions as fundamentally a curriculum management problem, not a technological one. The convergent finding across quantitative and qualitative studies that value alignment precedes and mediates adoption success, most powerfully demonstrated by the primacy of religious perspective over performance and effort expectancy in technology acceptance, establishes that the unit of analysis for Islamic digital curriculum management cannot be the technology itself.[42] It must be the value architecture within which technology is embedded. from educational technology frameworks such as UTAUT, which treat adoption as the dependent variable, toward curriculum theory, which treats the formation of knowledge, values, and identity as the central concern. Prior literature on Islamic curriculum management has addressed this value architecture normatively, but the present synthesis demonstrates empirically that it operates as an active regulatory mechanism shaping how digital tools are received, used, and adapted by institutional actors.[43]

This has direct theoretical implications. The dominant framing in digital Islamic education literature positions technology as either an opportunity or a threat to Islamic values, a binary that the corpus consistently complicates. Pesantren that resist national digital curriculum mandates are

[39] Bali & Ramadani, 2025.
[40] Susanti, S. S., Nursafitri, L., Hamzah, I., Zunarti, R., Darmanto, Fitriyah, Asy'arie, B. F., & As'ad, M. S. (2024). Innovative Digital Media in Islamic Religious Education Learning. *Jurnal Pendidikan Agama Islam*, *21* (1), 40–59. https://doi.org/https://doi.org/10.14421/jpai.v21i1.7553
[41] Abubakari & Priyanto, 2021.
[42] Abubakari & Priyanto, 2021.
[43] Ahmed et al., 2023; Sarpendi & Komalasari, 2023.

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not simply technophobic; they are exercising curriculum authority as an identity preservation strategy.[44] Students who negotiate *adab* in digital communication are not abandoning Islamic ethics; they are demonstrating that ethical practice is situationally constructed rather than statically transmitted.[45] These findings align with Wenger's[46] communities of practice framework, which understands learning as participation in socially negotiated meaning, a perspective more epistemologically compatible with Islamic pedagogical traditions than techno-determinist models that treat technology as causally transformative.[47]

2. The Cognitive-Spiritual Tension: Real but Asymmetric

The neuropsychological evidence documenting adverse cognitive effects of digital technology, impaired short-term memory, reduced attentional capacity, and altered brain function, represents a substantive challenge to uncritical digital integration in Islamic educational contexts. Islamic pedagogical traditions have long prioritized cognitive capacities such as sustained attention, memorization, and contemplative engagement with sacred texts, capacities that neuroscience evidence suggests are among the most vulnerable to digital disruption. A central paradox emerging from this synthesis is that the very technologies being integrated into Islamic curriculum management may be systematically degrading the cognitive prerequisites for the spiritual formation those curricula aim to produce.[48]

However, this tension is asymmetric. The neuropsychological evidence derives from general population studies not conducted in Islamic educational contexts, while the Islamic education-specific evidence, particularly from the online tahsin study and the character outcomes study, points toward positive spiritual-affective outcomes under specific design conditions.[49] This review tentatively hypothesizes, as a theoretical synthesis rather than a direct empirical finding, that the cognitive costs of digital technology may be relatively context-independent, while spiritual-affective outcomes appear highly design-dependent. This hypothesis is inferential: the cognitive cost studies and the spiritual outcome studies were conducted on different populations under different conditions, and no single study in the corpus examined both dimensions simultaneously within an Islamic educational context. The asymmetry identified here should therefore be understood as a proposition generated by cross-study synthesis, not as an empirically demonstrated relationship,

[44] Hanif et al., 2024.
[45] Saifudin et al., 2025.
[46] Wenger, 1998.
[47] Wenger, 1998.
[48] Anwar, 2025; Small et al., 2020.
[49] Arjunnajata et al., 2024; Syafii & Sariyani, 2024.

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and is offered as a hypothesis to be tested in future research. Put differently, digital tools impose neuropsychological costs regardless of institutional context, but well-designed Islamic digital pedagogy can generate spiritual gains that offset, or at minimum coexist with, those costs. The positive spiritual engagement outcomes in the online tahsin study were specifically attributable to empathetic feedback, structured mentorship, and the integration of communal ritual within the digital environment, not to the technology itself.[50]

This interpretation reconciles the apparent contradiction between the SEM-based finding that digitalization enhances student character and religious tolerance in pesantren and the neuropsychological evidence of cognitive impairment.[51] The former measures social-affective outcomes in a structured Islamic institutional environment; the latter measures individual cognitive processes under unregulated digital exposure. They are measuring different things in different conditions, which is precisely why curriculum management, the deliberate structuring of conditions, is the critical variable.

3. Three Mediating Mechanisms for Productive Integration

The synthesis identifies three mechanisms through which productive digital curriculum management is achieved, each operating at a different institutional level. These mechanisms are not independent; they function as a nested system in which each level creates the conditions for the next.

At the instructional design level, humanized and reflective digital pedagogy, characterized by compassionate feedback, mentorship structures, and practices that connect digital learning to embodied religious life, mediates between technology delivery and spiritual formation.[52] This finding is consistent with broader educational technology research emphasizing that pedagogical design, not platform capability, determines learning outcomes.[53] In the Islamic context, however, the design imperative extends beyond cognitive and motivational outcomes to include the affective-spiritual dimension as an explicit curriculum goal, a demand that generic instructional design frameworks do not adequately theorize.

At the institutional management level, organizational culture and quality management systems function as the structural container within which instructional design operates. The combination of strong organizational culture and Integrated Quality Management produced significant educational quality improvements at IAIN Sultan Amai Gorontalo, while Outcome-

[50] Syafii & Sariyani, 2024.
[51] Saparudin et al., 2025.
[52] Syafii & Sariyani, 2024; Zakiyyah et al., 2024.
[53] Mishra & Koehler, 2006.

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Based Education provided a comparable structural framework at the curriculum level.[54] Importantly, these frameworks succeed not by resolving value tensions but by institutionalizing processes, periodic evaluation, systematic performance measurement, stakeholder involvement, that make the management of those tensions ongoing and accountable.

At the institutional identity level, the alignment of digital integration with the foundational Islamic identity of the institution operates as the precondition for both instructional design and management frameworks to function. Institutions whose identity is most explicitly defined by traditional Islamic values, pesantren, exhibit the most visible resistance to externally imposed digital curriculum formats, yet also the most deliberate and value-conscious forms of digital adoption when integration is self-initiated.[55] This suggests that institutional identity does not obstruct digital integration; it determines the terms on which integration is legitimate.

4. Toward a Reconceptualization of Spiritual Formation as Curriculum Management Variable

The most significant theoretical proposition emerging from this synthesis is a tentative reconceptualization of spiritual formation, previously treated as a normative aspiration in Islamic education literature,as a potentially operational variable of curriculum management. The reviewed studies suggest that spiritual outcomes may be deliberately designed for and institutionally influenced; however, the evidence currently available relies predominantly on self-reported measures of affective engagement and religious behavior, which fall short of establishing reliable operationalization in the technical psychometric sense. This reconceptualization is therefore offered as a research proposition requiring further methodological development, specifically, the construction and validation of instruments capable of measuring spiritual engagement as a curriculum outcome, rather than as a fully established empirical finding.[56] This recasting has direct practical implications: curriculum managers in Islamic educational institutions need not choose between digital efficiency and spiritual depth. They must, however, exercise deliberate curriculum authority over the conditions, instructional, institutional, and identity-level, that determine which outcome predominates.

This position extends and operationalizes earlier conceptual arguments for a neuroscience-informed Islamic pedagogy and integrative curriculum frameworks for emotional-spiritual intelligence, both of which identified the spiritual-cognitive interface as theoretically important but

[54] Hasbi et al., 2025; Romlah et al., 2025.
[55] Bali & Ramadani, 2025; Hanif et al., 2024.
[56] Hasbi et al., 2025; Saifudin et al., 2026; Syafii & Sariyani, 2024; Zakiyyah et al., 2024.

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empirically underdeveloped.[57] The present synthesis provides the empirical base those frameworks lacked.

5. Limitations and Future Research Directions

Several limitations constrain the conclusions of this review. The corpus is predominantly Indonesian in context, limiting the transferability of findings to Islamic educational institutions in minority-Muslim contexts, conflict-affected regions, or Gulf state systems where institutional structures and curriculum governance differ substantially. The qualitative dominance of the corpus (48%) means that causal claims about the effects of digital integration on spiritual outcomes remain inferential rather than demonstrated; the SEM-based study and the mixed-methods tahsin study represent the strongest quantitative evidence, but neither was designed to isolate curriculum management variables specifically.[58] Additionally, the exclusion of Arabic-language sources almost certainly underrepresents scholarship from the Arab Islamic world, where theological debates about digital pedagogy have distinct trajectories.

Most fundamentally, this review cannot establish causality. The evidence base comprises predominantly correlational quantitative studies and qualitative case studies conducted at single sites; the relationships identified between value orientation, instructional design, institutional management quality, and spiritual-cognitive outcomes are associative and interpretive rather than experimentally demonstrated. All findings should therefore be interpreted as hypothesis-generating rather than hypothesis-confirming, and causal language in the application of this review's conclusions should be avoided until longitudinal or experimental evidence becomes available

Future research should prioritize longitudinal designs tracking both cognitive and spiritual outcomes across full academic cycles in digitally integrated Islamic curricula, the most critical gap identified in this review. Comparative studies contrasting pesantren, madrasah, and Islamic higher education institutions within single national contexts would clarify whether the mediating mechanisms identified here are institution-type specific or generalizable. Finally, the development and validation of instruments capable of measuring spiritual engagement as a curriculum outcome, not merely as self-reported religiosity, represents a foundational methodological need for the field.

[57] Sugesti, V. N., Pahrudin, A., Jatmiko, A., Koderi, & Syafei, I. (2025). Pengembangan Kurikulum PAI Integratif dalam Menumbuhkan Kecerdasan Emosional dan Spiritual. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *10* (4), 359–372. https://doi.org/https://doi.org/10.23969/jp.v10i04.35093; Suyadi, S., & Widodo, H. (2019). Millennialization of Islamic Education Based on Neuroscience in the Third Generation University in Yogyakarta Indonesia. *QIJIS (Qudus International Journal of Islamic Studies)*, *7* (1), 173–196. https://doi.org/https://doi.org/10.21043/qijis.v7i1.4922

[58] Abubakari & Priyanto, 2021; Syafii & Sariyani, 2024.

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CONCLUSION

This integrative literature review set out to examine how digital technology integration in Islamic curriculum management generates, sustains, or resolves cognitive-spiritual tensions in Indonesian Islamic educational institutions. The evidence synthesized across 23 sources yields three defensible conclusions. First, digital technology integration in Islamic educational institutions is most productively framed, based on the reviewed literature, as a curriculum governance problem rather than a technological adoption problem, the religious and spiritual orientation of institutional actors consistently overrides technical factors in determining whether and how digital tools are adopted, used, and adapted. Second, cognitive-spiritual tensions produced by digital integration are real but asymmetric: the neuropsychological costs of digital technology use are relatively context-independent, while spiritual-affective outcomes are highly contingent on deliberate instructional design, institutional management quality, and the coherence of institutional Islamic identity, meaning that the same technology produces different outcomes depending on how curriculum authority is exercised Third, productive digital curriculum management is achieved through three nested mechanisms, humanized instructional design, institutional quality management systems, and Islamic identity alignment, that operate as preconditions for each other rather than as independent variables. The reconceptualization of spiritual formation as an operational curriculum variable, evidenced by measurable outcomes in online Qur'anic instruction, technology-integrated PAI, and adab negotiation in digital environments, both underlies and validates this three-level framework. Taken together, these findings advance the field by offering curriculum managers, institutional leaders, and policymakers a hypothesis-generating framework derived from the reviewed literature. This review proposes, rather than demonstrates, that the three identified mechanisms, humanized instructional design, quality management systems, and Islamic identity alignment, operate as nested preconditions for each other; this relationship is a theoretical inference from the synthesis and requires empirical verification. Most urgently, future research should design longitudinal studies capable of simultaneously examining whether these three proposed mechanisms operate as the nested framework suggests, or whether their relationships are more contingent and context-specific than the current evidence allows us to determine. Without such studies, the framework offered here remains a productive research agenda rather than a validated model. For the broader scholarly community, this review establishes that the cognitive-spiritual interface in Islamic digital pedagogy is no longer merely a theoretical proposition; it is an empirically tractable domain requiring longitudinal, multi-institutional, and methodologically pluralist investigation.

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