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THE POTENTIAL OF USING ARTIFICIAL INTELLIGENCE IN ISLAMIC STUDIES: AWARENESS, PERCEIVED USEFULNESS, CHALLENGES, AND READINESS AMONG ISLAMIC STUDIES TEACHERS IN NIGERIA

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Abstract

Despite rapid global AI advancement, its application in Islamic Studies teaching in Nigeria remains unexamined empirically. This national-scale descriptive survey investigated AI awareness, perceived usefulness, potential benefits, challenges, and readiness among 280 Islamic Studies teachers across all six geopolitical zones of Nigeria (Northwest n=65; Northeast n=58; North-Central n=47; Southwest n=42; Southeast n=35; South-South n=33) at primary (n=85), secondary (n=120), and tertiary (n=75) levels. Anchored in the Technology Acceptance Model (Davis, 1989) and UTAUT (Venkatesh et al., 2003), a validated 48-item questionnaire and 12 semi-structured interviews were employed. Awareness of general AI was moderate (ChatGPT/Bard: 81.1%; Qur'an recitation apps: 72.1%), but awareness of subject-specific AI tools was critically low: Hadith authentication systems (30.7%), Arabic NLP software (27.9%), AI Arabic script tools (22.5%); overall awareness M=1.64 on a 3-point scale. Six of seven perceived usefulness items exceeded M=3.50, led by enhanced access to authentic Islamic resources (M=4.15); only AI compatibility with Islamic educational values fell below threshold (M=3.45). Teachers overwhelmingly rejected the idea that AI would replace the teacher-student bond (M=2.38, reversed). The three most severe challenges were ICT infrastructure deficit (major: 76%), inadequate AI training (73%), and — distinctively — concerns about AI distorting Islamic knowledge (68%), an epistemological barrier irreducible to structural constraints. No readiness dimension achieved M=3.50 at any level; overall readiness M=2.85. ANOVA rejected both null hypotheses: readiness differs by educational level (F=14.38, p<.001; primary teachers least ready) and awareness by geopolitical zone (F=3.94, p=.002; Northern zones more aware). The study concludes teachers are positively oriented toward AI but structurally unprepared for integration, and recommends a National AI Policy for

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Islamic Education, subject-specific AI literacy programmes, infrastructure investment, and formal engagement of Islamic scholarly bodies in an AI legitimacy framework.

Keywords: *Artificial Intelligence; Islamic Studies; Nigeria; Technology Acceptance Model; AI readiness; Hadith authentication; Arabic NLP; teacher perceptions; educational technology; Islamic epistemology*

1. Introduction

The global diffusion of Artificial Intelligence (AI) across educational systems has raised pressing questions about its applicability in disciplines rooted in humanistic, spiritual, and revelatory traditions. Islamic Studies in Nigeria — encompassing Qur'anic recitation and interpretation, Hadith sciences, Fiqh, Islamic history, akhlaq, and Arabic language instruction at primary, secondary, and tertiary levels — is precisely such a discipline. Sutton et al. (2020) document AI's capacity for adaptive personalised learning, automated assessment, intelligent tutoring, and expanded access to knowledge resources. Al-Rahmi et al. (2021) confirm AI-powered Islamic learning platforms can improve access to authenticated scholarly content. Speech-recognition Qur'an recitation apps (e.g. Tarteel AI) provide real-time tajweed feedback; AI-powered Hadith systems assist with isnad verification; Arabic NLP tools support grammar correction and morphological analysis of classical texts (Amin & Ismail, 2019; Sulaiman, 2020).

Yet AI integration in Islamic Studies raises questions absent from other disciplines. Al-Busaidi (2019) argues that while Islamic education can adopt digital tools without compromising knowledge integrity, AI-generated content must remain research assistance rather than authoritative Islamic judgment, and the authenticated chain of scholarly transmission must remain the guarantor of knowledge authority. Bashir and Musa (2021) document Nigerian Islamic Studies teachers' caution about AI — concerned that algorithmic tools might misrepresent Islamic knowledge and undermine the shaykh-student relationship central to Islamic pedagogy. Whether these concerns coexist with genuine openness to AI's pedagogical benefits, how they rank against structural barriers, and what level of readiness teachers currently have — these are empirical questions this study addresses for the first time at national scale.

2. Literature Review

2.1 AI in Education and Islamic Studies-Specific Applications

Sutton et al. (2020) identify five AI educational application domains: adaptive learning, automated assessment, intelligent tutoring, learning analytics, and administrative efficiency. For Islamic Studies, the most relevant are: Qur'anic recitation AI (real-time tajweed feedback); Hadith authentication systems (machine learning applied to isnad verification); and Arabic NLP tools (grammar correction and morphological analysis of classical texts). Amin and Ismail (2019) argue that Qur'an recitation apps could substantially improve tajweed learning outcomes in the overcrowded settings characteristic of Northern Nigerian Qur'anic schools. Sulaiman (2020) concludes AI Hadith tools are legitimate as research aids but must not be presented as authoritative scholarly verdicts. Idris and Olayanju (2020) find Arabic NLP tools improve grammar acquisition but require teacher supervision to prevent classical meaning being flattened by contemporary Arabic biases in training data.

2.2 Islamic Epistemology, Ethics, and Digital Technology

Al-Busaidi (2019) provides the foundational framework: AI tools are legitimate Islamic learning instruments when functioning as aids to — not substitutes for — authenticated scholarly authority. Farooq and Khan (2021) identify three specific ethical concerns: AI content biases misrepresenting scholarly consensus; AI-mediated learning weakening the spiritual shaykh-student relationship; and AI enabling unauthorised fatwas. Al-Rahmi et al. (2021) counter from the Islamic maslaha principle that AI tools designed with scholarly supervision and positioned as supplementary are compatible with Islamic educational values. This tension — AI as epistemological threat versus AI as legitimate scholarly aid — frames the ambivalence documented in the present study.

2.3 Technology Acceptance in Islamic Educational Contexts

Davis's (1989) TAM proposes Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as the primary determinants of technology adoption intention and use. Educational research consistently finds PU the stronger predictor for experienced professionals. Venkatesh et al.'s (2003) UTAUT adds social influence and facilitating conditions. In Islamic Studies contexts, social influence — specifically the endorsement or rejection of AI by respected Islamic scholars — is likely an especially powerful adoption determinant. Oluwole and Adebayo (2022) and Idris and Olayanju (2020) confirm structural barriers (ICT, training) as primary constraints in Nigerian schools, but for Islamic Studies specifically, the epistemological concern about knowledge integrity constitutes a third, distinct barrier category not reducible to structural or financial constraints.

3. Methodology

3.1 Design, Sites, and Participants

A descriptive survey design with a supplementary qualitative strand (12 semi-structured interviews, 4 per educational level) was adopted. Stratified, purposive, and random sampling was employed across all six Nigerian geopolitical zones and three educational levels, yielding N=280. All 280 questionnaires were fully completed (100% usable response rate). Figure 1 presents the distribution.

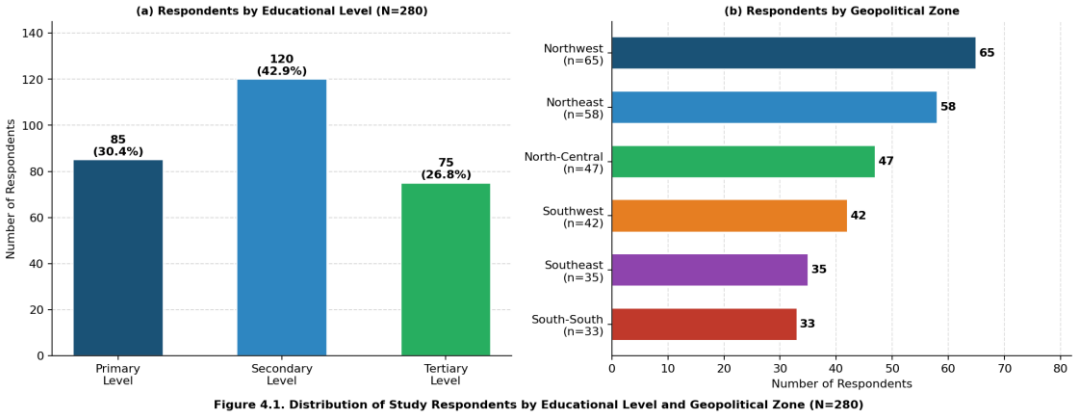


Figure 1. Distribution of respondents by educational level and geopolitical zone (N=280).

3.2 Instruments and Analysis

A 48-item structured questionnaire covered: AI awareness (8 tools, 3-point familiarity scale: 1=Not Aware / 2=Aware Never Used / 3=Aware Have Used); perceived usefulness (7 Likert items); potential benefits (8 Likert items); challenge severity (7 items: Major/Moderate/Minor); and AI readiness across four dimensions — technical, attitudinal, skill, institutional (Likert 1–5, M≥3.50=Ready). Content validity established by a 6-specialist expert panel. Cronbach's alpha: usefulness α=0.84; benefits α=0.81; readiness α=0.87. Interview data analysed using reflexive thematic analysis (Braun & Clarke, 2006). Quantitative data analysed in SPSS Version 27 using descriptive statistics and one-way ANOVA with post-hoc Tukey's HSD.

4. Results

4.1 AI Tool Awareness (RQ1)

Figure 2 presents the awareness profile. Table 1 details findings by tool and educational level.

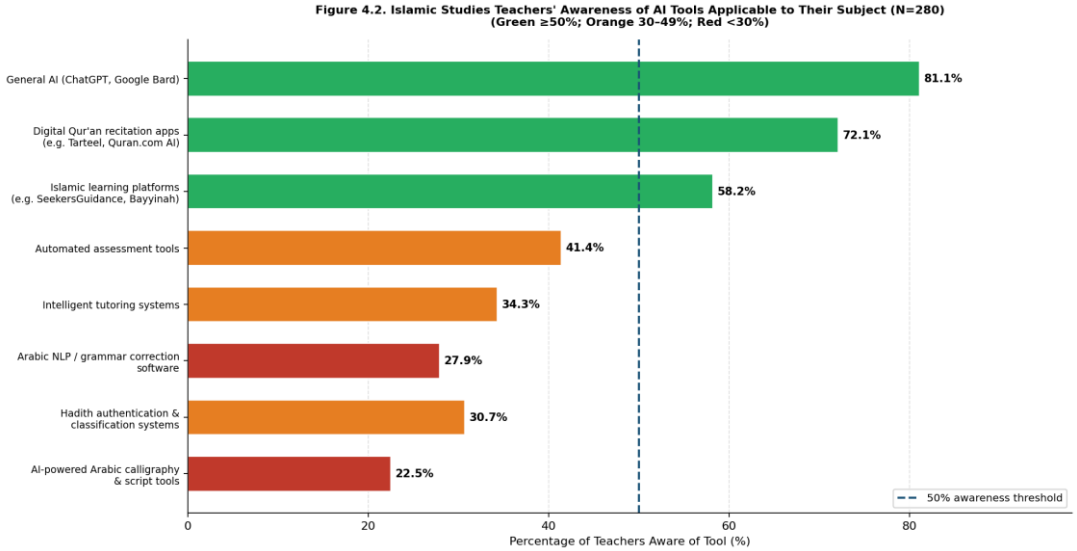


Figure 2. Islamic Studies teachers' awareness of AI tools applicable to their subject (N=280; green ≥50%; orange 30–49%; red <30%).

Table 1 AI Tool Awareness by Educational Level (N=280)

AI Tool	Total Aware n(%)	Primary M	Secondary M	Tertiary M	Overall M
General AI (ChatGPT, Google Bard)	227(81.1)	1.88	2.11	2.32	2.08
Digital Qur'an recitation apps (e.g. Tarteel)	202(72.1)	1.95	2.04	2.18	2.05
Islamic learning platforms with AI	163(58.2)	1.52	1.74	1.92	1.70
Automated assessment tools	116(41.4)	1.32	1.48	1.66	1.46
Intelligent tutoring systems	96(34.3)	1.22	1.38	1.65	1.39
Hadith authentication systems	86(30.7)	1.18	1.28	1.58	1.31
Arabic NLP / grammar correction	78(27.9)	1.14	1.25	1.52	1.28
AI-powered Arabic script tools	63(22.5)	1.09	1.18	1.44	1.21
Overall Awareness Score	—	1.48	1.64	1.88	1.64

Note. Awareness scale: 1=Not Aware; 2=Aware Never Used; 3=Have Used. Overall M=1.64 places the average teacher between 'Not Aware' and 'Aware but Never Used.' The three tools most relevant to Islamic Studies academic content (Hadith authentication, Arabic NLP, Arabic script AI) are known to fewer than one-third of respondents. Tertiary teachers are consistently the most aware; the gap widens for subject-specific tools.

A secondary-level teacher from Northwest zone captured the awareness gap precisely:

> *I use ChatGPT sometimes to find resources or prepare lesson notes. But I did not know there are apps specifically for checking hadith authenticity with AI, or software that can analyse Arabic grammar automatically. These would be very useful for what I teach, but I had never heard of them. (Secondary teacher, Northwest zone, February 2025)*

4.2 Perceived Usefulness (RQ2) and Potential Benefits (RQ3)

Figure 3 and Table 2 present perceived usefulness findings. Six of seven items exceed M=3.50. Enhanced access to authentic Islamic resources (M=4.15) and improved learning outcomes (M=3.92) lead the rankings. Teachers overwhelmingly rejected the idea that AI would displace the personal teacher-student bond (M=2.38, reversed). The highest-rated benefit is also enhanced resource access (M=4.25), followed by real-time tajweed feedback (M=4.18) and improved Arabic instruction (M=4.01).

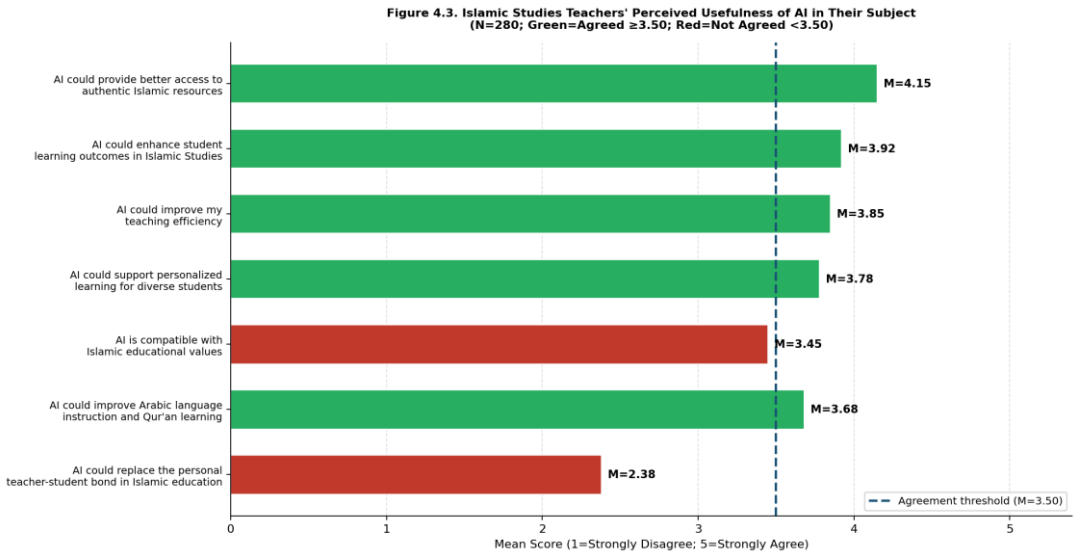


Figure 3. Islamic Studies teachers' perceived usefulness of AI in their subject (N=280; green M≥3.50; red M<3.50).

Table 2 Perceived Usefulness and Key Benefit Findings (N=280)

Statement	SA n(%)	A n(%)	U n(%)	D/SD n(%)	M (SD)
AI could provide better access to authentic Islamic resources	138(49)	97(35)	31(11)	14(5)	4.15(0.91)
AI could enhance student learning outcomes	112(40)	110(39)	36(13)	22(8)	3.92(0.97)
AI could improve my teaching efficiency	106(38)	108(39)	38(14)	28(10)	3.85(0.99)
AI could support personalised learning	98(35)	104(37)	47(17)	31(11)	3.78(1.01)
AI could improve Arabic/Qur'an learning	101(36)	103(37)	44(16)	32(11)	3.68(1.02)
AI is compatible with Islamic educational values	80(29)	88(31)	68(24)	44(16)	3.45(1.09)
AI will replace the personal teacher-student bond (R)	18(6)	30(11)	44(16)	188(67)	2.38(0.94)

Note. SA=Strongly Agree; D/SD=Disagree and Strongly Disagree combined. Scale: 1–5. M≥3.50=Agreed. (R)=Reverse-scored. The only below-threshold item — AI compatibility with Islamic values (M=3.45) — reflects genuine epistemological ambivalence. The reversed item (M=2.38) confirms 67% reject the AI-as-displacement-technology framing. Highest-rated benefit (not shown separately): enhanced access to authentic Islamic resources M=4.25; real-time tajweed feedback M=4.18.

A tertiary teacher from Northeast zone articulated the epistemological ambivalence:

> *I believe AI can help students access more books and texts than I alone can provide. But Islamic education is not only about information — it is about adab, about the relationship between student and shaykh. I am not sure AI can be part of that without changing its character. (Tertiary teacher, Northeast zone, February 2025)*

4.3 Challenges (RQ4) and Readiness (RQ5)

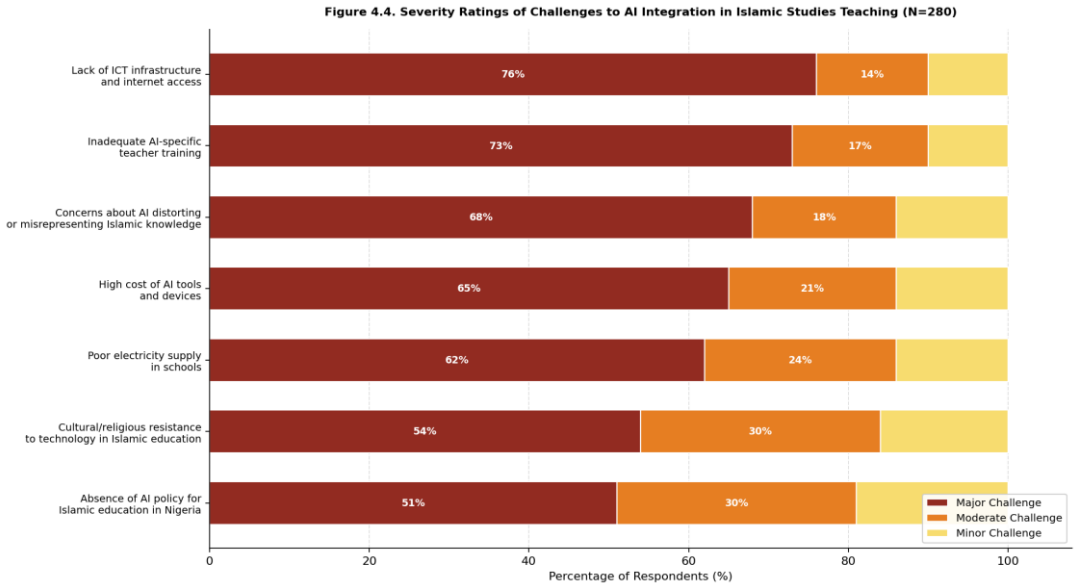


Figure 4. Severity ratings of challenges to AI integration in Islamic Studies (N=280).

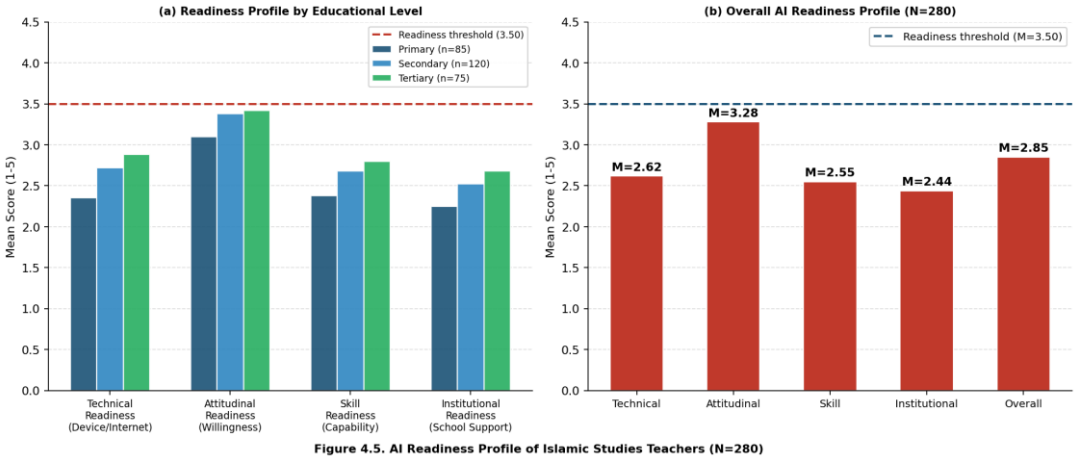


Figure 5. AI readiness profile by educational level and overall (N=280; red line = M=3.50 threshold).

Table 3 Challenge Severity Ratings and AI Readiness Profile (N=280)

Challenge / Readiness Dimension	Major/Overall M	Moderate / Primary M	Minor / Secondary M	Not a Challenge / Tertiary M	Rank / Decision
CHALLENGES (% of N=280 rating severity)	Major %	Moderate %	Minor %	Not a Challenge %	Rank
Lack of ICT infrastructure and internet access	76	14	10	0	1st
Inadequate AI-specific teacher training	73	17	10	0	2nd
Concerns: AI distorting Islamic knowledge	68	18	14	0	3rd
High cost of AI tools and devices	65	21	14	0	4th
Cultural/religious resistance to technology	54	30	16	0	6th
Absence of AI policy for Islamic education	51	30	19	0	7th
READINESS DIMENSIONS (Overall M / Level means)	Overall M	Primary M	Secondary M	Tertiary M	Decision
Technical Readiness (device/internet access)	2.62	2.35	2.72	2.88	Not Ready
Attitudinal Readiness (willingness to adopt AI)	3.28	3.10	3.38	3.42	Not Ready*
Skill Readiness (capacity to use AI tools)	2.55	2.38	2.68	2.80	Not Ready
Institutional Readiness (school support/policy)	2.44	2.25	2.52	2.68	Not Ready
Overall AI Readiness	2.85	2.52	2.83	2.95	Not Ready

Note. No respondent rated any challenge as 'Not a Challenge.' *Attitudinal readiness M=3.28 is the highest dimension but remains below the M=3.50 threshold. Hypothesis testing: H01 rejected — readiness differs significantly by educational level (one-way ANOVA $F=14.38$, $p<.001$; primary vs. tertiary $p<.001$; primary vs. secondary $p=.008$ on Tukey HSD). H02 rejected — awareness differs significantly by geopolitical zone ($F=3.94$, $p=.002$; Northern zones > Southern zones).

A secondary teacher from Northeast zone described the epistemological concern directly:

> *My worry is not that AI is too difficult to use. My worry is that AI can give a wrong explanation of a Qur'anic verse or a fabricated hadith and present it with confidence, as if authentic. Students who do not already know will not realise. The teacher's role is precisely to guard against this. (Secondary teacher, Northeast zone, February 2025)*

A tertiary teacher from Southwest zone encapsulated the readiness paradox:

> *I have my own laptop and use ChatGPT to prepare notes. But in the classroom there is no projector, no internet, no digital resource the institution provides for Islamic Studies. It is like being given a car but no road. The willingness is there; the road is not. (Tertiary teacher, Southwest zone, March 2025)*

5. Discussion

5.1 The Subject-Specific Awareness Gap

The steep gradient from general AI awareness (81.1%) to subject-specific tool awareness (22.5–30.7%) is the most structurally significant finding. It reveals that the challenge to AI integration in Islamic Studies is not attitudinal resistance but a targeted knowledge deficit: teachers know AI exists but are almost entirely unfamiliar with the applications most directly relevant to Hadith sciences, Arabic language instruction, and Qur'anic studies. This is the aspiration-capability gap documented by Idris and Olayanju (2020) at its most specific: the aspiration is general (positive toward AI), but the capability deficit is subject-specific (unfamiliar with Islamic Studies AI). General digital literacy campaigns will not close this gap. What is required is subject-specific AI awareness programming focused on Hadith authentication systems, Arabic NLP tools, and Qur'anic recitation AI. The significantly higher Northern zone awareness (ANOVA p=.002) reflects the denser distribution networks for digital Islamic apps in Northern urban centres — mosque networks and Islamic educational institutions that have organically promoted Qur'an apps and Islamic content platforms — suggesting the Northern Islamic ecosystem has self-generated some subject-specific AI awareness through channels natural to it, a model that could be leveraged nationally.

5.2 Epistemological Ambivalence and the Compatibility Item

The below-threshold rating for AI's compatibility with Islamic educational values (M=3.45) is the most theoretically significant finding. It confirms that the epistemological concern about AI in Islamic education — documented qualitatively by Bashir and Musa (2021) and theorised by Al-Busaidi (2019) and Farooq and Khan (2021) — has measurable quantitative expression at national scale. This is not blanket technophobia: the same teachers who are uncertain about AI's compatibility (M=3.45) strongly endorse AI's capacity to provide resource access (M=4.15) and improve outcomes (M=3.92). The concern is specific, principled, and grounded in the Islamic scholarly tradition's insistence on authenticated transmission as the guarantor of knowledge legitimacy. It cannot be addressed by technical training or infrastructure; it requires scholarly theological engagement and authoritative endorsement by recognised Islamic scholarly bodies. The reversed item result — 67% rejecting the idea that AI would replace the teacher-student bond (M=2.38) — is equally significant: teachers have independently arrived at the appropriate positioning for AI in Islamic education (supplementary resource, not authoritative substitute), precisely the positioning that Al-Busaidi (2019) and Al-Rahmi et al. (2021) recommend.

5.3 Three Categories of Barrier

The challenge data establish three analytically distinct barrier categories. Structural barriers — ICT infrastructure (76%), training (73%), cost (65%), electricity (62%) — are shared with

other disciplines and amenable to standard interventions. Policy barriers — absent AI policy (51%) — reflect an institutional vacuum resolvable through regulatory action. The epistemological barrier — concerns about AI distorting Islamic knowledge (68%) — is distinctive to Islamic Studies and requires a fundamentally different response: the development of an Islamic AI Legitimacy Framework by qualified scholarly bodies, grounded in the principles of maslaha and isnad, providing teachers with authoritative theological guidance on which AI applications are appropriate and under what conditions. Without this scholarly guidance, teachers who are epistemologically uncertain about AI legitimacy cannot be expected to adopt it regardless of how much infrastructure is provided or how much training is delivered.

5.4 The Primary School Readiness Gap

The significantly lower readiness of primary-level teachers (overall $M=2.52$, $F=14.38$, $p<.001$) has the most consequential educational implications. Primary-level Islamic Studies, Qur'anic schools, Islamiyya schools, and primary school Islamic classes, is precisely where AI tools for tajweed feedback and Qur'an memorisation support could have the greatest scale of impact: millions of children enrolled, each receiving minimal individual recitation attention because one teacher cannot monitor forty-plus pupils simultaneously. The primary teacher's account of forty-two pupils, two minutes each, describes a constraint that real-time AI recitation feedback could structurally transform. Yet primary teachers — who would most benefit — are the least aware of these tools and the least ready to use them. This inversion of impact potential and readiness is the most urgent finding for intervention targeting.

6. Conclusion and Recommendations

This study makes five original contributions.

- First, the first national-scale empirical dataset on Islamic Studies teachers' AI awareness across all six geopolitical zones of Nigeria.
- Second, the first validated TAM/UTAUT application to AI adoption in Islamic Studies in Nigeria.
- Third, empirical isolation and quantification of the epistemological concern about AI distorting Islamic knowledge as a third, distinct barrier category irreducible to structural constraints.
- Fourth, documentation that primary-level teachers are the most readiness-deficient at the level of greatest potential AI impact.
- Fifth, empirical confirmation that Islamic Studies teachers reject the AI-as-replacement framing, establishing that thoughtfully designed AI integration can coexist with the relational and spiritual dimensions of Islamic pedagogy.

Four recommendations are most urgent.

- First, a National AI Policy for Islamic Education should be developed by the Federal Ministry of Education and the NCCE in formal partnership with major Islamic scholarly bodies — including the Nigerian Supreme Council for Islamic Affairs and the Council of Ulama — providing authoritative guidance on AI legitimacy in Islamic Studies classrooms and designating a framework for scholarly oversight of AI-

generated Islamic content. The 51% major challenge rating for absent policy confirms the urgency.

- Second, subject-specific AI literacy programmes — covering Hadith authentication tools, Arabic NLP applications, and Qur'anic recitation AI — should be incorporated into the NCE Islamic Studies curriculum and delivered as targeted in-service professional development distinct from generic digital skills training.

- Third, a targeted AI readiness programme for primary-level and Qur'anic school teachers should be developed through State Arabic Education Boards and SUBEB networks, prioritising the level of greatest potential impact and lowest current readiness.

- Fourth, UBEC and State UBEBs should invest in ICT infrastructure for primary and secondary Islamic Studies schools, prioritising reliable internet connectivity. The gap between Islamic Studies teachers' positive orientation toward AI and their structural unpreparedness for its integration is a gap of knowledge, infrastructure, training, and scholarly guidance — all four of which are amenable to institutional intervention.

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