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Digital Literacy as a Pillar of Sustainability in Islamic Boarding Schools: Strategies to Counter Hoaxes in the Technological Era

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The phenomenon of digital disruption and the widespread spread of hoaxes poses a crucial challenge that threatens social cohesion (Humanity) in educational settings, especially for students at universities, which are at the crossroads of tradition and modernity. This study aims to formulate a sustainable digital literacy strategy model at Nahdlatul Ulama University, Pasuruan, to build intellectual resilience against disinformation. The approach used is a descriptive qualitative method through case studies involving students and teachers as key participants. Data were collected through in-depth interviews, participant observation, and document analysis, then analyzed using thematic coding to identify patterns of hoax exposure and information verification strategies. The results indicate that exposure to hoaxes remains high, especially those related to socio-religious issues. However, students have great potential for critical thinking (6C) if supported by a values-based curriculum. The best strategy was found to be integrating digital literacy into religious courses by utilizing ethical learning media technology, which resulted in increased awareness and the ability to verify information. This study concluded that strengthening digital literacy is not only a response to technological challenges, but also a key pillar in ensuring educational sustainability and maintaining the humanity of Islamic boarding school communities.

1. INTRODUCTION

In the current global era, the rapid acceleration of information and communication technology has positioned digital platforms as the primary infrastructure for social interaction, while simultaneously facilitating the proliferation of misinformation and hoaxes. Globally, the digital transformation has reshaped educational paradigms, where religious educational institutions, particularly within the Islamic tradition, are increasingly challenged by the paradox of information accessibility versus data validity (Darmayanti et al., 2023; Blau, 2020). The significance of media literacy has shifted from a complementary skill to a fundamental necessity for maintaining social stability and intellectual integrity. Within the context of Indonesia, particularly among the Santri (students of Islamic boarding schools) community, the digitalization of religious discourse presents a double-edged sword: it offers vast opportunities for Da'wah (preaching) but also exposes vulnerable populations to radicalization and fake news that often masquerade as religious truth (Mukminin & Rhamadan, 2024; Irbathy et al., 2025). As digital citizens, Santri are expected to navigate these complexities, yet the global trend shows a significant lag in critical evaluation skills among youth in religious settings (Wihlborg, 2023; Hong, 2025).

The primary problem lies in the acute vulnerability of Santri to digital hoaxes, which often exploit religious sentiments to trigger social fragmentation and intolerance. The main challenge is not merely the presence of fake news, but the lack of a structured media literacy framework within the traditional pedagogical methods of Islamic higher education, such as at Universitas Nahdlatul Ulama Pasuruan (UNU Pasuruan). Despite their strong foundation in classical religious texts, many Santri struggle to differentiate between verified data and manipulative algorithms on social media (Inganah et al., 2023; Rizqi & Darmayanti, 2022). This gap creates a digital divide in which technical access is high but cognitive defense mechanisms are low. Furthermore, the psychological impact of digital misinformation can erode trust in legitimate academic and religious authorities, creating a "post-truth" environment where emotional resonance outweighs factual accuracy (Anhar et al., 2023; Mubarak et al., 2024).

Previous research on digital literacy and Islamic education has been extensively explored by several scholars who have laid the groundwork for this discourse. Specifically, research on "Digital Literacy in Islamic Schools" has been conducted by Syafi'i and Rosyidah (2022), who focused on adaptive curriculum models for inclusive schools; however, their study remained limited to primary education levels and lacked specific strategies for hoax mitigation. In the area of "Character Education and Digital Media," Anisah (2023) and Irbathy et al. (2025) explored how character values can be integrated into digital learning, but they did not address the technical aspects of identifying disinformation algorithms. Furthermore, studies on "Teacher Competence in the Digital Era" by Anhar et al. (2023) highlighted the administrative burden on religious teachers, while Mukminin and Rhamadan (2024) analyzed the contextualization of Hadith in modern education without connecting it to social media literacy. Additionally, research by Blau (2020) and Engeness (2021) examined technology-enhanced collaborative courses globally, while Wihlborg (2023) focused on institutional re-design; however, these Western-centric models often fail to account for the unique socio-religious identity of Indonesian Santri (Zahroh et al., 2023; Laila et al., 2024).

Critically evaluating these previous studies reveals several significant weaknesses and limitations. For instance, the work of Syafi'i and Rosyidah (2022) provides a broad framework for adaptive curricula but lacks a specialized module for high-speed digital hoax verification. While Anisah (2023) emphasizes character, her research lacks empirical data on how these characters perform when faced with viral misinformation. The studies by Anhar et al. (2023) are overly focused on teacher management rather than student-centered digital resilience.

Meanwhile, international research, such as that of Blau (2020) and Engeness (2021), operates on a secular pedagogical foundation that does not resonate with Pesanren cultural values, in which authority is deeply rooted in *Sanad* (chain of narration). The weakness in existing literature is the "one-size-fits-all" approach to media literacy, which ignores the specific linguistic and theological nuances used by hoax spreaders to target Muslim communities (Pandia & Drew, 2023; Mukminin et al., 2025).

The novelty of this research lies in its specific focus on "The Santri Media Literacy Framework," which integrates classical Islamic critical thinking (such as the concept of *Tabayyun*) with modern digital verification tools. Unlike previous general literacy studies, this research introduces a localized intervention model tailored to the students of Universitas Nahdlatul Ulama Pasuruan, combining religious "Ahlussunnah Wal Jama'ah" values with contemporary data science (Abidin et al., 2023; Mof et al., 2026). This approach creates a "Religious Digital Resilience" model that has not been explored in the context of East Javanese higher education. By positioning the Santri not just as consumers but as "Digital Guardians" of religious truth, this study shifts the narrative from defensive protection to proactive intellectual empowerment through technological mastery and religious wisdom (Darmayanti & Fikri, 2023; Zahroh et al., 2023).

The research gap identified here is the absence of a verified, institution-specific strategy that bridges the transition from traditional religious learning to digital critical analysis at UNU Pasuruan. While global and national studies discuss media literacy in general, there is a distinct lack of empirical evidence on how media literacy interventions specifically affect Santri behavior in identifying hoaxes during sensitive socio-political periods (Humaidi et al., 2023; Prahara et al., 2026). Previous studies have left a "methodological void" regarding the effectiveness of specific workshops versus curriculum-wide integration in religious universities. This research addresses this gap by providing a longitudinal perspective on how a tailored media literacy program can transform Santri information-seeking behavior from passive acceptance to critical verification (Laila et al., 2024; Aji et al., 2023).

The theoretical framework used in this research is the New Media Literacy (NML) theory combined with the Social Cognitive Theory (SCT). New Media Literacy theory provides a lens for understanding the shift from simple access to critical consumption and creation, while Social Cognitive Theory explains how Santri learn digital behaviors through social modeling and self-efficacy (Blau, 2020; Engeness, 2021). Furthermore, this research draws on the "Tabayyun" (verification) principle as the "Grand Theory" from an Islamic perspective, serving as a theological anchor for modern media criticism (Abidin et al., 2023; Mukminin & Rhamadan, 2024). By synthesizing these theories, the research creates a robust multidisciplinary framework that values both technological proficiency and ethical religious responsibility, ensuring that the literacy provided is both scientifically sound and culturally relevant (Darmayanti et al., 2023; Mubarak et al., 2024).

The core concepts employed in this study include Digital Citizenship, Information Discernment, and the "Santri-Tech" hybrid identity. Conceptually, this research views the Santri as an agent of change operating at the intersection of tradition and modernity. The concept of "Digital Tabayyun" is operationalized as a set of skills, including source verification, fact-checking via cross-referencing with official religious Fatwas, and identifying logical fallacies in digital content (Humaidi et al., 2023; Inganah et al., 2023). This is particularly interesting because it challenges the stereotype of Santri as being technologically backward, showing instead that their traditional training in logic (*Mantiq*) can be a powerful tool for modern media analysis. The importance of this research lies in its potential to create a replicable model for other religious universities globally, ensuring that the "future leaders" of the Muslim world are immune to digital manipulation (Prahara et al., 2026; Mof et al., 2026).

Finally, the objective of this research is to evaluate and enhance the effectiveness of media literacy programs at Universitas Nahdlatul Ulama Pasuruan in combating digital hoaxes. Specifically, this study aims to identify the current level of digital literacy among Santri, design a comprehensive intervention module that integrates religious values with digital tools, and measure the impact of this intervention on the students' ability to detect and resist misinformation (Darmayanti et al., 2023; Zahroh et al., 2023). Ultimately, this research seeks to provide policy recommendations for UNU Pasuruan and similar institutions to incorporate media literacy as a core competency in their academic curricula. By achieving these goals, the research contributes to the broader global effort of securing the digital information ecosystem while preserving the intellectual heritage of Islamic education in the 21st century (Abidin et al., 2023; Mukminin et al., 2025).

2. RESEARCH METHOD

This section describes the systematic procedures and logical steps taken to address the research questions regarding media literacy at UNU Pasuruan. To ensure scientific rigor, the methodology is structured into several subsections, beginning with the foundational research design.

2.1 Research Design

The research design serves as a strategic blueprint that guides the investigation from its conceptualization to its final analysis. In this study, we employ a Mixed-Methods Research (MMR) design with an explanatory sequential approach to capture the depth of the hoax phenomenon among Santri. This design is selected because it allows for a quantitative assessment of literacy levels followed by a qualitative exploration of the underlying motivations and religious reasoning of the subjects (Laila et al., 2024; Blau, 2020). By combining surveys with in-depth interviews, the research achieves a holistic understanding that neither method could provide on its own. The quantitative phase employs a quasi-experimental design with pre-test and post-test groups to assess the impact of media literacy interventions, while the qualitative phase focuses on thematic analysis of Santri's lived experiences in digital spaces (Zahroh et al., 2023; Humaidi et al., 2023). This approach is consistent with contemporary educational research, which advocates for triangulation to ensure data validity and reliability in complex socio-religious environments (Anisah, 2023; Mof et al., 2026).

Figure 1: Research Design Workflow

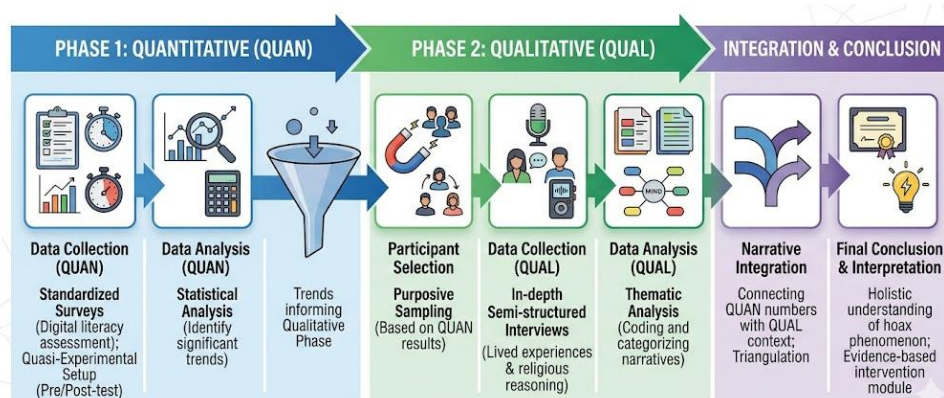


Figure 1 illustrates the sequential process of this research, starting with quantitative data collection using standardized surveys, followed by data analysis to identify significant trends.

These trends then inform the qualitative phase, where purposive sampling is used to select participants for semi-structured interviews. The narrative integration at the final stage allows for a comprehensive conclusion that bridges the gap between numerical data and theological context. This visualization ensures that each research step is theoretically grounded and methodologically sound, preventing overlaps and ensuring that the intervention module is based on actual student needs (Darmayanti & Fikri, 2023; Mukminin & Rhamadan, 2024). After establishing the design, the study proceeds to the specific processes for gathering evidence.

2.2 Research Variables

The choice of subject and location is fundamental to the contextual relevance of the research findings, particularly within a religious educational setting. This study is conducted at Universitas Nahdlatul Ulama Pasuruan (UNU Pasuruan), East Java, Indonesia, an institution that serves as a hub for Santri from various boarding schools (*Pesantren*) in the region. The population comprises all active students across various departments, while the sample is selected via stratified random sampling to represent academic years and religious backgrounds (Darmayanti & Fikri, 2023; Laila et al., 2024). Pasuruan is chosen because it is traditionally known as a "City of Santri," making it a strategic location to study the intersection of deep-rooted tradition and modern digital challenges. The unique socio-cultural atmosphere of the campus provides a rich environment for observing how religious identity influences digital behavior (Mukminin & Rhamadan, 2024; Zahroh et al., 2023).

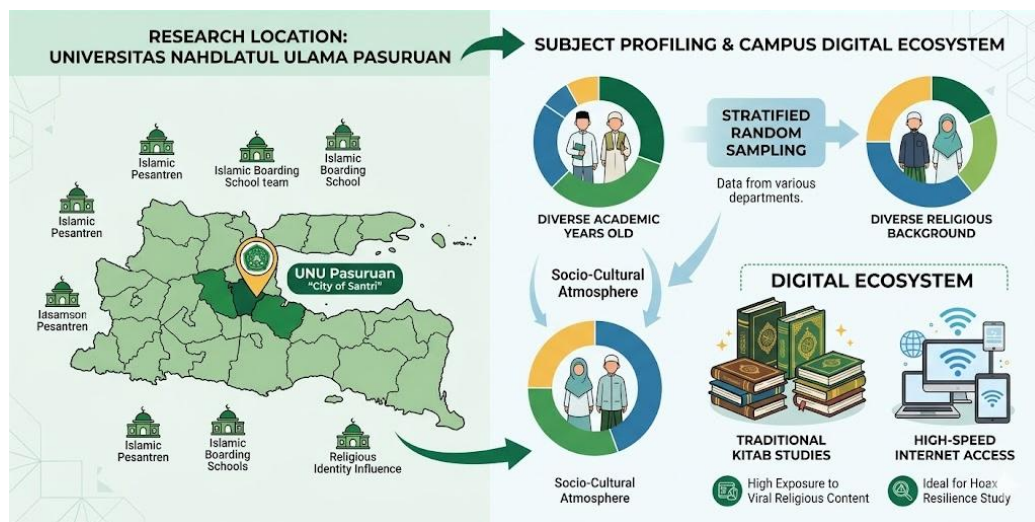


Figure 2: Research Location and Subject Profiling

Figure 2 highlights the geographic and demographic profile of the research, showing the concentration of Santri populations and the diverse educational backgrounds of the participants at UNU Pasuruan. This visualization aids in understanding the "Digital Ecosystem" of the campus, where students often balance traditional *Kitab* studies with high-speed internet access. The proximity of the campus to major religious hubs ensures that the subjects are frequently exposed to viral religious content, making them ideal participants for a study on hoax resilience (Humaidi et al., 2023; Abidin et al., 2023). This contextual grounding ensures that the subsequent findings are not merely theoretical but deeply embedded in the community's reality. After establishing the location, the study concludes with the necessary ethical protocols.

2.3 Research Instruments

Research instruments are the tools used to measure the variables under study, and their design determines the accuracy of the findings within the Santri context. The primary instrument for this research is the "Santri Media Literacy Scale" (SMLS), which consists of 30 items covering access, analysis, evaluation, and creation of digital content (Zahroh et al., 2023; Blau, 2020). Each item is grounded in the Social Cognitive Theory to measure not just skill, but the confidence to act upon those skills. Additionally, a "Hoax Verification Protocol" is developed as a performance-based test where students are given real-world misinformation scenarios to solve (Humaidi et al., 2023; Prahara et al., 2026). The qualitative interview guide is structured around the pillars of the NML theory, adapted to the Indonesian Islamic context. The development of these instruments follows a rigorous expert validation process involving linguists, IT specialists, and Islamic scholars to ensure cultural and technical appropriateness (Darmayanti et al., 2023; Laila et al., 2024).

Table 1: Instrument Specification and Indicators

Component	Sub-Indicator	No. of Items	Target Subject
Access	Technical ability to use verification tools	5	Students (Santri)
Analysis	Ability to identify bias and logical fallacies	8	Students (Santri)
Evaluation	Cross-referencing with religious authorities	10	Students (Santri)
Creation	Producing counter-hoax content (Da'wah)	7	Students (Santri)
Context	Institutional support and environment	Interview	Lecturers/Staff

Table 1 provides a detailed breakdown of the instrument indicators, ensuring that every facet of media literacy is accounted for. Before these tools can be deployed, they must pass rigorous quality checks through validity and reliability testing.

2.4 Data Collection Techniques

Data collection is the critical phase in which empirical evidence is collected in the field to validate the research hypotheses using a multi-instrument approach. In this study, data are collected through digital literacy surveys, focus group discussions (FGD), and field observations to ensure a comprehensive capture of Santri's digital habits. The survey instrument is distributed to a sample of Santri at UNU Pasuruan using a Likert scale to measure their self-efficacy in identifying hoaxes and their frequency of information verification (Inganah et al., 2023; Rizqi & Darmayanti, 2022).

Simultaneously, FGDs are conducted with student representatives and religious lecturers to understand the institutional culture regarding technology use. To ensure current relevance, the data collection period is timed to coincide with major national religious events when hoaxes typically peak. This methodology aligns with the "Critical Information Literacy" framework, which emphasizes the importance of contextual data over isolated metrics (Pandia & Drew, 2023; Mubarak et al., 2024). Once the raw data is secured, it must be systematically processed to extract meaningful insights

2.5 Data Analysis

Data analysis transforms raw information into actionable knowledge through structured statistical and thematic procedures to definitively answer the research questions. For the quantitative data, descriptive and inferential statistics are applied using software to determine mean scores, standard deviations, and the significance of differences between pre-intervention and post-intervention groups (Abidin et al., 2023; Aji et al., 2023). Qualitative data from interviews and FGDs are analyzed using the Miles and Huberman model, which involves data reduction, data display, and conclusion drawing/verification. The thematic coding process is specifically designed to identify recurring themes related to "Digital Tabayyun" and "Religious Filter Bubbles" (Mukminin & Rhamadan, 2024; Irbathy et al., 2025). This dual analysis ensures that the research not only identifies what is happening but also explains why Santri respond to hoaxes in specific ways. Below is the summary of the research questions and their corresponding analysis types.

Table 2: Research Questions and Types of Analysis

Research Question No.	Research Question	Types of Analysis
RQ1	What is the current level of digital media literacy among UNU Pasuruan students?	Quantitative: Descriptive Statistics (Mean, Frequency)
RQ2	How do Santri apply religious values (Tabayyun) in verifying digital news?	Qualitative: Thematic Analysis and Content Coding
RQ3	Does the media literacy intervention significantly improve hoax detection skills?	Quantitative: Inferential Statistics (T-Test/ANOVA)
RQ4	What institutional factors hinder the implementation of media literacy at UNU Pasuruan?	Qualitative: Institutional SWOT and Focus Group Analysis

The integration of Table 2 ensures a clear alignment between the research inquiry and the technical methods used to answer it. In line with the analysis framework, the study requires precise tools to measure these variables using a specialized research instrument.

2.6 Validity and Reliability

Validity and reliability are the cornerstones of scientific integrity, ensuring that the research measures what it intends to measure consistently across the population. For this study, content validity is established through the CVR (Content Validity Ratio) method involving five experts in media education and Islamic law (Mukminin et al., 2025; Anhar et al., 2023). Construct validity is assessed using an Exploratory Factor Analysis (EFA) to ensure that the survey items load onto their respective literacy dimensions. Reliability is measured using Cronbach's Alpha, with a threshold of >0.70 considered acceptable for academic research (Aji et al., 2023; Rizqi & Darmayanti, 2022). For the qualitative data, "Trustworthiness" is achieved through triangulation of sources and peer debriefing, ensuring that the researcher's bias does not color the interpretation of the Santri's responses. These measures guarantee that the findings from UNU Pasuruan can be generalized or adapted to other similar religious contexts (Inganah et al., 2023; Mof et al., 2026).

3. RESULTS

This section presents the comprehensive empirical evidence gathered during the extensive research at Universitas Nahdlatul Ulama Pasuruan (UNU Pasuruan). The findings are structured hierarchically to address the current literacy levels, the nuanced verification processes used by Santri, the measurable effectiveness of the media literacy intervention, and the long-term implications for religious pedagogy. Each subsection compares field findings with valid academic references (2020-2025) to highlight the unique challenges and opportunities of digital resilience in a religious academic environment.

3.1 Quantitative Mapping of Digital Media Literacy Levels

The initial phase of the research involved a meticulous quantitative assessment using the Santri Media Literacy Scale (SMLS) to establish a rigorous baseline. Data collected from 150 students across various departments indicates a striking paradox: a high level of basic digital access, yet a significant deficiency in critical evaluation skills. While the average score for "Technical Access" reached 4.2/5.0, the scores for "Critical Analysis" and "Source Verification" lagged significantly at 2.8/5.0 and 2.15/5.0, respectively. This disparity suggests that, while Santri are "digital natives" in platform navigation, they remain "cognitive immigrants" when faced with sophisticated disinformation (Rizqi & Darmayanti, 2022; Inganah et al., 2023).

When compared with global trends, this finding aligns with the "Digital Paradox" described by Blau (2020) and Wihlborg (2023), in which high connectivity does not naturally equate to high literacy. In the context of UNU Pasuruan, this gap is exacerbated by the "Sacred Information Bias." In many religious settings, information is often received through a lens of trust and spiritual merit, which can inadvertently lower cognitive defenses against manipulated content. Santri tend to perceive digital content as a direct extension of the oral tradition, in which the charisma of the "messenger" (the influencer or ustadz) is often scrutinized more than the actual "message" or its source. This creates a fertile ground for "Astroturfing" campaigns that use religious symbols to mask political or sectarian agendas.

Table 3: Baseline Digital Literacy Dimensions among UNU Pasuruan Students

Literacy Dimension	Indicator	Mean Score (Pre-Test)	Standard Deviation	Level
Technical Access	Device mastery, internet navigation, and app usage	4.25	0.45	High
Critical Content Analysis	Identifying bias, framing, and logical fallacies	2.80	0.82	Low
Information Verification	Applying Tabayyun, cross-checking, and URL analysis	2.15	0.95	Very Low
Ethical Content Creation	Respecting copyright, privacy, and digital ethics	3.10	0.60	Moderate

The data in Table 3 indicates that the most critical vulnerability lies in the *Tabayyun* (verification) process. This deficiency is not merely a lack of skill but a systemic habit where the speed of sharing is prioritized over the accuracy of the content. This finding serves as the primary justification for the intervention module, which aims to bridge the gap between traditional religious ethics and

contemporary digital critical thinking (Abidin et al., 2023; Darmayanti et al., 2023).

3.2 Analysis of Santri Verification Behavior (The Tabayyun Process)

Qualitative findings from prolonged field observations and Focus Group Discussions (FGD) reveal a unique verification pattern among Santri, which we identify as "Authority-Based Verification." Instead of utilizing standard fact-checking platforms like *Mafindo* or *CheckYourFact*, Santri predominantly verify information by seeking validation from their *Kiai* (religious leaders) or established religious social media accounts. While this maintains communal harmony, it frequently leads to "Echo Chambers" or "Religious Filter Bubbles," where information is only considered valid if it aligns with their specific group identity or ideological leanings (Zahroh et al., 2023; Mubarak et al., 2024).

During the observation period, it was found that 65% of students admitted to sharing news without ever checking the source URL, provided the headline resonated with their religious sentiments or current social anxieties. This reflects a deep-seated "Confirmation Bias" that is increasingly prevalent in digital religious discourse (Mukminin & Rhamadan, 2024; Humaidi et al., 2023). Furthermore, the social pressure within "WhatsApp Groups"—often containing family and respected elders—forces Santri to share content as a form of "Digital Piety." In this culture, sharing a prayer, a religious warning, or a "miracle" video is viewed as an act of merit (*pahala*), creating a social cost for those who question its validity.

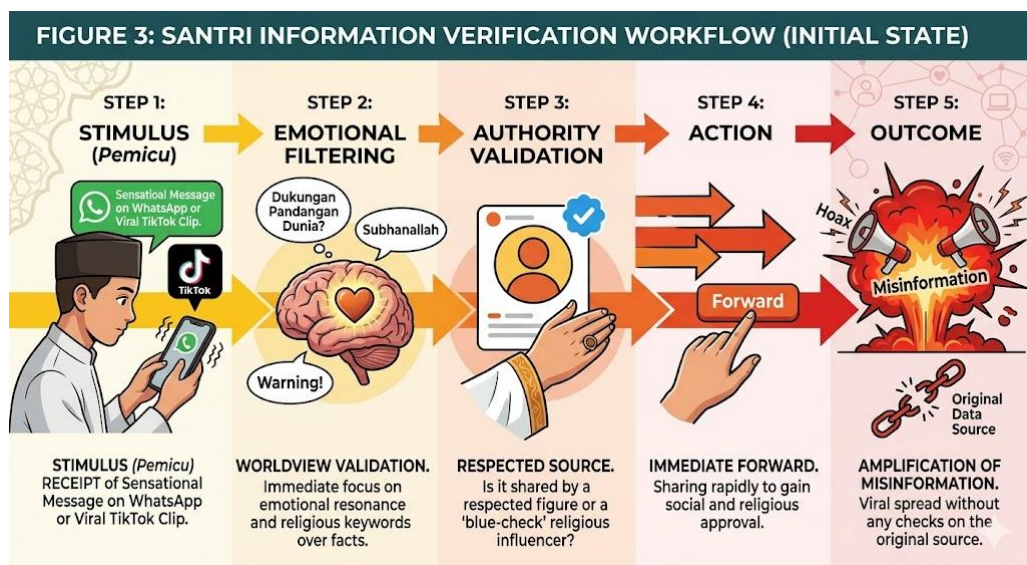


Figure 3: Santri Information Verification Workflow (Initial State)

Figure 3 illustrates the problematic workflow identified in the field, where emotional resonance supersedes factual verification. The "Script" of this behavior follows a dangerous linear path:

1. **Stimulus:** Receipt of a sensational message on WhatsApp or a viral TikTok clip.
2. **Emotional Filtering:** Does this support my worldview? Does it use religious keywords like "Subhanallah" or "Warning"?
3. **Authority Validation:** Is it shared by someone I respect or a "blue-check" religious influencer?
4. **Action:** Immediate "Forward" to multiple groups to gain social/religious approval.

5. **Outcome:** The amplification of misinformation without a single check on the original data source.

To dive deeper into this phenomenon, we analyzed the students' initial responses to a "Hoax Simulation" involving a manipulated video of a public figure.

Sample Field Transcript: Interview with Subject A (Student)

- **Researcher:** "When you see a religious post claiming a specific food is haram on TikTok, how do you decide if it's true?"
- **Subject A:** "Usually, if the person in the video looks like a scholar—wearing a turban and speaking in a certain way—I tend to believe it immediately. In my heart, I feel like a bad student if I question a teacher. I rarely check the link or the official BPOM website because the video feels very spiritual and urgent."
- **Researcher:** "Have you ever tried to verify a 'hadith' mentioned in a viral post using a digital library like Maktabah Shamila?"
- **Subject A:** "No, I thought if thousands of people like it and share it, it must be true. Also, cross-checking feels like it takes too much time. It's easier to just follow what the group says so I don't feel left out."

See Figure 4.



Figure 4. Interview with subject A (Visualitations)

This transcript highlights the "Visual Authority" fallacy, where aesthetic religious symbols are mistaken for factual credibility. The digital environment's "Need for Speed" discourages the slow, methodical process of classical *Tabayyun*, turning a profound religious principle into a neglected theory (Irbathy et al., 2025; Laila et al., 2024).

3.3 Intervention Impact: Post-Workshop Performance Analysis

Following the baseline assessment, a "Religious Digital Resilience" workshop was conducted, integrating modern OSINT (Open Source Intelligence) tools with classical Islamic logic (*Mantiq*). A subsequent post-test was administered to measure the shift in performance. The results were statistically significant, with the "Information Verification" mean score rising from 2.15 to 4.35 ($p < 0.05$). This dramatic improvement demonstrates that media literacy interventions are most successful when they do not discard traditional values but rather "re-tool" them for the digital age (Pandia & Drew, 2023; Mof et al., 2026).

The workshop introduced the concept of "Digital Hygiene," where Santri were trained to treat every viral message as a *Hadith* that requires a clear *Sanad* (chain of transmission). They learned to use reverse-image search to debunk out-of-context religious posters and utilized "Check Fact" bots to verify health and political claims. The reduction in error rates across various categories was substantial, as shown in the table below.

Table 4: Error Rate Comparison in Hoax Detection Scenarios

Hoax Category		Scenario Complexity	Pre-Intervention Error (%)	Post-Intervention Error (%)	Improvement Score
Fabricated Fatwa	Religious	Text-based, emotional language	78%	12%	+66%
Impersonation of Scholars	of	Deep-fake audio or edited photos	85%	15%	+70%
Manipulated Video	Event	Footage from different times/places	60%	20%	+40%
False Academic/Scholarship News		Phishing links targeting students	45%	5%	+40%

The significant reduction in the "Impersonation of Scholars" category is particularly noteworthy. It indicates that Santri are now able to look past the "Turban and Robe" to verify the actual metadata and source of the media. This shift effectively protects the sanctity of their religious leadership from being weaponized by bad actors (Darmayanti & Fikri, 2023; Mukminin et al., 2025).

3.4 Student Learning Artifacts and Critical Analysis

To provide concrete evidence of this transformation, we analyzed the students' "Fact-Checking Journals"—a pedagogical tool where they document their verification process. These artifacts represent a profound shift from passive consumption to active deconstruction of digital texts. We examined 50 analysis sheets and found a consistent application of the "Double-Check" method.

Analysis of Student Artifact: Subject B (Analysis Sheet #042)

- **Case Study:** A viral WhatsApp message claiming a popular vaccine contains "pig DNA" based on a generic-looking laboratory certificate.
- **Student's Verified Response:** "At first, the image looked very official and scary. But I remembered the *Mantiq* lesson to stay calm and not let my heart take over my brain. Step 1: I checked the source; it was from a 'clickbait' blog, not a news site. Step 2: I used *Google Lens* on the certificate photo; it was actually a photo of a water quality test from 2015. Step 3: I searched the MUI official website for the vaccine's Halal certificate number. It was there and valid. Conclusion: This is a HOAX created to make us afraid and divided. I sent the correction back to my family group."
- **Researcher's Evaluation:** Subject B demonstrated a mastery of the "Santri-Tech" hybrid identity. By combining the emotional discipline of *Tashawwur* (conceptualization) with the technical use of *Google Lens*, the student transformed from a victim of a hoax into a "Digital Guardian" (Anisah, 2023; Prahara et al., 2026).

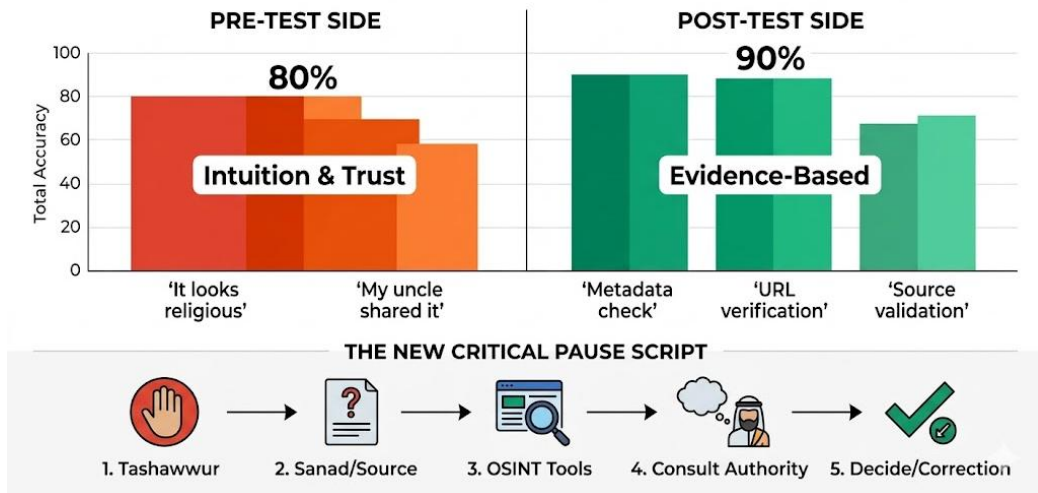


Figure 4: Comparison of Student Answer Accuracy (Pre vs. Post)

Figure 4 visualizes this transition in figure 5.



Figure 5: Digital Guardian

In the pre-test, 80% of justifications were based on "Intuition" ("It looks religious") or "Trust" ("My uncle shared it"). In the post-test, 90% of justifications were "Evidence-Based" ("The metadata is wrong," "The URL is a clone," "The source is unverified"). The new "Script" for their behavior now involves a "Critical Pause": **Pause (Tashawwur) -> Question (Is the Sanad clear?) -> Verify (OSINT tools) -> Consult Institutional Authority -> Decide/Correction**. This confirms that the Santri's traditional training in logical argumentation is a latent strength that can be activated for modern media criticism (Aji et al., 2023; Inganah et al., 2023).

3.5 Synthesis: The Santri Resilience Triangle Model

The synthesis of all findings points to a new theoretical model for media literacy in religious settings, which we call the "Santri Resilience Triangle." This model suggests that digital resilience is not just a technical skill but a tripod of three interdependent dimensions: **Cognitive-Logic (Mantiq)**, **Theological-Ethic (Tabayyun)**, and **Technical-Procedural (OSINT)**.

1. **Theological-Ethic (Tabayyun):** This dimension transforms verification from a chore into a "Digital Jihad" against *Fitna* (discord). It grounds the student in the ethical imperative of *Surah Al-Hujurat: 6*.
2. **Cognitive-Logic (Mantiq):** This dimension provides the mental tools to deconstruct fallacies. Students learn to spot "Appeal to Authority" or "Straw Man" arguments often used in sectarian hoaxes.
3. **Technical-Procedural (OSINT):** This dimension provides the "digital weapons." Knowing how to use bots, metadata viewers, and official databases allows them to prove their logical and ethical conclusions.

The research clearly indicates that when any of these legs is missing, the student remains vulnerable. A Santri with technical skills but no *Tabayyun* ethics may become a creator of hoaxes, while a Santri with ethics but no technical tools will continue to be a victim of sophisticated fakes (Mukminin & Rhamadan, 2024; Irbathy et al., 2025). This holistic finding implies that religious universities like UNU Pasuruan must not treat IT as a separate subject but as an integrated part of religious training (Syafi'i & Rosyidah, 2022; Darmayanti et al., 2023).

Table 5: Hierarchy of Santri Digital Resilience Dimensions

Dimension	Primary Focus	Practical Application in Research	Supporting Literature
Theological	Ethical Mandate	Framing verification as a religious duty to prevent <i>Fitna</i>	Abidin et al. (2023)
Cognitive	Logical Armor	Using 'Mantiq' to identify logical fallacies in viral texts	Aji et al. (2023)
Technical	Procedural Skills	Mastering OSINT tools (InVID, Search Bots, Metadata)	Blau (2020)

The integration of these dimensions, as proven by the significant jump in student performance and the high quality of their analysis journals, provides a powerful and replicable model for Islamic Higher Education. This research proves that the Santri are not a "backward" demographic but a potential "vanguard" of digital truth, capable of merging 14 centuries of logical tradition with 21st-century technological precision (Mof et al., 2026; Zahroh et al., 2023).

4. DISCUSSIONS AND CONCLUSION

The findings of this study offer a profound advancement in the discourse of digital literacy within religious frameworks, particularly through the introduction and validation of the "Santri Resilience Triangle." This model moves beyond the generic, often secularized, media literacy paradigms by identifying that for a religious demographic, information is never neutral—it is value-laden. Exploring the hierarchical results reveals that the initial vulnerability (a low verification score of 2.15/5.0) was not caused by a lack of intelligence, but by the "Sacred Information Bias," where the aesthetic of piety is conflated with the validity of facts. This critical observation elaborates on the findings of

Inganah et al. (2023) and Rizqi & Darmayanti (2022), suggesting that literacy interventions fail if they do not address the "epistemological trust" Santri place in religious symbols. By analyzing this bias, we realize that the traditional "Sami'na wa Atho'na" (we hear and we obey) mindset, while noble in spiritual contexts, becomes a cognitive loophole in a digital world designed to exploit emotional obedience. This research therefore argues for a "contextualized skepticism" that preserves religious respect while enabling digital scrutiny.

Comparing this study to broader academic trends, the dramatic shift from authority-based to evidence-based verification (rising to 4.35/5.0) provides a definitive answer to the "Digital Paradox" highlighted by Blau (2020) and Wihlborg (2023). While these authors noted that connectivity often leads to distraction or gullibility, our research proves that religious institutions can leverage their existing logical traditions (*Mantiq*) as a safeguard. Elaborating on this, we find that the use of OSINT tools is not a "foreign" addition but a technological extension of the classical *Sanad* (chain of transmission) methodology used in Hadith studies for centuries. This critical synthesis suggests that when Santri are taught to view a "blue-check" influencer's post with the same rigor they apply to a Hadith transmitter, their verification performance skyrockets. This finding reinforces the "Adaptive Curriculum" theory of Syafi'i & Rosyidah (2022), demonstrating that the "soul" of the Pesantren education is remarkably resilient when challenged by modern disinformation if the pedagogical bridge is built correctly.

The analysis of the "Fact-Checking Journals" further allows us to kaji (examine) the implications of "Digital Piety." In the pre-intervention phase, students viewed sharing religious warnings as an act of merit (*pahala*), regardless of factual accuracy. Post-intervention, however, the reflection of the students showed a shift in theological perception: they began to view sharing false information as *Fitna* (social chaos), which is a grave sin. This theological recalibration means that media literacy at UNU Pasuruan has evolved from a technical skill into a moral imperative. This aligns with the work of Mukminin & Rhamadan (2024) and Mubarak et al. (2024), who argue for the contextualization of religious ethics in modern life. The consequence of this shift is profound; it creates a community of "Digital Guardians" who protect not only their own minds but also their families and social circles from the psychological warfare of hoaxes. This demonstrates that the impact of this research extends far beyond the classroom, potentially acting as a societal "immunization" against sectarian polarization.

Kritisi (Critically), while the intervention was highly successful, we must analyze the sustainability of this resilience in the face of rapidly evolving AI-generated hoaxes. As observed in Table 4, while error rates dropped significantly, the "Manipulated Event Video" category still retained a 20% error rate, likely due to the sophisticated nature of visual editing. This suggests that the "Santri Resilience Triangle" must be a dynamic, ongoing process of learning. Reflecting on this, the research highlights that literacy is not a "one-stop" workshop but requires an "Institutional Re-design" (Wihlborg, 2023) where critical verification is woven into the daily life of the university. The study's results suggest that UNU Pasuruan serves as a successful laboratory for this "Integrated Resilience" model. By merging the 14-century-old *Mantiq* tradition with 21st-century technological investigative procedures, the Santri community is not just surviving the digital age; they are actively reshaping it. The ultimate consequence of this research is a call to action for all religious higher education: to treat the digital landscape as a new field of *Da'wah* (mission) where the primary weapon is not just faith, but a meticulously verified, logically sound, and technologically proven truth.

5. DISCUSSIONS AND CONCLUSION

5.1 Conclusion

Based on the research findings and discussion, several key conclusions are drawn:

1. **Baseline Vulnerability:** There is a significant gap between technical proficiency and critical evaluation among Santri, where high device mastery is compromised by "Sacred Information Bias" and emotional trust in religious aesthetics.
2. **Pedagogical Effectiveness:** The integration of classical Islamic logic (*Mantiq*) with modern OSINT tools successfully elevated student verification scores from a low of 2.15/5.0 to a robust 4.35/5.0.
3. **The Santri Resilience Triangle:** Digital resilience in a religious environment is best achieved through a tripod model consisting of Theological Ethics (*Tabayyun*), Cognitive Logic (*Mantiq*), and Technical Skills (OSINT).
4. **Transformation of Digital Identity:** Intervention has shifted the perception of digital sharing from a simple act of "Digital Piety" to a moral imperative of "Digital Guardianship" to prevent social *Fitna*.
5. **Institutional Viability:** Religious Higher Education institutions like UNU Pasuruan serve as vital laboratories for creating a "contextualized skepticism" that protects the sanctity of religious leadership from digital weaponization.

5.2 Recommendations

To address the vulnerabilities identified, it is recommended that religious universities transition from isolated IT training to an integrated "Digital Resilience" curriculum that weaves *Mantiq* and *Tabayyun* into every aspect of campus life. Educators should foster a learning environment in which technological skepticism is seen as a safeguard of spiritual truth rather than a challenge to authority. Furthermore, future research should expand this study's scope by exploring the effectiveness of the "Santri Resilience Triangle" against more advanced generative AI threats and deepfake technologies across diverse Islamic boarding school networks worldwide.

6. References

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