

ISLAMIC ELEMENTARY SCHOOL TEACHER PROFESSIONALISM IN THE DIGITAL ERA: TECHNOLOGY-BASED ARABIC LANGUAGE LEARNING STRATEGIES AND ISLAMIC VALUES

Minati Rina Hardiyana^{1a}, Ahmad Nurimam², Suwardi³

¹ State Islamic University Sunan Kalijaga, Indonesia, ririnranau@gmail.com

² Gadjah Mada University, Indonesia, ahmadnurimam19@gmail.com

³ State Islamic Junior High School 2 South OKU, Indonesia, suwardi1243@gmail.com

ABSTRACT

This research investigates the professional development of Islamic elementary school teachers in implementing technology-based Arabic language learning strategies while maintaining Islamic values in the digital era. Through a mixed-methods approach involving 30 Arabic teachers from 5 Islamic elementary schools in Indonesia, this study examines the correlation between teachers' digital competencies, pedagogical content knowledge, and student learning outcomes in Arabic language acquisition. Data were collected using validated instruments measuring technological pedagogical content knowledge (TPACK), digital literacy skills, Islamic pedagogical values integration, and classroom observation protocols. Results indicate that teachers with high digital competency levels demonstrate significantly better student engagement ($M = 4.32$, $SD = 0.68$) compared to those with moderate digital skills ($M = 3.45$, $SD = 0.73$, $p < 0.001$). The integration of Islamic values with technology-enhanced learning shows positive correlation with student motivation ($r = 0.58$, $p < 0.01$) and Arabic language achievement ($r = 0.52$, $p < 0.01$). Qualitative findings reveal three emerging professional development models: adaptive integration, transformative adoption, and selective implementation. The study contributes to understanding professional teacher development in religious education contexts, offering practical frameworks for Arabic language instruction that honor Islamic educational principles while leveraging technological advantages for enhanced learning outcomes.

Keywords: Teacher Professionalism, Islamic Elementary Education, Digital Arabic Learning, Technology Integration, Islamic Pedagogical Values

PROFESIONALISME GURU SEKOLAH DASAR ISLAM DALAM ERA DIGITAL: STRATEGI PEMBELAJARAN BAHASA ARAB BERBASIS TEKNOLOGI DAN NILAI-NILAI ISLAMI

ABSTRAK

Penelitian ini mengkaji pengembangan profesionalisme guru sekolah dasar Islam dalam mengimplementasikan strategi pembelajaran bahasa Arab berbasis teknologi sambil mempertahankan nilai-nilai Islami di era digital. Melalui pendekatan mixed-methods yang melibatkan 30 guru bahasa Arab dari 5 sekolah dasar Islam di Indonesia, penelitian ini mengeksplorasi hubungan antara kompetensi digital guru, pengetahuan konten pedagogis, dan hasil

^a Corresponding Author

pembelajaran siswa dalam akuisisi bahasa Arab. Data dikumpulkan menggunakan instrumen validasi yang mengukur pengetahuan konten pedagogi teknologi (TPACK), keterampilan literasi digital, integrasi nilai-nilai pedagogi Islam, dan protokol observasi kelas. Hasil menunjukkan bahwa guru dengan tingkat kompetensi digital tinggi menunjukkan keterlibatan siswa yang secara signifikan lebih baik ($M = 4.32$, $SD = 0.68$) dibandingkan dengan mereka yang memiliki keterampilan digital moderat ($M = 3.45$, $SD = 0.73$, $p < 0.001$). Integrasi nilai-nilai Islam dengan pembelajaran berbasis teknologi menunjukkan korelasi positif dengan motivasi siswa ($r = 0.58$, $p < 0.01$) dan prestasi bahasa Arab ($r = 0.52$, $p < 0.01$). Temuan kualitatif mengungkapkan tiga model pengembangan profesional yang muncul: integrasi adaptif, adopsi transformatif, dan implementasi selektif. Studi ini berkontribusi pada pemahaman pengembangan guru profesional dalam konteks pendidikan agama, menawarkan kerangka praktis untuk instruksi bahasa Arab yang menghormati prinsip-prinsip pendidikan Islam sambil memanfaatkan keunggulan teknologi.

Kata Kunci: Profesionalisme Guru, Pendidikan Dasar Islam, Pembelajaran Bahasa Arab Digital, Integrasi Teknologi, Nilai-Nilai Pedagogis Islam

A. INTRODUCTION

The contemporary landscape of Islamic elementary education faces unprecedented challenges as educators navigate the intersection of traditional Islamic pedagogical values and rapidly evolving digital technologies (Hasan et al., 2023). Arabic language instruction, fundamental to Islamic education, requires innovative approaches that honor religious authenticity while embracing technological opportunities for enhanced learning outcomes. This paradigm shift demands a reconceptualization of teacher professionalism that encompasses both digital competencies and deep understanding of Islamic educational principles (Rahmi et al., 2025).

In Indonesia, where Islamic elementary schools serve over 2.3 million students, Arabic language instruction holds particular significance as both a religious obligation and academic subject. Teachers in these contexts must balance multiple roles: language instructors, cultural mediators, religious educators, and now, digital learning facilitators. The COVID-19 pandemic accelerated digital transformation in education, compelling Islamic schools to rapidly adopt online learning platforms while maintaining the spiritual and communal aspects central to Islamic education. This transition highlighted existing gaps in teachers' technological competencies and raised critical questions about preserving Islamic educational authenticity in digital environments (Hanifah et al., 2024).

Professional development in Islamic educational contexts extends beyond conventional teacher training to encompass spiritual, pedagogical, and technological dimensions. The concept of professionalism in Islamic education draws from both contemporary educational theory and Islamic scholarly traditions that emphasize continuous learning (*ta'allum*), wisdom (*hikmah*), and ethical responsibility (*amanah*). Teachers are viewed not merely as knowledge transmitters but as moral exemplars who shape students' character while facilitating academic achievement. This holistic understanding of teacher professionalism becomes particularly complex when integrating digital technologies that may conflict with traditional Islamic pedagogical approaches (Hanafi et al., 2024).

Arabic language learning in Islamic elementary schools serves multiple purposes: developing students' ability to understand Quranic texts, performing Islamic rituals correctly, and building cultural connections to the broader Muslim community. Traditional Arabic instruction in these contexts emphasizes memorization, recitation, and spiritual reflection, methods deeply rooted in classical Islamic educational practices. However, contemporary second language acquisition research suggests that communicative approaches, multimedia resources, and interactive technologies can significantly enhance language learning outcomes, particularly for young learners who are digital natives (Wekke, 2015).

The integration of technology in Arabic language instruction presents both opportunities and challenges for Islamic elementary school teachers. Digital platforms offer unprecedented access to authentic Arabic materials, interactive learning applications, and global connectivity with native speakers. Virtual reality applications can transport students to Mecca for immersive cultural experiences, while artificial intelligence-powered language learning systems provide personalized instruction adapted to individual learning needs. However, these technological affordances must be carefully evaluated through Islamic educational lenses to ensure compatibility with religious values and educational objectives (Mahsusi et al., 2024).

Research in technology-enhanced language learning has demonstrated significant benefits for student engagement, motivation, and achievement across various linguistic and cultural contexts. Studies indicate that multimedia instruction can improve vocabulary retention by up to 40% compared to traditional methods, while gamified learning environments increase student participation and reduce anxiety in second language acquisition. However, limited research has examined these technological applications specifically within Islamic educational settings, where religious considerations may influence technology adoption and implementation strategies (Ferdin Hasan, 2024).

The theoretical framework for this study draws from the Technological Pedagogical Content Knowledge (TPACK) model, which describes the complex interplay between technological knowledge, pedagogical knowledge, and content knowledge required for effective technology integration. In Islamic educational contexts, this framework requires expansion to include spiritual knowledge and Islamic pedagogical principles, creating what might be termed Islamic Technological Pedagogical Content Knowledge (I-TPACK). This enhanced framework recognizes that effective Arabic language instruction in Islamic schools requires teachers to navigate technological affordances while maintaining fidelity to Islamic educational philosophy (Garba & Hassan, 2024).

Current challenges facing Arabic teachers in Islamic elementary schools include limited access to appropriate digital resources, insufficient training in educational technology, concerns about maintaining Islamic authenticity in digital environments, and varying levels of technological literacy among teaching staff. Additionally, many existing Arabic language learning applications lack Islamic content or may contain materials inconsistent with Islamic values, requiring teachers to carefully curate digital resources or develop their own materials (Ritonga et al., 2024).

This research addresses these challenges by investigating how Islamic elementary school teachers develop professional competencies that integrate technological skills with Islamic pedagogical values for effective Arabic language instruction. The study examines the relationship between teachers' digital literacy, pedagogical content knowledge, and student learning outcomes while exploring strategies for maintaining Islamic educational authenticity in technology-enhanced learning environments.

The significance of this research extends beyond immediate classroom applications to broader questions of identity, authenticity, and adaptation in Islamic education. As Muslim communities worldwide grapple with balancing traditional religious education with contemporary educational innovations, this study provides empirical insights into successful integration strategies that honor Islamic values while leveraging technological advantages for improved learning outcomes.

B. METHODS

This mixed-methods research employed a concurrent embedded design to comprehensively examine the professional development and teaching practices of Islamic elementary school Arabic teachers in the digital era (Creswell & Plano Clark, 2018). The study was conducted over eight months from February to September 2023, involving multiple data collection phases and triangulation of quantitative and qualitative findings. The research utilized a convergent parallel mixed-methods design, allowing simultaneous collection and analysis of both quantitative and

qualitative data to provide comprehensive understanding of teacher professionalism in technology-integrated Arabic instruction. This approach enabled the researchers to capture statistical relationships between variables while exploring the nuanced experiences and perspectives of teachers navigating digital transformation in Islamic educational contexts (Neuman, 2020).

The study involved 30 Arabic language teachers from 5 Islamic elementary schools. Schools were selected using purposive sampling to ensure representation across urban and suburban contexts, with varying levels of technological infrastructure and student socioeconomic backgrounds. Participant selection criteria included: minimum three years of Arabic teaching experience in Islamic elementary schools, current involvement in Arabic language instruction at the time of data collection, and willingness to participate in the complete research protocol including classroom observations and interviews. The sample comprised 63% female and 37% male teachers, with teaching experience ranging from 3 to 22 years ($M = 11.2$, $SD = 5.8$). Educational backgrounds included 47% with bachelor's degrees in Arabic education, 33% with Islamic studies degrees, 13% with general education degrees, and 7% with master's degrees in relevant fields (Yin, 2014).

Quantitative data collection involved three validated instruments administered through online surveys and face-to-face assessments. The Technological Pedagogical Content Knowledge (TPACK) Survey, adapted for Arabic language teaching contexts, measured teachers' perceived competencies across seven knowledge domains: technology knowledge, pedagogical knowledge, content knowledge, pedagogical content knowledge, technological content knowledge, technological pedagogical knowledge, and technological pedagogical content knowledge. The instrument demonstrated high reliability (Cronbach's $\alpha = 0.91$) in pilot testing with similar populations. Digital literacy assessment utilized the Digital Competence Framework for Educators (DigCompEdu) adapted for Indonesian Islamic educational contexts. This instrument evaluated teachers' competencies in digital resource identification, creation, sharing, teaching and learning practices, learner assessment, and empowering learners. Reliability analysis indicated strong internal consistency ($\alpha = 0.88$) across all subscales. Islamic pedagogical values integration was measured using a researcher-developed instrument based on classical Islamic educational principles and contemporary Islamic pedagogy literature. The 35-item questionnaire assessed teachers' ability to incorporate Islamic values, ethics, and spiritual dimensions into technology-enhanced Arabic instruction. Content validity was established through expert panel review involving Islamic education scholars and experienced Arabic teachers (Creswell & Plano Clark, 2018).

Qualitative data collection included semi-structured interviews with 15 purposively selected teachers representing diverse demographic and professional characteristics. Interview protocols explored teachers' experiences with technology integration, challenges in maintaining Islamic educational authenticity, strategies for balancing traditional and digital approaches, and perceptions of professional development needs. Each interview lasted approximately 60-90 minutes and was conducted in Indonesian or Arabic based on participant preference. Classroom observations were conducted for all 30 teachers across the five schools, using structured observation protocols documenting technology use patterns, Islamic values integration, student engagement levels, and pedagogical strategies employed. Each teacher was observed for three complete Arabic lessons, totaling 90 classroom observation sessions. Observations were supplemented with digital artifacts collection, including lesson plans, instructional materials, and student work samples (Rossman & Rallis, 2017).

Quantitative analyses employed descriptive statistics, correlation analysis, multiple regression modeling, and ANOVA procedures using SPSS version 28.0. Preliminary analyses included data cleaning, normality testing, and missing data handling using multiple imputation procedures. Correlation analyses examined relationships between TPACK competencies, digital literacy levels, Islamic values integration, and student outcome measures. Multiple regression analyses

investigated predictive relationships between teacher competency variables and student learning outcomes, controlling for demographic factors, school characteristics, and teaching experience. Hierarchical regression models examined the unique contribution of Islamic pedagogical values integration beyond technological and pedagogical competencies in predicting student achievement and motivation. Qualitative data analysis followed a thematic analysis approach, utilizing both deductive and inductive coding strategies. Interview transcripts and observation notes were coded using NVivo 12 software, with initial coding based on theoretical frameworks and subsequent emergent themes identified through constant comparative analysis. Inter-rater reliability for qualitative coding was established through independent coding by two researchers, achieving Cohen's kappa of 0.84 for major themes (Clark et al., 2021).

The research protocol received ethical approval from the Institutional Review Board. Informed consent was obtained from all participating teachers and school administrators, with clear explanation of research purposes, procedures, potential risks and benefits, and participant rights including voluntary participation and withdrawal options. Confidentiality was maintained through pseudonym assignment for all participants and schools, secure data storage protocols, and restricted access to identifying information. Given the religious and cultural sensitivity of Islamic education contexts, particular attention was paid to respectful representation of Islamic values and practices throughout the research process. Member checking procedures allowed participants to review and validate qualitative findings prior to final analysis and reporting.

C. RESULTS

1. Teacher Digital Competency and Technology Integration Patterns

Analysis of TPACK assessment scores revealed significant variation in teachers' technological competencies across different knowledge domains. Teachers demonstrated highest competency levels in content knowledge ($M = 4.28$, $SD = 0.52$) and pedagogical knowledge ($M = 4.15$, $SD = 0.61$), reflecting strong foundations in Arabic language content and general teaching principles. However, technology knowledge scores were considerably lower ($M = 3.12$, $SD = 0.87$), indicating substantial gaps in digital literacy skills.

Table 1. Descriptive Statistics for TPACK Competency Domains (N = 30)

TPACK Domain	Mean	SD	Min	Max	Competency Level
Content Knowledge (CK)	4.28	0.52	3.20	5.00	High
Pedagogical Knowledge (PK)	4.15	0.61	2.80	5.00	High
Technology Knowledge (TK)	3.12	0.87	1.60	4.80	Moderate
Pedagogical Content Knowledge (PCK)	4.02	0.58	2.90	5.00	High
Technological Content Knowledge (TCK)	3.45	0.73	2.10	4.90	Moderate
Technological Pedagogical Knowledge (TPK)	3.38	0.69	2.20	4.70	Moderate
Technological Pedagogical Content Knowledge (TPACK)	3.22	0.78	1.80	4.60	Moderate

Note: Scale 1-5 (1 = Very Low, 2 = Low, 3 = Moderate, 4 = High, 5 = Very High)

The integration domains showed more moderate scores: technological content knowledge ($M = 3.45$, $SD = 0.73$), technological pedagogical knowledge ($M = 3.38$, $SD = 0.69$), and technological pedagogical content knowledge ($M = 3.22$, $SD = 0.78$). These findings suggest that while teachers possess solid Arabic language and pedagogical expertise, they struggle with effectively combining technological tools with content and pedagogical approaches for optimal learning outcomes.

Correlation analyses revealed significant positive relationships between overall TPACK scores and student engagement measures ($r = 0.61$, $p < 0.001$), Arabic language achievement scores ($r = 0.54$, $p < 0.001$), and student motivation ratings ($r = 0.48$, $p < 0.01$). Teachers with higher technological competencies demonstrated more frequent use of multimedia resources ($r = 0.67$, $p < 0.001$), interactive learning platforms ($r = 0.59$, $p < 0.001$), and digital assessment tools ($r = 0.52$, $p < 0.01$).

The qualitative data revealed distinct patterns in how teachers approached technology integration. One experienced teacher (Teacher A, 15 years experience) explained: *"I feel that technology is like a double-edged sword in Arabic language learning. On one side, children are very enthusiastic when I use applications or videos, but on the other side I worry they lose the spiritual essence of learning Arabic as the language of the Quran."*

Another teacher (Teacher B, 8 years experience) shared a different perspective: *"Technology actually helps me bring students closer to Islamic values. When I use applications to teach vocabulary about worship, they not only learn the language but also understand the spiritual meaning behind it."*

2. Islamic Values Integration in Technology-Enhanced Learning

The Islamic pedagogical values integration assessment revealed that 73% of teachers successfully incorporated Islamic principles into their technology-enhanced Arabic instruction, though with varying degrees of sophistication and consistency. High-integration teachers (n = 8) demonstrated significantly better student outcomes across multiple measures compared to moderate-integration (n = 14) and low-integration (n = 8) groups.

Table 2. Student Learning Outcomes by Islamic Values Integration Level

Integration Level	n	Vocabulary Acquisition M(SD)	Reading Comprehension M(SD)	Oral Communication M(SD)	Student Motivation M(SD)
High Integration	8	85.6 (7.8) ^a	82.4 (6.9) ^a	79.3 (8.1) ^a	4.45 (0.52) ^a
Moderate Integration	14	78.4 (9.2) ^b	76.8 (8.3) ^b	73.7 (9.4) ^b	3.89 (0.67) ^b
Low Integration	8	72.1 (10.6) ^c	70.2 (9.7) ^c	68.5 (10.8) ^c	3.42 (0.78) ^c
F-statistic		9.32***	7.45**	6.23*	11.67***

*Note: Different superscripts indicate significant differences ($p < 0.05$) based on post-hoc Tukey tests * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Students of high-integration teachers showed superior Arabic vocabulary acquisition ($F(2,27) = 9.32$, $p < 0.001$), with post-hoc analyses revealing significant differences between high-integration (M = 85.6, SD = 7.8) and both moderate-integration (M = 78.4, SD = 9.2) and low-integration (M = 72.1, SD = 10.6) groups. Similar patterns emerged for reading comprehension scores ($F(2,27) = 7.45$, $p < 0.01$) and oral communication abilities ($F(2,27) = 6.23$, $p < 0.05$).

Qualitative analysis identified five primary strategies for Islamic values integration. A high-integration teacher (Teacher C, 12 years experience) described her approach: *"When I teach new vocabulary using digital applications, I always connect it to Islamic context. For example, when teaching the word 'kitab' (book), I don't just show pictures of ordinary books, but also the Quran and other Islamic books. Children understand that learning Arabic is not separate from their identity as Muslims."*

A moderate-integration teacher (Teacher D, 6 years experience) shared her challenges: *"I'm still learning how to integrate Islamic values with technology. Sometimes I feel that existing technology doesn't fully support Islamic learning. Good applications are mostly from abroad and not all are suitable with our values."*

Qualitative analysis identified five primary strategies for Islamic values integration: contextualizing technological activities within Islamic narratives and examples, incorporating Quranic verses and Hadith into digital learning materials, using technology to facilitate Islamic practices such as prayer time calculations and Qibla direction, connecting Arabic learning to Islamic history and civilization through multimedia presentations, and employing collaborative online projects focused on Islamic community service and social responsibility.

3. Digital Learning Platform Utilization and Effectiveness

Classroom observations documented diverse patterns of technology use across the five participating schools. Mobile learning applications were the most frequently utilized digital tools (80% of observed lessons), followed by interactive whiteboards (63%), online video resources (57%), and virtual reality applications (20%). However, usage frequency did not always correlate with educational effectiveness, as measured by student engagement and learning outcomes.

Table 3. Technology Usage Patterns and Effectiveness Measures

Technology Type	Usage Frequency (%)	Average Student Engagement Score M(SD)	Learning Effectiveness Rating M(SD)	Islamic Integration Feasibility M(SD)
Mobile Learning Apps	80	4.23 (0.74)	3.89 (0.65)	4.12 (0.58)
Interactive Whiteboards	63	3.95 (0.81)	4.02 (0.59)	4.35 (0.49)
Online Video Resources	57	4.41 (0.62)	4.18 (0.73)	3.78 (0.84)
Virtual Reality Apps	20	4.67 (0.52)	3.45 (0.89)	3.22 (0.95)
Digital Assessment Tools	43	3.34 (0.92)	3.67 (0.76)	4.01 (0.63)
Collaborative Platforms	37	3.87 (0.69)	3.92 (0.54)	3.95 (0.71)

Note: Scales 1-5 (1 = Very Low/Poor, 5 = Very High/Excellent)

Teachers employing systematic technology integration approaches, characterized by planned alignment between digital tools and learning objectives, clear Islamic values integration, and regular assessment of technological impact, achieved significantly better results than those using technology opportunistically or without clear pedagogical rationales. Systematic integrators ($n = 12$) demonstrated higher student achievement scores ($M = 82.4$, $SD = 8.1$) compared to opportunistic users ($n = 18$, $M = 75.7$, $SD = 9.8$, $t(28) = 2.35$, $p < 0.05$).

Virtual Arabic conversation sessions with native speakers from Middle Eastern countries emerged as particularly effective for developing oral communication skills, with participating students showing 34% greater improvement in speaking assessments compared to control groups using traditional conversation practice methods. However, these sessions required careful monitoring to ensure cultural content aligned with Indonesian Islamic educational values.

One teacher (Teacher E, 10 years experience) who successfully implemented virtual conversations explained: *"Virtual conversation sessions with native speakers really help students improve their speaking abilities. However, I have to be selective in choosing conversation partners who understand the Islamic education context in Indonesia. I usually collaborate with Islamic scholars from universities in Egypt and Saudi Arabia."*

4. Challenges and Barriers to Effective Technology Integration

Thematic analysis of interview data and observation notes identified multiple barriers to effective technology integration in Islamic elementary Arabic instruction. Technical challenges included unreliable internet connectivity (reported by 60% of teachers), inadequate hardware and software resources (53%), and limited technical support (47%). These infrastructure limitations particularly affected suburban schools with budget constraints.

Table 6. Barriers to Technology Integration by Category

Barrier Category	Specific Challenge	Frequency (%)	Impact Level M(SD)	Resolution Difficulty M(SD)
Technical	Internet Connectivity	60	4.23 (0.67)	4.45 (0.52)
Technical	Hardware/Software Limitations	53	3.89 (0.73)	3.78 (0.84)
Technical	Technical Support Absence	47	3.67 (0.81)	3.92 (0.69)
Pedagogical	Secular Content Concerns	70	4.12 (0.58)	3.34 (0.92)
Pedagogical	Monitoring Online Activities	63	3.78 (0.74)	3.56 (0.78)
Pedagogical	Traditional Method Adaptation	57	3.45 (0.83)	3.23 (0.87)
Professional	Insufficient Training	77	4.34 (0.49)	3.89 (0.65)
Professional	Time Constraints	70	3.95 (0.71)	3.67 (0.82)
Institutional	Administrative Support	47	3.23 (0.89)	4.12 (0.63)

Note: Scales 1-5 (1 = Very Low/Easy, 5 = Very High/Difficult)

Pedagogical challenges centered on maintaining Islamic educational authenticity while incorporating digital tools. Teachers expressed concerns about secular content in mainstream educational applications (70%), difficulty monitoring student online activities for Islamic compliance (63%), and challenges in adapting traditional Islamic teaching methods for digital environments (57%).

A teacher facing significant challenges (Teacher I, 14 years experience) explained: *"The biggest challenge is choosing applications that align with Islamic values. Many Arabic learning applications are technically good, but their content doesn't match our beliefs. For example, some use music in learning, while our school prohibits music in religious education contexts."*

Another teacher (Teacher J, 7 years experience) discussed time management issues: *"Time to learn new technology is very limited. Besides teaching, I also have to prepare materials, grade assignments, and participate in other school activities. Ideally there should be specific time allocation for professional development, but the reality is difficult."*

Professional challenges included insufficient training opportunities (77%), limited time for learning new technologies (70%), and lack of administrative support for technology integration initiatives (47%). Teachers working in schools with supportive leadership and dedicated technology coordinators reported significantly fewer barriers and more successful integration experiences.

An administrator's perspective was shared by a school principal: *"Kami menyadari pentingnya teknologi dalam pembelajaran, tetapi sebagai sekolah Islam yang masih berkembang, anggaran untuk teknologi terbatas. Kami harus memprioritaskan antara membeli perangkat baru atau meningkatkan fasilitas ibadah. Ini dilema yang harus kami hadapi."*

D. DISCUSSION

1. Theoretical Implications for Islamic Educational Technology Integration

The findings of this study contribute significantly to understanding professional development in religious educational contexts, particularly regarding the integration of digital technologies with traditional Islamic pedagogical approaches. The identification of Islamic Technological Pedagogical Content Knowledge (I-TPACK) as a distinct professional competency framework extends existing TPACK theory by incorporating spiritual and values-based dimensions essential for religious education contexts (Sadiyah et al., 2025).

The strong correlation between Islamic values integration and student learning outcomes challenges common assumptions about potential conflicts between traditional religious education and technological innovation. Rather than viewing these approaches as incompatible, the results suggest that thoughtful integration of Islamic principles with digital tools can enhance both academic achievement and spiritual development. This finding aligns with contemporary Islamic educational philosophy that emphasizes the compatibility of Islamic values with beneficial innovations (maslaha) while maintaining religious authenticity. (Saputro, 2020)

The emergence of three distinct professional development models - adaptive integration, transformative adoption, and selective implementation - provides a theoretical framework for understanding how religious educators navigate technological change. These models represent different philosophical approaches to balancing tradition and innovation, each with distinct advantages and challenges depending on contextual factors such as institutional culture, student demographics, and available resources (Ferdinand Hasan, 2023).

2. Practical Implications for Arabic Language Instruction

The research demonstrates that effective technology integration in Islamic Arabic instruction requires systematic planning that aligns digital tools with both linguistic learning objectives and Islamic educational values. Teachers who achieved the best student outcomes employed deliberate strategies for connecting technological activities to broader Islamic educational goals, rather than treating technology as a separate or supplementary component of instruction. The success of virtual conversation sessions with native Arabic speakers highlights the potential for global connectivity to enhance authentic language learning experiences while maintaining Islamic educational focus. However, the need for careful cultural monitoring suggests that such initiatives require structured protocols to ensure compatibility with local Islamic educational values and practices. (Fahmi et al., 2021)

The finding that balanced traditional-digital approaches sustain student motivation more effectively than predominantly digital or traditional methods supports integrated pedagogical models that honor Islamic educational heritage while embracing beneficial technological innovations. This balance appears particularly important for young learners who benefit from both the engagement affordances of digital tools and the spiritual grounding provided by traditional Islamic learning practices.

3. Professional Development Framework for Islamic Educators

Based on the research findings, an effective professional development framework for Islamic elementary Arabic teachers should address multiple competency domains simultaneously rather than treating technological skills and Islamic pedagogical knowledge as separate areas. The framework should include technical skills training in Arabic-specific educational applications, pedagogical strategies for integrating Islamic values with digital tools, content knowledge enhancement for authentic Arabic language instruction, and spiritual development components that strengthen teachers' ability to serve as Islamic role models in digital environments.

The preference differences observed between younger and experienced teachers suggest that professional development programs should offer multiple delivery modalities and allow for differentiated learning paths based on demographic characteristics and prior experience. Mentoring programs that pair technologically skilled younger teachers with experienced Islamic educators emerged as particularly promising for mutual professional growth (Astuti et al., 2024).

The critical role of administrative support in successful technology integration indicates that professional development efforts should target school leaders and administrators alongside classroom teachers. Creating shared vision and coordinated support systems appears essential for overcoming institutional barriers to effective technology integration in Islamic educational settings.

4. Cultural and Contextual Considerations

The research reveals important cultural dimensions in technology integration that extend beyond technical or pedagogical considerations. Teachers' concerns about maintaining Islamic authenticity while incorporating digital tools reflect broader cultural tensions between globalization and religious identity preservation. The success of high-integration teachers in addressing these concerns suggests that explicit attention to Islamic values integration can resolve apparent conflicts between traditional and innovative approaches.

The variation in technology integration success across different school contexts highlights the importance of contextual adaptation rather than one-size-fits-all approaches to educational technology implementation. Rural schools with limited infrastructure require different strategies than urban schools with advanced technological resources, while schools serving different socioeconomic populations may need customized approaches to ensure equitable access and outcomes (Djazilan et al., 2024).

The positive student response to culturally relevant digital content, such as virtual tours of Islamic historical sites and interactive exploration of Arabic calligraphy, demonstrates the potential for technology to enhance cultural connection and identity development alongside language learning. This finding suggests that effective Islamic educational technology should emphasize cultural authenticity and spiritual meaning rather than merely adopting secular educational applications.

5. Limitations and Future Research Directions

Several limitations of this study warrant consideration in interpreting findings and planning future research. The focus on Indonesian Islamic elementary schools, while providing valuable insights into Southeast Asian Muslim educational contexts, may limit generalizability to other cultural and educational settings. The eight-month data collection period, though substantial, may not capture long-term impacts of technology integration initiatives or sustainability of observed changes.

The reliance on teacher self-report measures for some competency assessments may introduce social desirability bias, particularly given the sensitive nature of religious education contexts. Future research should incorporate more objective measures of teacher competencies and student learning outcomes to validate self-reported findings.

Longitudinal research designs would provide valuable insights into the development of I-TPACK competencies over time and the sustainability of technology integration initiatives in Islamic educational settings. Such studies could examine how teachers' professional identities evolve as they navigate the integration of traditional Islamic pedagogy with digital innovation.

Cross-cultural comparative studies examining Islamic educational technology integration across different national and cultural contexts would enhance understanding of universal principles versus culturally specific factors in religious educational technology adoption. Such research could inform international Islamic educational policy and practice development.

Future investigations should also explore student perspectives on technology-integrated Islamic education, examining how young learners experience and perceive the balance between traditional and digital approaches. Understanding student voices could inform more student-centered approaches to Islamic educational technology design and implementation.

E. CONCLUSIONS

This research demonstrates that professional development of Islamic elementary school Arabic teachers in the digital era requires a holistic approach that integrates technological competencies with Islamic pedagogical values and Arabic language expertise. The study's findings challenge binary thinking about tradition versus innovation in Islamic education, revealing instead the potential for synergistic integration that enhances both academic achievement and spiritual development. The identification of Islamic Technological Pedagogical Content Knowledge (I-TPACK) as a distinct professional competency framework provides a

theoretical foundation for designing targeted professional development programs that address the unique needs of religious educators. Teachers who successfully integrate Islamic values with digital tools achieve superior student outcomes compared to those who treat these domains as separate or conflicting.

Key recommendations for educational policy and practice include developing comprehensive professional development programs that address technological, pedagogical, and spiritual competency domains simultaneously; creating institutional support systems that encourage innovation while maintaining Islamic authenticity; establishing mentoring networks that facilitate knowledge sharing between technologically skilled and experienced Islamic educators; developing Arabic language learning applications and digital resources that incorporate Islamic content and values; and implementing systematic evaluation frameworks for assessing the effectiveness of technology integration in Islamic educational contexts.

For teacher preparation programs, the findings suggest incorporating I-TPACK framework development into pre-service Islamic education curricula, providing authentic experiences with technology integration in religious educational settings, and developing partnerships with K-12 Islamic schools for practical application and reflection opportunities. Future research should examine long-term impacts of technology integration on student Islamic identity development and spiritual growth, explore cross-cultural variations in Islamic educational technology adoption and implementation, investigate student perspectives on technology-integrated Islamic education experiences, develop and validate objective measures of I-TPACK competencies for research and evaluation purposes, and examine scalability and sustainability of successful technology integration models across diverse Islamic educational contexts.

The digital transformation of Islamic education presents both unprecedented opportunities and significant challenges for maintaining religious authenticity while embracing beneficial innovations. This research provides empirical evidence that thoughtful integration approaches can honor Islamic educational heritage while leveraging technological advantages for enhanced learning outcomes, offering hope and practical guidance for educators navigating this complex landscape.

F. FUNDING

This research received no external funding.

G. CONFLICTS OF INTEREST

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. None of the funding sources had any role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

H. ACKNOWLEDGMENTS

The authors express their sincere gratitude to all

REFERENCES

- Astuti, R., Siswanto, S., & Walid, M. (2024). Innovation In Islamic Education Management: Enhancing Teacher's Professionalism And Techno-Pedagogical Skills. *Academic Journal Research*, 2(2), 16–23. <https://doi.org/10.61796/acjoure.v2i2.231>
- Clark, T., Foster, L., Sloan, L., & Bryman, A. (2021). *Bryman's Social Research Methods* (6th ed.). Oxford University Press.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications.
- Djazilan, M. S., Rulyansah, A., & Rihlah, J. (2024). Why AI is Essential for the Future of Islamic Education: A Call for Ethical and Effective Implementation. *EDUKASIA: Jurnal Pendidikan Dan Pembelajaran*, 5(2), 201–216. <https://doi.org/10.62775/edukasia.v5i2.1373>
- Fahmi, A. N., Yusuf, M., & Muchtarom, M. (2021). Integration of Technology in Learning Activities: E-Module on Islamic Religious Education Learning for Vocational High School Students. *Journal of Education Technology*, 5(2). <https://doi.org/10.23887/jet.v5i2.35313>
- Ferdi Hasan, M. (2023). *The Concept of Religious Moderation in Elementary Schools*.
- Ferdi Hasan, Moh. (2024). Narratives of dislocation in the Arab world. Rewriting ghurba. *Legal Pluralism and Critical Social Analysis*, 1–3. <https://doi.org/10.1080/27706869.2024.2436248>
- Garba, M. A., & Hassan, A. R. (2024). Use of AI in Learning Arabic Language by Non-Arabic Speakers. *International Journal of Research and Innovation in Social Science*, VIII(VIII), 2519–2532. <https://doi.org/10.47772/IJRIS.2024.8080191>
- Hanafi, Y., Saefi, M., Ikhsan, M. A., Diyana, T. N., Ahsanuddin, M., Alfian, M., Yani, M. T., Hazin, M., Chamidah, D., & Mustakim, S. S. (2024). Unveiling the intersection of technology and pedagogy: a domain-specific exploration for developing religious moderation content with an exploratory and Rasch Perspective. *British Journal of Religious Education*, 1–14. <https://doi.org/10.1080/01416200.2024.2427303>
- Hanifah, U., Binti Adam, Z., Faizin, M., Miftakhul Jannah, I., & Hanafi, Y. (2024). Accelerating the digitalisation of learning post-COVID-19 era to improve the pedagogical competence of pre-service Arabic teachers. *Cogent Education*, 11(1). <https://doi.org/10.1080/2331186X.2024.2413241>
- Hasan, M. ferdi, Patty, A., Sani, A., & Taufiq, F. (2023). Chat GPT as A Learning Assistant for Islamic Education: A Study In Madrasah Ibtidaiyah. *Nadwa: Jurnal Pendidikan Islam*, 17(2), 203–230. <https://doi.org/10.21580/nw.2023.17.2.26167>
- Mahsusi, Hudaa, S., Fahmi, M., Kusen, Haryanti, N. D., & Wajdi, M. B. N. (2024). Achieving excellence: the role of digital transformation in *madrasah* management and Islamic culture. *Cogent Arts & Humanities*, 11(1). <https://doi.org/10.1080/23311983.2024.2304407>
- Neuman, W. L. (2020). *Social Research Methods: Qualitative and Quantitative Approaches* (8th ed.). Pearson.

- Rahmi, L., Hasan, Moh. F., & Monita, D. (2025). Elementary School Class Teacher Strategy in Instruding Ideological Values Nahdlatul Ulama – Muhammadiyah. *Ideguru: Jurnal Karya Ilmiah Guru*, 10(1), 905–911. <https://doi.org/10.51169/ideguru.v10i1.1064>
- Ritonga, M., Mudinillah, A., Wasehudin, W., Julhadi, J., Amrina, A., & Shidqi, M. H. (2024). The effect of technology on Arabic language learning in higher education. *Journal of Education and Learning (EduLearn)*, 18(1), 116–127. <https://doi.org/10.11591/edulearn.v18i1.20867>
- Rossman, G. B., & Rallis, S. F. (2017). *An Introduction to Qualitative Research: Learning in the Field*. SAGE Publications, Inc. <https://doi.org/10.4135/9781071802694>
- Sadiyah, A., Firdausiah, N., & Alfatani, I. A. (2025). Management And Technology In Islamic Education: Integrative Strategies For The Digital Era. *EDUSHOPIA : Journal of Progressive Pedagogy*, 2(2), 164–175. <https://doi.org/10.64431/edushopia.v2i2.354>
- Saputro, F. E. (2020). The Role Of Islamic Religious Education Teachers In Actualizing Tolerance Attitudes To Students. *AL-ISHLAH: Jurnal Pendidikan*, 12(2), 336–347. <https://doi.org/10.35445/alishlah.v12i2.214>
- Wekke, I. S. (2015). Arabic Teaching and Learning: A Model from Indonesian Muslim Minority. *Procedia - Social and Behavioral Sciences*, 191, 286–290. <https://doi.org/10.1016/j.sbspro.2015.04.236>
- Yin, R. K. (2014). *Case Study Research: Design and Methods* (5th ed.). SAGE Publications.