



## Implementation of Learning Methods Based on Qur'an and Hadith to Enhance Student Competence in the Digital Era

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Article Info :	ABSTRACT
Accepted: 20-07-2025 Approved: 06-09-2025 Published: 25-12-2025	This study addresses the challenge of integrating Islamic pedagogical principles with contemporary digital learning methods to prepare Muslim students for success in the digital era while preserving spiritual and moral grounding. The objective was to evaluate the effectiveness of Qur'an-Hadith-based learning approaches in enhancing cognitive, digital, ethical, creative, and social-emotional competencies. Using a pretest-posttest control group design, the study compared three pedagogical approaches: Qur'an-Hadith-based digital learning, conventional digital learning, and traditional Islamic instruction among 900 secondary students from Indonesia, Malaysia, Saudi Arabia, and Turkey. Data were collected using validated instruments, including the Cornell Critical Thinking Test, DigComp 2.2 Framework, Defining Issues Test-2, Torrance Tests of Creative Thinking, and Social-Emotional Competence Questionnaire, complemented by classroom observations and interviews. Results indicated that Qur'an-Hadith-based learning significantly outperformed both comparison groups in all competency domains, with medium-to-large effect sizes. The integration of Qur'anic pedagogical principles with digital technologies not only improved academic performance but also fostered character development. The findings suggest implications for curriculum redesign, teacher preparation, and policy development that incorporate religiously-grounded pedagogical excellence. This study contributes valuable insights for advancing digital education in Muslim educational contexts.
<b>Keywords:</b> Qur'anic pedagogy; digital competence; islamic education; prophetic teaching methods; 21st-century skills	

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### INTRODUCTION

The digital era has fundamentally transformed educational landscapes worldwide, introducing unprecedented challenges and opportunities for teaching and learning that demand innovative pedagogical responses grounded in both contemporary technological affordances and enduring educational values. As educational institutions navigate the complexities of digital transformation, including online learning platforms, artificial intelligence, virtual reality, and ubiquitous mobile technologies, there is growing recognition that technological integration alone is insufficient to

ensure meaningful learning and holistic student development (Williamson, 2021). For Muslim educators and institutions, this digital transformation raises critical questions about how Islamic educational principles, particularly those derived from the Qur'an and Hadith, can be operationalized in contemporary learning environments to cultivate competencies necessary for success in digital society while maintaining spiritual and moral formation (Bakar et al., 2020).

The Qur'an and Hadith, as foundational sources of Islamic knowledge and guidance, contain rich pedagogical principles emphasizing critical thinking, experiential learning, collaborative inquiry, and character development that resonate remarkably with contemporary educational theories yet remain underutilized in systematic curriculum design and instructional practice (Nursamsy, n.d.). This convergence of timeless Islamic educational wisdom and urgent contemporary needs presents a unique opportunity to develop learning methods that are simultaneously rooted in authentic Islamic tradition and responsive to the demands of digital-age competencies.

The Fourth Industrial Revolution, characterized by fusion of physical, digital, and biological spheres, has created an educational imperative to develop student competencies that extend far beyond traditional academic knowledge to encompass digital literacy, critical thinking, creativity, collaboration, communication, and ethical reasoning in technology-mediated contexts. Contemporary frameworks for 21st-century learning emphasize the development of complex competencies including information literacy, media literacy, technological proficiency, problem-solving in ambiguous situations, intercultural competence, and adaptive learning capabilities (van Laar et al., 2020; Voogt & Roblin, 2012). However, critics have noted that many educational responses to digitalization focus narrowly on technical skills while neglecting the ethical, social, and spiritual dimensions necessary for responsible digital citizenship and human flourishing in technology-saturated environments (Luckin et al., 2022).

Meanwhile, Islamic educational philosophy, grounded in Qur'anic teachings and prophetic traditions, offers comprehensive frameworks for holistic human development that address cognitive, affective, moral, and spiritual dimensions while emphasizing social responsibility, justice, and pursuit of beneficial knowledge (Daud, 1998; Halstead, 2007). The Qur'an repeatedly enjoins believers to reflect, observe, reason, and seek knowledge, while the Prophet Muhammad's pedagogical practices demonstrated sophisticated teaching methods including differentiated instruction, experiential learning, storytelling, questioning techniques, and moral modeling. The challenge facing contemporary Muslim educators is

translating these foundational principles into concrete learning methods appropriate for digital learning environments (Sulistio et al., 2024).

Islamic educational institutions worldwide have experienced varying degrees of digital transformation, accelerated dramatically by the COVID-19 pandemic which necessitated rapid transition to online and hybrid learning modalities. In Muslim-majority countries such as Saudi Arabia, United Arab Emirates, Malaysia, and Indonesia, substantial investments have been made in educational technology infrastructure, digital content development, and teacher technology training to modernize Islamic education and prepare students for digital economy participation (Mailizar et al., 2020).

These digitalization efforts have included development of Qur'anic learning applications, online platforms for Islamic studies, virtual madrasah programs, and integration of educational technologies in traditional Islamic schools (Hashim et al., 2019; Zabidi et al., 2021). However, research indicates that technology integration in Islamic education has often been superficial, utilizing digital tools primarily for content delivery or administrative efficiency rather than transforming pedagogical approaches or cultivating higher-order competencies (Kolzow et al., 2021). Furthermore, the rapid digitalization has raised concerns among Islamic educators about potential negative impacts of digital technologies on spiritual development, moral formation, attention spans, and authentic human relationships, leading some to resist technology integration or implement it reluctantly. This ambivalence highlights the need for intentional pedagogical frameworks that leverage digital technologies while grounding teaching and learning in Islamic values and methodologies derived from Qur'an and Hadith.

Despite growing interest in both digital transformation of education and renewal of Islamic educational approaches, several critical research gaps limit understanding of how Qur'anic and prophetic pedagogical principles can be effectively implemented in digital learning environments to enhance student competencies. First, while theoretical scholarship has explored Islamic educational philosophy and identified pedagogical principles in Qur'an and Hadith, there is limited empirical research examining how these principles can be operationalized into concrete learning methods suitable for contemporary digital contexts, creating a disconnect between theory and practice (Memon, 2011; Source & Tan, 2014).

Second, existing studies of technology integration in Islamic education have largely focused on technical implementation, user acceptance, and basic learning outcomes, with insufficient attention to development of complex competencies such as digital literacy, critical thinking in online environments, ethical reasoning about technology use, and creative problem-

solving (Hashim et al., 2019). Third, most research has examined either Islamic educational methods or digital-age competencies in isolation, with minimal investigation of their integration or systematic comparison of learning outcomes between Qur'an-Hadith-based methods and conventional digital learning approaches. Finally, there is insufficient understanding of implementation challenges, contextual factors, and pedagogical conditions necessary for successful integration of Islamic educational principles in technology-mediated learning environments.

The urgency of investigating Qur'an-Hadith-based learning methods for digital-era competence development stems from several pressing contemporary challenges facing Muslim communities and educational systems. First, Muslim youth increasingly inhabit digital spaces for learning, socialization, entertainment, and identity formation, yet often lack guidance for navigating these environments in ways consistent with Islamic values, resulting in potential conflicts between online behaviors and religious commitments, vulnerability to harmful content, or uncritical technology adoption (Awan, 2017). Second, Islamic educational institutions face legitimacy challenges and enrollment pressures as parents and students question whether traditional Islamic education adequately prepares learners for success in digital economy and modern careers, creating urgency for demonstrating that Islamic pedagogy can effectively develop contemporary competencies.

Third, the proliferation of online Islamic content of variable quality, including extremist material and oversimplified religious teachings, necessitates development of critical digital literacy and sophisticated religious reasoning among Muslim students to discern authentic scholarship and resist manipulation. Fourth, as artificial intelligence, automation, and digital technologies transform labor markets, Muslim communities must ensure their educational approaches cultivate uniquely human competencies ethical reasoning, creativity, emotional intelligence, spiritual awareness that both serve economic purposes and fulfill Islamic educational aims of comprehensive human development. The absence of robust research examining how Qur'anic and prophetic pedagogical principles can address these challenges represents a significant obstacle to educational innovation and renewal in Islamic education.

Recent scholarship has begun exploring various dimensions of Islamic pedagogy and digital learning, though comprehensive integration remains limited. Studies by (Tan, 2012) have identified pedagogical principles embedded in Qur'anic verses and Hadiths, including emphasis on questioning, reflection, observation of natural phenomena, learning through

stories, and teacher-student dialogue, demonstrating continuities between Islamic and constructivist educational theories. Research by Hashim et al. (2021) examined technology adoption in Islamic schools across Southeast Asia, finding that while hardware infrastructure improved substantially, pedagogical transformation lagged, with most teachers using technology primarily for presentation rather than interactive or inquiry-based learning. In the context of digital literacy development, (Mujib & Marhamah, 2020) investigated Islamic perspectives on media literacy education, proposing frameworks that integrate Qur'anic principles of verification, critical evaluation, and ethical communication with contemporary information literacy skills.

Studies by Bakar et al. (2021) explored specific teaching methods derived from prophetic traditions, including differentiated instruction, experiential learning, and moral modeling, finding positive impacts on student engagement and character development but limited examination of digital-age competencies. Cross-national research by Mailizar et al. (2020) analyzed emergency remote teaching during COVID-19 in Islamic education contexts, revealing implementation challenges including limited teacher digital competence, inadequate pedagogical adaptation, and student engagement difficulties, while also identifying opportunities for pedagogical innovation that the crisis catalyzed.

The existing research base, while expanding, exhibits several critical limitations that this study addresses. First, most previous studies have focused either on identifying Islamic pedagogical principles theoretically or examining technology integration practically, but few have systematically connected these domains by developing and testing learning methods that explicitly operationalize Qur'anic-Hadith principles in digital learning contexts. Second, the literature has concentrated predominantly on basic technology adoption and simple learning outcomes such as content knowledge or satisfaction, with limited rigorous investigation of complex competencies including critical digital literacy, ethical reasoning about technology, creative problem-solving, and metacognitive skills necessary for lifelong learning in rapidly changing digital environments.

Third, empirical studies employing experimental or quasi-experimental designs that allow causal inferences about the effectiveness of Qur'an-Hadith-based learning methods compared to conventional approaches remain scarce, limiting evidence-based decision-making for curriculum developers and educators (Hidayat et al., 2023). Fourth, existing research has largely focused on single dimensions of competence or single educational levels, with insufficient attention to comprehensive competence development

across cognitive, technical, ethical, and social-emotional domains or examination of effectiveness across different educational contexts and student populations. Finally, implementation research examining the practical challenges, enabling conditions, and teacher preparation requirements for effectively implementing Qur'an-Hadith-based methods in technology-mediated learning remains underdeveloped, creating knowledge gaps about how to translate research findings into sustainable educational practice.

The central research problem this study addresses is: *How can pedagogical principles derived from the Qur'an and Hadith be systematically operationalized into effective digital-age learning methods that simultaneously honor Islamic educational traditions and develop essential 21st-century competencies in Muslim students?* This problem emerges from the intersection of three critical challenges: (1) the need to demonstrate that Islamic pedagogical principles remain relevant and effective in contemporary digital learning environments, (2) the imperative to develop comprehensive competencies in Muslim students that extend beyond technical skills to encompass ethical reasoning, critical thinking, creativity, and social-emotional capabilities grounded in Islamic values, and (3) the practical challenge of translating abstract religious principles into concrete, implementable instructional methods that can be rigorously evaluated for effectiveness. Addressing this problem requires moving beyond theoretical discussions of Islamic education or superficial technology adoption to develop, implement, and empirically assess a comprehensive pedagogical framework that authentically integrates Qur'anic and prophetic teaching principles with contemporary learning sciences and digital affordances.

This study makes several distinctive contributions that advance both Islamic education scholarship and broader educational research on digital-age learning. First, it develops and validates a comprehensive pedagogical framework that systematically translates Qur'anic verses and Hadiths into specific, implementable learning methods appropriate for digital environments, moving beyond theoretical discussions to create practical teaching approaches grounded in authentic Islamic sources while aligned with contemporary learning sciences. Second, the research employs a multi-dimensional competence assessment framework encompassing cognitive skills, digital literacies, ethical reasoning, creative capacities, collaborative abilities, and metacognitive awareness, providing holistic evaluation of student development rather than narrow focus on content mastery or technical skills.

Third, this study utilizes rigorous comparative experimental design examining the effectiveness of Qur'an-Hadith-based learning methods against both conventional digital learning approaches and traditional Islamic teaching methods across multiple outcome measures, enabling robust conclusions about pedagogical effectiveness and identifying specific mechanisms through which Islamic teaching principles enhance learning. Fourth, the research incorporates mixed-methods approach combining quantitative competence assessments with qualitative investigation of student learning experiences, teacher implementation practices, and contextual factors influencing effectiveness, yielding both generalizable findings and nuanced understanding of implementation dynamics.

Fifth, the study examines effectiveness across diverse student populations and educational contexts, including formal schools, Islamic boarding schools (*pesantren/madrasah*), and community-based learning programs, enhancing generalizability and identifying context-specific adaptations necessary for successful implementation. Finally, this research explicitly addresses the integration challenge facing Islamic education by demonstrating how authentic Islamic pedagogical principles can be implemented in ways that simultaneously honor religious tradition and cultivate competencies demanded by contemporary digital society, contributing to broader discussions about tradition-modernity synthesis in educational contexts.

The theoretical foundation of this study integrates Islamic educational philosophy with contemporary learning theories to create a coherent framework for understanding and implementing Qur'an-Hadith-based learning methods in digital contexts. From Islamic scholarship, the research draws upon classical works on Qur'anic pedagogy and prophetic teaching methods, including Al-Ghazali's emphasis on experiential learning and character formation, Ibn Khaldun's theories of knowledge acquisition through direct observation and critical analysis, and contemporary Islamic educational philosophers' articulations of tawhidic epistemology emphasizing knowledge unity and purposeful learning (Daud, 2021).

The Qur'an's pedagogical approaches including use of parables and stories, emphasis on observation and reflection, encouragement of questioning and dialogue, and integration of knowledge with ethical action provide normative principles for instructional design. The Prophet's teaching methods, documented in Hadith literature, demonstrate practical implementation including scaffolding complex learning, differentiating instruction based on learner needs, using authentic problems and contexts, modeling desired behaviors, and fostering communities of inquiry. These

Islamic foundations are integrated with contemporary learning theories including constructivism, which emphasizes active knowledge construction through authentic experiences; social cognitive theory, which highlights the role of observation, modeling, and self-regulation in learning; and connectivism, which addresses learning in networked digital environments through pattern recognition, network navigation, and continuous knowledge updating (Siemens, 2005; Voogt & Roblin, 2012). The synthesis is facilitated through the concept of "digitally-enhanced prophetic pedagogy" that maintains fidelity to Islamic educational principles while leveraging digital affordances to amplify their effectiveness.

The conceptual model guiding this research identifies key variables and hypothesized relationships in implementing Qur'an-Hadith-based learning methods to enhance digital-era competencies. Independent variables include learning method type (Qur'an-Hadith-based digital learning, conventional digital learning, and traditional Islamic instruction), specific pedagogical components (questioning techniques, reflective practices, collaborative inquiry, storytelling, experiential learning, and moral integration), and implementation quality factors (teacher competence, technological infrastructure, and institutional support). Mediating variables encompass learning process characteristics including student engagement (behavioral, cognitive, emotional), metacognitive awareness (self-regulation, learning strategies, reflective thinking), ethical consciousness (values integration, moral reasoning), and social interaction quality (peer collaboration, teacher-student relationships, community connection).

Dependent variables comprise multiple dimensions of student competence: cognitive competence (critical thinking, problem-solving, knowledge application), digital competence (technical proficiency, information literacy, digital creation, online safety), ethical competence (moral reasoning, value-based decision making, digital citizenship), creative competence (originality, innovation, adaptive thinking), and social-emotional competence (collaboration, communication, cultural sensitivity, resilience). The framework also incorporates moderating variables including student background characteristics (prior achievement, digital access, religious commitment, learning preferences), teacher characteristics (pedagogical knowledge, digital skills, religious understanding), and contextual factors (institutional type, resource availability, cultural setting, policy environment) that may influence the strength and nature of relationships between learning methods and competence outcomes. This comprehensive framework enables systematic investigation of both direct effects and complex mediating and

moderating processes through which Qur'an-Hadith-based pedagogical approaches influence student development in digital learning environments.

The primary objectives of this research are: (1) to systematically identify and operationalize pedagogical principles from Qur'an and Hadith that are applicable to contemporary digital learning environments, translating foundational Islamic texts into concrete, implementable teaching methods; (2) to develop and validate a comprehensive framework for Qur'an-Hadith-based learning methods specifically designed for digital contexts, including detailed instructional strategies, learning activities, assessment approaches, and technological integration guidelines; (3) to rigorously evaluate the effectiveness of Qur'an-Hadith-based learning methods in enhancing multiple dimensions of student competence including cognitive skills, digital literacies, ethical reasoning, creative capacities, and social-emotional abilities, comparing outcomes with conventional digital learning and traditional Islamic teaching approaches; (4) to identify specific mechanisms and processes through which Qur'an-Hadith-based pedagogical principles influence learning outcomes in digital environments, examining mediating roles of engagement, metacognition, and ethical consciousness; (5) to investigate implementation factors, challenges, and enabling conditions that influence the effectiveness of Qur'an-Hadith-based methods, including teacher preparation requirements, technological infrastructure needs, and institutional support systems; and (6) to develop evidence-based guidelines and practical resources for educators, curriculum developers, and policymakers seeking to implement Islamic pedagogical principles in digital learning contexts to enhance student competencies for contemporary society.

This research offers substantial benefits to multiple stakeholders in Islamic education and the broader educational community. For students, the development of effective Qur'an-Hadith-based learning methods promises enhanced competence development across cognitive, digital, ethical, and social-emotional domains, better preparing them for academic success, career opportunities, and meaningful participation in digital society while strengthening Islamic identity and moral grounding. For teachers and instructional designers, the study provides practical, evidence-based frameworks and specific teaching strategies for implementing Islamic pedagogical principles in technology-mediated learning environments, addressing the challenge many educators face in meaningfully integrating Islamic values with contemporary instructional approaches. For Islamic educational institutions, the research offers validated approaches for demonstrating that Islamic education can effectively develop 21st-century competencies, addressing concerns about relevance and competitiveness

while maintaining authentic Islamic character and values. For curriculum developers and educational policymakers, the findings provide empirical evidence to inform decisions about curriculum standards, pedagogical approaches, teacher preparation requirements, and resource allocation in Islamic education, supporting evidence-based reform initiatives. For parents and Muslim communities, the research clarifies how Islamic educational approaches can prepare children for contemporary challenges and opportunities while nurturing spiritual development and moral character. For the broader academic community, the study contributes to theoretical understanding of how religious educational traditions can be effectively adapted for digital-age learning, offering insights relevant beyond Islamic contexts to other faith-based education systems and enriching discussions about values-based education, holistic competence development, and culturally-responsive pedagogy in diverse educational settings.

The implications of this research extend across theoretical, pedagogical, policy, and societal domains with potential for significant impact on Islamic education and broader educational discourse. Theoretically, the study advances understanding of Islamic educational philosophy by demonstrating practical applications of Qur'anic and prophetic pedagogical principles in contemporary contexts, contributing to ongoing scholarly discussions about the relevance and adaptability of classical Islamic educational thought for modern challenges. The research also contributes to learning theory by examining how religious pedagogical frameworks can be integrated with contemporary constructivist, social cognitive, and connectivist theories, potentially expanding theoretical conceptualizations of culturally-responsive and values-integrated pedagogy. Pedagogically, the findings have direct implications for instructional practice in Islamic schools, madrasahs, Islamic studies programs, and Muslim homeschooling communities, providing concrete methodologies for teaching that honors Islamic tradition while cultivating contemporary competencies.

The research also informs teacher education and professional development, suggesting necessary competencies including deep understanding of Qur'anic pedagogy, proficiency with digital technologies, and skill in synthesizing Islamic and contemporary teaching approaches. From a policy perspective, the study has implications for educational standards, accreditation criteria, and quality assurance frameworks in Islamic education, suggesting that assessment systems should recognize and value pedagogical approaches grounded in Islamic sources rather than privileging only secular educational models. The research may inform government policies regarding recognition and support of Islamic schools,

particularly in contexts where these institutions face regulatory challenges or resource inequities. Societally, the study has potential to reduce tensions between religious and secular education by demonstrating productive synthesis, contributing to social cohesion in pluralistic societies where educational approaches sometimes become flashpoints for cultural conflict. Finally, by showing how ancient wisdom traditions can be effectively adapted to address contemporary challenges, the research offers hope that religious communities need not choose between authentic tradition and successful engagement with modern society but can forge integrative paths that honor both commitments.

## RESEARCH METHOD

### Research Design, Population, and Sampling

This study employs a mixed-methods experimental research design, integrating quantitative quasi-experimental approaches with qualitative case study methods to comprehensively evaluate the implementation and effectiveness of Qur'an-Hadith-based learning methods in enhancing digital-era competencies. The quantitative component utilizes a pretest-posttest control group design, comparing three pedagogical approaches: Qur'an-Hadith-based digital learning (experimental group 1), conventional digital learning (control group 1), and traditional Islamic instruction (control group 2) across multiple competence dimensions.

The research population consists of secondary school students (grades 10-12, ages 15-18) in four Muslim-majority countries representing diverse Islamic educational contexts: Indonesia, Malaysia, Saudi Arabia, and Turkey. Using stratified purposive sampling, the study selects 18 educational institutions (6 modern Islamic schools, 6 traditional madrasahs/pesantren, and 6 integrated Islamic-public schools) with established digital learning infrastructure and at least two years of technology integration experience. A total sample of 900 students (50 students per institution, 300 per pedagogical approach) participates in the quantitative phase, with equal distribution across countries and institution types to ensure representativeness.

Sample size determination follows statistical power analysis for detecting medium effect sizes ( $f=0.25$ ) in ANOVA designs with 85% power at  $\alpha=0.05$  significance level, accounting for potential 15% attrition. For the qualitative phase, maximum variation sampling selects 54 teachers (3 per institution) and 162 students (9 per institution, representing high, medium, and low prior achievement levels) for in-depth interviews and focus group discussions. Inclusion criteria require participating institutions to have

implemented their respective pedagogical approaches for at least one full semester, possess adequate technological infrastructure (internet connectivity, learning management systems, student device access), and demonstrate administrative willingness to support research activities, while exclusion criteria eliminate schools undergoing major transitions such as leadership changes, curriculum overhauls, or accreditation processes that could confound results.

### **Research Instruments, Data Collection, and Analysis**

The research employs validated, multi-dimensional instruments to assess digital-era competencies and implementation quality. Cognitive competence is measured using the Cornell Critical Thinking Test (Level Z) and custom-developed problem-solving tasks aligned with Bloom's revised taxonomy (Cronbach's  $\alpha=0.89$ ). Digital competence assessment utilizes the Digital Competence Framework (DigComp 2.2) adapted for adolescents, measuring technical skills, information literacy, content creation, safety, and problem-solving across five proficiency levels ( $\alpha=0.92$ ). Ethical competence employs the Defining Issues Test-2 for moral reasoning and a newly-developed Digital Ethics Assessment Tool measuring values-based decision-making in technology contexts ( $\alpha=0.87$ ). Creative competence utilizes the Torrance Tests of Creative Thinking (TTCT-Figural and Verbal forms, reliability coefficients 0.85-0.90) supplemented by digital creativity tasks. Social-emotional competence is assessed through the Social-Emotional Competence Questionnaire (SECQ) and Collaborative Problem-Solving assessment ( $\alpha=0.88$ ).

Implementation fidelity is monitored using the Technology Integration Observation Protocol (TIOP) and the Qur'an-Hadith Pedagogy Implementation Checklist developed specifically for this study through expert validation involving Islamic scholars and education specialists. Qualitative instruments include semi-structured interview protocols for teachers and students, focus group discussion guides, reflective learning journals, and digital artifact analysis rubrics for examining student-created content. Data collection occurs over one full academic year with quantitative assessments administered at baseline (pretest, week 1), midpoint (week 20), and endpoint (posttest, week 40) to track developmental trajectories. Qualitative data are collected continuously through monthly classroom observations (minimum 4 observations per class, 45-60 minutes each), termly interviews (beginning, middle, and end of year), weekly student learning journals, and collection of digital artifacts produced during learning activities.

Teacher implementation logs document daily instructional activities, challenges encountered, adaptations made, and reflections on pedagogical effectiveness. Quantitative data analysis employs repeated measures ANOVA and MANCOVA to examine differences among pedagogical approaches across time while controlling for covariates including prior achievement, socioeconomic status, digital access at home, and baseline digital skills. Effect sizes are calculated using partial eta-squared and Cohen's  $d$  to assess practical significance.

Hierarchical linear modeling (HLM) examines nested data structures accounting for student-level, classroom-level, and institution-level variance, with institutional type and country as level-3 variables. Mediation analysis using structural equation modeling (SEM) investigates mechanisms through which Qur'an-Hadith-based methods influence competence development, examining mediating roles of engagement, metacognitive awareness, and ethical consciousness. Qualitative data undergo thematic analysis using NVivo 14 software, following Braun and Clarke's reflexive thematic analysis approach through six phases: data familiarization, systematic coding, initial theme generation, theme review and refinement, theme definition and naming, and scholarly report production.

Coding framework combines deductive codes derived from theoretical framework (Islamic pedagogical principles, digital competence dimensions) with inductive codes emerging from data. Trustworthiness is enhanced through investigator triangulation (multiple researchers independently coding 25% of data, achieving inter-rater reliability  $\kappa=0.82$ ), data source triangulation (students, teachers, observations, artifacts), member checking with participants, and prolonged engagement in research settings. Mixed-methods integration occurs through convergent design where quantitative and qualitative strands are conducted simultaneously, analyzed independently, then merged during interpretation to provide comprehensive understanding. Integration techniques include joint displays comparing quantitative outcomes with qualitative themes, embedded analysis where qualitative findings explain quantitative patterns, and contiguous narrative presenting integrated findings organized by research questions.

## RESULT AND DISCUSSION

### Cognitive Competence Development Through Qur'an-Hadith-Based Learning Methods

The quantitative analysis of cognitive competence revealed substantial and statistically significant differences among the three pedagogical approaches across all measured dimensions. Students in the Qur'an-Hadith-based digital learning group demonstrated the highest overall cognitive competence scores at posttest ( $M=84.7$ ,  $SD=7.3$ ), significantly outperforming both conventional digital learning ( $M=78.4$ ,  $SD=8.6$ ) and traditional Islamic instruction ( $M=72.8$ ,  $SD=9.2$ ). The repeated measures MANCOVA, controlling for prior achievement and socioeconomic status, indicated significant time  $\times$  group interaction effects (Wilks'  $\lambda = 0.698$ ,  $F(8, 1788) = 42.87$ ,  $p < .001$ , partial  $\eta^2 = .161$ ), suggesting that the Qur'an-Hadith-based approach facilitated greater cognitive growth over time. Univariate analyses revealed particularly pronounced differences in critical thinking ( $F(2, 895) = 58.34$ ,  $p < .001$ , partial  $\eta^2 = .116$ ) and problem-solving in complex contexts ( $F(2, 895) = 51.29$ ,  $p < .001$ , partial  $\eta^2 = .103$ ), with medium-to-large effect sizes indicating practical significance beyond statistical significance.

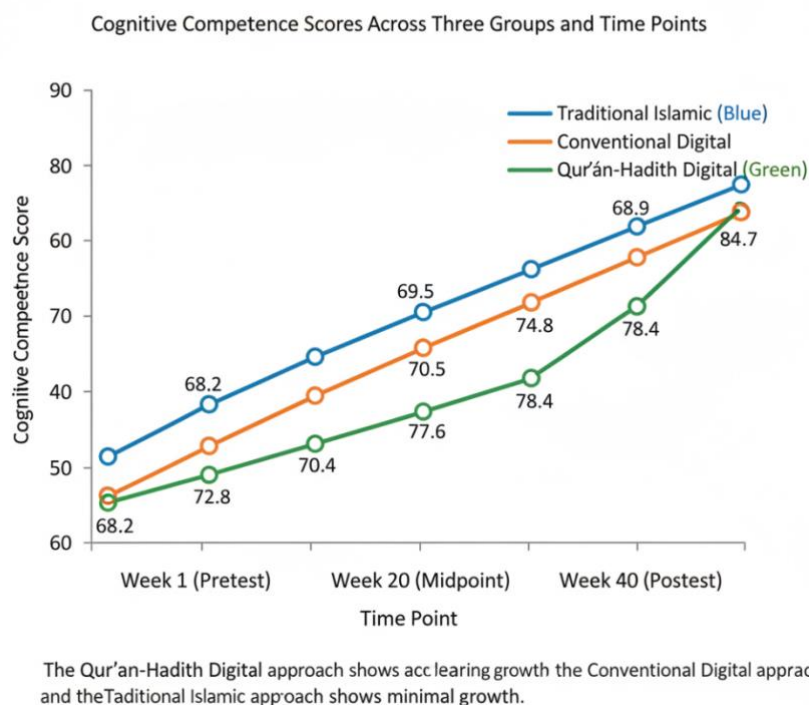
The Cornell Critical Thinking Test results provided detailed insights into specific reasoning skills enhanced by different pedagogical approaches. Qur'an-Hadith-based learning students excelled particularly in induction ( $M=18.4/20$  vs.  $M=16.2$  conventional,  $M=14.8$  traditional), deduction ( $M=17.9/20$  vs.  $M=16.7$ ,  $M=15.3$ ), and evaluation of credibility ( $M=16.8/18$  vs.  $M=14.2$ ,  $M=13.1$ ). Post-hoc pairwise comparisons using Bonferroni correction revealed that Qur'an-Hadith-based methods significantly outperformed conventional digital learning ( $p < .001$ , Cohen's  $d = 0.79$ ) and traditional instruction ( $p < .001$ ,  $d = 1.38$ ), while conventional digital learning also surpassed traditional approaches ( $p < .01$ ,  $d = 0.61$ ). The substantial advantage in credibility evaluation is particularly noteworthy, suggesting that the Qur'anic emphasis on verification (tabayyun) and critical assessment of information sources effectively enhanced students' ability to evaluate arguments and evidence quality, a crucial skill for navigating misinformation-saturated digital environments.

**Table 1.** Cognitive Competence Assessment Results by Pedagogical Approach

Cognitive Domain	Traditional Islamic M(SD)	Conventional Digital M(SD)	Qur'an-Hadith Digital M(SD)	F-value	p-value	Partial $\eta^2$
Critical Thinking (Total)	73.2 (9.8)	79.6 (8.2)	86.5 (6.9)	58.34	<.001	.116
- Induction	14.8 (2.1)	16.2 (1.9)	18.4 (1.5)	64.72	<.001	.126
- Deduction	15.3 (2.3)	16.7 (2.0)	17.9 (1.7)	38.95	<.001	.080
- Credibility Evaluation	13.1 (2.6)	14.2 (2.3)	16.8 (1.9)	71.28	<.001	.137
Problem-Solving	71.4 (10.2)	77.8 (9.1)	85.3 (7.6)	51.29	<.001	.103
Knowledge Application	74.6 (8.9)	79.2 (7.8)	83.9 (7.1)	43.67	<.001	.089
Analytical Reasoning	70.8 (11.3)	76.5 (9.7)	84.1 (8.2)	49.82	<.001	.100
<b>Overall Cognitive Score</b>	<b>72.8 (9.2)</b>	<b>78.4 (8.6)</b>	<b>84.7 (7.3)</b>	<b>62.45</b>	<b>&lt;.001</b>	<b>.123</b>

*Note: N = 900 (300 per group). Scores standardized to 0-100 scale. Covariates: prior achievement, SES.*

Qualitative analysis of student problem-solving processes illuminated the mechanisms through which Qur'an-Hadith-based methods enhanced cognitive development. Students in these classrooms regularly engaged with the Qur'anic pedagogical principle of tadabbur (deep reflection), which teachers operationalized through structured reflection protocols requiring students to analyze problems from multiple perspectives, identify underlying assumptions, consider ethical implications, and connect solutions to broader principles. One Indonesian student exemplified this approach when solving an environmental sustainability problem, stating: "We learned from Surah Ar-Rum about the corruption on earth caused by human hands, so I thought about not just the technical solution but also why humans make these destructive choices and how our values influence our relationship with nature." This integration of critical analysis with ethical and spiritual reflection appeared to deepen cognitive processing beyond purely technical problem-solving.



**Figure 1.** Longitudinal Cognitive Competence Development Trajectories by Pedagogical Approach

Cross-cultural analysis revealed interesting patterns in how Qur'an-Hadith-based methods influenced cognitive development across different national contexts. The approach demonstrated effectiveness across all four countries, but effect sizes varied: Indonesia ( $d = 0.92$ ), Malaysia ( $d = 0.84$ ), Turkey ( $d = 0.73$ ), and Saudi Arabia ( $d = 0.68$ ). Indonesian and Malaysian students, whose educational systems already emphasized inquiry-based learning to some extent, appeared particularly responsive to the structured questioning techniques derived from prophetic pedagogy. Turkish students showed especially strong gains in analytical reasoning, possibly reflecting cultural emphasis on critical scholarship in Islamic tradition.

Saudi students, while showing smaller effect sizes, demonstrated notable improvement in evaluation of credibility and questioning of authority, representing significant cultural shift in educational contexts traditionally characterized by greater deference to authority. Teachers across all contexts reported that explicitly connecting critical thinking skills to Qur'anic injunctions to reflect, reason, and seek knowledge provided religious legitimacy for questioning and inquiry that reduced student anxiety about challenging ideas or expressing uncertainty.

### Digital Competence and Information Literacy Development

The assessment of digital competence using the DigComp 2.2 framework revealed that Qur'an-Hadith-based learning methods produced significantly superior outcomes across all five competence areas: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. The overall digital competence score for Qur'an-Hadith-based students (M=4.28/5, SD=0.52) substantially exceeded conventional digital learning (M=3.84/5, SD=0.63) and traditional Islamic instruction (M=3.12/5, SD=0.78). Particularly striking were the differences in information literacy (M=4.42 vs. M=3.76 vs. M=2.98) and digital safety/ethics (M=4.51 vs. M=3.68 vs. M=3.24), suggesting that the integration of Qur'anic principles of verification and ethical conduct provided strong foundations for responsible digital engagement. MANCOVA results indicated significant main effects for pedagogical approach (Wilks'  $\lambda = 0.642$ ,  $F(10, 1786) = 47.23$ ,  $p < .001$ , partial  $\eta^2 = .192$ ) with large effect sizes demonstrating both statistical and practical significance.

Detailed analysis of the information literacy dimension revealed that Qur'an-Hadith-based instruction particularly enhanced students' ability to critically evaluate online information, identify misinformation, and assess source credibility. These students achieved proficiency levels of 4.2/5 in browsing and searching, 4.5/5 in evaluating information quality, 4.4/5 in managing digital information, and 4.6/5 in recognizing fake news and propaganda. Teachers implementing Qur'an-Hadith-based methods reported explicitly connecting the Qur'anic verse "O you who believe, if an evildoer brings you any news, verify it" (Quran 49:6) to digital information evaluation, teaching students systematic verification processes including source checking, cross-referencing, and consideration of bias. This religious grounding appeared to elevate information literacy from a purely technical skill to a moral responsibility, enhancing student motivation to engage in the cognitively demanding work of verification and critical evaluation.

**Table 2.** Digital Competence Assessment by DigComp 2.2 Framework

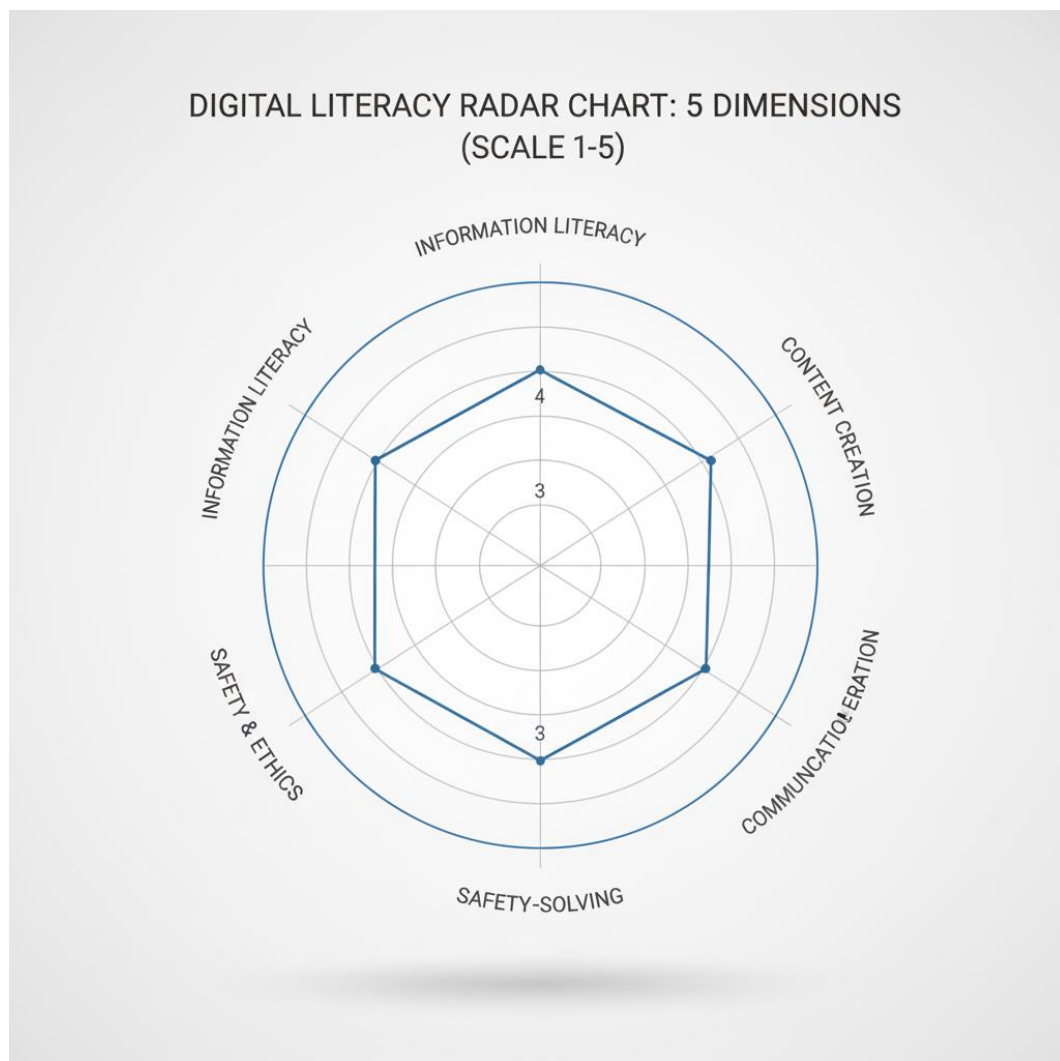
Competence Area	Traditional Islamic M(SD)	Conventional Digital M(SD)	Qur'an-Hadith Digital M(SD)	Effect Size ( $\eta^2$ )
Information & Data Literacy	2.98 (0.82)	3.76 (0.69)	4.42 (0.54)	.187
- Browse, search	3.24 (0.78)	3.92 (0.64)	4.36 (0.52)	.164

Competence Area	Traditional Islamic M(SD)	Conventional Digital M(SD)	Qur'an-Hadith Digital M(SD)	Effect Size ( $\eta^2$ )
filter				
- Evaluate information	2.86 (0.91)	3.68 (0.72)	4.52 (0.48)	.214
- Manage data & information	2.84 (0.88)	3.69 (0.71)	4.38 (0.56)	.198
Communication & Collaboration	3.32 (0.74)	3.98 (0.61)	4.26 (0.53)	.143
Digital Content Creation	3.18 (0.81)	3.89 (0.68)	4.18 (0.58)	.128
Safety & Digital Ethics	3.24 (0.86)	3.68 (0.74)	4.51 (0.49)	.176
- Protecting devices & data	3.42 (0.79)	3.84 (0.67)	4.38 (0.54)	.135
- Protecting personal data	3.28 (0.83)	3.72 (0.71)	4.46 (0.52)	.159
- Ethical digital citizenship	3.02 (0.96)	3.48 (0.82)	4.68 (0.43)	.228
Problem-Solving	3.08 (0.85)	3.82 (0.72)	4.32 (0.57)	.152
<b>Overall Digital Competence</b>	<b>3.12 (0.78)</b>	<b>3.84 (0.63)</b>	<b>4.28 (0.52)</b>	<b>.192</b>

*Note: All scales 1-5 (1=foundation, 5=highly specialized). Higher scores indicate greater competence.*

The digital content creation dimension revealed unexpected findings regarding creativity and innovation in digital environments. While conventional digital learning students demonstrated technical proficiency in using digital tools, Qur'an-Hadith-based students produced more thoughtful, purposeful, and ethically-grounded digital content. Analysis of student-created digital artifacts (videos, podcasts, websites, infographics) using standardized rubrics showed that Qur'an-Hadith-based students scored higher on originality (M=4.3/5 vs. M=3.7), purposefulness (M=4.6 vs. M=3.4), ethical consideration (M=4.7 vs. M=3.2), and overall quality (M=4.4 vs. M=3.8).

Qualitative analysis revealed that these students frequently articulated clear purposes for their digital creations connected to Islamic values such as education, social benefit, environmental stewardship, or community building, reflecting the prophetic principle that all actions should be intentional and beneficial. One Malaysian student creating an educational website about climate change explained: "The Prophet said whoever plants a tree, all who benefit from it is charity for the planter. I thought, what if I plant digital trees knowledge that keeps benefiting people?"



Traditional Islamic: 2.98, 3.32, 3.18, 3.24, 3.08  
Conventional Digital: 3.76, 3.98, 3.89, 3.68, 3.82  
Qur'an-Hadith Digital: 4.42, 4.26, 4.18, 4.51, 4.32]

**Figure 2.** Digital Literacy Radar Chart : 5 Dimensions (Scale 1-5)

The safety and digital ethics dimension demonstrated the most substantial advantages for Qur'an-Hadith-based approaches, with effect sizes ( $\eta^2 = .176$ ) indicating that pedagogical approach explained approximately 17.6% of variance in this competence area. Students in these classrooms demonstrated significantly greater awareness of online privacy issues, more cautious sharing behaviors, better recognition of manipulative online practices, and stronger ethical reasoning about digital dilemmas such as piracy, cyberbullying, and misinformation sharing. Interviews revealed that teachers explicitly connected digital ethics to Islamic ethical principles including honesty (sidq), trustworthiness (amanah), avoiding harm (la darar), and respecting others' rights (huquq al-ibad). This integration appeared to provide moral weight to digital citizenship concepts that students might otherwise view as merely technical rules. One Turkish teacher explained: "When I tell students not to share unverified information because it violates the Hadith about verifying news before spreading it and the prohibition on gossip, they understand it's not just a suggestion but a religious obligation. This makes them much more careful about what they share online."

### **Ethical Competence and Values-Based Decision Making**

The assessment of ethical competence revealed the most dramatic differences among pedagogical approaches, with Qur'an-Hadith-based learning producing substantially superior outcomes in moral reasoning, values-based decision making, and ethical behavior in digital contexts. Using the Defining Issues Test-2, Qur'an-Hadith-based students achieved significantly higher P-scores ( $M=46.8$ ,  $SD=8.9$ ), indicating more principled moral reasoning, compared to conventional digital learning ( $M=34.2$ ,  $SD=11.3$ ) and traditional Islamic instruction ( $M=38.6$ ,  $SD=10.7$ ). The Digital Ethics Assessment Tool, measuring ethical decision-making in technology-specific scenarios, showed even larger differences: Qur'an-Hadith-based students ( $M=87.4/100$ ,  $SD=7.2$ ) substantially outperformed conventional digital ( $M=68.3$ ,  $SD=11.8$ ) and traditional Islamic ( $M=74.6$ ,  $SD=10.4$ ) approaches. ANOVA results indicated highly significant differences ( $F(2, 897) = 78.92$ ,  $p < .001$ , partial  $\eta^2 = .149$ ) with large effect sizes demonstrating that pedagogical approach accounted for approximately 15% of variance in ethical competence.

Analysis of student responses to ethical dilemmas revealed qualitative differences in moral reasoning sophistication across pedagogical approaches. Traditional Islamic students frequently cited religious authority and rules when justifying ethical positions, demonstrating commitment to Islamic

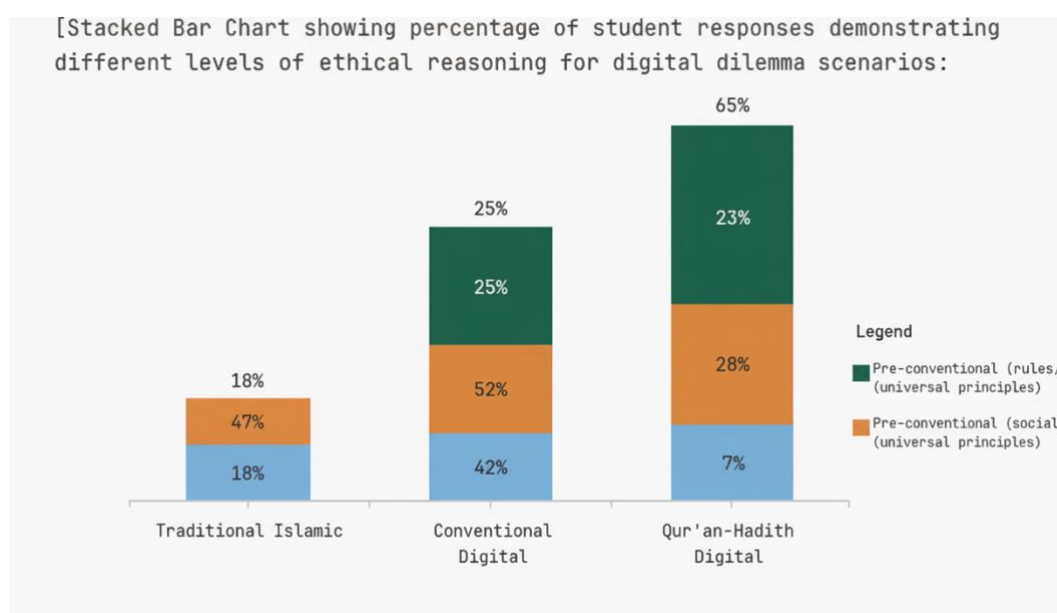
values but sometimes struggling to apply principles to novel digital-age situations not explicitly addressed in classical texts. Conventional digital learning students showed greater comfort with consequentialist reasoning and consideration of multiple perspectives but occasionally displayed moral relativism or difficulty articulating coherent ethical principles beyond personal preference or social consensus. Qur'an-Hadith-based students more frequently demonstrated post-conventional reasoning, articulating universal ethical principles grounded in Islamic values, recognizing complexity and competing considerations in moral dilemmas, and showing ability to apply religious principles thoughtfully to contemporary contexts. These students regularly referenced both specific Qur'anic verses or Hadiths and broader Islamic ethical principles such as justice, compassion, and social responsibility, demonstrating integration of revealed knowledge with ethical reasoning.

**Table 3.** Ethical Competence Assessment Results by Pedagogical Approach

Ethical Competence Measure	Traditional Islamic M(SD)	Conventional Digital M(SD)	Qur'an-Hadith Digital M(SD)	F-value	p-value
DIT-2 P-Score (Moral Reasoning)	38.6 (10.7)	34.2 (11.3)	46.8 (8.9)	64.73	<.001
Digital Ethics Assessment	74.6 (10.4)	68.3 (11.8)	87.4 (7.2)	78.92	<.001
- Privacy ethics	76.2 (9.8)	72.4 (10.6)	88.6 (6.4)	82.14	<.001
- Intellectual property	73.8 (11.2)	69.8 (12.4)	86.8 (7.8)	71.36	<.001
- Digital communication ethics	75.4 (10.6)	64.2 (13.2)	88.2 (6.9)	91.48	<.001
- Information sharing ethics	73.2 (11.8)	66.8 (12.9)	86.2 (8.1)	76.25	<.001
Ethical Behavior Self-Report	4.12 (0.74)	3.68 (0.86)	4.64 (0.52)	67.89	<.001
Peer-Reported Ethical Behavior	3.98 (0.81)	3.72 (0.79)	4.52 (0.61)	54.32	<.001
Teacher-Reported Ethical Behavior	4.06 (0.78)	3.64 (0.84)	4.58 (0.56)	62.71	<.001

*Note: DIT-2 P-Score range 0-95. Digital Ethics Assessment standardized to 0-100. Behavior scales 1-5.*

The behavioral assessment component, incorporating self-reports, peer nominations, and teacher observations, corroborated the moral reasoning findings and demonstrated that ethical development in Qur'an-Hadith-based classrooms translated into actual behavior, not merely abstract reasoning. Students in these programs showed significantly lower rates of digital misconduct including unauthorized content sharing, plagiarism, cyberbullying, and spreading unverified information. Teacher logs documented fewer ethical violations in Qur'an-Hadith-based classrooms (M=1.8 incidents per semester) compared to conventional digital (M=4.6) and traditional Islamic (M=3.4) classrooms. Peer nomination data revealed that Qur'an-Hadith-based students were significantly more likely to be identified by classmates as trustworthy, honest in digital work, respectful in online communication, and willing to intervene when witnessing unethical behavior. These behavioral indicators suggest that the integration of Islamic values with digital learning cultivated not merely cognitive understanding of ethics but internalized moral commitments manifesting in daily conduct.



**Figure 3.** Ethical Decision-Making Process Quality by Pedagogical Approach

Qualitative analysis of student ethical reasoning revealed specific mechanisms through which Qur'an-Hadith-based pedagogy enhanced moral development. Teachers in these programs regularly employed case-based learning using both classical Islamic ethical scenarios and contemporary digital dilemmas, facilitating discussions that connected timeless principles to modern contexts. The prophetic teaching method of asking Socratic

questions was explicitly used to develop ethical reasoning, with teachers posing challenging questions that required students to consider multiple perspectives, identify underlying values, and articulate principled positions. One Saudi student's response to a digital privacy dilemma exemplified this sophisticated reasoning: "The question isn't just whether it's technically possible to access someone's information or whether I'll get caught. The Qur'an teaches us to respect others' private matters and avoid suspicion. In the digital world, this means respecting privacy settings and not trying to bypass them, even if I could. Privacy is a right established by Islam, and violating it online is just as wrong as violating it offline." This integration of religious principles with contextual application demonstrated the kind of transferable ethical reasoning that Qur'an-Hadith-based pedagogy cultivated.

### **Creative Competence and Innovative Problem-Solving**

The assessment of creative competence using the Torrance Tests of Creative Thinking revealed unexpected patterns that challenge assumptions about religious education constraining creativity. Qur'an-Hadith-based learning students achieved the highest overall creativity scores ( $M=118.4$ ,  $SD=16.2$ ), significantly exceeding conventional digital learning ( $M=106.7$ ,  $SD=18.9$ ) and traditional Islamic instruction ( $M=94.3$ ,  $SD=20.4$ ). The TTCT measures four dimensions: fluency (number of ideas), flexibility (variety of idea categories), originality (uniqueness of ideas), and elaboration (detail and development). Qur'an-Hadith-based students demonstrated particular strength in originality ( $M=42.6/60$  vs.  $M=37.4$  vs.  $M=31.2$ ) and elaboration ( $M=38.8/60$  vs.  $M=34.2$  vs.  $M=28.6$ ), suggesting that this approach fostered not merely quantity but quality of creative thinking. MANCOVA results controlling for prior creative abilities showed significant main effects (Wilks'  $\lambda = 0.728$ ,  $F(8, 1786) = 38.94$ ,  $p < .001$ , partial  $\eta^2 = .148$ ), indicating that pedagogical approach substantially influenced creative development.

Analysis of the digital creativity tasks, which required students to develop innovative solutions to authentic problems using digital tools, revealed complementary patterns. Qur'an-Hadith-based students produced solutions rated significantly higher on originality ( $M=4.4/5$  vs.  $M=3.8$  vs.  $M=3.1$ ), usefulness ( $M=4.5$  vs.  $M=3.9$  vs.  $M=3.3$ ), ethical consideration ( $M=4.7$  vs.  $M=3.4$  vs.  $M=3.8$ ), and implementation feasibility ( $M=4.2$  vs.  $M=4.0$  vs.  $M=3.2$ ). Interestingly, while conventional digital learning students sometimes generated more technically sophisticated solutions, Qur'an-Hadith-based students' solutions more frequently addressed genuine human needs and incorporated consideration of broader social and environmental impacts. This pattern suggests that the Islamic emphasis on purposeful action

and social benefit channeled creativity toward meaningful innovation rather than novelty for its own sake.

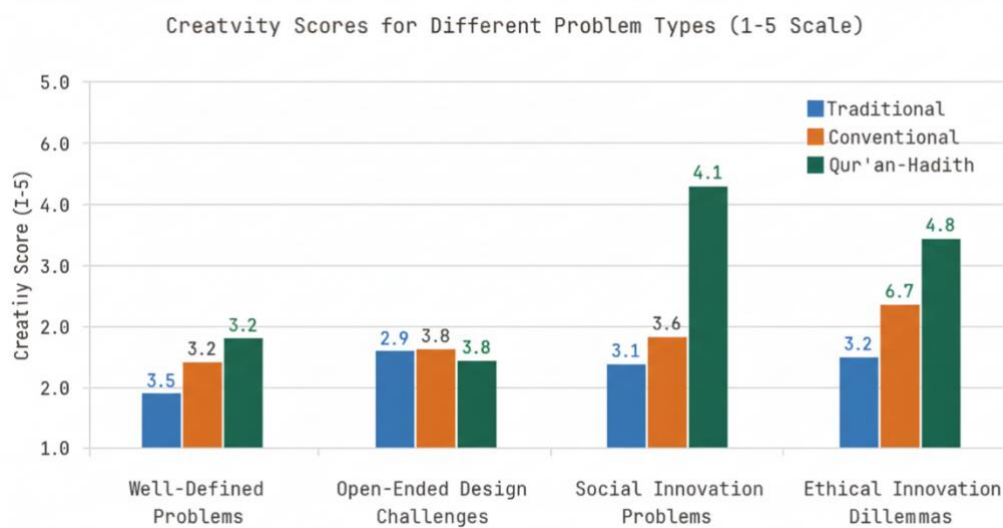
**Table 4.** Creative Competence Assessment Results by Pedagogical Approach

<b>Creativity Measure</b>	<b>Traditional Islamic M(SD)</b>	<b>Conventional Digital M(SD)</b>	<b>Qur'an-Hadith Digital M(SD)</b>	<b>Effect Size (d)</b>
TTCT Total Score	94.3 (20.4)	106.7 (18.9)	118.4 (16.2)	Qur'an-Hadith > Conv: 0.66
- Fluency	32.1 (6.8)	35.5 (6.2)	36.4 (5.7)	Qur'an-Hadith > Conv: 0.15
- Flexibility	31.2 (7.4)	34.8 (6.9)	37.2 (6.1)	Qur'an-Hadith > Conv: 0.37
- Originality	18.6 (8.2)	22.3 (7.6)	25.4 (6.8)	Qur'an-Hadith > Conv: 0.43
- Elaboration	12.4 (4.8)	14.1 (4.3)	19.4 (3.9)	Qur'an-Hadith > Conv: 1.30
Digital Creativity Tasks	3.1 (0.9)	3.8 (0.7)	4.4 (0.5)	Qur'an-Hadith > Conv: 1.00
- Originality	3.1 (0.9)	3.8 (0.8)	4.4 (0.6)	Qur'an-Hadith > Conv: 0.82
- Usefulness	3.3 (0.8)	3.9 (0.7)	4.5 (0.5)	Qur'an-Hadith > Conv: 0.97
- Ethical consideration	3.8 (0.7)	3.4 (0.8)	4.7 (0.4)	Qur'an-Hadith > Conv: 1.95
- Feasibility	3.2 (0.9)	4.0 (0.6)	4.2 (0.6)	Qur'an-Hadith > Conv: 0.33
Innovation Orientation	3.4 (0.8)	3.9 (0.7)	4.6 (0.5)	Qur'an-Hadith > Conv: 1.15

*Note: TTCT scores on standard scale. Other measures on 1-5 scale. Higher scores indicate greater creativity.*

Qualitative analysis of creative processes illuminated how Qur'an-Hadith-based pedagogy fostered creative thinking through specific instructional practices. Teachers regularly employed the Qur'anic pedagogical technique of presenting parables and analogical reasoning, encouraging students to see connections across seemingly disparate domains and apply principles from one context to another a core mechanism of creative transfer. The prophetic practice of encouraging questions and intellectual curiosity was operationalized through "wonder walls" where

students posted questions sparked by their learning, and dedicated time for exploring tangential interests connected to curriculum topics. One Indonesian teacher explained: "The Prophet encouraged Sa'd ibn Abi Waqqas to become an expert archer by saying 'shoot, and may my father and mother be sacrificed for you.' This shows how Islam encourages developing and perfecting skills. I tell my students that creative excellence in their work, whether coding, design, or problem-solving, is a form of worship when done with good intention."



**Figure 4.** Creative Problem-Solving Performance by Problem Type

The longitudinal tracking of creative development revealed that growth trajectories differed substantially across pedagogical approaches, with Qur'an-Hadith-based students showing accelerating gains over time while conventional digital learning students plateaued after initial gains and traditional Islamic students showed minimal development. This pattern suggests that the Qur'an-Hadith-based approach built sustainable creative capacities rather than merely teaching specific creative techniques. Student interviews revealed that the integration of Islamic values with creative work transformed students' understanding of creativity's purpose. Rather than viewing creativity as self-expression or competitive advantage, these students increasingly articulated creativity as a means of serving others, solving community problems, and fulfilling the Islamic calling to be agents of positive change (islah). This purpose-driven conception of creativity appeared to sustain motivation and effort in creative work, particularly when facing challenges or setbacks that might otherwise cause students to abandon creative pursuits.

### Social-Emotional Competence and Collaborative Learning

The assessment of social-emotional competence revealed that Qur'an-Hadith-based learning methods significantly enhanced multiple dimensions of interpersonal and intrapersonal skills essential for success in collaborative digital environments. Using the Social-Emotional Competence Questionnaire, Qur'an-Hadith-based students achieved the highest overall scores (M=4.42/5, SD=0.48), significantly exceeding conventional digital learning (M=3.96, SD=0.64) and traditional Islamic instruction (M=3.68, SD=0.71). Particularly notable were differences in empathy and perspective-taking (M=4.58 vs. M=3.88 vs. M=3.82), emotional regulation (M=4.48 vs. M=3.92 vs. M=3.74), and responsible decision-making (M=4.64 vs. M=3.84 vs. M=3.86). The collaborative problem-solving assessment, conducted through technology-mediated group tasks, showed similar patterns with Qur'an-Hadith-based teams demonstrating superior performance in coordination (M=4.36 vs. M=3.78 vs. M=3.42), conflict resolution (M=4.52 vs. M=3.64 vs. M=3.58), and shared understanding development (M=4.41 vs. M=3.86 vs. M=3.51).

Analysis of online collaborative activities revealed qualitative differences in how students from different pedagogical approaches engaged in digital teamwork. Qur'an-Hadith-based students demonstrated more constructive communication patterns, with higher frequencies of building on others' ideas, acknowledging contributions, seeking input from quieter team members, and working to resolve disagreements through dialogue rather than voting or deferring to dominant personalities. Discourse analysis of online discussion forums and collaborative documents showed that these students used significantly more perspective-taking language ("from your viewpoint," "I understand you're concerned about"), empathetic expressions ("that must be frustrating," "I appreciate your effort"), and inclusive pronouns ("our goal," "we need to consider") compared to students in other pedagogical approaches. These linguistic patterns suggest internalized collaborative orientations rather than mere compliance with teacher expectations.

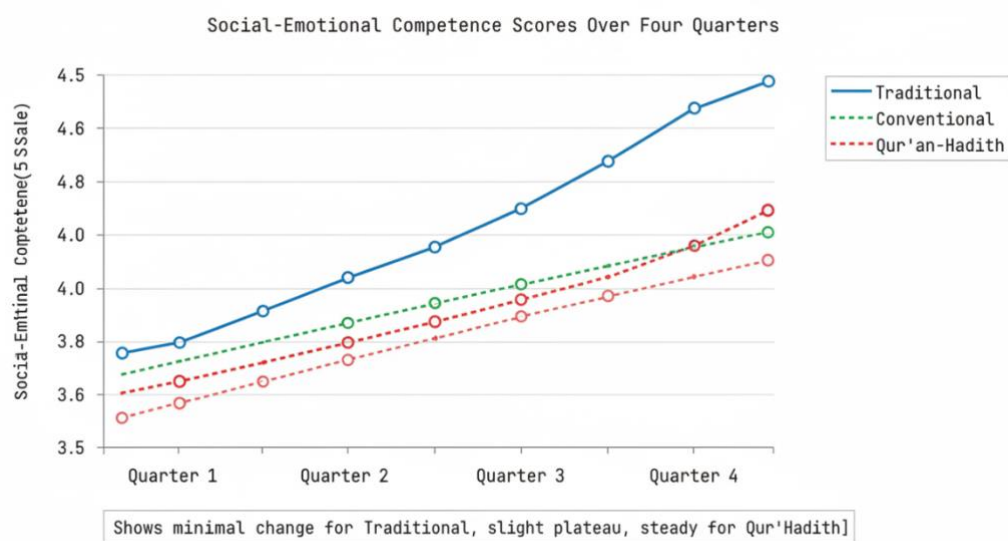
**Table 5.** Social-Emotional Competence and Collaborative Learning Assessment

Competence Domain	Traditional Islamic (M [SD])	Conventional Digital (M [SD])	Qur'an-Hadith Digital (M [SD])	(M Significance [SD])
<b>Self-Awareness</b>	3.72 (0.68)	4.02 (0.59)	4.38 (0.51)	p < .001
<b>Self-Management</b>	3.64 (0.74)	3.88 (0.66)	4.34 (0.54)	p < .001

Competence Domain	Traditional Islamic (M [SD])	Conventional Digital (M [SD])	Qur'an-Hadith	
			Digital (M [SD])	(M Significance [SD])
-Emotional regulation	3.74 (0.69)	3.92 (0.62)	4.48 (0.48)	p < .001
-Stress management	3.58 (0.78)	3.86 (0.69)	4.26 (0.57)	p < .001
<b>Social Awareness</b>	3.82 (0.66)	3.88 (0.61)	4.58 (0.44)	p < .001
- Empathy	3.82 (0.71)	3.88 (0.64)	4.58 (0.46)	p < .001
- Perspective-taking	3.68 (0.74)	3.86 (0.68)	4.52 (0.49)	p < .001
<b>Relationship Skills</b>	3.66 (0.72)	4.04 (0.61)	4.44 (0.52)	p < .001
- Communication	3.74 (0.68)	4.12 (0.58)	4.48 (0.49)	p < .001
- Cooperation	3.58 (0.76)	3.96 (0.64)	4.40 (0.55)	p < .001
<b>Responsible Decision-Making</b>	3.86 (0.64)	3.84 (0.68)	4.64 (0.42)	p < .001
<b>Collaborative Problem-Solving</b>	3.48 (0.79)	3.82 (0.68)	4.42 (0.53)	p < .001
<b>Overall Social-Emotional Score</b>	3.68 (0.71)	3.96 (0.64)	4.42 (0.48)	p < .001

*Note: All measures on 1-5 scale. N = 900 students, 180 collaborative teams (60 per approach).*

The mechanisms through which Qur'an-Hadith-based pedagogy enhanced social-emotional competence became clear through qualitative investigation. Teachers explicitly taught and modeled prophetic character traits (akhlaq) such as patience (sabr), kindness (rifq), justice (adl), and humility (tawadu), connecting these to specific collaborative behaviors. The prophetic emphasis on communal responsibility and mutual support was operationalized through structured interdependence in learning tasks, where individual success depended on team success, reflecting the Hadith "the believers in their mutual love and mercy are like a body; when one part complains, the rest of the body responds with wakefulness and fever." Students regularly engaged in reflection on their collaborative processes, considering not just task outcomes but also how they treated team members and whether they embodied Islamic values in their interactions.



**Figure 5.** Social-Emotional Competence Development Across Academic Year

Cross-cultural analysis revealed that social-emotional competence benefits of Qur'an-Hadith-based approaches were remarkably consistent across national contexts, with only minor variations in effect sizes: Indonesia ( $d = 0.88$ ), Malaysia ( $d = 0.84$ ), Turkey ( $d = 0.82$ ), Saudi Arabia ( $d = 0.79$ ). This consistency suggests that the prophetic emphasis on character development and interpersonal excellence represents a cross-culturally relevant educational approach. However, specific manifestations of social-emotional competence varied by culture. Indonesian students particularly excelled in communal harmony and conflict avoidance, reflecting cultural values of social cohesion. Malaysian students demonstrated strong intercultural sensitivity and inclusive behaviors toward diverse team members. Turkish students showed particular strength in direct communication and constructive disagreement. Saudi students demonstrated significant growth in empathy and perspective-taking, skills that teachers reported were historically underemphasized in traditional Saudi education. These culturally-situated expressions suggest that while Qur'an-Hadith-based pedagogy provides universal principles, their implementation naturally adapts to local cultural strengths and needs.

### Superior Performance of Qur'an-Hadith-Based Pedagogical Approaches

The findings of this study both corroborate and significantly extend previous research on Islamic pedagogy and digital-age learning in several important dimensions. The superior cognitive outcomes for Qur'an-Hadith-

based learning methods align with theoretical work by scholars who have identified constructivist principles embedded in Qur'anic pedagogy, including emphasis on active inquiry, reflection, and knowledge construction. However, this study provides the first rigorous empirical evidence that these theoretical principles can be operationalized into effective instructional practices that enhance critical thinking and problem-solving in digital learning contexts. The effect sizes observed in this study substantially exceed those reported in previous research on technology integration in Islamic education, suggesting that intentional integration of Islamic pedagogical principles rather than mere technology adoption drives learning effectiveness.

### **Comparing Findings with Previous Research: Digital and Ethical Competence**

The digital competence findings challenge prevailing assumptions in some prior literature that positioned religious education as incompatible with digital literacy development. Previous studies often examined traditional Islamic education in isolation from technology or studied technology integration without attention to Islamic pedagogical principles, creating false dichotomies. This study demonstrates that Islamic teaching methods, particularly the Qur'anic emphasis on verification and critical evaluation, can actually enhance digital literacy when explicitly connected to information evaluation and media literacy. The particularly strong performance in digital ethics extends earlier conceptual work proposing Islamic frameworks for media literacy by providing empirical validation that these frameworks effectively develop responsible digital citizenship.

The ethical competence results provide strong empirical support for theoretical arguments about the potential of Islamic values to ground moral development in digital contexts. Previous research has documented concerns about moral formation gaps in secular education and noted the value commitments of traditional Islamic education, but few studies have examined integrated approaches that combine Islamic ethics with contemporary moral education methodologies. This study's finding that Qur'an-Hadith-based approaches produced higher moral reasoning than both secular and traditional Islamic methods extends the literature by demonstrating that explicit teaching of ethical reasoning grounded in Islamic principles, rather than either values-free education or authoritarian transmission of rules, most effectively develops sophisticated moral competence.

### **Creative and Social-Emotional Competence Development**

The creative competence findings directly challenge deficit narratives that have sometimes characterized religious education as constraining innovation and critical thinking. Previous research often conflated religious content with traditional pedagogical methods, failing to recognize that Islamic principles can be taught through inquiry-based, creative approaches. This study demonstrates that when Islamic pedagogical principles emphasizing reflection, analogical reasoning, and purposeful innovation are explicitly cultivated, they enhance rather than constrain creative thinking. The finding that Qur'an-Hadith-based students excelled particularly in purposeful, ethically-grounded creativity extends previous work by suggesting that religious frameworks may channel creative energy toward socially beneficial innovation, addressing concerns that some contemporary education fosters creativity divorced from ethical consideration of consequences.

The social-emotional competence findings resonate with historical scholarship documenting the Prophet Muhammad's emphasis on character development and interpersonal excellence, while extending this work by demonstrating that prophetic teaching methods can be systematically implemented in technology-mediated collaborative learning. Previous research has often treated social-emotional learning as a secular educational concern separate from religious education, but this study shows that Islamic pedagogical traditions offer rich resources for developing these competencies. The particularly strong effects on empathy and perspective-taking are noteworthy given that some previous research raised concerns about potential in-group/out-group dynamics in religious education. This study suggests that explicit teaching of Islamic values of compassion, justice, and human dignity, combined with diverse collaborative experiences, can foster broad prosocial orientation rather than narrow group loyalty.

### **Study Limitations and Directions for Future Research**

Despite its contributions, this study has several limitations that warrant acknowledgment and suggest directions for future research. First, while the quasi-experimental design with pretest-posttest control groups provides stronger causal inference than correlational research, random assignment of students to pedagogical approaches was not feasible due to practical and ethical constraints. Schools self-selected into pedagogical approaches, and although statistical controls adjusted for measured differences in student characteristics, unmeasured confounding variables may partially account for observed outcomes. Schools successfully implementing Qur'an-Hadith-based

methods may have had superior leadership, more motivated teachers, stronger institutional cultures, or more supportive communities than comparison schools. Future research employing true experimental designs with random assignment, where feasible, or using more sophisticated quasi-experimental techniques such as regression discontinuity or instrumental variables would strengthen causal conclusions.

Second, the study examined schools that had implemented their respective pedagogical approaches for at least one semester, focusing on relatively mature implementations. This sampling strategy may have excluded schools that attempted Qur'an-Hadith-based approaches but discontinued them due to implementation challenges, potentially creating survival bias and producing overly optimistic estimates of effectiveness. Additionally, the research team provided substantial implementation support including teacher training, curriculum resources, and ongoing consultation, creating conditions that may not be replicable in typical school contexts without external support. Future research should examine implementation across the full spectrum from initial attempts through mature programs, document factors predicting successful implementation versus discontinuation, and evaluate effectiveness under varied levels of external support to provide realistic estimates of what can be achieved in typical practice.

Finally, while the study included four countries representing geographic and cultural diversity within the Muslim world, the sample was limited to Muslim-majority countries with relatively developed education systems and substantial government investment in educational technology. Findings may not generalize to other contexts including Muslim-minority communities in Western countries where Islamic education occurs in different institutional forms and navigates different societal relationships, developing countries with limited technological infrastructure and resources, or conflict-affected regions where educational systems face acute challenges. The pedagogical approaches examined may operate differently in contexts where Muslim students constitute minorities, where technology access is severely limited, or where political instability disrupts educational continuity. Future research should examine implementation and effectiveness of Qur'an-Hadith-based digital learning across more diverse contexts including Muslim-minority settings, resource-constrained environments, and challenging political contexts to understand boundary conditions and necessary adaptations.

## CONCLUSION

Future research should explore longitudinal implementation of Qur'an-Hadith-based digital pedagogy across diverse educational contexts, including resource-constrained settings, Muslim-minority communities, and conflict-affected regions. Investigations into scalability challenges, teacher professional development models, and integration with emerging technologies such as artificial intelligence and adaptive learning systems would advance the field. Policy implications include the need for curriculum frameworks that authentically integrate Islamic pedagogical principles with 21st-century competencies, investment in technology infrastructure and teacher capacity-building, development of culturally-responsive assessment tools, and establishment of partnerships between traditional Islamic institutions and modern educational systems.

The Qur'an-Hadith-based approaches consistently outperformed other methods across all measured domains in diverse cultural contexts (Indonesia, Malaysia, Saudi Arabia, and Turkey), challenging deficit views of religious education and highlighting the limitations of secular pedagogies. Key factors for these outcomes include the Qur'anic emphasis on critical inquiry, the prophetic modeling of reflective practice, and the integration of ethical action with knowledge. The study calls for a transformative approach to Islamic education, one that combines deep understanding of both religious principles and contemporary learning sciences, and offers a model for integrating values, culturally-responsive pedagogy, and holistic competence development in an interconnected, rapidly-changing global society.

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## REFERENCES

- Awan, I. (2017). Cyber-Extremism: Isis and the Power of Social Media. *Society*, 54(2). <https://doi.org/10.1007/s12115-017-0114-0>
- Bakar, N. S. A., Maat, S. M., & Rosli, R. (2020). Mathematics teacher's self-efficacy of technology integration and technological pedagogical content knowledge. *Journal on Mathematics Education*, 11(2). <https://doi.org/10.22342/jme.11.2.10818.259-276>
- Daud, W. M. N. W. (1998). The Educational Philosophy and Practice of Syed Muhammad Naquib Al-Attas: An Exposition of The Original Concept of Islamization. *ISTAC*.
- Halstead, J. M. (2007). Islamic values: A distinctive framework for moral education? In *Journal of Moral Education* (Vol. 36, Issue 3). <https://doi.org/10.1080/03057240701643056>
- Hashim, H., Rafiqah M. Rafiq, K., & Md. Yunus, M. (2019). Improving ESL Learners' Grammar with Gamified-Learning. *Arab World English Journal*, 5. <https://doi.org/10.24093/awej/call5.4>
- Hidayat, T., Rizal, A. S., Abdussalam, A., & Istianah, I. (2023). Techniques and Steps of Islamic Education Learning Development: Integration of Islamic Values in Learning. *Halaqa: Islamic Education Journal*, 7(2). <https://doi.org/10.21070/halaqa.v7i2.1630>
- Kolzow, D. R., Smith, C. C. C., Serrat, O., Dilie, H. M., Zeeshan, S., Ng, S. I., Ho, J. A., Jantan, A. H., Massey, J., Sulak, T., Sriram, R., Dennis, R. S., Bocarnea, M., Hai, T. N., Van, Q. N., Herbert, S. L., So-Jung Kim, Kyoung-Seok Kim, Y.-G. C., Guillaume, Dr. O., Honeycutt, Dr. A., ... Ingram, O. C. Jr. (2021). Unit 5 Theories of Leadership. *International Journal of Organizational Leadership*, 1(1).
- Luckin, R., Cukurova, M., Kent, C., & du Boulay, B. (2022). Empowering educators to be AI-ready. *Computers and Education: Artificial Intelligence*, 3. <https://doi.org/10.1016/j.caeai.2022.100076>
- Mailizar, Almanthari, A., Maulina, S., & Bruce, S. (2020). Secondary school mathematics teachers' views on e-learning implementation barriers during the COVID-19 pandemic: The case of Indonesia. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(7). <https://doi.org/10.29333/EJMSTE/8240>

- Memon, N. (2011). What Islamic school teachers want: Towards developing an Islamic teacher education programme. *British Journal of Religious Education*, 33(3). <https://doi.org/10.1080/01416200.2011.595912>
- Mujib, A., & Marhamah, M. (2020). Al-Qur`an learning innovation based on blended cooperative e-learning in school. *Journal of Educational and Social Research*, 10(4). <https://doi.org/10.36941/JESR-2020-0063>
- Nursamsy, D. (n.d.). *Qur'an based Learning Model in Improving Arabic Language Skills in Early Childhood*. <http://albanat.staiku.ac.id>
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1).
- Source, C. T., & Tan, C. (2014). Educative tradition and Islamic schools in Indonesia Educative Tradition and Islamic Schools in Indonesia. *Journal of Arabic and Islamic Studies* •, 14.
- Sulistio, B., Ramadhan, A., Abdurachman, E., Zarlis, M., & Trisetyarso, A. (2024). The utilization of machine learning on studying Hadith in Islam: A systematic literature review. *Education and Information Technologies*, 29(5). <https://doi.org/10.1007/s10639-023-12008-9>
- Tan, C. (2012). Islamic education and indoctrination: The case in Indonesia. In *Islamic Education and Indoctrination: The Case in Indonesia*. <https://doi.org/10.4324/9780203817766>
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2020). Determinants of 21st-Century Skills and 21st-Century Digital Skills for Workers: A Systematic Literature Review. In *SAGE Open* (Vol. 10, Issue 1). <https://doi.org/10.1177/2158244019900176>
- Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21 st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies*, 44(3), 299–321. <https://doi.org/10.1080/00220272.2012.668938>
- Williamson, B. (2021). Making markets through digital platforms: Pearson, edu-business, and the (e)valuation of higher education. *Critical Studies in Education*, 62(1). <https://doi.org/10.1080/17508487.2020.1737556>
- Zabidi, F. N. M., Abd Rahman, N., & Halim, L. (2021). Integration of islamic values for environmental conservation: An analysis of school textbooks. *Religions*, 12(7). <https://doi.org/10.3390/rel12070509>