

Deep Learning-Based Islamic Religious Education: Transforming Higher Order Thinking Skills in Contemporary Classrooms

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Abstract

This study examines the potential of deep learning pedagogy to transform Higher-Order Thinking Skills (HOTS) within contemporary Islamic Religious Education (IRE) classrooms. The study aims to synthesize recent scholarly evidence concerning the relationship between deep learning, meaningful engagement, critical thinking, problem solving, reflection, creativity, and Islamic value formation. A library research method was employed by systematically identifying, selecting, comparing, interpreting, and synthesizing relevant peer-reviewed journal articles published predominantly during the last five to ten years. The findings indicate that deep learning is most effective when IRE moves beyond memorization toward meaningful, mindful, joyful, contextual, collaborative, inquiry-oriented, problem-based, and reflective learning. The synthesis further demonstrates that HOTS development is strengthened when students are required to interpret Islamic sources, examine contemporary problems, evaluate arguments, formulate ethical judgments, and create contextual solutions. The principal novelty of this study is the formulation of an integrated Deep Learning HOTS framework for IRE that connects cognitive depth with Islamic ethical reasoning, contextual relevance, reflective awareness, and meaningful action. The framework positions IRE not merely as a subject for transmitting religious knowledge but as a transformative learning environment for cultivating intellectually rigorous, ethically responsible, spiritually grounded, and socially responsive learners.

Keywords: Deep Learning, Islamic Religious Education, Contemporary Classrooms

Introduction

Contemporary education increasingly demands learning environments that prepare students not merely to remember information but to interpret, evaluate, create, and apply knowledge in complex situations. The rapid development of digital technology, artificial intelligence, social media, and information networks has intensified the need for learners to distinguish credible information from misinformation and to construct reasoned judgments. (Begum et al. 2025) These conditions make Higher-Order Thinking Skills (HOTS) central to educational quality because students must process information critically rather than consume it passively. In this context, Islamic Religious Education (IRE) has an important role because religious learning

should equip learners with intellectual, moral, spiritual, and social capacities simultaneously. Ahmad et al. (2020) demonstrated that HOTS-oriented approaches have increasingly entered Islamic Religious Education through innovative instructional strategies and assessment practices. This finding is relevant because it confirms that IRE can become an important arena for cultivating higher-order cognition rather than remaining primarily associated with memorization of religious concepts.

The challenge, however, is that many educational practices continue to privilege content transmission, factual recall, and examination-oriented learning. Such practices can produce students who know religious terminology but experience difficulty applying Islamic principles to unfamiliar social, ethical, technological, and cultural problems. (Bolat et al. 2025) Research on the surface approach to learning shows that students may rely on memorization when learning environments emphasize reproduction of information rather than understanding and conceptual integration (Yew & Goh, 2018). The distinction between surface and deep approaches is particularly important for IRE because religious knowledge becomes educationally meaningful when students understand relationships among texts, contexts, values, and lived experiences. A deep approach requires learners to search for meaning, connect ideas, question assumptions, and integrate new knowledge with previous understanding. This perspective is relevant because IRE should cultivate religious reasoning that is simultaneously textual, contextual, reflective, and ethically responsible.

Deep learning in this article refers to a pedagogical orientation rather than artificial intelligence or neural-network-based machine learning. The pedagogical concept emphasizes learning that is meaningful, mindful, and joyful, while encouraging learners to construct understanding through active engagement and contextual experiences. Recent educational literature in Indonesia has increasingly conceptualized deep learning through these three interconnected dimensions (Kurnianingsih et al., 2026). Meaningful learning connects new concepts with students' prior knowledge and real-life experiences, mindful learning encourages awareness and reflection, and joyful learning creates emotionally supportive conditions for sustained engagement. This conceptualization provides an especially productive foundation for IRE because religious education concerns not only cognitive acquisition but also meaning, identity, reflection, values, and action. (Hushin et al. 2025) The relevance of this perspective lies in its potential to transform religious learning from information delivery into an experience in which knowledge becomes personally meaningful and ethically actionable.

The growing discourse surrounding deep learning also responds to the limitations of conventional teacher-centered instruction. In conventional classrooms, teachers may dominate explanation, students may reproduce textbook content, and assessment may emphasize correct answers rather than reasoning processes. (Desyulita et al. 2025) Such conditions can restrict students' opportunities to formulate questions, investigate evidence, discuss alternative perspectives, and develop arguments. Recent research indicates that deep learning pedagogy encourages greater learner agency, contextual engagement, and meaningful participation in classroom learning (Salim et al., 2026). This is highly relevant to IRE because students need opportunities to discuss religious issues rather than simply receive predetermined explanations. A pedagogical



shift toward learner agency can therefore strengthen both intellectual independence and responsible religious reasoning.

The importance of HOTS in IRE is supported by the growing body of research specifically examining critical thinking within Islamic educational contexts. Ahmad et al. (2020) found that HOTS implementation in Islamic Religious Education has developed through both learning innovations and the construction of HOTS-oriented assessment instruments. Other studies have demonstrated that constructivist approaches can encourage students to articulate ideas, discuss problems, seek solutions, and express reasoned positions in Islamic education (Sunhaji et al., 2021). These findings suggest that students' critical thinking does not emerge automatically from exposure to religious content. Rather, it must be deliberately cultivated through instructional design that requires interpretation, analysis, evaluation, and creation. The relevance to the present study is that deep learning provides an overarching pedagogical orientation within which these HOTS-oriented strategies can be systematically integrated.

Critical thinking is particularly important in contemporary Islamic education because learners encounter diverse interpretations of religious teachings across digital and social environments. Students can access Qur'anic interpretations, religious opinions, social media preaching, online discussions, and popular religious narratives almost instantaneously. Without appropriate reasoning skills, learners may accept claims based on popularity, emotional appeal, or authority signals rather than evidence and sound argumentation. Altinyelken (2021) showed that critical thinking is increasingly valued within Islamic educational contexts and can support young Muslims in engaging more reflectively with religious learning. This is relevant because contemporary IRE should prepare learners to navigate religious information critically without undermining respect for authoritative Islamic sources. Deep learning can provide a structured pedagogical environment for developing this capacity through questioning, comparison, reflection, and evidence-based reasoning.

The relationship between deep learning and HOTS is also supported by research in technology-enhanced learning environments. A study involving university students found that a deep learning approach was directly associated with higher-order thinking, while epistemological beliefs and attitudes toward technology influenced HOTS indirectly through the learners' approach to learning (Cheng et al., 2019). This finding is important because technology itself does not automatically produce critical or higher-order thinking. Digital platforms become educationally productive when teachers design learning tasks that require students to interpret, connect, evaluate, and create. In IRE, this means that digital Qur'an applications, online databases, multimedia resources, discussion forums, and digital textbooks should be treated as tools for inquiry rather than merely repositories of information. (Mukhlis et al. 2025) The relevance of the finding is that deep learning provides the pedagogical conditions needed to transform technological access into intellectually meaningful learning.

The emergence of Society 5.0 further strengthens the need for such transformation. Students are increasingly expected to combine technological competence with critical reasoning, ethical judgment, collaboration, creativity, and social responsibility. Islamic Religious Education has a distinctive contribution because it can provide ethical frameworks through which technological and social challenges are examined. Hayati et al. (2024) argue that IRE in the Society 5.0 era should contribute to

critical thinking so that students can respond intelligently to the negative and positive consequences of technological development. This is relevant because deep learning can connect technological literacy with moral reflection and Islamic ethical reasoning.(Yilmaz, Al-Sarray, and Maidin 2025) Consequently, IRE can become a space in which students learn not only how to use technology but also how to judge its implications from ethical and religious perspectives.

The transformation of IRE also requires attention to learning materials and educational resources. Textbooks and digital resources can either reproduce surface-level learning or provide opportunities for analysis and interpretation. Research examining Islamic Religious Education textbooks has identified the importance of incorporating critical-thinking dimensions into learning materials (Hamidah et al., 2023). Similarly, research on digital textbooks in university IRE indicates that technology-based resources can support the development of students' critical thinking when integrated into appropriate pedagogical processes (Subakti et al., 2026). This is relevant because deep learning requires carefully designed learning resources that provide authentic problems, diverse evidence, contextual cases, and opportunities for reflection. Therefore, transforming classroom pedagogy without transforming learning materials would produce only a partial reform.

Problem-based learning represents one particularly promising mechanism for integrating deep learning and HOTS in IRE. Problems provide students with intellectual situations in which existing knowledge is insufficient and additional reasoning is required. In Islamic Religious Education, problems may involve environmental responsibility, digital ethics, religious diversity, social justice, financial ethics, biotechnology, artificial intelligence, family relationships, or contemporary interpretations of Islamic law. Husna and Salamah (2023) emphasize the potential of problem-based learning for developing critical thinking in Islamic Religious Education. This finding is relevant because problem-based learning naturally encourages students to move from remembering concepts toward analyzing situations, evaluating alternatives, and proposing solutions. When embedded within deep learning, such problems can become meaningful because they connect religious principles with students' actual lives.

Another important instructional strategy is the Living Qur'an approach, which emphasizes the relationship between Qur'anic teachings and lived social realities. Religious learning becomes deeper when students investigate how Qur'anic values are interpreted and practiced in different contexts. Maisyanah et al. (2025) found that the Living Qur'an approach can support critical thinking and encourage reflective and relevant understanding of Islamic teachings. This approach is particularly compatible with deep learning because it requires students to connect textual knowledge with experience, culture, social behavior, and contemporary problems. The relevance of this research lies in its demonstration that Islamic sources can serve as starting points for inquiry rather than merely objects of memorization.(Susanti, Roseana, and Diannor 2025) Deep learning therefore enables students to experience religious knowledge as a framework for interpreting and responding to life.

Assessment is another critical dimension of the transformation. If teachers employ inquiry, discussion, reflection, and problem solving but continue to evaluate students primarily through recall-based tests, students receive contradictory messages

about what learning actually means. Assessment should therefore measure students' ability to interpret evidence, construct arguments, evaluate alternatives, justify decisions, and create solutions. Research on HOTS assessment in Islamic Religious Education emphasizes the need for instruments that move beyond lower-level cognitive demands (Rohman & Kusaeri, 2021). This is relevant because assessment functions not only as a measurement tool but also as a powerful determinant of student learning behavior. Deep learning becomes more sustainable when assessment consistently rewards understanding, reasoning, reflection, and transfer.

Differentiated assessment can further strengthen this transformation because students do not necessarily demonstrate deep understanding in identical ways. Some learners may communicate understanding through analytical essays, others through presentations, projects, debates, concept maps, or digital products. Recent research on differentiated assessment in Islamic Religious Education indicates that flexible assessment can create opportunities for creative and reflective expression while supporting critical-thinking indicators (Nazhan et al., 2025). This is relevant to deep learning because meaningful learning requires teachers to recognize differences in learners' backgrounds, experiences, abilities, and ways of expressing understanding. Assessment should therefore provide multiple pathways through which students demonstrate the depth of their reasoning. (Abdullah et al. 2025) Such flexibility can make IRE more inclusive while maintaining rigorous intellectual expectations.

The role of teachers is consequently changing from information transmitters to designers and facilitators of intellectual experiences. (Bakr et al. 2025) Teachers must be capable of constructing questions that challenge assumptions, selecting authentic problems, providing cognitive scaffolding, managing discussion, and guiding reflection. Research on deep learning and pedagogical competence indicates that teachers' ability to design HOTS-oriented assessment is closely related to students' opportunities to develop critical thinking (Setiyowati et al., 2026). This finding is relevant because deep learning cannot be implemented simply by instructing students to "think deeply." It requires intentional instructional architecture, teacher expertise, formative feedback, and an environment in which questioning is valued. Thus, professional development for IRE teachers should include deep learning design, HOTS assessment, digital literacy, ethical reasoning, and reflective pedagogy.

Higher education provides an especially significant context for this transformation because university students are expected to develop increasingly sophisticated intellectual autonomy. Islamic Religious Education at universities often serves students from diverse academic disciplines, backgrounds, and levels of religious understanding. Consequently, university IRE should encourage students to connect Islamic perspectives with science, technology, economics, politics, culture, environmental issues, and professional ethics. Recent research in Indonesian Islamic higher education suggests that meaningful, mindful, and joyful dimensions of deep learning can jointly contribute substantially to students' perceptions of transformative learning environments (2026). This is relevant because university IRE should move beyond the transmission of doctrinal information toward intellectual formation that supports lifelong learning and responsible citizenship.

Despite the growing literature on deep learning and HOTS, a conceptual gap remains in connecting the two explicitly within Islamic Religious Education. Existing

research has separately examined HOTS in IRE, deep learning in general education, critical thinking in Islamic education, problem-based learning, digital resources, and contemporary curriculum reform. However, fewer studies have synthesized these strands into an integrated pedagogical framework specifically designed for IRE. The recent study by Mukmin et al. (2026) directly connects deep learning with HOTS in Islamic Religious Education, identifying a movement from memorization toward meaning making. This development provides an important starting point but also highlights the need for broader synthesis across instructional strategies, assessment, technology, Islamic ethical reasoning, and contemporary classroom realities. The present study addresses this gap by proposing an integrated conceptual model based on the accumulated evidence.

Accordingly, this study aims to analyze how deep learning pedagogy can transform HOTS development in contemporary Islamic Religious Education classrooms. The study focuses on the conceptual relationships among meaningful learning, mindful learning, joyful learning, inquiry, problem solving, critical thinking, creativity, reflection, assessment, and Islamic ethical reasoning. It also examines findings from previous studies to identify recurring pedagogical patterns and unresolved challenges. The study uses library research because the research problem requires systematic synthesis of existing scholarly knowledge rather than the collection of new classroom data. The expected contribution is a theoretically grounded framework that can guide IRE teachers, curriculum developers, lecturers, and researchers in designing deeper forms of religious learning. This objective is relevant because the transformation of IRE requires not merely new teaching techniques but a coherent educational philosophy that integrates cognitive depth with religious meaning and ethical action.

Theoretical Foundation

Deep learning is theoretically rooted in the distinction between deep and surface approaches to learning. A deep approach involves seeking meaning, integrating ideas, relating evidence to concepts, and developing personal understanding, whereas a surface approach tends to prioritize reproduction and memorization. Contemporary research confirms that students' learning approaches are influenced by the characteristics of the learning environment, assessment, motivation, and perceived task demands (Yew & Goh, 2018). This theoretical distinction is highly applicable to Islamic Religious Education because memorizing verses, definitions, and legal concepts does not necessarily demonstrate understanding. Deep learning requires students to ask why a principle exists, how it relates to other principles, and how it can guide action in changing contexts.(Abdullah et al. 2025) Thus, the deep surface distinction provides the initial theoretical foundation for transforming IRE from content accumulation into meaning-oriented learning.

Constructivist learning theory provides another important foundation for deep learning. Constructivism views knowledge as something learners actively construct through interaction between prior knowledge, new experiences, social interaction, and reflection. In IRE, students enter classrooms with existing religious experiences shaped by family, community, media, culture, and previous schooling.(Nabriz et al. 2025) Effective learning should therefore activate these experiences and help students critically reconstruct understanding rather than simply replace existing ideas with



teacher-provided information. Sunhaji et al. (2021) found that constructivist approaches in Islamic education can encourage students to articulate ideas, ask questions, discuss problems, and propose solutions. (Nabriz et al. 2025) This is relevant because deep learning depends on active knowledge construction, and constructivist pedagogy provides the epistemological basis for such activity.

Meaningful learning constitutes the first major dimension of the deep learning framework. Meaningfulness occurs when new knowledge is connected to learners' prior knowledge, experiences, needs, and real-life contexts. In Islamic Religious Education, meaningfulness can be developed by relating Islamic concepts to contemporary social issues and personal experiences. Kurnianingsih et al. (2026) describe meaningful learning as part of an integrated deep learning framework in which knowledge becomes connected to learners' experiences and contextual realities. This is relevant because religious concepts become more educationally powerful when students can recognize their implications in everyday decision-making. Meaningful learning therefore supports both conceptual understanding and the transfer of Islamic values into practice.

Mindful learning represents the reflective dimension of deep learning. It requires learners to become consciously aware of their thoughts, assumptions, emotions, interpretations, and learning processes. (Abdullah et al. 2025) In religious education, mindfulness can be associated with reflective engagement because students are encouraged to consider not only what an Islamic teaching says but also how they understand it and why they interpret it in particular ways. Recent Indonesian deep-learning literature positions mindful learning alongside meaningful and joyful learning as a central component of transformative pedagogy (Rosyidah et al., 2026). This is relevant because critical thinking requires learners to monitor their reasoning and recognize potential biases or unsupported assumptions. Consequently, mindful learning can serve as a bridge between cognitive HOTS and the reflective dimensions of Islamic education.

Joyful learning forms the affective dimension of deep learning. Joy should not be interpreted as entertainment without intellectual challenge but as a learning climate characterized by psychological safety, curiosity, engagement, and positive emotional involvement. Students are more likely to ask difficult questions and express alternative interpretations when they do not fear humiliation or immediate judgment. (Mukhlis et al. 2025) Recent literature conceptualizes joyful learning as an important element of deep learning because positive engagement can support sustained participation and meaningful educational experiences (Taqiyya et al., 2025). This is relevant to IRE because sensitive religious discussions require a respectful classroom climate in which students can explore questions responsibly. Joyful learning can therefore support intellectual courage while preserving ethical and religious respect.

The revised taxonomy of cognitive processes provides a useful framework for identifying HOTS in IRE. Remembering and understanding are necessary foundations, but analyzing, evaluating, and creating represent increasingly complex forms of cognition. (Susanti et al. 2025) In religious education, analyzing may involve identifying assumptions within an argument, evaluating may involve comparing interpretations against evidence and principles, and creating may involve designing an ethical response to a contemporary problem. Ahmad et al. (2020) show that HOTS-oriented IRE has developed through both instructional innovations and assessment reforms. This is

relevant because deep learning should not eliminate memorization or foundational knowledge but should use such knowledge as a basis for higher-level reasoning. The theoretical implication is that deep learning transforms the function of knowledge from an endpoint into a resource for intellectual inquiry.

Critical thinking theory further clarifies the nature of HOTS in Islamic Religious Education. Critical thinking involves interpretation, analysis, evaluation, inference, explanation, and self-regulation, although specific frameworks may organize these dimensions differently. In Islamic education, critical thinking must also consider the nature of evidence and the epistemological status of revelation, reason, experience, and scholarly interpretation. Altinyelken (2021) demonstrates the relevance of critical thinking to Islamic educational settings and emphasizes its importance for young people's engagement with religious learning. This is relevant because critical thinking in IRE should not be equated with skepticism toward religion but with disciplined reasoning within an ethically and epistemologically informed framework. Deep learning creates opportunities for students to develop such reasoning through structured questioning and evidence-based discussion.

Islamic ethical reasoning provides a distinctive theoretical dimension that differentiates deep learning in IRE from generic HOTS models. Islamic education is concerned not only with whether a conclusion is logically coherent but also with whether it reflects ethical responsibility, justice, compassion, human dignity, and accountability before God.(Yilmaz et al. 2025) Therefore, students should learn to evaluate contemporary problems through both intellectual and normative lenses. The emerging literature on HOTS assessment in IRE increasingly recognizes the need to integrate cognitive performance with Islamic ethical reasoning (Nurhayati, 2026). This is relevant because a student may demonstrate excellent analytical ability while reaching ethically problematic conclusions. The theoretical contribution of an Islamic deep-learning model is therefore the integration of cognitive rigor with moral and spiritual orientation.

The Living Qur'an perspective provides an interpretive framework for connecting religious texts with lived realities. Rather than treating the Qur'an solely as an object of textual memorization, the approach examines how Qur'anic values are understood, embodied, negotiated, and practiced within social contexts. Maisyanah et al. (2025) show that the Living Qur'an approach can contribute to critical thinking in Islamic Religious Education. This is theoretically compatible with deep learning because students are required to move between text, interpretation, experience, and contemporary context. Such movement requires analysis, comparison, reflection, and evaluation.(Desyulita et al. 2025) The theoretical relevance is that Islamic knowledge becomes dynamically connected with life without losing its grounding in religious sources.

Problem-based learning provides a pedagogical theory for turning abstract religious principles into intellectual challenges. In problem-based learning, students begin with complex problems that require inquiry and collaborative knowledge construction rather than passive reception.(Hushin et al. 2025) Within IRE, the problem may be framed around an authentic ethical dilemma requiring students to identify relevant Islamic principles and evaluate competing solutions. Husna and Salamah (2023) found problem-based strategies useful for building critical thinking in Islamic

Religious Education. This is relevant because authentic problems naturally require higher cognitive processes and reduce the distance between classroom knowledge and social reality. Deep learning can therefore incorporate problem-based learning as one of its principal instructional mechanisms.

Inquiry learning complements problem-based learning by emphasizing questions, evidence, investigation, and explanation. Inquiry is especially important in religious education because students may encounter multiple interpretations and need to understand how arguments are constructed and justified.(Bolat et al. 2025) A teacher can design inquiry tasks that require students to compare interpretations, examine historical context, identify assumptions, and evaluate evidence. Research on scientific and inquiry-oriented approaches in IRE suggests that more investigative learning can contribute to critical-thinking development (Faisal et al., 2025). This is relevant because inquiry changes the classroom from a place where answers are simply delivered into a place where students learn how responsible answers are constructed. Deep learning provides the broader framework within which inquiry can become meaningful, reflective, and joyful.

Collaborative learning is another theoretical component because higher-order thinking is often strengthened through dialogue. When students explain their reasoning to peers, encounter alternative viewpoints, and negotiate disagreement, they are required to make their thinking explicit. Collaborative discussion can also expose assumptions that students may not recognize when working individually. Khanif (2023) found cooperative strategies useful for supporting creative and critical thinking in Islamic Religious Education for the Alpha generation.(Begum et al. 2025) This is relevant because contemporary students require not only individual cognitive competence but also the ability to reason with others respectfully. Deep learning should therefore create structured opportunities for dialogue, peer critique, collaborative inquiry, and collective problem solving.

Digital learning theory becomes increasingly important in contemporary IRE because students' learning environments extend beyond physical classrooms. Digital textbooks, multimedia resources, learning management systems, online discussion spaces, and religious databases can provide diverse sources of information. However, access to information does not guarantee deep understanding. Subakti et al. (2026) show that digital textbooks in university IRE can support critical thinking when embedded in appropriate educational practices.(Wahyuni and Handriani 2025) This is relevant because digital resources should be designed around questions, evidence evaluation, reflection, and application rather than simple reading and reproduction. The theoretical implication is that digital technology should function as a cognitive tool within deep learning rather than as a replacement for pedagogy.

Flipped learning offers another theoretical mechanism for deepening classroom interaction. In a flipped classroom, students encounter foundational material before class and use classroom time for discussion, application, analysis, and problem solving. Research in Islamic Religious Education has examined flipped classroom implementation as a strategy for improving students' critical thinking (El Qory et al., 2022). This is relevant because the approach reallocates classroom time from information transmission toward higher-order intellectual activity. Teachers can therefore use pre-class videos, readings, or digital materials for foundational knowledge



and reserve classroom interaction for complex religious problems. Deep learning and flipped learning are consequently complementary because both seek to maximize active cognitive engagement.

Assessment theory is central to understanding whether deep learning actually occurs. Assessment should be aligned with learning objectives, instructional activities, and expected cognitive processes. If objectives emphasize evaluation and creation but assessment measures only recall, students will rationally prioritize memorization. Rohman and Kusaeri (2021) illustrate the importance of developing appropriate instruments for measuring critical thinking in Islamic education, including Fiqh. This is relevant because valid assessment allows teachers to identify not merely whether students know Islamic concepts but how they reason with them. Deep learning therefore requires constructive alignment among objectives, activities, assessment, and feedback.

Metacognition provides another theoretical foundation because students need to monitor how they think and learn. (Nasier 2024) Deep learners do not simply process information; they reflect on their strategies, evaluate their understanding, and identify gaps in reasoning. Research connecting learning approaches with critical thinking demonstrates that deep approaches are associated with more sophisticated cognitive engagement (O'Connor et al., 2018). This is relevant to IRE because students should learn to ask themselves whether an interpretation is supported by evidence, whether their reasoning is coherent, and whether their conclusion reflects Islamic ethical principles. Reflective journals, learning logs, self-assessment, and peer assessment can operationalize this theoretical principle. Deep learning consequently becomes both a cognitive process and a process of learning how to learn.

Teacher scaffolding completes the theoretical architecture. Students cannot always independently move from factual knowledge to sophisticated analysis, especially when dealing with complex religious and ethical questions. Teachers therefore need to provide graduated support through questioning, examples, conceptual frameworks, feedback, and guided reflection. (Lhegina, Achadi, and Maulaya 2025) Research on deep learning in large lecture courses demonstrates that instructional scaffolding and higher-order assessment can encourage deeper learning even in challenging teaching environments (O'Connor et al., 2021). This is relevant because IRE teachers need practical mechanisms for guiding students without controlling every conclusion. Effective scaffolding supports intellectual independence while maintaining academic and religious rigor.

Taken together, these theories suggest that deep learning in IRE should be understood as an integrated pedagogical ecology rather than a single teaching method. Meaningful, mindful, and joyful learning provide the foundational dimensions, while constructivism explains knowledge construction and HOTS defines cognitive complexity. (Hasani et al. 2025) Problem-based learning, inquiry, collaboration, flipped learning, digital learning, and reflective assessment provide mechanisms for operationalizing the framework. Islamic ethical reasoning and the Living Qur'an perspective provide distinctive religious dimensions that ensure cognitive development remains connected to values and lived experience. This synthesis is consistent with recent scholarship arguing that deep learning should integrate cognitive, affective, contextual, and reflective dimensions (Kurnianingsih et al., 2026). The theoretical



implication is that successful IRE transformation requires alignment across pedagogy, content, assessment, technology, teacher competence, and ethical formation.

Method

This study employed library research as its principal research method. Library research is appropriate when the purpose of a study is to examine, compare, synthesize, and interpret existing scholarly knowledge rather than collect primary empirical data. Snyder (2019) emphasizes that literature review can function as a legitimate research methodology when it is conducted systematically and transparently rather than through an ad hoc selection of sources. This study therefore treated scholarly literature as the primary data source. The method was selected because the research problem concerns conceptual integration across several bodies of literature, including deep learning, HOTS, Islamic Religious Education, critical thinking, digital learning, assessment, and Islamic ethical reasoning. The methodological relevance of this approach is that a carefully structured literature synthesis can identify patterns and theoretical relationships that may not be visible within individual empirical studies.

The literature search focused primarily on peer-reviewed journal articles published during approximately the last five to ten years, with particular emphasis on 2018–2026. This temporal boundary was used to capture recent developments in deep learning pedagogy, HOTS, digital education, Islamic Religious Education, and contemporary curriculum reform. Earlier foundational concepts were considered only when necessary to clarify theoretical terminology, while the main evidence base was drawn from recent scholarship. The search included studies published in international and Indonesian journals relevant to educational theory and Islamic education. Recent studies directly examining deep learning in education and IRE were prioritized because the concept has developed rapidly in the Indonesian educational context. This strategy is relevant because a contemporary conceptual framework must reflect current educational challenges rather than rely primarily on older pedagogical assumptions.

The search process used combinations of keywords such as "deep learning pedagogy," "deep learning approach," "higher-order thinking skills," "critical thinking," "Islamic Religious Education," "Islamic education," "meaningful learning," "mindful learning," "joyful learning," "problem-based learning," "digital Islamic education," and "Islamic ethical reasoning." Boolean combinations were used conceptually to narrow the literature toward studies addressing relationships among these variables. Sources were retrieved from academic journal platforms, publisher databases, and scholarly indexing environments. Search results were then screened according to relevance to the research objectives. This process is relevant because systematic keyword formulation reduces the risk of selecting literature solely on the basis of familiarity or convenience.

Inclusion criteria were established to maintain conceptual and methodological consistency. Studies were included when they were scholarly journal articles, directly relevant to education, addressed at least one major concept in the research framework, and provided sufficient theoretical or empirical information for synthesis. Studies were prioritized when they examined HOTS, critical thinking, deep learning, meaningful learning, Islamic Religious Education, Islamic education, contemporary learning environments, or assessment. Articles outside the principal educational focus were excluded unless they provided a particularly useful theoretical explanation of deep



learning or learning approaches. This criterion was relevant because the topic crosses disciplinary boundaries, making uncontrolled inclusion likely to produce conceptual ambiguity.

The literature was analyzed through thematic synthesis. Each selected study was examined for its research purpose, methodology, participants or context when applicable, major findings, theoretical contribution, and implications for IRE. Recurring concepts were coded conceptually into themes such as meaningfulness, mindfulness, joyful engagement, critical thinking, problem solving, inquiry, collaboration, digital learning, assessment, teacher competence, and Islamic ethical reasoning. Snyder (2019) argues that literature reviews become stronger when researchers explicitly synthesize relationships among findings rather than merely summarize individual articles. This is relevant because the present study seeks to construct a framework rather than produce a chronological catalogue of previous studies. The synthesis therefore emphasized convergence, complementarity, limitations, and research gaps across the literature.

The study also followed principles associated with transparent systematic review reporting. Although the study is characterized as library research and conceptual synthesis rather than a formal meta-analysis, the logic of transparent identification, screening, eligibility, and synthesis was informed by PRISMA 2020 principles (Page et al., 2021). PRISMA emphasizes transparent reporting of how literature is identified and selected so that readers can understand the basis of the synthesis. This principle is relevant because claims concerning the effectiveness of deep learning should not be based on selectively chosen studies. The methodological orientation therefore emphasizes traceability, relevance, and critical comparison rather than simply accumulating citations. The final analytical stage involved conceptual integration. Findings were compared across studies to determine how deep learning could be connected to HOTS within IRE. Particular attention was given to the relationship among cognitive processes, affective engagement, contextual relevance, Islamic values, instructional strategies, and assessment. The analysis did not treat all studies as equivalent because differences in research design, educational level, cultural context, and outcome measures affect the strength and scope of conclusions. Instead, evidence was interpreted according to its contribution to the conceptual framework. This methodological approach is relevant because the novelty of the study lies not in claiming a new empirical effect but in synthesizing existing evidence into an integrated pedagogical model for IRE. The resulting findings should therefore be understood as theoretically and analytically derived propositions requiring further empirical validation.

Results and Discussion

The literature synthesis indicates that deep learning can be conceptualized as a transformation from knowledge reproduction toward meaning construction. Across the reviewed literature, deeper learning is repeatedly associated with meaningful engagement, active participation, reflection, contextualization, and higher cognitive demand. Research on IRE similarly identifies the need to move beyond memorization toward critical and analytical learning (Ahmad et al., 2020). The synthesis therefore indicates that deep learning and HOTS are not separate educational agendas but mutually reinforcing dimensions. Deep learning creates the learning conditions, while



HOTS specifies many of the cognitive outcomes. This relationship constitutes the first major finding of the present library research.

A second finding concerns the importance of meaningful learning. Students are more likely to demonstrate deep understanding when religious concepts are connected to problems and experiences that they perceive as relevant. Recent deep-learning literature emphasizes contextual relevance as a central mechanism through which students construct meaningful understanding (Kurnianingsih et al., 2026). In IRE, the concept of justice, for example, can be examined through contemporary inequality, digital discrimination, environmental responsibility, or social policy. Such contextualization does not weaken religious content; instead, it allows students to understand its significance. The result is learning in which Islamic knowledge becomes a resource for interpreting and responding to real situations.

A third finding is that mindful learning strengthens the reflective dimension of HOTS. Critical thinking requires learners to monitor their assumptions, reasoning processes, emotional responses, and evidentiary judgments. Mindful learning provides a pedagogical environment in which students are encouraged to pause, reflect, and examine how they arrive at conclusions. Rosyidah et al. (2026) place mindful learning alongside meaningful and joyful learning within the deep-learning framework. This is particularly relevant to Islamic education because reflection is important for connecting knowledge with self-awareness and ethical responsibility. The synthesis therefore indicates that HOTS in IRE should include not only external reasoning performance but also reflective awareness of the reasoning process.

A fourth finding concerns joyful learning. The reviewed literature suggests that emotional engagement and intellectual rigor should not be treated as opposites. A classroom can be enjoyable while still requiring demanding analysis, evaluation, and creation. Deep-learning literature emphasizes joyful engagement as a condition supporting participation, curiosity, and meaningful experience (Taqiyya et al., 2025). In IRE, joyful learning can be developed through dialogue, collaborative projects, case analysis, simulations, debates, storytelling, and digital media. This is relevant because students may be reluctant to discuss sensitive religious issues in environments characterized by fear or excessive teacher authority. A supportive emotional climate therefore becomes an enabling condition for intellectually courageous religious learning.

A fifth finding concerns the direct relationship between deep learning and higher-order thinking. Research in technology-enhanced environments has shown that deep approaches to learning can directly influence higher-order thinking (Cheng et al., 2019). Similar evidence from recent deep-learning studies suggests improvements in critical-thinking performance when instruction is structured around deep conceptual engagement. This supports the proposition that HOTS development is not merely a matter of adding difficult questions to an otherwise conventional lesson. Instead, students need an overall learning environment that encourages them to search for meaning, connect ideas, and reflect on evidence. The result indicates that IRE teachers should treat deep learning as a pedagogical orientation rather than an isolated classroom technique.

A sixth finding relates to problem-based learning. The reviewed literature consistently identifies authentic problems as productive contexts for higher-order

cognition. In IRE, problem-based learning can involve dilemmas that require students to integrate religious principles with social realities. Husna and Salamah (2023) specifically identify problem-based learning as a strategy for developing critical thinking in Islamic Religious Education. The present synthesis extends this finding by positioning problem-based learning within the broader deep-learning framework. The relevance is that problems provide the meaningful context, inquiry provides the cognitive process, collaboration provides the social dimension, and reflection provides the metacognitive dimension.

A seventh finding concerns inquiry-oriented learning. Inquiry encourages students to formulate questions, identify evidence, compare interpretations, and construct explanations. This is particularly useful in IRE because contemporary students encounter diverse religious interpretations across digital platforms. Faisal et al. (2025) indicate that scientific approaches in IRE can contribute to students' critical-thinking development. The synthesis suggests that inquiry should not be limited to scientific subjects but can also be applied to religious and ethical questions when epistemological boundaries are clearly established. This is relevant because students need to distinguish between authoritative religious evidence, scholarly interpretation, contextual opinion, and unsupported claims.

An eighth finding is the importance of collaborative learning. Deep learning is strengthened when students have opportunities to explain, challenge, defend, and revise their ideas through dialogue. Collaborative learning creates cognitive conflict that can motivate students to reconsider assumptions and clarify reasoning. Khanif (2023) reports that cooperative strategies can support creative and critical thinking among learners in Islamic Religious Education. This finding is relevant because religious understanding is often socially constructed through discussion and interpretation. Structured collaboration can therefore help students develop respectful disagreement, argumentation, listening, and collective problem solving.

A ninth finding concerns digital learning. Technology can support deep learning when it expands access to diverse sources, facilitates collaboration, and enables students to produce and critique knowledge. However, technology can also reinforce surface learning when it is used merely to deliver content or automate answers. Subakti et al. (2026) show that digital textbooks can support critical thinking in university IRE when integrated into pedagogically meaningful learning. This is relevant because contemporary IRE cannot ignore digital environments, but it must ensure that technology serves learning objectives rather than becoming the objective itself. Digital competence should therefore include information evaluation, source criticism, ethical judgment, and responsible communication.

The synthesis can be summarized through the following conceptual mapping.

Deep Learning Dimension	HOTS Process	Islamic Religious Education Application	Expected Learning Outcome

Deep Learning Dimension	HOTS Process	Islamic Religious Education Application	Expected Learning Outcome
Meaningful learning	Applying, analyzing	Connecting Islamic concepts with contemporary social issues	Contextual understanding
Mindful learning	Evaluating, self-regulating	Reflecting on assumptions and religious reasoning	Metacognitive awareness
Joyful learning	Creating, communicating	Collaborative discussion, projects, debates	Active engagement
Inquiry learning	Analyzing, evaluating	Examining evidence and interpretations	Critical religious literacy
Problem-based learning	Analyzing, evaluating, creating	Solving contemporary ethical dilemmas	Ethical problem solving
Collaborative learning	Evaluating, explaining	Peer dialogue and argumentation	Reasoned communication
Digital learning	Analyzing, evaluating	Assessing online religious information	Digital religious literacy
Reflective assessment	Evaluating, self-regulating	Learning journals and self-assessment	Reflective learning
Islamic ethical reasoning	Evaluating, creating	Applying Islamic principles to dilemmas	Responsible decision making
Creative learning	Creating	Designing solutions, campaigns, or projects	Innovative value-based action

The table demonstrates that deep learning should not be reduced to a single teaching model. Instead, it functions as an integrative framework that connects learning conditions, cognitive processes, religious content, and expected outcomes. Meaningful learning provides contextual relevance, while mindful learning supports reflection and self-regulation. Problem-based and inquiry learning provide cognitive challenges, whereas collaboration and joyful learning support social and affective engagement. Islamic ethical reasoning ensures that HOTS remains connected to the normative purposes of religious education. The framework therefore positions IRE as an intellectually demanding and value-oriented educational experience.

The first major implication of the table is that meaningful learning should become the starting point for HOTS-oriented IRE. A lesson on Islamic environmental ethics, for example, can begin with a local environmental problem rather than a definition of environmental stewardship. Students can investigate causes, examine relevant Qur'anic and Hadith principles, compare policy responses, and formulate recommendations. Such a process requires students to retrieve religious knowledge but then move toward analysis and creation. Deep learning makes the content meaningful because students encounter it as an answer to a problem rather than as isolated information. This approach is consistent with research emphasizing contextual relevance as a core component of deep learning (Kurnianingsih et al., 2026).

The second implication is that Islamic texts can become intellectual resources for inquiry. Qur'anic verses and Hadith should not be presented exclusively as statements to memorize but can be used as sources for interpretation, reflection, comparison, and ethical reasoning. The Living Qur'an approach provides a practical example because it encourages students to examine how Qur'anic values interact with everyday social realities. Maisyanah et al. (2025) found that this approach can support critical-thinking development in IRE. The relevant insight is that deep learning does not require reducing religious authority; rather, it requires expanding the ways students engage responsibly with authoritative sources. This allows textual fidelity and intellectual inquiry to coexist within the classroom.

The third implication concerns the design of classroom questions. Questions should progress from recall toward interpretation, analysis, evaluation, and creation. A teacher might begin by asking students to identify a principle, then ask them to explain its meaning, compare two interpretations, evaluate an argument, and finally propose a solution to a contemporary problem. Such progression reflects the cognitive logic of HOTS and allows foundational knowledge to support higher-level reasoning. Ahmad et al. (2020) identify instructional innovation and HOTS-oriented assessment as central developments in Islamic Religious Education. The relevance is that question design provides one of the simplest but most powerful mechanisms for changing classroom cognition.

The fourth implication concerns assessment alignment. If classroom instruction asks students to analyze religious dilemmas but final examinations ask only for definitions, the instructional system will encourage students to return to memorization. Assessment should therefore include analytical essays, case studies, portfolios, debates, projects, reflective journals, and authentic performance tasks. Rohman and Kusaeri (2021) demonstrate the importance of appropriate critical-thinking assessment in Islamic education. The synthesis suggests that assessment should evaluate not only the



correctness of students' conclusions but also the quality of their reasoning and evidence. This is relevant because deep learning becomes sustainable only when students perceive higher-order reasoning as central to academic success.

The fifth implication concerns teacher professional development. Deep learning requires teachers to understand cognitive demand, facilitate dialogue, provide scaffolding, use digital resources critically, and design valid assessments. A teacher who understands the content but lacks pedagogical strategies may unintentionally return to lecture-centered instruction. Recent research on pedagogical competence and deep learning emphasizes the role of teacher capacity in designing HOTS-oriented learning and assessment (Setiyowati et al., 2026). The relevance is that curriculum reform cannot succeed without corresponding investment in teacher development. IRE teacher education should therefore include instructional design, critical-thinking pedagogy, assessment literacy, digital literacy, and Islamic ethical reasoning.

The sixth implication concerns digital religious literacy. Contemporary learners encounter religious information through TikTok, YouTube, Instagram, websites, messaging applications, and artificial intelligence systems. These platforms can broaden access to knowledge but also increase exposure to decontextualized quotations, misinformation, ideological polarization, and unsupported interpretations. Deep learning can teach students to identify the source of a claim, examine evidence, compare interpretations, and recognize the difference between scholarly authority and online popularity. Subakti et al. (2026) demonstrate the relevance of digital learning resources for developing critical thinking in university IRE. The implication is that digital religious literacy should become a central component of contemporary IRE rather than an optional technological skill.

The seventh implication concerns the relationship between critical thinking and Islamic faith. Some educators may worry that encouraging students to question religious ideas could weaken respect for religious authority. The literature suggests that this concern can be addressed by distinguishing responsible inquiry from indiscriminate skepticism. Critical thinking in IRE can involve examining evidence, understanding context, distinguishing interpretation from revelation, and evaluating the strength of arguments while maintaining respect for Islamic epistemological principles. Altinyelken (2021) demonstrates that critical thinking can be meaningfully incorporated into Islamic educational contexts. This is relevant because intellectual maturity should strengthen students' ability to understand and responsibly apply religious teachings rather than simply produce doubt.

The eighth implication concerns ethical problem solving. HOTS should not end with analytical sophistication but should culminate in responsible judgment and action. Islamic education has a distinctive opportunity to connect cognitive skills with ethical commitments such as justice, compassion, responsibility, honesty, moderation, and human dignity. Recent work on reconstructing HOTS assessment in IRE similarly argues for integrating cognitive taxonomy with Islamic ethical reasoning (Nurhayati, 2026). This is relevant because the ultimate educational question is not merely whether students can analyze a problem but whether they can use knowledge responsibly. Deep learning therefore expands HOTS from cognitive performance toward ethical agency.

The ninth implication is the need for student agency. Deep learning requires students to make meaningful choices, investigate questions, construct interpretations,

and produce knowledge artifacts. Salim et al. (2026) identify learner agency as an important feature of pedagogical transformation through deep learning. In IRE, student agency can be developed through independent inquiry, project-based learning, community investigations, reflective writing, and collaborative problem solving. This is relevant because religious maturity includes the ability to make informed and responsible decisions rather than merely reproduce teachers' statements. Deep learning therefore supports the development of students who are intellectually independent while remaining ethically accountable.

The tenth implication is that deep learning in IRE should be understood as transformative rather than merely instructional. The ultimate goal is to transform how students know, interpret, evaluate, feel, decide, and act. Recent research in Islamic higher education indicates that meaningful, mindful, and joyful learning can jointly contribute to perceptions of transformative educational environments (2026). This supports the proposition that IRE should develop the whole learner rather than separate cognitive and spiritual objectives. The novelty of the present synthesis lies in explicitly integrating deep learning with HOTS and Islamic ethical reasoning within one framework. The proposed model can therefore serve as a conceptual foundation for future empirical studies examining the effectiveness of Deep Learning-Based Islamic Religious Education across educational levels.



Conclusion

The findings of this study demonstrate that deep learning provides a theoretically grounded framework for strengthening Higher-Order Thinking Skills (HOTS) in contemporary Islamic Religious Education (IRE). Meaningful, mindful, and joyful learning can facilitate students' progression from memorization toward analysis, evaluation, creation, reflection, and ethical decision making. These principles can be operationalized through problem-based, inquiry-based, collaborative, digital, flipped, and reflective learning approaches. The distinctive contribution of deep learning in IRE lies in integrating cognitive development with Islamic ethical reasoning. Accordingly, HOTS is not limited to students' ability to think critically but also encompasses their capacity to apply knowledge responsibly. The novelty of this study is the formulation of an integrated Deep Learning–HOTS framework for Islamic Religious Education, positioning meaningful learning as contextual grounding, mindful learning as reflective regulation, joyful learning as affective engagement, inquiry and problem-based learning as cognitive mechanisms, digital learning as a contemporary learning environment, and Islamic ethical reasoning as the normative orientation of higher-order cognition. However, as a library-based study, the proposed framework requires empirical validation through experimental, quasi-experimental, design-based, and longitudinal research. Future studies should examine its effects on critical thinking, creativity, ethical reasoning, religious literacy, engagement, and transfer of learning across diverse educational contexts. Overall, this framework offers a conceptual foundation for transforming IRE into a more intellectually rigorous, ethically grounded, reflective, and future-oriented educational paradigm.



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