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Research Article

Digital Piety in Boarding School Contexts: How Islamic Digital Literacy and Online Religious Identity Shape Santri Behavior Through Technology Attitudes

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Abstract

This study investigates the extent to which Islamic digital literacy (IDL) and digital religious identity (DRI) shape the religious behavior of santri (Islamic boarding school students). Growing digital exposure within pesantren settings necessitates a rigorous empirical examination of how digital competencies and online identity expressions interact with institutional culture to produce observable religious conduct. Employing a quantitative cross-sectional design and Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4, the study analyzed data from 100 Madrasah Aliyah students enrolled in both salaf and modern pesantren in Kudus, Indonesia. The findings confirm that IDL and DRI significantly predict santri religious behavior both through direct pathways and indirectly via attitudes toward technology, which functions as a cognitive-affective mediator. Pesantren culture emerged as a significant positive moderator, amplifying the behavioral influence of technology attitudes within institutionally embedded settings. The study introduces the Digital Ethno-Religious Model, an integrated framework that synthesizes digital literacy theory, identity formation, behavioral science, and Islamic epistemology. Practical implications are proposed for designing culturally grounded digital literacy curricula and reinforcing the supervisory role of ustadz in facilitating responsible digital engagement among santri.

Keywords:

Islamic Digital Literacy, Digital Religious Identity, Attitudes toward Technology, Pesantren Culture, Religious Behavior

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INTRODUCTION

The accelerating diffusion of digital technology has fundamentally reconfigured religious learning, spiritual expression, and identity formation across global Muslim communities. Within the Indonesian pesantren ecosystem, one of the world's most distinctive Islamic educational institutions, this reconfiguration assumes particular significance. Santri (pesantren students) are simultaneously immersed in the disciplined moral authority of traditional boarding school life and increasingly exposed to algorithmically curated religious content on platforms such as YouTube, TikTok, and Instagram (Al-Zaman, 2022; Campbell & Evolvi, 2020). The resulting tension between communal religious orthodoxy and individualized digital religiosity generates critical questions about the behavioral outcomes of this dual exposure.

Scholarship on digital religion has established that digital platforms do not merely transmit religious knowledge but actively reshape how religious authority, authenticity, and identity are negotiated (Evolvi, 2022; Raya, 2025). However, the predominant focus on urban Muslim youth and general school contexts (Zaid et al., 2022; Kholili et al., 2024) has left the pesantren milieu largely underexamined. Pesantren institutions are characterized by distinctive pedagogical features, including the sorogan method of individualized textual transmission, hierarchical ustadz-santri relationships, and collective adherence to institutional norms, that constitute a unique modulating context for digital religious engagement (Suteja et al., 2022; Harnadi et al., 2021).

Two theoretical constructs assume central importance in this investigation. First, Islamic digital literacy (IDL)—conceptualized as the context-specific capacity to critically access, evaluate, filter, and apply digital religious content in accordance with Islamic epistemic principles—extends beyond generic digital competence to encompass the ethical dimensions of *adab al-'ilm* (disciplined knowledge-seeking) and *tabayyun* (critical verification) (Arsyad et al., 2023; Suryani et al., 2024). Second, digital religious identity (DRI) refers to the dynamic process through which individuals enact, reinforce, and negotiate their Islamic self-concept within digitally mediated environments, including participation in virtual dakwah communities and the curation of religiously inflected online personas (Campbell & Tsuria, 2022; Cheong, 2017).

Despite considerable advances in Technology Acceptance research—particularly through the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, 2022a, 2022b)—these frameworks have seldom been applied to the intersection of digital religiosity and behavioral outcomes in traditionally grounded Islamic educational contexts. Critically, attitudes toward technology have been underutilized as a mediating mechanism linking digital inputs (competence and identity) to religious behavioral outputs. Parallel to this, pesantren culture as a moderating force capable of amplifying or attenuating the attitude-behavior relationship remains empirically underspecified (Paramansyah et al., 2024; Pabbajah et al., 2024).

This study addresses these lacunae by proposing and empirically testing the Digital Ethno-Religious Model (DERM)—a theoretically integrative framework that positions IDL and DRI as antecedents, attitudes toward technology as a cognitive-affective mediator, and pesantren culture as an institutional moderator of santri religious behavior. Drawing on data from 100 Madrasah Aliyah students in Kudus—a region historically significant for its Islamic scholarly traditions and currently experiencing rapid digital penetration—the study employs PLS-SEM to simultaneously estimate direct, mediated, and moderated structural paths.

The study contributes to scholarly discourse in three principal ways: (1) it extends behavioral theory to an Islamic educational context by integrating TAM/TPB with Islamic epistemological constructs; (2) it introduces IDL as a behaviorally consequential form of domain-specific digital literacy; and (3) it empirically demonstrates that pesantren culture constitutes a significant positive moderator of technology attitude-behavior translation, offering a counterpoint to deficit narratives about traditional institutions and digital modernity. The practical implications address curriculum design, ustadz-led digital mentorship, and policy frameworks for balanced digital integration in pesantren education.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Islamic Digital Literacy and Religious Behavior

Digital literacy has been extensively theorized as a prerequisite for effective citizenship in networked societies. In Islamic educational contexts, however, generic digital literacy must be supplemented by epistemological grounding in Islamic principles of knowledge ethics—specifically the obligation of tabayyun (critical verification), avoidance of fitnah (harmful or false content), and alignment of informational practice with maqasid al-shariah (higher objectives of Islamic law) (Wahid, 2024; Arsyad et al., 2023). Islamic digital literacy thus denotes a domain-specific competence through which santri critically evaluate, filter, and practically apply online religious information.

Empirical evidence suggests that higher levels of domain-specific digital literacy are positively associated with behavioral enactment of related values (Ramdani et al., 2025; Muslim, 2024). Santri with strong IDL competencies are better equipped to distinguish authentic from unverified religious content, thereby engaging in more deliberate and value-consistent religious behaviors online—such as sharing verified ahadith, participating in supervised halaqah digitally, or avoiding content associated with religious deviance. On this basis, the following hypothesis is advanced:

H1: Islamic digital literacy exerts a significant positive direct effect on santri religious behavior.

Digital Religious Identity and Religious Behavior

The concept of digital religious identity extends classical identity theories into digitally mediated environments. Campbell and Tsuria (2022) argue that online religious self-presentation is not epiphenomenal but constitutive—shaping the very values and commitments through which identity is enacted offline. When santri actively curate Islamic personas, participate in virtual da'wah communities, or align their social media presence with Islamic ethical norms, they engage in identity-consistent behavior across both digital and physical spheres (Abubakari et al., 2023).

Recent Indonesian studies confirm that digital religious identity formation aligns closely with akhlaq-based online behavior among Muslim youth (Kholili et al., 2024; Wahid, 2024). Within pesantren, where religious identity is traditionally cultivated through embodied practice and institutional affiliation, digital platforms introduce new modalities for identity expression that can reinforce, rather than displace, behavioral adherence. Accordingly:

H2: Digital religious identity exerts a significant positive direct effect on santri religious behavior.

Attitudes Toward Technology as Mediator

Grounded in the Theory of Planned Behavior (Ajzen, 1991), attitudes—defined as positive or negative evaluative dispositions toward a behavior or object—are established proximal determinants of behavioral intention and action. In technology adoption research, perceived usefulness and compatibility are the principal attitudinal antecedents of adoption behavior (Venkatesh, 2022b; Xue et al., 2025). Within Islamic educational settings, attitudes toward technology are additionally shaped by perceptions of whether digital tools are epistemologically compatible with Islamic learning values.

IDL is theorized to generate positive technology attitudes by reducing informational uncertainty and increasing perceived competence in digital religious navigation (Ramdani et al., 2025). DRI is similarly expected to promote favorable technology attitudes by reinforcing the perceived identity-alignment of digital tools with santri's religious self-concept (Mustaffa & Ibrahim, 2025). These favorable attitudes, in turn, translate into greater digital religious behavioral engagement. Thus:

H3: IDL exerts a significant positive effect on attitudes toward technology.

H4: DRI exerts a significant positive effect on attitudes toward technology.

H5: Attitudes toward technology exert a significant positive direct effect on santri religious behavior.

H6: Attitudes toward technology mediate the relationship between IDL and santri religious behavior.

H7: Attitudes toward technology mediate the relationship between DRI and santri religious behavior.

Pesantren Culture as Moderator

Pesantren culture encapsulates the normative, value-laden, and authority-structured institutional environment of Islamic boarding schools. Characterized by collective discipline, deference to ulama authority, and an integrated moral-educational ethos, pesantren culture simultaneously shapes and constrains santri's behavioral dispositions (Harnadi et al., 2021; Rohman & Khotimah, 2024). Drawing on cultural moderation theory (Sanguineti & Maran, 2024), institutional cultures can amplify the attitudinal precursors of behavior when they are congruent with the direction of the attitude. Where pesantren culture embraces ethical digital engagement—through supervised learning communities, halaqah-style digital ethics modules, and ustadz-guided online interaction—it is expected to strengthen the translation of favorable technology attitudes into observable religious behaviors.

H8: Pesantren culture positively moderates the relationship between attitudes toward technology and santri religious behavior.

METHOD

Research Design and Sample

This study employed a quantitative cross-sectional survey design to examine the structural relationships among digital ethno-religious variables and santri religious behavior. The target population comprised students enrolled in Madrasah Aliyah (senior secondary level) at pesantren-affiliated institutions in Kudus, Central Java, Indonesia. Purposive sampling criteria required respondents to (1) be currently residing within a pesantren, (2) be enrolled in Grades X through XII, (3) be aged between 15 and 19 years, and (4) have documented experience in accessing digital religious content. The final sample comprised 100 respondents, satisfying the minimum sample adequacy threshold for PLS-SEM as determined by the ten-times rule based on the maximum number of structural paths directed at a single latent variable (Hair et al., 2023). The sample was drawn from both salaf (traditional) and modern pesantren, enabling comparative representation across institutional types.

Institutional approval was obtained through the local Office of the Ministry of Religious Affairs. Questionnaires were distributed in both printed and digital formats over a two-week period in May 2025. All participants provided written informed consent, and data anonymity and confidentiality were maintained throughout. The study adhered to the ethical standards of the Declaration of Helsinki (Association, 2013).

Measurement Instruments

All constructs were operationalized using reflective measurement models with five indicators each, assessed on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Indicators for IDL were adapted from Arsyad et al. (2023); those for DRI drew on

Wahid (2024) and Kholili et al. (2024). Religious behavior measures—encompassing both ritual and ethical dimensions—were adapted from Saepudin & Fajar (2024). Attitudes toward technology were assessed via perceived usefulness and compatibility items, while pesantren culture was operationalized through indicators capturing institutional norms, values, and dispositions toward digital engagement. Representative items include: 'I can verify the authenticity of Islamic content encountered on social media' (IDL); 'My social media activities consistently reflect my commitment to Islamic values' (DRI); 'Using digital platforms strengthens my religious understanding' (ATT); 'My pesantren promotes the responsible use of digital media for learning purposes' (PC); and 'I regularly perform acts of worship or disseminate religious content through online media' (RB).

Analytical Approach

Data analysis was conducted using SmartPLS 4, employing a variance-based PLS-SEM approach appropriate for predictive modeling with small to medium samples and non-normally distributed data (Hair et al., 2023). Analysis proceeded in two sequential stages. First, the measurement model was assessed for indicator reliability (outer loadings ≥ 0.70), construct reliability (Cronbach's Alpha and Composite Reliability > 0.70), convergent validity (AVE > 0.50), and discriminant validity via the Heterotrait-Monotrait (HTMT) ratio criterion (<0.90) (Rönkkö & Cho, 2022). Second, the structural model was evaluated using bootstrapping with 5,000 resamples to generate path coefficients (β), t-statistics, and p-values. Indirect effects were tested using the specific indirect effects procedure, and moderation was estimated using the product-indicator method. Model fit was assessed via the Standardized Root Mean Square Residual (SRMR) and predictive relevance (Q^2).

RESULTS

Measurement Model Assessment

Outer Loadings

Table 1 reports the outer loadings of all reflective indicators, reflecting the degree to which each item represents its designated latent construct within the PLS-SEM framework. Following Hair et al. (2022), an outer loading threshold of ≥ 0.70 denotes acceptable indicator reliability.

Table 1. Outer Loadings of Measurement Items

Item	ATT	DRI	IDL	PC	RB
ATT1	0.919	—	—	—	—
ATT2	0.876	—	—	—	—
ATT3	0.911	—	—	—	—
ATT4	0.928	—	—	—	—
ATT5	0.898	—	—	—	—

DRI1	—	0.964	—	—	—
DRI2	—	0.951	—	—	—
DRI3	—	0.946	—	—	—
DRI4	—	0.943	—	—	—
DRI5	—	0.950	—	—	—
IDL1	—	—	0.940	—	—
IDL2	—	—	0.965	—	—
IDL3	—	—	0.957	—	—
IDL4	—	—	0.952	—	—
IDL5	—	—	0.946	—	—
PC1	—	—	—	0.791	—
PC2	—	—	—	0.578	—
PC3	—	—	—	0.642	—
PC4	—	—	—	0.673	—
PC5	—	—	—	0.581	—
RB1	—	—	—	—	0.975
RB2	—	—	—	—	0.976
RB3	—	—	—	—	0.979
RB4	—	—	—	—	0.976
RB5	—	—	—	—	0.974

Note: ATT = Attitudes Toward Technology; DRI = Digital Religious Identity; IDL = Islamic Digital Literacy; PC = Pesantren Culture; RB = Santri Religious Behavior. '—' indicates item not associated with that construct.

ATT indicators ranged from 0.876 to 0.928, reflecting strong convergence across items assessing the perceived utility and compatibility of digital tools in religious contexts. DRI demonstrated excellent reliability (0.943–0.964), confirming consistent measurement of online religious self-expression, virtual community affiliation, and value-aligned digital presence. IDL loadings (0.940–0.965) indicated very high indicator reliability across items assessing critical access, evaluation, and application of Islamic digital content. PC exhibited greater variability (0.578–0.791); while PC2 (0.578) and PC5 (0.581) fell slightly below the preferred 0.70 threshold, these loadings may be retained in exploratory contexts when composite reliability and AVE criteria are satisfied (Hair et al., 2022). RB recorded the highest indicator loadings across all constructs (0.974–0.979), confirming near-perfect convergent validity for both ritual and ethical behavioral dimensions.

Construct Reliability and Convergent Validity

Table 2 presents the reliability and convergent validity indicators for all constructs.

Table 2. Construct Reliability and Convergent Validity Indicators

Construct	Cronbach's Alpha	Composite Reliability	AVE
Attitudes Toward Technology (ATT)	0.946	0.958	0.821
Digital Religious Identity (DRI)	0.973	0.979	0.904
Islamic Digital Literacy (IDL)	0.974	0.980	0.906
Pesantren Culture (PC)	0.791	0.790	0.732
Santri Religious Behavior (RB)	0.987	0.990	0.952

All constructs met or exceeded recommended psychometric thresholds. ATT demonstrated high internal consistency ($\alpha = 0.946$; CR = 0.958) and adequate convergent validity (AVE = 0.821). DRI and IDL both exhibited excellent reliability ($\alpha > 0.970$; CR > 0.979) with the highest AVE values (0.904 and 0.906, respectively), reflecting the strong conceptual coherence of these constructs. PC, while marginally lower on Cronbach's Alpha (0.791) and CR (0.790), still met minimum reliability criteria with an AVE of 0.732. RB attained the highest reliability metrics overall ($\alpha = 0.987$; CR = 0.990; AVE = 0.952), confirming that all behavioral indicators converge strongly on a single underlying factor.

Discriminant Validity

Discriminant validity was assessed using the HTMT criterion, with a threshold of < 0.90 indicating adequate construct distinction (Rönkkö & Cho, 2022). As shown in Table 3, all construct pairs satisfied this criterion.

Table 3. Heterotrait-Monotrait Ratio (HTMT) Matrix

Construct	ATT	DRI	IDL	PC	RB	PC×ATT
ATT	—					
DRI	0.596	—				
IDL	0.809	0.282	—			
PC	0.288	0.227	0.178	—		
RB	0.896	0.765	0.743	0.351	—	

PC×ATT	0.041	0.014	0.111	0.534	0.083	—

The highest HTMT value observed was 0.896, between ATT and RB, which remained below the established threshold. PC demonstrated notably low HTMT correlations with other constructs (0.178–0.351), confirming its status as a conceptually distinct institutional context variable. The PC × ATT interaction term yielded very low HTMT values (0.014–0.111), as expected for product indicator terms (Sarstedt et al., 2021), further validating the model specification.

Structural Model and Hypothesis Testing

Following validation of the measurement model, the structural model was evaluated through bootstrapping with 5,000 resamples. Table 4 presents the path coefficients, t-statistics, and p-values for all hypothesized relationships.

Table 4. Path Coefficients and Hypothesis Testing Results

Path	β	Mean	SD	t-Stat	p-Value	Decision
ATT → RB	0.313	0.310	0.067	4.691	0.000	Supported
DRI → ATT	0.388	0.390	0.060	6.506	0.000	Supported
DRI → RB	0.449	0.447	0.048	9.440	0.000	Supported
IDL → ATT	0.670	0.670	0.051	13.047	0.000	Supported
IDL → RB	0.329	0.330	0.057	5.775	0.000	Supported
PC×ATT → RB	0.110	0.096	0.051	2.184	0.029	Supported
DRI→ATT→RB	0.122	0.121	0.034	3.578	0.000	Supported
IDL→ATT→RB	0.210	0.207	0.048	4.335	0.000	Supported

All eight hypothesized relationships achieved statistical significance at the 0.05 level. The direct effect of IDL on RB (β = 0.329, t = 5.775, p < 0.001) and on ATT (β = 0.670, t = 13.047, p < 0.001) was the strongest predictor in the model, underscoring the centrality of Islamic digital competence in shaping both attitudinal and behavioral outcomes. DRI likewise exerted significant direct effects on RB (β = 0.449, t = 9.440, p < 0.001) and ATT (β = 0.388, t = 6.506, p < 0.001), confirming that a well-developed online religious identity functions as both a direct behavioral driver and an attitudinal antecedent.

ATT exerted a significant direct effect on RB (β = 0.313, t = 4.691, p < 0.001), establishing it as a meaningful proximal behavioral predictor. The mediation analyses confirmed significant indirect effects of IDL on RB via ATT (β = 0.210, t = 4.335, p < 0.001) and of DRI on RB via ATT (β = 0.122, t = 3.578, p < 0.001), indicating partial

mediation pathways through which digital inputs translate into religious action via attitudinal mechanisms. The moderation analysis further revealed that the PC × ATT interaction significantly predicted RB (β = 0.110, t = 2.184, p = 0.029), confirming that pesantren culture positively moderates the attitude-behavior relationship.

DISCUSSION

Islamic Digital Literacy as a Behavioral Catalyst

The strong direct and indirect effects of IDL on religious behavior affirm that domain-specific digital literacy constitutes a behavioral catalyst within Islamic educational contexts. Santri who demonstrate high competence in accessing, evaluating, and applying online Islamic content are more likely to engage in behaviors that reflect these competencies—including critical content dissemination, participation in online religious learning, and avoidance of misinformation-laden material. This finding resonates with Ramdani et al. (2025) and Muslim (2024), who contend that literacy-based competence engenders not merely informational awareness but the ethical enactment of religiously grounded values.

The mediated pathway—IDL → ATT → RB (β = 0.210)—demonstrates that knowledge and skill alone do not generate behavioral change unless mediated by favorable affective orientations toward the technologies that enable such action. This reinforces Hair et al.'s (2021) argument that perceived behavioral control, operationalized here through digital competence, must be channeled through positive appraisals of the technological means before behavioral transformation occurs. For pesantren administrators, this finding implies that digital literacy curricula should be oriented not merely toward competency development but toward cultivating positive and purposeful attitudinal orientations toward Islamic digital media (Mustaffa & Ibrahim, 2025).

Digital Religious Identity and Behavioral Consistency

The direct influence of DRI on RB (β = 0.449) constitutes the largest single-path effect in the model, confirming that identity formation in digital spaces carries profound behavioral consequences. This aligns with Campbell and Tsuria's (2022) theoretical position that sustained digital identity enactment reinforces behavioral consistency across online and offline domains. When santri internalize and publicly enact Islamic roles in digital environments, as da'wah practitioners, curators of verified religious content, or participants in virtual halaqah, these identity commitments function as self-regulatory anchors that sustain behavioral adherence.

The indirect effect of DRI via ATT (β = 0.122) further reveals that digital identity shapes religious behavior partly by generating more favorable evaluative dispositions toward technology itself. Santri who perceive their digital presence as an extension of their Islamic identity are less likely to construct technology as an epistemological threat, thereby increasing its behavioral utility. This is consistent with Abubakari et al. (2023) and Mustaffa

and Ibrahim (2025), who demonstrate that perceived identity alignment between technological affordances and users' religious values significantly enhances technology acceptance and behavioral engagement.

Attitudes Toward Technology as a Cognitive-Affective Bridge

The significant direct effect of ATT on RB (β = 0.313) and its role as a partial mediator in both the IDL → RB and DRI → RB pathways collectively establish technology attitudes as the cognitive-affective bridge through which digital inputs are transformed into religious conduct. This is consistent with the Theory of Planned Behavior (Ajzen, 1991), which positions attitudes as proximal determinants of intention and behavior. However, in the pesantren context, the construct of attitude must be understood within an Islamic epistemological frame. Attitudes toward technology are not purely rational evaluations of functional utility but are simultaneously moral assessments shaped by the values of ikhlās (sincerity), mujāhadah (disciplined self-striving), and tazkiyah al-nafs (inner purification). Technology, when evaluated through this moral lens, becomes not merely an instrument but a medium of ibadah and a site of ethical responsibility.

This expanded conceptualization suggests that pesantren can strategically intervene at the attitudinal level—through co-taught modules integrating ustadz-grounded religious wisdom with technically competent digital instruction—to maximize the behavioral impact of existing digital literacy and identity formation efforts.

Pesantren Culture as an Institutional Amplifier

The significant moderation effect of pesantren culture (β = 0.110, p = 0.029) demonstrates that institutional context is not merely a background variable but an active amplifier of the attitude-behavior relationship. Where pesantren culture embraces ethical digital engagement—through structural provisions such as supervised online learning communities, halaqah-style digital ethics workshops, and institutionally endorsed digital platforms—santri who hold favorable technology attitudes are more likely to translate these attitudes into observable religious behaviors. This finding aligns with Sanguineti and Maran's (2024) cultural moderation theory, extending it to an Islamic educational context.

Conversely, in more conservative pesantren where institutional gatekeepers maintain cautious or ambivalent stances toward digital media, an ethnographically documented pattern (Pabbajah et al., 2024; Harnadi et al., 2021), the same attitudinal dispositions may fail to produce behavioral outcomes due to structural constraints and normative resistance. This explains why the attitudinal-behavioral link is not invariant across institutional types and underlines the practical imperative of deliberate pesantren culture development. Pesantren administrators who seek to leverage digital religiosity as a behavioral resource must therefore attend to institutional culture as a primary enabling condition, not merely a contextual backdrop.

Practical operationalization of this insight may include: integrating akhlaqul karimah frameworks into digital curricula, guided by the Islamic ethics of amanah (trustworthiness), tabayyun (verification), and maslahah (social benefit); establishing ustadz-supervised digital learning platforms that provide structured scaffolding for santri digital engagement; and developing inter-pesantren collaborative platforms that allow controlled yet enriching exposure to diverse Islamic digital content (Rubini et al., 2025; Rohman & Khotimah, 2024).

Limitations and Future Research Directions

Several limitations of the present study warrant acknowledgment. The sample was restricted to pesantren in Kudus, constraining generalizability across the diverse pesantren landscape of Indonesia and the broader Southeast Asian Islamic educational context. The cross-sectional design precludes causal inference and the observation of temporal dynamics in digital religiosity. Additionally, the relatively small sample size, while adequate for PLS-SEM, limits the statistical power for detecting smaller effect sizes in subgroup analyses.

Future studies should consider longitudinal or panel designs to capture the evolving relationship between digital exposure and religious behavior as santri progress through their educational trajectories. Mixed-method approaches integrating ethnographic observation with structural modeling would enrich understanding of the mechanisms through which pesantren culture moderates digital religious behavior in practice. Expanding the construct space to include gender, socioeconomic background, digital infrastructure availability, and salaf-versus-modern pesantren typology as additional moderators would also substantially advance the theoretical precision of the Digital Ethno-Religious Model.

CONCLUSION

This study has demonstrated that Islamic digital literacy and digital religious identity constitute significant determinants of santri religious behavior, operating through both direct pathways and cognitive-affective mediation via attitudes toward technology. The moderating role of pesantren culture confirms that institutional context is an active amplifier, rather than a passive backdrop, of the attitude-behavior translation process within Islamic boarding school settings.

These findings carry both theoretical and practical significance. Theoretically, the Digital Ethno-Religious Model advances the integration of behavioral theory (TAM/TPB) with Islamic epistemological constructs—adab, akhlaq, and tazkiyah al-nafs—offering a culturally grounded framework for understanding digital religiosity in the Global South. Practically, the study provides a roadmap for pesantren to position ustadz as digital mentors, integrate Islamic digital ethics into formal curricula, and establish supervised digital environments that channel santri competencies and identities toward value-consistent religious engagement.

Ultimately, this research affirms that digital transformation within Islamic education is not—and should not be—a purely instrumental process. Technology, when embedded within the moral and pedagogical architecture of pesantren culture and guided by Islamic ethical principles, becomes a medium for deepening digital piety. The challenge for Islamic educational institutions is to approach digital integration not merely as a dissemination strategy but as an ethical domain requiring deliberate guidance—one in which digital engagement fosters iman, reinforces amal, and sustains the moral character of the next generation of Muslim scholars.

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