

# Instructional Leadership and the Adoption of Contextual Digital Teaching Materials in Madrasah: Implications for Indonesian Language Writing Instruction

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## ABSTRACT

*Madrasah leaders face growing pressure to make decisions about digital learning resources, yet limited evidence guides how those decisions should support language instruction. This study examines the role of contextual digital teaching materials in Indonesian language writing instruction, framed as a problem of instructional leadership and resource decision-making in Islamic schools. The authors conducted a systematic literature review of articles published between 2015 and 2024, drawing from Scopus-indexed and Indonesian-accredited sources. After screening against eligibility criteria, fifteen sources were retained for thematic synthesis through reduction, classification, and pattern identification. The synthesis indicates that contextual digital teaching materials yield stronger writing outcomes than purely informative digital materials in three areas: idea development, textual organization, and critical thinking. Effects extend to learner motivation and self-regulated learning, but their realization depends on teacher digital competence, infrastructure, and curricular alignment with Islamic educational values. Without intentional integration of authentic and culturally grounded contexts, digital materials reinforce technical writing features without deepening content quality. The findings suggest that adoption decisions in madrasah settings function as instructional leadership acts linking resource selection to teacher capacity development and pedagogical philosophy, rather than technical procurement choices. The article recommends that madrasah leaders treat contextual digital teaching material adoption as a coupled decision involving curriculum design, human resource management, and infrastructure planning, supported by sustained professional development. Future empirical work should test the proposed framework through field studies in Islamic school settings.*

## ARTICLE HISTORY

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## KEYWORDS

*Contextual digital teaching materials, instructional leadership, madrasah management, writing instruction, literature review.*

## INTRODUCTION

The digital transformation of Indonesian education places madrasah leaders in a position they were not historically trained for. Principals must now choose among an expanding range of digital teaching resources for subjects whose pedagogy is itself under revision. Indonesian language instruction sits squarely in this challenge, since writing remains one of the most demanding productive competencies in the national curriculum and one of the most stubborn weaknesses in student performance assessments (Suryaman, 2020). Madrasah at the Ibtidaiyah, Tsanawiyah, and Aliyah levels operate under a dual mandate of meeting national curricular standards and preserving Islamic educational character, which makes resource adoption decisions consequential beyond their technical scope (Mahsusi et al., 2024). Each adoption decision interacts with teacher capacity,

infrastructure, and the pedagogical alignment between secular content and Islamic values, all of which fall under the responsibility of the principal as instructional leader (Asyari, 2020; Fr et al., 2021).

Two streams of literature speak to this question without converging. The pedagogy stream documents that digital teaching materials raise learner engagement and that contextual approaches anchored in real-life experience produce richer writing outcomes than abstract or rote materials (Fitriani & Hardini, 2020; Jubhari et al., 2022; Kurniawan, 2024; Zh et al., 2025). Studies in Indonesian language education report effects on idea development, organization, and critical thinking when digital materials are designed around contextual teaching and learning principles (Trianto, 2010; Zh, 2025; Zulhafizh et al., 2022). The educational management stream, in turn, documents leadership patterns, supervision practices, and teacher performance management in Indonesian Islamic schools, highlighting the centrality of the principal in shaping learning quality (Abdullah, 2019; Fitriani & Hakim, 2021; Nurjannah et al., 2021). These two bodies of work rarely meet in the same article.

Pedagogy researchers analyse materials in isolation from the leadership decisions that determine their adoption, while management researchers examine leadership behaviour without engaging the substantive content of the curricular choices being made. As a result, madrasah leaders inherit recommendations about which materials work pedagogically and recommendations about how to lead supervisorily, but few integrated guides on how to decide which contextual digital materials to adopt and how to develop teachers to use them well. The gap matters because, in practice, a principal who funds a new digital writing platform without parallel investment in teacher capacity is making a coupled decision implicitly. Without an integrated framework, that coupling is left to chance.

This article addresses the integration. The objective is to synthesise available evidence on contextual digital teaching materials for Indonesian language writing instruction and to interpret that evidence through the lens of instructional leadership and human resource management in madrasah. The argument advanced is that adoption decisions are not procurement decisions but coupled instructional leadership decisions, requiring simultaneous attention to material design, teacher capacity, and institutional readiness. To pursue this aim, the authors conducted a systematic literature review of peer-reviewed sources published between 2015 and 2024, applying eligibility criteria, screening protocols, and thematic synthesis. The remainder of the article presents the review method, the results organised by managerial theme, a discussion connecting the findings to instructional leadership theory and madrasah management practice, and a conclusion outlining implications and limitations.

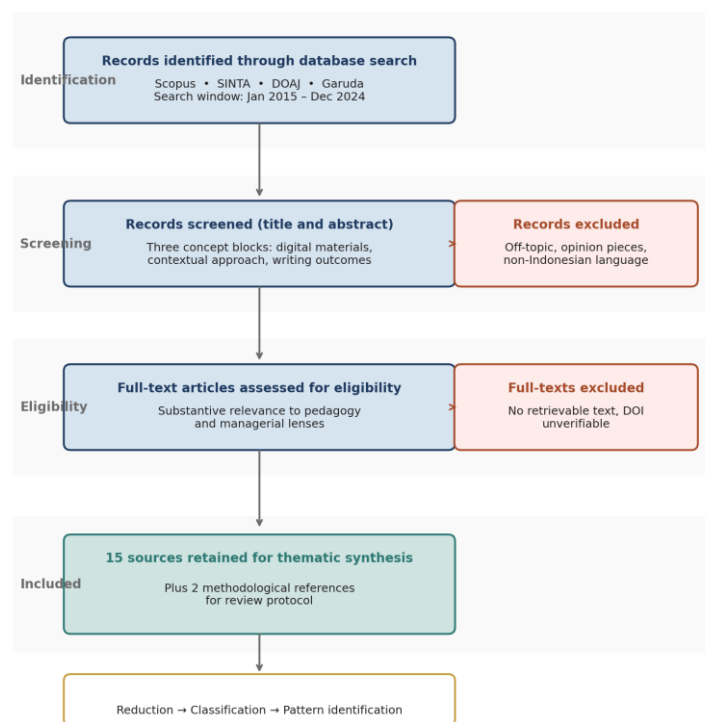
## **METHOD**

The study uses a systematic literature review with thematic synthesis. The choice reflects the research aim, which is to integrate evidence across two distinct literatures rather than to produce new empirical findings. Arikunto (2016) describes the literature review as a method of compiling theoretical foundations from books, journal articles, and accredited proceedings, while Nazir (2005) frames it as the search for secondary data sufficient to identify what has been concluded and generalised on a topic. The present review applies that logic with a managerial interpretive lens added to a pedagogical evidence base.

Sources were drawn from four channels: Scopus-indexed journals accessed through publisher databases, Indonesian Ministry of Research-accredited journals indexed in SINTA, the Directory of Open Access Journals, and Garuda. The search window was January 2015 to December 2024, yielding a decade of evidence that spans the introduction and consolidation of digital learning policy in Indonesian schools. Search terms combined three conceptual blocks. The first covered teaching materials and digital media, including *bahan ajar digital*, digital teaching materials, e-modul, and digital learning resources. The second covered the contextual approach, including contextual teaching and learning, CTL, and *pendekatan kontekstual*. The third covered language writing outcomes, including *keterampilan menulis*, writing skills, writing instruction, and language productive skills. A supplementary search added Islamic education management terms, including *madrasah leadership*, *kepala madrasah*, *supervisi madrasah*, and *Islamic school management*, to retrieve sources useful for the managerial interpretive layer.

Inclusion criteria were peer-reviewed journal articles or accredited proceedings, written in Indonesian or English, addressing digital teaching materials and contextual approaches in language writing instruction or, for the managerial layer, instructional leadership and teacher performance management in Islamic schools, with publication between 2015 and 2024. Exclusion criteria were opinion pieces without empirical or systematic basis, articles that targeted languages other than Indonesian for the pedagogy layer, articles without retrievable full text, and items with non-verifiable bibliographic information. Bibliographic accuracy was confirmed through digital object identifier lookup against publisher databases. Sources whose digital object identifier could not be verified were excluded from the corpus.

Screening proceeded in two stages. Titles and abstracts were screened against the inclusion and exclusion criteria, after which full texts of the remaining items were assessed for substantive relevance to the two interpretive lenses, namely the pedagogical effect of contextual digital materials on writing and the managerial implications of adopting them. The final corpus contained fifteen substantive items, drawn from Indonesian-accredited journals, conference proceedings, and foundational scholarly texts on writing instruction and educational management, supplemented by two methodological references that informed the review protocol. The selection process is summarised in Figure 1. Analysis followed three steps suited to thematic synthesis. Reduction extracted from each source the claims relevant to the review aim, including methods, sample, intervention, outcome, and contextual qualifiers. Classification grouped extracted claims under provisional themes that emerged inductively, including idea development, textual organisation, critical thinking, motivation, self-regulated learning, teacher capacity, and institutional readiness. Synthesis identified cross-source patterns and contradictions, with attention to the managerial implications of pedagogical findings. The themes were then reorganised under three managerial categories that became the structuring scheme of the results section: resource selection, capacity dependencies, and institutional readiness.



**Figure 1.** Flow diagram of source identification, screening, eligibility assessment, and inclusion in the systematic literature review.

*Source: Authors' review protocol (2025).*

## RESULTS AND DISCUSSION

### Results

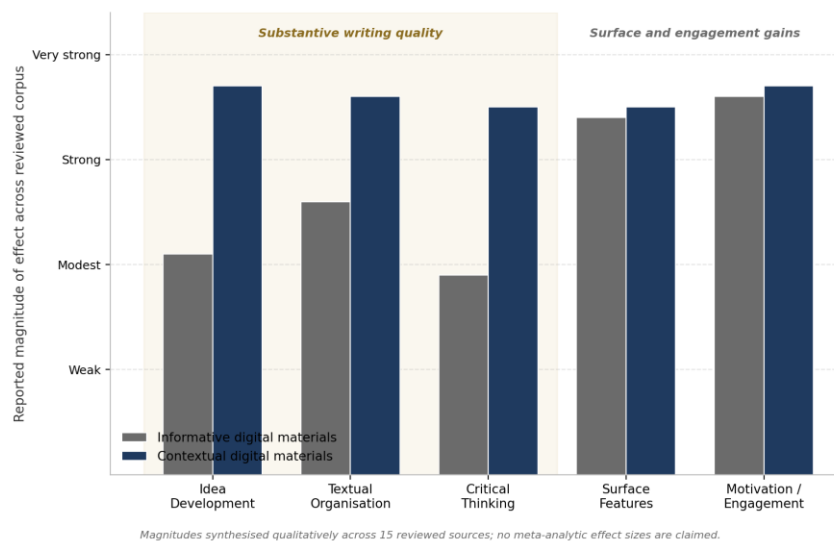
The review yielded fifteen substantive sources after screening. Findings are reported under the three managerial themes that organise the corpus: resource selection, capacity dependencies, and institutional readiness. Citations are reserved for the discussion section, in line with the journal convention of presenting the authors' own synthesised findings without source-level attribution at the results stage.

### Resource selection: contextual versus informative materials

The synthesised evidence shows a consistent gap in writing outcomes between contextual and purely informative digital teaching materials. Across the corpus, learners using materials designed around real-life situations and culturally grounded examples produced texts that were richer in idea content and more coherent in organisational structure than learners using materials limited to information delivery. The contrast was sharpest in extended writing tasks, including descriptive, expository, and persuasive texts, where idea development and argument logic mattered more than mechanical accuracy. Where digital materials were limited to information delivery, gains were largely confined to surface-level features such as spelling, sentence structure, and adherence to text-type templates. Where materials embedded authentic contexts that students could engage with, gains extended to substantive features such as the clarity of central ideas, the depth of supporting detail, and the logical sequencing of paragraphs.

The pattern was also visible in critical thinking outcomes, measured through assessment of argument quality in persuasive and expository writing. Materials that asked students to interpret

a real situation, document, image, or video drawn from their own context produced writing with stronger inferential structure than materials that asked students to reproduce information presented in the module. The synthesis suggests that the cognitive demand of working with authentic contextual material is itself a contributor to writing quality, beyond the engagement effect commonly attributed to digital media. Figure 2 summarises the comparative pattern across the principal outcome domains identified in the corpus.



**Figure 2.** Comparative pattern of writing outcomes for contextual versus informative digital teaching materials across five outcome domains.

*Source: Authors' qualitative synthesis from the systematic literature review (2025); magnitudes are illustrative and not meta-analytic estimates.*

### **Capacity dependencies: teacher digital competence and pedagogical fluency**

Effects of contextual digital materials are not automatic. The corpus indicates that gains depend on teachers' ability to design or adapt materials around authentic contexts, their familiarity with the digital platforms in use, and their willingness to shift from transmissive to facilitative roles. Studies that reported strong outcomes typically documented teacher preparation efforts before or during the intervention, including workshops on contextual writing pedagogy, on the digital platform, and on assessment criteria for substantive writing quality. Studies that reported weak outcomes typically documented technological adoption without parallel investment in pedagogical capacity, with teachers either using digital materials as digitised versions of textbooks or delegating instructional decisions to the platform itself.

A secondary pattern emerged regarding the design role of teachers. In the strongest cases, teachers were not only users but also adapters of the materials, modifying examples, prompts, and tasks to fit the lived context of their own learners. This adaptive capacity is not equivalent to general digital literacy. It is a pedagogical capacity that links the contextual approach to the specific community served by the school.

### **Institutional readiness: infrastructure and alignment**

The third theme concerns institutional conditions under which contextual digital materials can be implemented. Device availability, network stability, time allocation in the curriculum, and alignment between digital materials and the broader pedagogical philosophy of the school all

moderated outcomes. In Islamic school contexts, alignment included the consonance of selected materials with Islamic educational values and the school's character formation goals. Where any of these conditions were weak, the gains attributable to contextual digital materials shrank or disappeared. The pattern held independently of the quality of the materials themselves, suggesting that institutional readiness is a binding constraint rather than a moderating variable.

In addition to the three primary themes, two cross-cutting findings appear in the corpus. First, motivation and self-regulated learning gains were reported across most studies, with effects that did not depend on the contextual orientation of the materials. The mere availability of digital materials raised engagement and supported independent practice, even when writing quality outcomes did not improve. Second, the strongest reported outcomes occurred in studies that combined contextual material design, structured teacher preparation, and adequate institutional support, suggesting that the three themes are interdependent rather than additive.

## **Discussion**

The pattern of results invites a substantive interpretation rather than a description, and that interpretation has implications for how madrasah leaders make resource decisions. The first contribution of this synthesis is to reframe what counts as a digital teaching material adoption decision. In conventional accounts, adoption is a procurement and provisioning matter handled administratively as a budget line, a vendor choice, and a rollout schedule. The evidence reviewed here challenges that framing. The decisive variable was not whether digital materials were available but whether the materials integrated authentic contexts that connected the writing task to learners' lived experience. That distinction is pedagogical, not procurement. It belongs to the principal in their capacity as instructional leader, in the sense developed by Asyari (2020) for madrasah supervision, rather than to the principal in their capacity as administrator. Fr et al. (2021) describe leadership in the education era 4.0 as a combination of digital fluency with pedagogical judgement (Novita et al., 2026), and the present synthesis confirms that this combination is precisely what governs whether digital adoption translates into writing improvement. International evidence reinforces this position: Navaridas-Nalda et al. (2020) show that strategic principal leadership shapes the trajectory of digital transformation in schools, while A'mar and Eleyan (2022) and AlAjmi (2022) demonstrate that principals' technology leadership is a significant determinant of teachers' technology integration. The reframing matters because it relocates the adoption decision within the formal scope of instructional leadership, where it carries a different set of obligations than a procurement decision: ongoing supervisory engagement, alignment with curricular goals, and attention to teacher capacity.

The second contribution concerns what follows from a contextual materials decision. The synthesis indicates that materials by themselves do not deliver outcomes. Teachers must be able to use them. Ismail et al. (2020) document that millennial Islamic education teachers face the simultaneous demands of digital fluency and pedagogical depth, and the evidence reviewed here suggests that contextual digital materials raise both demands at once. Skantz-Åberg et al. (2022) further conceptualise teachers' professional digital competence as a multidimensional construct that integrates technological, pedagogical, and ethical capacities, while Hidayat et al. (2023) provide empirical evidence that Indonesian pre-service teachers' digital competencies are unevenly developed across data literacy, content creation, and problem-solving dimensions. A teacher implementing a contextual digital writing module must select an authentic local context, scaffold

learners through digital interaction with that context, and assess the resulting writing on substantive rather than purely mechanical criteria. Each of these capacities is acquirable but not assumed. Nurjannah et al. (2021), working in the parallel context of Islamic religious education, argue that teacher performance management is the mechanism by which instructional outcomes become consistent across classrooms. By extension, the management of teacher capacity for contextual digital writing instruction must accompany any decision to adopt such materials. Otherwise, the materials remain underused or are adapted into the same transmissive routines they were intended to displace. The corollary for human resource management in madrasah is direct. Adoption of new contextual digital materials creates a training need that is not optional but constitutive of the adoption itself. Treating training as a follow-on activity, to be funded if budget remains, is treating adoption as procurement. Treating training as part of the adoption decision is treating adoption as instructional leadership.

A third theme that emerges only when the analysis is situated in Islamic schools concerns alignment between adopted materials and the cultural and religious context of the institution. Contextual teaching and learning, as Trianto (2010) frames it, anchors academic content in lived experience. In a madrasah, lived experience includes religious practice, Islamic ethics, and a shared cultural orientation that secular materials rarely register. Fitriani and Hakim (2021) describe principal leadership in Islamic schools as a pattern of collaborative judgement involving school stakeholders, including the community whose values the school transmits. Mahsusi et al. (2024) similarly argue that successful digital transformation in madrasah depends on the integration of administrative modernisation with the preservation of Islamic culture, treating the two as coupled rather than competing objectives. From that vantage, an off-the-shelf digital writing module that uses contexts unfamiliar or discordant to the school's value frame is not a neutral curricular choice. Abdullah (2019) shows that madrasah school culture has measurable effects on institutional performance, and by inference, materials that disrupt that culture undermine the same outcomes they are intended to support. The implication for leadership decisions is that material selection must be evaluated against cultural fit, not only pedagogical effectiveness. Where the available materials do not embed contexts consonant with the school's values, adaptation by teachers becomes the principal mechanism through which alignment is achieved. This places further weight on the human resource management corollary, since teacher adaptation requires both the time and the authority to modify the materials.

A fourth theme concerns the nature of writing as a competency and what the synthesis implies for how it is taught with digital support. Tarigan (2008) frames writing as a complex productive skill that requires sustained practice, and Dalman (2021) defines it as a written act of communication in which a writer transmits a message to a reader. The corpus reviewed here is consistent with both framings, but adds a finding that should reshape leadership decisions: writing improvement is constrained by the absence of substantive content to write about, not only by limited language proficiency. When digital materials supply only language inputs without the contextual substance that gives students something meaningful to express, the writing produced remains formally correct and substantively thin. This is the mechanism through which contextual digital materials produce stronger outcomes. They generate substantive content for the writing act, which is then organised, refined, and delivered through the writer's linguistic competence. From a leadership perspective, this implies that the value of a digital writing material cannot be evaluated

in linguistic terms alone. The cultural and contextual richness embedded in the material is part of its instructional value.

The institutional readiness theme requires its own treatment, because the corpus indicates that infrastructure and time allocation can erase otherwise strong gains. Hidayat and Setyadi (2023) emphasise that digital learning innovation requires both facilities and the competence of users to function optimally, and the present synthesis confirms that observation. In madrasah contexts, this requirement intersects with widely documented disparities in infrastructure between schools, including device availability, internet stability, and electricity reliability. A leader making an adoption decision in a setting with weak infrastructure faces a different problem than a leader in a well-resourced setting, and the same material may produce different outcomes accordingly. The implication for decision-making is that infrastructural assessment should precede pedagogical selection, not follow it. Where infrastructural conditions cannot support a given digital material, the adoption decision moves from a question of which material to choose to a question of whether and how to invest in the conditions that would make any contextual digital material useful. Lestari (2020) makes a related argument about digital literacy in Indonesian language instruction, suggesting that the institutional capacity to integrate digital tools into the curriculum is itself a precondition for the gains that the tools can deliver.

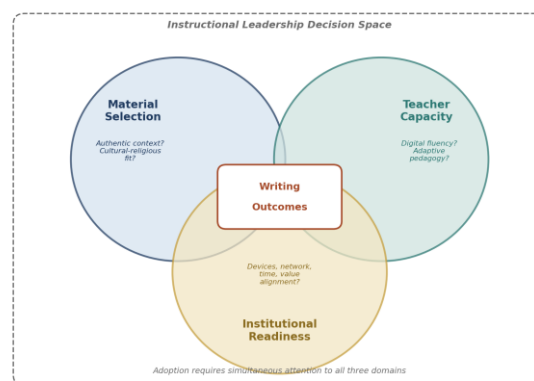
A further dimension of cultural alignment, distinctive to Islamic education contexts, concerns the relationship between contextual writing pedagogy and the formative goals of Islamic schooling. Madrasah do not pursue language proficiency as an end in itself. The broader formative aim is the cultivation of *adab*, *akhlāq*, and the capacity to participate as a literate Muslim in social and religious life. Contextual digital teaching materials that draw on family life, community religious practice, and ethical decision-making give students writing tasks that engage these formative aims directly. Materials that draw only on commercial, recreational, or culturally generic contexts do not. The argument is not that secular contexts should be excluded but that material selection in a madrasah carries an educational weight that secular schools do not bear. A digital writing module set in a context of charitable giving, family obligation, or environmental stewardship rooted in Islamic ethics offers students content for writing that is simultaneously linguistically rich and formatively aligned. The leadership decision therefore extends beyond instructional effectiveness to formative coherence, which is one of the distinguishing features of madrasah management as a discipline.

The integrated framework also clarifies a financial dimension that has not received explicit treatment in the pedagogy literature. If adoption decisions couple material selection, teacher capacity, and institutional readiness, the budget for adoption cannot be limited to the cost of the materials themselves. The total cost of adoption includes teacher development, infrastructure investment where required, and the time cost of curricular adjustment. Madrasah leaders making adoption decisions under tight budget constraints face a real allocation problem. Investing in materials without parallel investment in teacher capacity reduces the value extracted from the materials, while investing in infrastructure without selecting context-appropriate materials produces capacity without focus. The implication is that adoption should be planned as a multi-year investment with phased components, rather than as a one-time procurement, and that financial planning for digital learning should explicitly include the human and infrastructural components on which the materials depend. This view aligns adoption planning in madrasah with the broader resource-management literature on educational technology investment, in which

teacher development is consistently identified as the highest-return component of digital initiatives.

Read against the international literature on instructional leadership, the present synthesis suggests that the madrasah principal occupies a position with several familiar features and one distinctive one. The familiar features are the mediating role of the principal between policy and classroom practice, the centrality of teacher development in achieving instructional outcomes, and the importance of vision and alignment for sustained improvement. The distinctive feature is the dual mandate noted in the introduction, in which the madrasah principal is responsible for both academic outcomes and the formative integrity of Islamic education. The synthesis suggests that the second part of the dual mandate is not separable from the first when the question is digital adoption for language instruction. A leadership model adequate for madrasah must therefore integrate instructional and formative leadership rather than treating them as parallel responsibilities. This is consistent with the framing of madrasah management developed by Abdullah (2019) and Fitriani and Hakim (2021), in which institutional culture, principal leadership, and stakeholder engagement function as a coupled system.

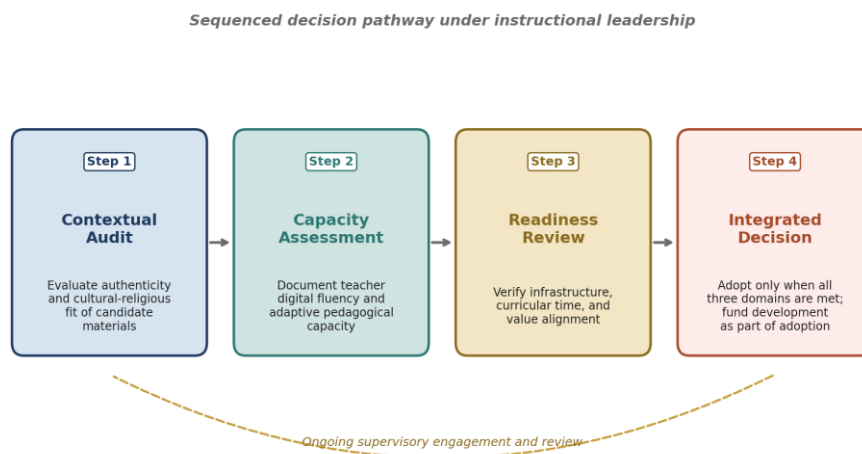
The synthesised evidence supports an integrated decision framework that links three domains: material selection, teacher capacity, and institutional readiness. The framework follows from the observation that all three must be in place simultaneously for contextual digital teaching materials to produce writing outcomes. Material selection asks whether the candidate resource embeds authentic contexts that students can engage with and whether those contexts are consonant with the school's pedagogical and cultural values. Teacher capacity asks whether the teaching staff can design, adapt, and scaffold learners through the material and assess substantive writing quality. Institutional readiness asks whether infrastructure, time allocation, and value alignment are sufficient to sustain implementation. The framework is consistent with the supervisory model articulated by Asyari (2020), in which the madrasah principal exercises ongoing oversight rather than one-time procurement authority, and with the leadership-in-the-digital-era model of Fr et al. (2021), which integrates technology fluency with pedagogical leadership. Figure 3 presents the framework in schematic form.



**Figure 3.** Three-domain decision framework for adopting contextual digital teaching materials in madrasah.

*Source: Authors' synthesis from the systematic literature review (2025).*

Translated into practical guidance, the framework suggests a sequenced decision pathway for madrasah leaders considering digital writing material adoption. The first step is a contextual audit of candidate materials to evaluate the authenticity and cultural-religious fit of the embedded contexts, in addition to the linguistic and structural quality of the writing tasks. The second step is a teacher capacity assessment that documents the digital fluency of the teaching staff, their familiarity with contextual writing pedagogy, and their adaptive capacity to modify materials for the local community. Where capacity gaps are identified, professional development is built into the adoption plan rather than treated as a separate initiative. The third step is an infrastructural readiness review that considers device availability, network conditions, and curricular time, and identifies the supports required for implementation. Each step generates inputs for the next, and the final adoption decision integrates the three. Figure 4 depicts the sequenced pathway, including the iterative supervisory loop through which adoption is reviewed over time. This sequencing differs from a procurement decision in that the decision is not whether to acquire a particular material but whether the school is ready to extract its value, and what investments would make the school ready. For madrasah leaders working under the dual mandate of academic outcomes and formative integrity, this framing locates digital adoption squarely within the practice of instructional leadership rather than at the administrative periphery of the principal's role.



**Figure 4.** Sequenced decision pathway for madrasah leaders adopting contextual digital teaching materials, with feedback loop for ongoing supervisory review.

*Source: Authors' synthesis from the systematic literature review (2025).*

Several caveats deserve explicit attention. The literature reviewed here originates predominantly from Indonesian general education contexts, with comparatively few studies set in madrasah specifically. Generalisations to madrasah are therefore inferential and require empirical confirmation. The review also does not isolate effects of particular digital tools or specific contextual designs. It identifies the broader pattern that contextual integration matters more than the specific medium. The synthesis treats writing skill as an outcome variable but does not differentiate among text types in detail. Whether the framework applies equally to descriptive, narrative, expository, and persuasive writing remains an open question. Future research should test the framework through field studies in Madrasah Ibtidaiyah, Tsanawiyah, and Aliyah settings, with

attention to how Islamic content integration interacts with contextual writing pedagogy. Mixed-methods designs that combine measurement of writing outcomes with documentation of leadership decisions, teacher capacity, and institutional readiness would be especially well suited to refining the framework into operational guidance for madrasah leaders.

## CONCLUSION

Contextual digital teaching materials produce stronger Indonesian writing outcomes than purely informative digital materials, but only when teacher capacity and institutional conditions are in place. For madrasah leaders, adoption is therefore an instructional leadership decision linking material selection, teacher development, and institutional readiness, rather than a procurement choice. The review is limited by the predominance of general-education sources in the corpus, and recommends empirical field studies in Madrasah Ibtidaiyah, Tsanawiyah, and Aliyah settings to test the proposed framework. Adoption decisions should be coupled with sustained teacher professional development and explicit attention to alignment between materials and Islamic educational values.

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