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Technology Based Educational Learning Strategies to Develop Critical Thinking Skill in Islamic Religious Education in the Digital Era

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ABSTRACT. The digital era presents new challenges and opportunities in education, particularly in developing students' critical thinking skills, especially in Islamic education. This study aims to discuss effective educational strategies based on technology to enhance critical thinking abilities within the context of Islamic Education. The research approach used is a literature review that analyzes various relevant theories and best practices. The findings indicate that the integration of technology in learning, such as the use of interactive discussion-based apps, online learning platforms, and computer-based simulations, can improve students' analytical, evaluative, and problem-solving abilities in the context of Islamic education. This strategy also involves designing collaborative, contextual, and problem-solving-oriented learning activities. The conclusion is that the wise use of technology in learning not only improves the quality of education but also prepares students to face complex challenges in the digital era.

Keywords: *Learning strategies, Technology, Critical thinking, Islamic education, Digital era.*

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INTRODUCTION

Digital technologies have transformed educational environments by expanding access to information, diversifying instructional resources, and creating new opportunities for communication and collaborative learning. However, the educational significance of digitalisation extends beyond the availability of technological tools to include learners' capacity to interpret, evaluate, and use information responsibly. A systematic review by (Audrin & Audrin, 2022) identifies information literacy, digital learning, and twenty-first-century skills as interconnected dimensions of digital competence. Within this context, critical thinking is particularly important because learners must distinguish credible information from unsupported assertions, examine competing perspectives, and formulate reasoned judgments. Nevertheless, research on critical thinking in digital environments emphasises that the development of these abilities requires deliberate instructional support rather than mere exposure to digital resources (Kaczkó & Ostendorf, 2023; Santos-Meneses & Drugova, 2023). This concern is especially relevant when

students encounter religious information through online platforms, where the credibility and interpretation of sources require careful consideration. Research on technology-supported evaluation of social media content further illustrates the importance of providing explicit guidance for critical judgment (Aprin et al., 2024).

In Islamic Religious Education (IRE), critical thinking must be considered in relation to the broader purposes of religious learning. IRE is not solely concerned with the acquisition of doctrinal knowledge but also with the formation of ethical conduct, personal development, and the application of religious understanding in everyday life. Identify *ta'leem* (knowledge acquisition), *ta'deeb* (ethical formation), and *tarbiyah* (holistic personal development) as interconnected educational purposes that are not always adequately aligned in curriculum design (Suhayib & Ansyari, 2023). Furthermore, the diversity of learners' religious experiences and social backgrounds indicates the importance of contextualising religious instruction (Kolb, 2023). In the Indonesian context, research on Muslim pre-service teachers demonstrates that religious identity, tolerance, and the interpretation of differences are important dimensions of educational discourse (Wijaya Mulya et al., 2022). Consequently, critical thinking in IRE can be understood as the ability to examine religious information and contextual issues through evidence-based reasoning, reflective interpretation, and ethical consideration, while remaining attentive to the aims and values of Islamic education. Achieving these objectives also depends on teachers' professional learning and capacity to respond to changing educational demands (Alhashmi & Moussa-Inaty, 2021).

In Indonesia, the implementation of the Merdeka Curriculum has provided an important policy context for developing more flexible and learner-responsive instructional practices. Regulation No. 12 of 2024 established a curricular framework that gives schools and teachers greater scope to adapt learning to students' needs and institutional contexts. This flexibility creates opportunities to incorporate digital resources into IRE through activities that require inquiry, interpretation, discussion, and reflection. Nevertheless, curriculum flexibility and technology availability do not necessarily translate into higher-order thinking outcomes. Research shows that teachers differ in their attitudes towards educational technologies and their approaches to stimulating students' higher-order thinking (Wijnen et al., 2023). In religious education, a systematic review also identifies digital storytelling, multimedia resources, and interactive activities as approaches that may support learner motivation and engagement, although engagement should not be equated with demonstrated improvements in critical thinking (Aseery, 2024).

One promising approach is technology-supported inquiry, in which students use digital resources to investigate questions, compare evidence, and construct explanations. In a study involving learning about Islam and Islamic civilisation, (BinTaleb, 2021) reported positive experiences with a WebQuest-based activity that encouraged students to participate collaboratively and reflect on historical developments. Evidence from other educational settings similarly indicates that WebQuest-based instruction can facilitate exploratory dialogue and critical thinking when students are required to justify and examine ideas (Liang & Fung, 2020). Interactive video-based learning offers another possibility. Socratic reflection prompts embedded in video-based instruction improved elementary students' critical thinking performance, particularly when learners actively responded to the prompts (Hsu et al., 2022). Research using digital tools for logic exercises, visual representation, brainstorming, and collaborative problem-solving also suggests that structured technological activities can support critical thinking development (Meirbekov et al., 2022). Together, these studies suggest that the pedagogical value of digital media lies primarily in the cognitive activities they facilitate.

Technology-supported discussion and feedback can further create opportunities for students to question assumptions, evaluate interpretations, and revise their reasoning. A synthesis of research on technology-assisted critical thinking identifies instructional design principles

involving independent inquiry, meaningful interaction, reflection, and problem-solving (Liang, 2023). Similarly, an online interactive peer-review approach has been associated with improvements in learning performance and the quality of reflection and peer assessment in professional training (Lin et al., 2021). Technology-enhanced peer, teacher, and self-feedback has also been investigated in relation to students' critical thinking disposition and learning engagement (Zou et al., 2023). For IRE, these findings provide a pedagogical rationale for designing guided online discussions in which students compare interpretations, support arguments with relevant sources, and respond constructively to alternative viewpoints. However, their effectiveness in Islamic religious classrooms requires context-specific investigation rather than direct generalisation from other subject areas.

Problem-based learning (PBL) and project-based learning (PjBL) provide complementary pedagogical approaches for connecting digital learning with authentic problems. A systematic review of PBL research identifies its potential to support the development of critical thinking through problem analysis, evidence evaluation, and solution formulation (Anggraeni et al., 2023). A further systematic review situates higher-order and critical-analytic thinking within problem- and project-based learning environments, while highlighting the importance of how these thinking processes are defined and assessed (Loyens et al., 2023). Research on PjBL also provides evidence of opportunities to develop critical thinking alongside creativity, communication, and collaboration (Saimon et al., 2023). In online and adult-learning contexts, problem-based activities involving open-ended questions and collaborative inquiry have similarly been proposed as promising approaches for cultivating critical thinking (Santos-Meneses et al., 2023). Adapted to IRE, these approaches could involve investigating ethical dilemmas, evaluating religious information encountered online, and developing reasoned responses to contemporary social issues. Such applications should be understood as pedagogical possibilities whose effectiveness depends on suitable learning objectives, facilitation, and assessment.

Emerging immersive technologies introduce additional possibilities, but their educational value requires careful evaluation. Discussions of virtual reality (VR) in religious and moral education illustrate how immersive environments may provide contextual experiences and stimulate reflection on places, practices, and ethical questions (Aukland et al., 2024). These possibilities, however, do not establish that VR itself improves critical thinking in IRE. Technology-supported instruction must also consider accessibility and learner diversity. Research applying Universal Design for Learning to online instruction highlights the importance of flexible learning materials, multiple forms of participation, and accessible instructional design (Seymour, 2024). Moreover, the cognitive consequences of digital technologies require attention, as reliance on external digital tools can alter how learners process and retain information (Skulmowski, 2023). These considerations reinforce the need to align technological choices with instructional purposes, learners' characteristics, and opportunities for independent reasoning.

Despite growing research on digital tools and critical thinking, an important conceptual and pedagogical challenge remains in connecting evidence from general educational settings with the distinctive objectives of IRE. The selected literature offers insights into technology-supported inquiry, reflective video learning, collaborative discussion, feedback, problem-based learning, immersive experiences, and inclusive instructional design. However, evidence about the effectiveness of these strategies in developing critical thinking specifically within IRE is less directly established than the broader literature on digital education. Accordingly, this study aims to critically examine technology-based learning strategies that may foster students' critical thinking in IRE in the digital era. By synthesising relevant educational research alongside scholarship on Islamic education, the study seeks to identify pedagogical principles, opportunities, and implementation challenges associated with these strategies. The resulting synthesis is intended to inform the design of context-sensitive learning experiences that integrate

analytical reasoning, responsible engagement with digital information, and the ethical purposes of Islamic Religious Education.

METHOD

This study adopted a qualitative approach through an integrative literature review to examine technology-based learning strategies for developing students' critical thinking skills in Islamic Religious Education (IRE) in the digital era. An integrative literature review was considered appropriate because the study aimed to synthesize findings from different educational contexts, research designs, and theoretical perspectives rather than to estimate the statistical effectiveness of a single educational intervention. As explained by (Snyder, 2019), an integrative review enables researchers to critically examine existing knowledge, identify relationships among findings, and develop conceptual understandings of complex research problems. Accordingly, this study focused on identifying relevant technology-supported instructional approaches, examining their pedagogical mechanisms, and considering their potential application within the distinctive educational and ethical context of IRE.

The literature review focused on peer-reviewed journal articles published between 2018 and 2024. An initial corpus of 24 articles was identified for consideration based on their relevance to technology-enhanced learning, critical thinking development, instructional strategies, and Islamic Religious Education. Relevant literature was located through academic publishing platforms and bibliographic sources. For methodological transparency. Search terms to be documented include combinations of "Islamic Religious Education," "Islamic education," "critical thinking," "digital learning," "technology-enhanced learning," "interactive learning," "problem-based learning," "project-based learning," and "digital literacy."

The eligibility criteria were defined to identify studies that (1) were published within the specified period; (2) appeared in peer-reviewed academic journals; (3) investigated or conceptually examined technology-supported educational strategies, critical thinking, or relevant aspects of Islamic education; and (4) provided findings or theoretical arguments relevant to the research objectives. Studies were excluded when they fell outside the publication period, lacked sufficient bibliographic information, were unrelated to the research focus, or did not provide adequate evidence for the intended synthesis. Studies conducted specifically in IRE were distinguished from those undertaken in broader educational contexts to avoid treating findings from different learning environments as directly equivalent. The final selection and any journal-ranking requirements should be verified against the documented screening record.

The literature was organized using a structured data extraction framework covering the authors, publication year, educational context, research objectives, methodological design, technology-based instructional approach, critical thinking outcomes, major findings, and reported limitations. The synthesis was guided by qualitative thematic analysis, which facilitates the identification, organization, and interpretation of recurring patterns across textual data (Kiger & Varpio, 2020). Relevant findings were examined in relation to instructional mechanisms rather than merely the presence of technological tools.

The analytical framework focused on five interconnected dimensions: (1) digital inquiry and information evaluation; (2) interactive multimedia and reflective learning; (3) collaborative discussion and technology-supported feedback; (4) problem-based and project-based learning; and (5) immersive, inclusive, and adaptive learning environments. Within each dimension, the synthesis considered how learning activities could support students' ability to analyze information, evaluate arguments, justify interpretations, and formulate reasoned conclusions. Attention was also given to the pedagogical relevance of each strategy to Islamic educational objectives, including ethical reasoning, contextual understanding, and responsible engagement with religious information. Evidence from IRE-specific studies and findings from general

educational research were interpreted separately before their implications were considered collectively.

The trustworthiness of the review was addressed through transparent source identification, bibliographic verification, critical comparison of study findings, and consideration of differences in research contexts and designs. Particular attention was given to distinguishing empirical evidence of improved critical thinking performance from findings concerning student engagement, motivation, or critical thinking dispositions. Claims about the effectiveness of specific technologies were evaluated in relation to the instructional activities, assessment approaches, and limitations described in the original studies. The synthesis also considered divergent findings and the extent to which conclusions derived from broader educational contexts could reasonably inform IRE practices.

As an integrative qualitative review, the study was intended to provide a context-sensitive synthesis of available knowledge rather than establish causal effectiveness or statistically generalizable outcomes. The conclusions were therefore framed as evidence-informed pedagogical insights and potential directions for future empirical investigation into technology-supported critical thinking development in Islamic Religious Education.

RESULT AND DISCUSSION

Result

The reviewed literature provides evidence that technology-supported learning can facilitate the development of students' critical thinking skills when digital tools are integrated with instructional activities that promote inquiry, reflection, collaboration, and problem-solving. The findings indicate that the educational contribution of technology is not determined solely by the sophistication of digital platforms but also by the cognitive engagement encouraged through their use. (Liang, 2023), through a systematic synthesis of technology-assisted critical thinking instruction, identified four important pedagogical principles: supporting independent learning, providing opportunities to practise critical thinking skills, encouraging collaborative interaction and reflection, and engaging students in decision-making and problem-solving. These principles provide an analytical foundation for understanding how technology-supported strategies may contribute to critical thinking development within Islamic Religious Education (IRE).

One prominent finding concerns the role of digital inquiry and reflective learning in developing analytical reasoning. Web-based inquiry activities allow students to explore information, compare perspectives, and construct explanations through guided investigation. (Liang & Fung, 2020) demonstrated that WebQuest-based learning encouraged students to engage in exploratory dialogue and explicit reasoning, both of which are associated with critical thinking processes. Within the context of learning about Islam and Islamic civilisation, (BinTaleb, 2021) reported that WebQuest activities supported collaborative participation and reflection on historical developments. Although the latter study did not directly establish improvements in critical thinking performance, it provides context-specific evidence that digital inquiry can be incorporated into religious learning. Further evidence from (Hsu et al., 2022) indicates that integrating Socratic reflection prompts into video-based instruction can strengthen students' critical thinking, particularly when learners are required to respond actively to analytical questions rather than receive information passively.

Another important finding relates to the contribution of problem-based learning (PBL) and project-based learning (PjBL) to higher-order thinking. These approaches position learners as active investigators who must identify problems, examine evidence, evaluate alternative explanations, and formulate reasoned solutions. A systematic review conducted by (Anggraeni et al., 2023) identified evidence supporting the contribution of PBL to critical thinking

development, while (Loyens et al., 2023) highlighted the relationship between problem- and project-based learning environments and critical-analytic thinking. The reviewed evidence suggests that authentic problems and inquiry-oriented tasks can create opportunities for students to practise analysis, inference, and evaluation. However, the effectiveness of these approaches depends on the structure of learning activities, the quality of guidance, and the alignment between learning objectives and assessment methods.

Collaborative learning and technology-supported feedback also emerge as relevant components of critical thinking development. Digital discussion platforms can facilitate the exchange of interpretations, the examination of contrasting arguments, and the collaborative construction of knowledge. Their contribution is particularly evident when students are expected to justify their reasoning and respond critically to alternative viewpoints. In a study of technology-enhanced feedback, (Zou et al., 2023) investigated the effects of peer, teacher, and self-feedback on students' critical thinking tendency and learning engagement. The findings underline the relevance of structured feedback opportunities, while also demonstrating the importance of distinguishing critical thinking dispositions from directly assessed reasoning skills. Similarly, research by (Aprin et al., 2024) showed that a technology-supported learning companion could assist students in evaluating manipulated social media content through additional evidence and guided questioning. These findings indicate the potential of digital collaboration and information-evaluation activities to support reflective judgment.

The reviewed studies further identify teacher facilitation and instructional conditions as important factors influencing the implementation of technology-based learning. Teachers are responsible for designing inquiry-oriented tasks, formulating reflective questions, providing constructive feedback, and ensuring that digital activities remain aligned with intended learning outcomes. (Wijnen et al., 2023) identified differences in teachers' attitudes towards educational technology and the stimulation of higher-order thinking, suggesting that professional development should address both technological and pedagogical readiness. In religious education, (Aseery, 2024) identified interactive teaching, multimedia activities, feedback, and inclusive instructional approaches as strategies for supporting student engagement and motivation. Nevertheless, increased engagement does not necessarily demonstrate improved critical thinking performance.

Taken together, the literature identifies several complementary instructional mechanisms: guided information evaluation, reflective questioning, collaborative argumentation, authentic problem-solving, and formative feedback. These mechanisms can be supported by digital technologies, although their effectiveness varies across educational contexts and cannot automatically be generalised to IRE. The available evidence therefore supports the pedagogical potential of technology-based strategies while highlighting the need for context-sensitive implementation and further investigation of critical thinking outcomes specifically within Islamic Religious Education.

Table 1. Synthesis of Technology-Based Learning Strategies for Developing Critical Thinking Skills in Islamic Religious Education

Learning Strategies	Supporting Studies	Pedagogical Mechanisms	Contributions to Critical Thinking	Implications for Islamic Religious Education
Digital Inquiry and WebQuest-Based Learning	Liang & Fung (2020); BinTaleb (2021)	Guided information exploration, source comparison, exploratory dialogue, and	Encourages analytical reasoning, interpretation of information, and evidence-based argumentation.	Facilitates the exploration of Islamic knowledge, historical developments, and religious information

		collaborative investigation.		through structured digital inquiry.
Interactive Multimedia and Reflective Learning	Hsu et al. (2022); Liang (2023)	Interactive instructional materials, Socratic questioning, reflective prompts, and active learner responses.	Supports reflective judgment, analytical thinking, and the evaluation of alternative explanations.	Provides opportunities for students to critically examine religious concepts through interactive and reflective learning activities.
Problem-Based Learning (PBL) and Project-Based Learning (PjBL)	Anggraeni et al. (2023); Loyens et al. (2023)	Authentic problem identification, independent inquiry, collaborative problem-solving, and evidence-based decision-making.	Promotes problem analysis, inference, evaluation of alternatives, and formulation of reasoned solutions.	Can connect Islamic ethical principles with contemporary social issues through contextual problems and collaborative projects.
Collaborative Learning and Technology-Supported Feedback	Zou et al. (2023); Liang (2023)	Digital discussion, peer interaction, collaborative argumentation, and structured teacher, peer, and self-feedback.	Provides opportunities to evaluate arguments, reflect on different perspectives, and develop critical thinking dispositions.	Supports dialogue, respectful exchange of interpretations, and reflective engagement with religious and ethical issues.
Digital Information Evaluation and Guided Critical Judgment	Aprin et al. (2024)	Evaluation of online information, guided questioning, examination of supporting evidence, and identification of manipulated content.	Supports information evaluation, reasoned judgment, and awareness of potentially misleading digital content.	Offers a framework for developing students' ability to assess the credibility of religious information encountered on digital platforms.
Teacher Facilitation and Pedagogical Readiness	Wijnen et al. (2023); Aseery (2024)	Reflective questioning, instructional scaffolding, constructive feedback, professional development, and interactive teaching.	Establishes instructional conditions that can support analytical engagement and higher-order thinking.	Emphasizes teachers' roles in aligning digital activities with Islamic educational objectives and students' learning needs.

Table 1 presents a thematic synthesis of technology-based learning strategies identified in the reviewed literature and their potential contributions to developing students' critical thinking skills in Islamic Religious Education (IRE). The findings are organized into six interconnected dimensions: digital inquiry and WebQuest-based learning, interactive multimedia and reflective

learning, problem-based and project-based learning, collaborative learning and technology-supported feedback, digital information evaluation, and teacher facilitation. These dimensions illustrate how technology can support critical thinking through specific pedagogical mechanisms rather than through technological integration alone.

DISCUSSION

The findings suggest that the contribution of technology-based learning to critical thinking development is primarily mediated by pedagogical design rather than technological innovation alone. Digital platforms provide access to information and opportunities for interaction, but these features do not automatically produce higher-order cognitive outcomes. Critical thinking is more likely to be supported when students are actively involved in examining evidence, questioning assumptions, comparing interpretations, and constructing reasoned conclusions. This interpretation is consistent with (Liang, 2023), who emphasised the importance of integrating technological tools with purposeful cognitive activities. The findings of (Hsu et al., 2022) further reinforce this argument by demonstrating that students who actively responded to reflective questions showed greater improvement in analytical thinking than those who merely received instructional prompts. Accordingly, technology integration should be understood as a means of facilitating critical engagement rather than as an independent determinant of learning effectiveness.

Figure 1. Conceptual Framework of Technology-Based Learning for Developing Critical Thinking in Islamic Religious Education

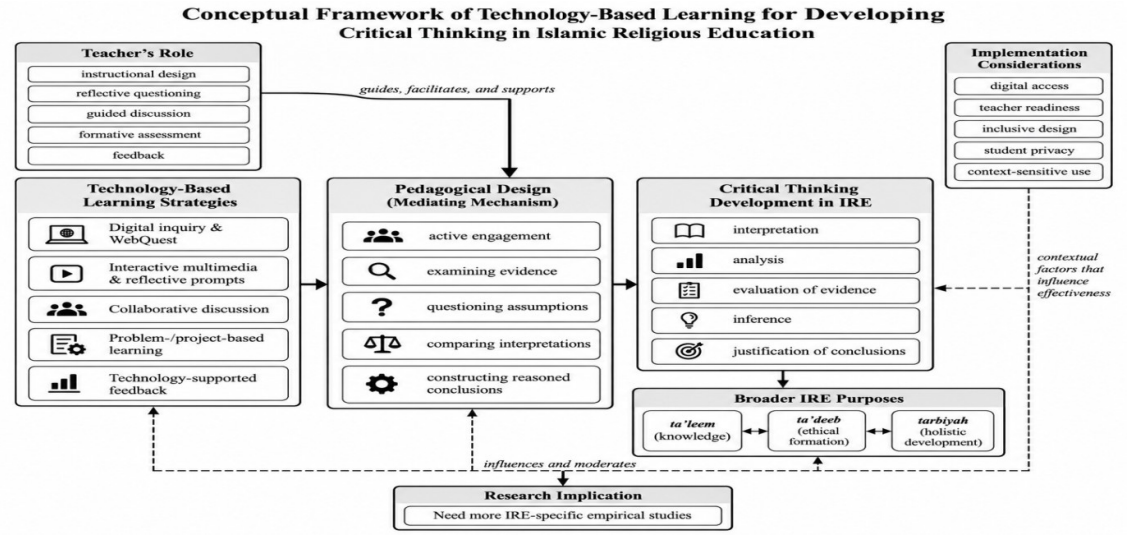


Figure 1 illustrates the conceptual framework of technology-based learning strategies for developing students' critical thinking skills in Islamic Religious Education (IRE). The framework demonstrates that digital inquiry, interactive multimedia, collaborative discussion, problem-based and project-based learning, and technology-supported feedback contribute to critical thinking development through purposeful pedagogical design. These strategies facilitate active engagement, evidence examination, questioning of assumptions, comparison of interpretations, and the construction of reasoned conclusions, which subsequently support students' interpretation, analysis, evaluation, inference, and justification skills. Teachers play a central role in facilitating these processes through instructional design, reflective questioning, guided discussions, and formative assessment. Furthermore, the framework integrates the broader objectives of Islamic education, namely *ta'leem* (knowledge acquisition), *ta'deeb* (ethical formation), and *tarbiyah* (holistic development), emphasizing that critical thinking should develop alongside

students' intellectual, moral, and spiritual growth. Nevertheless, the successful implementation of these strategies is influenced by contextual factors, including digital accessibility, teacher readiness, inclusive instructional design, student privacy, and institutional conditions. Overall, the framework highlights that technology alone does not guarantee critical thinking development; rather, its educational potential depends on effective pedagogical integration and alignment with Islamic educational values. As a conceptual synthesis of the reviewed literature, the framework also underscores the need for further empirical research to examine these relationships specifically within IRE contexts.

Within Islamic Religious Education, these findings have particular implications because critical thinking must be developed in accordance with the intellectual, moral, and spiritual purposes of religious instruction. (Suhayib & Ansyari, 2023) conceptualised the objectives of IRE through three interconnected dimensions: ta'leem, which concerns the acquisition of knowledge; ta'deeb, which emphasises ethical formation; and tarbiyah, which addresses holistic personal development. From this perspective, technology-based critical thinking instruction should not be limited to developing analytical competence but should also encourage responsible interpretation and ethical judgment. For example, students may be guided to critically examine religious information circulating on social media, evaluate the credibility of its sources, distinguish verified information from misleading interpretations, and discuss its implications for everyday conduct. Such activities can connect critical reasoning with Islamic educational values while maintaining the teacher's responsibility to guide the appropriate interpretation of religious sources. The study by (BinTaleb, 2021) provides a relevant example of how web-based inquiry can be incorporated into learning about Islam, although further empirical investigation is necessary to establish its specific effects on critical thinking.

The integration of problem-based and project-based learning offers another pedagogical opportunity to connect religious knowledge with contemporary social challenges. Rather than presenting religious concepts exclusively through explanation and memorisation, teachers can design activities that require students to investigate ethical dilemmas, examine competing arguments, and propose solutions informed by relevant Islamic principles. For instance, students could collaboratively investigate the ethical implications of digital misinformation, online bullying, or irresponsible communication and formulate responses supported by appropriate religious and contextual evidence. The importance of authentic problems and active investigation is supported by (Anggraeni et al., 2023) and (Loyens et al., 2023). Nevertheless, these applications represent pedagogical adaptations of broader educational findings rather than interventions whose effectiveness has already been established in IRE classrooms. Their successful implementation requires clearly defined objectives, structured inquiry, and assessment procedures that distinguish the quality of reasoning from the reproduction of expected answers.

The findings also highlight the central role of teachers in mediating the relationship between technology and critical thinking. Although digital platforms can facilitate independent information exploration and collaborative learning, students still require guidance in selecting credible resources, constructing arguments, and evaluating the consequences of their conclusions. Teachers therefore need competencies extending beyond basic technological proficiency to include instructional design, facilitation of reflective dialogue, and formative assessment. (Wijnen et al., 2023) demonstrated that teachers differ in their attitudes towards educational technology and higher-order thinking instruction, indicating the importance of differentiated professional development. Furthermore, (Zou et al., 2023) highlighted the potential contribution of structured feedback to critical thinking dispositions and student engagement. In IRE, teachers can apply these principles by using reflective questioning, guided discussion, and evidence-based feedback to help learners examine religious and social issues critically while maintaining a respectful and ethically grounded learning environment.

Despite these opportunities, several implementation considerations require attention. Unequal access to digital devices, unreliable internet connectivity, limited institutional resources, and differences in teachers' technological readiness may restrict participation in technology-supported learning. Digital activities must therefore be selected according to the capabilities and circumstances of individual educational institutions rather than assuming that all schools can implement technology-intensive instructional models. Inclusive instructional design is particularly important in ensuring that students with different learning needs can participate meaningfully. (Seymour, 2024) demonstrated the relevance of Universal Design for Learning in developing more accessible online educational experiences. In practical terms, IRE educators may combine digital resources with accessible materials, flexible participation formats, and alternative learning activities when technological resources are limited. Attention should also be given to responsible platform use, student privacy, and appropriate supervision when learners engage with online religious information.

An additional issue concerns the evaluation of critical thinking outcomes. The reviewed studies employ different educational settings, instructional approaches, and outcome measures, making direct comparison difficult. Some investigations assess students' reasoning performance, whereas others focus on engagement, motivation, or critical thinking dispositions. These outcomes are related but should not be treated as interchangeable. Consequently, evaluating technology-supported IRE instruction requires assessment indicators that explicitly address interpretation, analysis, evaluation of evidence, inference, and justification of conclusions. These indicators should be incorporated into authentic learning tasks and accompanied by assessment criteria that reflect both cognitive objectives and the educational purposes of IRE. This approach would provide a clearer basis for determining whether digital instruction contributes to critical thinking development rather than merely increasing participation or technological familiarity.

The present synthesis contributes to the literature by connecting research on technology-supported critical thinking with the pedagogical and ethical objectives of Islamic Religious Education. It indicates that digital inquiry, reflective learning, collaborative argumentation, problem-based investigation, and formative feedback provide a coherent foundation for instructional design. However, much of the supporting empirical evidence originates from general educational contexts, while studies directly assessing critical thinking outcomes in IRE remain comparatively limited within the literature examined. Furthermore, the variation in research designs and outcome measures limits the extent to which conclusions about effectiveness can be generalised. Future research should therefore examine these strategies through context-specific classroom interventions, including well-designed comparative or longitudinal studies that evaluate both critical thinking performance and the broader educational objectives of IRE. Such investigations would help establish whether, under what conditions, and through which instructional mechanisms technology-based learning can contribute meaningfully to students' critical thinking development in Islamic Religious Education.

CONCLUSION

This study concludes that technology-based learning strategies have significant pedagogical potential to support the development of students' critical thinking skills in Islamic Religious Education (IRE). The literature synthesis identifies digital inquiry, interactive multimedia, collaborative discussion, problem-based learning, project-based learning, and technology-supported feedback as promising approaches for encouraging analytical reasoning, reflective thinking, evidence evaluation, and problem-solving. However, the effectiveness of these strategies depends primarily on how technology is integrated into purposeful instructional activities rather than on the use of digital tools alone. Meaningful critical thinking development

requires active student engagement, structured learning experiences, and continuous teacher guidance. The findings further highlight that integrating technology into IRE should consider the intellectual, moral, and spiritual objectives of Islamic education. Technology-supported learning can provide opportunities for students to critically examine religious information, evaluate different perspectives, and apply Islamic values when addressing contemporary issues. Teachers therefore play an essential role in designing contextual learning activities, facilitating constructive discussions, and providing feedback that strengthens students' reasoning abilities. Nevertheless, challenges involving technological infrastructure, digital accessibility, teacher readiness, and differences in students' learning needs must be addressed to ensure inclusive and effective implementation.

This study contributes to the existing literature by synthesizing technology-supported instructional strategies and interpreting their pedagogical relevance within the distinctive context of IRE. Nevertheless, the review is limited by differences in the research contexts, methodological approaches, and critical thinking measures employed in the selected studies. Furthermore, much of the available empirical evidence originates from general educational settings rather than IRE-specific classrooms. Future research should therefore prioritize empirical investigations that examine the implementation and effectiveness of these strategies in Islamic educational institutions, using clearly defined critical thinking indicators and appropriate assessment methods. Such research is necessary to develop a stronger evidence base for technology-supported learning that promotes critical reasoning while remaining consistent with the ethical and educational objectives of Islamic Religious Education.

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