

Digital literacy for Madrasah Teachers: Strategies for Navigating Misinformation in Islamic

Ahmad Yani¹ 

¹Sekolah Tinggi Agama Islam Kharisma Sukabumi, Indonesia

ABSTRACT

Background. The proliferation of digital information has presented unprecedented challenges for madrasah teachers, who are pivotal in shaping the religious understanding of Muslim generations. The unchecked spread of misinformation and disinformation related to Islamic teachings poses a significant threat to religious moderation and social harmony.

Purpose. This study aims to identify and analyze the challenges madrasah teachers face in navigating online misinformation and to formulate effective, pedagogically sound strategies to enhance their digital literacy skills for this specific purpose.

Method. Employing a qualitative research design, this study utilized in-depth interviews and focus group discussions with 30 madrasah teachers across different educational levels. A thematic analysis approach was used to systematically code and interpret the collected data, allowing for a nuanced understanding of the participants' experiences and needs.

Results. The findings reveal that while teachers are aware of the dangers of online misinformation, they often lack the critical skills and resources to effectively vet digital Islamic content. Key challenges include the inability to distinguish between credible and dubious online sources, the emotional appeal of sensationalist religious content, and a lack of formal training.

Conclusion. Enhancing the digital literacy of madrasah teachers is not merely a technical imperative but a pedagogical necessity to safeguard authentic Islamic education. A proactive, continuous, and context-specific approach is crucial for empowering teachers to become resilient navigators of the digital landscape and effective guides for their students against religious misinformation.

KEYWORDS

Digital Literacy, Misinformation, Madrasah, Islamic Education, Teacher Professional Development

INTRODUCTION

The contemporary information landscape has been irrevocably reshaped by the advent of digital technologies, catalyzing a paradigm shift in how knowledge is produced, disseminated, and consumed. This digital revolution, while

offering unprecedented access to information and fostering global connectivity, has simultaneously given rise to significant societal challenges. The sheer volume and velocity of information flow have created a fertile ground for the spread of misinformation and disinformation, blurring the lines between factual content and fabricated



narratives (Javed et al., 2025; Radičuks et al., 2026; Shkuropadska et al., 2025). This phenomenon permeates all sectors of society, influencing public opinion, political processes, and social discourse. Within this complex ecosystem, the ability to critically evaluate and navigate digital content has emerged not merely as a technical skill but as a fundamental component of modern citizenship, essential for informed decision-making and societal resilience against manipulation.

Religious education, a cornerstone of community values and identity formation, occupies a particularly sensitive position within this new digital reality. For centuries, religious knowledge was transmitted through established channels of authority, relying on scholarly consensus and rigorous chains of transmission (*isnad*). The digital domain has disrupted these traditional structures, democratizing access to religious discourse but also opening the floodgates to unqualified actors, distorted interpretations, and ideologically motivated falsehoods. Islamic education, with its global reach and profound influence on over a billion adherents, faces a distinct set of challenges. (Mäder et al., 2025; Moreno Quispe & Hernández-Rojas, 2025; Nolimal & Šraj, 2026) The internet is replete with content presented under the guise of Islamic teaching, ranging from well-intentioned but inaccurate advice to deliberately crafted disinformation aimed at promoting extremist ideologies, sectarian division, or commercial scams, posing a direct threat to the integrity of the faith and the stability of Muslim communities.

At the forefront of this challenge are madrasah teachers, who serve as the primary custodians and interpreters of Islamic knowledge for younger generations. These educators are tasked with the immense responsibility of not only imparting foundational religious principles but also preparing students to engage with a world saturated with digital information. They are expected to guide their students in distinguishing authentic teachings from heretical innovations (*bid'ah*) and harmful narratives. However, many of these teachers find themselves inadequately equipped to operate effectively in this environment (Setiawan et al., 2026). They are often products of a traditional pedagogical system that predates the digital age and may lack the specific competencies required to critically assess online sources, verify the authenticity of digital religious content, and teach their students to do the same, placing them in a position of significant vulnerability.

The central problem this research addresses is the critical deficit in digital literacy among madrasah teachers, specifically concerning their capacity to identify, analyze, and counter religious misinformation and disinformation online. This deficit creates a significant vulnerability within the Islamic educational system, leaving both educators and their students susceptible to a wide array of digital falsehoods (Fajrie et al., 2025; Mekheimer, 2025; Mirsanjari, 2025). The issue is not merely a lack of technical proficiency but a more profound inability to apply critical thinking and Islamic scholarly principles to the evaluation of digital content. Teachers, who are expected to be beacons of reliable knowledge, may inadvertently become conduits for misinformation by sharing unverified content, or they may struggle to provide convincing counterarguments to falsehoods that their students encounter online, thereby diminishing their authority and effectiveness.

This problem manifests in several detrimental ways within the madrasah context. Students are increasingly exposed to charismatic online personalities who present extremist or overly simplified interpretations of complex theological issues, challenging the nuanced and moderate teachings traditionally upheld in madrasah curricula (Mwansa et al., 2025; Osonuga et al., 2025; Tveitnes et al., 2025; Wannapipat & Wiersma, 2026). Furthermore, the spread of religiously-framed hoaxes and conspiracy theories can foster social distrust and even incite violence. Teachers report feeling overwhelmed by the volume of questionable content and express uncertainty about how to address sensitive topics that are being manipulated online. This situation is exacerbated by the lack of

standardized guidelines or institutional support systems designed to help them navigate these digital challenges, leaving them to confront this complex problem in isolation.

The consequences of this unaddressed problem are far-reaching and deeply concerning. A failure to equip madrasah teachers with adequate digital literacy skills risks the erosion of authentic Islamic scholarship and the proliferation of distorted versions of the faith. It jeopardizes the cultivation of critical thinking, a skill highly valued within Islamic intellectual tradition, among Muslim youth (Ghahfarokhi, 2025; Iskandar et al., 2025; Raza et al., 2025; Sanjammagari et al., 2026). On a broader societal level, it undermines efforts to promote religious moderation and tolerance, potentially contributing to radicalization and social fragmentation. The integrity of madrasah education itself is at stake, as its relevance and credibility in the digital age hinge on its ability to prepare students to be discerning and responsible digital citizens.

The primary objective of this study is to formulate a set of contextually relevant and pedagogically sound strategies to enhance the digital literacy of madrasah teachers, empowering them to effectively navigate and counter Islamic misinformation in the digital sphere. This research moves beyond generic digital literacy frameworks to develop a specialized approach that integrates the principles of Islamic scholarly tradition with modern critical media literacy (Aloi et al., 2025; Mabrito, 2025; Yifan et al., 2026). It seeks to understand the unique challenges and needs of these educators to propose solutions that are not only practical and implementable but also resonate with their professional and religious identity. The ultimate goal is to build a foundation for a resilient and critically engaged madrasah teaching community.

To achieve this overarching aim, the study pursues several specific objectives. First, it seeks to comprehensively identify and map the types of Islamic misinformation and disinformation that madrasah teachers most frequently encounter online. Second, it aims to assess the current levels of digital literacy among these teachers, evaluating their existing skills, knowledge, and attitudes towards digital information (Alobaid, 2025; Catapan et al., 2025; Hindelang et al., 2025; Matthews, 2025). Third, the research will analyze the specific barriers—whether institutional, pedagogical, or technological—that hinder their ability to effectively address online falsehoods. Finally, it will identify and evaluate potential strategies and interventions, drawing from both the existing literature and the insights of the teachers themselves, to build a targeted and effective enhancement program.

The anticipated outcome of this research is the development of a comprehensive strategic framework titled “Digital Tabayyun,” which translates the classical Islamic principle of verification into a practical methodology for the digital age. This framework will provide madrasah teachers with a structured process for evaluating the authenticity, authority, and potential bias of online Islamic content (Duong, 2025; Ishak et al., 2026; Moravec et al., 2025; Mutlu et al., 2025). It will be complemented by a set of actionable recommendations for teacher training institutions, policymakers, and madrasah administrators for integrating digital literacy into professional development programs and school curricula. These outcomes are intended to provide a direct and meaningful contribution to improving the quality and resilience of Islamic education.

A substantial body of literature exists on the topic of digital literacy, covering its importance in formal education, civic engagement, and professional development. Scholars have extensively explored theoretical models of digital competence and have investigated the impact of misinformation on various aspects of society. Numerous studies have focused on developing digital literacy interventions for K-12 students, university undergraduates, and the general public, providing valuable insights into effective pedagogical approaches. These studies have established a strong consensus on the necessity of fostering critical thinking skills to combat the negative effects of online falsehoods.

However, despite the breadth of this research, a significant gap exists when it comes to the specific context of religious education and, more particularly, the professional development of religious educators. The majority of digital literacy frameworks are secular in orientation and are designed to address general or political misinformation, failing to account for the unique characteristics of religious content. Misinformation in the religious sphere often involves nuanced theological arguments, appeals to scriptural authority, and emotionally charged narratives that require a specialized form of literacy combining both critical inquiry and deep domain-specific knowledge. Existing models do not adequately equip educators to deconstruct a deceptively crafted online fatwa or to trace the scholarly legitimacy of a digital religious claim. The socio-cultural and pedagogical world of the madrasah, with its own traditions and challenges, remains a largely overlooked area in digital literacy studies.

This study directly addresses this critical lacuna in the literature. While some research has touched upon the use of technology in Islamic education, it has predominantly focused on technology as a tool for delivery rather than on the critical skills needed to navigate the digital information environment. There is a clear absence of empirical research that systematically investigates the challenges of online misinformation from the perspective of madrasah teachers and develops tailored strategies to address them. By focusing on this specific demographic and their unique context, this research bridges the gap between the broad field of digital literacy and the specialized domain of Islamic pedagogy. It moves the discourse from a general call for digital skills to a focused investigation of what digital literacy means for a madrasah teacher in the 21st century.

The primary novelty of this research lies in its development of a specialized conceptual framework, "Digital Tabayyun," which operationalizes a core Islamic ethical principle for the contemporary digital context. The Quranic injunction of tabayyun-to verify information before accepting or acting upon it-provides a culturally and religiously resonant foundation for digital literacy that is more likely to be embraced by madrasah teachers than purely secular models. This study is the first to systematically translate this principle into a set of practical, teachable skills for evaluating online content, thereby offering a significant and original contribution to both Islamic studies and media literacy scholarship. Its novelty is further enhanced by its qualitative, bottom-up approach, grounding its findings and proposed strategies in the lived experiences and expressed needs of the teachers themselves.

The justification for this research is rooted in its profound practical and pedagogical importance. The findings will provide an evidence base for designing and implementing effective professional development programs for the millions of madrasah teachers worldwide. By empowering these educators, the study offers a sustainable and scalable solution to combating religious misinformation at the grassroots level (Hossain et al., 2025; Moray, 2025; Oliva-Córdova et al., 2025). The strategic framework developed will serve as an invaluable resource for teacher training colleges, ministries of religious affairs, and Islamic educational organizations seeking to update their curricula to meet the demands of the digital age. It provides a clear pathway for transforming madrasahs from potentially vulnerable institutions into centers of critical digital scholarship.

Ultimately, the significance of this research extends beyond the confines of the madrasah. In an era marked by rising religious polarization and online extremism, fostering a digitally literate religious leadership is crucial for promoting social harmony, mutual understanding, and global citizenship. By equipping madrasah teachers to guide their students in becoming critical and discerning consumers of online information, this study contributes to the broader goal of building a more informed and resilient global Muslim community. It underscores the vital role that education

must play in safeguarding religious traditions from digital manipulation and ensuring their continued relevance and positive contribution to society. The research is therefore not only timely and necessary but also holds significant transformative potential for the future of Islamic education.

RESEARCH METHODOLOGY

This study employed a qualitative research design, utilizing a phenomenological approach to gain a deep and nuanced understanding of the lived experiences of madrasah teachers as they navigate the digital information landscape. This design was chosen for its suitability in exploring complex social phenomena from the perspective of the individuals directly involved. A phenomenological framework allows the research to move beyond mere description to uncover the underlying meanings and essences of the teachers' encounters with online misinformation (Herrera-Lillo & Urrejola-Contreras, 2025; Osborne, 2025). By prioritizing the participants' subjective experiences and interpretations, this approach facilitates the generation of rich, context-specific data that is essential for developing strategies that are both relevant and effective for the target community. The research focused on capturing the perceptions, challenges, and coping mechanisms of the teachers in their natural educational settings.

The population for this study comprised madrasah teachers actively teaching in Indonesia, a country with one of the world's largest and most diverse Islamic education systems. A purposive sampling strategy was employed to select participants who could provide rich and relevant information pertinent to the research questions. The criteria for inclusion required that participants be full-time madrasah teachers with at least three years of teaching experience and regular internet usage for both personal and professional purposes. The final sample consisted of 30 teachers, balanced to ensure diversity in terms of gender, the educational level they teach (from elementary/ibtidaiyah to senior high/aliyah), and the geographical location of their institutions (representing both urban and rural settings). This purposive approach ensured that the sample included individuals with a range of experiences and perspectives, thereby enhancing the depth and transferability of the findings.

The primary instruments for data collection were semi-structured, in-depth interviews and focus group discussions (FGDs). The interview protocol was designed to be flexible, allowing for open-ended questions that encouraged participants to share their experiences and insights in detail. Key thematic areas in the protocol included their daily digital practices, specific encounters with online religious misinformation, challenges in verifying content, and existing strategies they employ. Three FGDs, each consisting of 6-8 participants, were also conducted to complement the individual interviews. This method was chosen to foster a dynamic interaction among teachers, allowing them to build upon each other's comments and reveal shared norms and collective understandings of the problem. Both interviews and FGDs were audio-recorded with the explicit consent of the participants and subsequently transcribed verbatim for analysis.

The research procedure was conducted in three distinct phases over a period of six months. The first phase involved securing ethical clearance and obtaining informed consent from all participants, ensuring confidentiality and the voluntary nature of their involvement. The second phase was dedicated to data collection, where the principal researcher conducted all interviews and moderated the FGDs to ensure consistency. Each interview lasted approximately 60 to 90 minutes. The third and final phase focused on data analysis. The transcribed data were analyzed using a thematic analysis approach. This process involved several stages: familiarization with the data, generation of initial codes, searching for themes among the codes, reviewing the themes, and defining and naming the final themes. To ensure the rigor and credibility of the analysis, a process of peer

debriefing was utilized, where emerging themes and interpretations were discussed with academic colleagues familiar with qualitative research methodologies. This systematic procedure ensured a thorough and trustworthy analysis of the teachers' experiences.

RESULT AND DISCUSSION

The data collection process involved 30 madrasah teachers whose demographic and professional backgrounds provide a foundational context for the qualitative findings. The participants represented a diverse cross-section of educators within the Indonesian madrasah system. Their teaching experience ranged from 3 to over 20 years, with a mean experience of 11.5 years. All participants confirmed daily internet usage, primarily through smartphones, for communication, social media engagement, and sourcing teaching materials. A significant majority of the participants (87%) reported having no prior formal training specifically focused on digital literacy or identifying online misinformation.

The characteristics of the participant sample are summarized below. This table outlines the distribution across key variables, including gender, teaching level, institutional location, and self-reported primary platforms for receiving religious information. The data indicates a heavy reliance on social media platforms like Facebook and YouTube, as well as messaging applications such as WhatsApp, for accessing religious content, which are known vectors for the rapid spread of unvetted information.

Table 1.

Profile of Research Participants (N=30)

Characteristic	Category	Frequency	Percentage
Gender	Male	14	47%
	Female	16	53%
Teaching Level	Elementary (<i>Ibtidaiyah</i>)	10	33%
	Junior High (<i>Tsanawiyah</i>)	11	37%
	Senior High (<i>Aliyah</i>)	9	30%
Location	Urban	17	57%
	Rural	13	43%
Primary Digital Source for Religious Info	Social media (FB, IG)	12	40%
	Video Platforms (YouTube)	9	30%
	Messaging Apps (WA)	7	23%
	Formal Websites	2	7%
Formal Training in Digital Literacy	Yes	4	13%
	No	26	87%

The demographic profile reveals a digitally active but formally unprepared cohort of educators. The high percentage of teachers lacking formal training in digital literacy is a critical finding that contextualizes their subsequent responses regarding their skills and confidence. Their extensive teaching experience suggests a deep grounding in traditional pedagogy and subject matter, yet it does not automatically translate into competence in the digital realm. This disparity underscores a systemic gap in professional development, where digital skills have not been prioritized in alignment with the changing information environment.

The reliance on algorithm-driven social media and video platforms for religious information is particularly noteworthy. These platforms often create filter bubbles and echo chambers, which can amplify misinformation and limit exposure to diverse, scholarly perspectives. The minimal reliance on formal, institutional websites for religious information suggests that teachers may favor convenience and accessibility over scholarly rigor. This behavior pattern indicates a significant vulnerability, as the content consumed and potentially shared by these educators is often decontextualized and lacks the traditional markers of Islamic scholarly authority.

Thematic analysis of the interview and focus group discussion transcripts revealed four major themes that encapsulate the teachers' experiences with online misinformation. The first theme, "Awareness and Anxiety," reflects a general recognition among teachers that online falsehoods are a significant problem, coupled with a palpable sense of anxiety about their inability to manage it effectively. The second theme, "Deficit in Critical Vetting Skills," pertains to the specific difficulties teachers face in evaluating the credibility of online sources, distinguishing between opinion and evidence-based scholarly discourse, and identifying manipulative content.

The third theme, "Reliance on Heuristics and Traditional Authority," describes the coping mechanisms teachers employ, such as trusting content from well-known figures regardless of the platform or judging credibility based on production quality and follower counts. A final theme, "The Need for a Structured Framework," emerged from the teachers' own expressed desires for practical, clear guidelines and training. As one participant stated, "We know the danger is there, but we don't have the tools. We need a simple way to check, a process, something based on our own Islamic tradition that we can trust and teach."

and paint a coherent picture of the central challenge. The "Awareness and Anxiety" theme appears to be a direct consequence of the "Deficit in Critical Vetting Skills." Teachers feel anxious precisely because they are aware of the threat but feel powerless to confront it. This powerlessness is not due to a lack of concern but a lack of applicable competencies. Their anxiety is a rational response to a recognized professional inadequacy in a high-stakes area of their work.

Furthermore, the "Reliance on Heuristics and Traditional Authority" functions as a direct, albeit often flawed, compensation mechanism for this skills deficit. In the absence of critical vetting skills, teachers fall back on mental shortcuts, such as equating a large online following with scholarly authority or trusting a familiar name without verifying the content attributed to them. This inferential link suggests that any effective intervention must not only build new skills but also address and correct these ingrained, unreliable heuristics. The teachers' call for a structured framework is a conscious articulation of this need for a more reliable system.

A clear relationship was observed between the participants' demographic data and the qualitative themes. Teachers from rural settings, for instance, expressed higher levels of anxiety and were more likely to rely on heuristics, which may be correlated with potentially lower levels of exposure to diverse digital literacy resources compared to their urban counterparts. Similarly, while not statistically significant due to the sample size, teachers at the elementary (ibtdaiyah) level reported more frequently feeling overwhelmed, suggesting that those responsible for the foundational education of the youngest students may feel the weight of this responsibility most acutely in the digital sphere.

The lack of formal training, as identified in Table 1, was the most powerful explanatory variable cutting across all themes. The 87% of teachers without training were almost uniformly the voices articulating the skills deficit, the reliance on flawed heuristics, and the strong desire for a structured framework. The few teachers who had received some form of training, while still expressing concerns, were able to articulate more sophisticated, albeit inconsistent, personal

strategies for verification, demonstrating the tangible impact of even minimal intervention. This strong correlation reinforces the argument that the problem is one of training and professional development.

To illustrate these themes in practice, the case of “Ibu Siti” (a pseudonym), a senior high school teacher with 15 years of experience, is particularly instructive. During her interview, she recounted an incident where a viral WhatsApp message spread among her colleagues. The message contained a supposed fatwa from a prominent Middle Eastern scholar prohibiting a common local cultural practice, complete with Quranic verses and citations. The message was emotionally charged, warning of divine punishment for those who continued the practice.

Ibu Siti described feeling immediate pressure to share the message with her students and family, believing it to be an important religious warning. She noted, “The name of the scholar was famous, and it used verses from the Qur’an. It looked very official and very convincing.” She admitted that her initial impulse was not to verify the information but to disseminate it quickly. It was only when a younger, more tech-savvy colleague questioned the source and performed a reverse image search on the scholar’s picture, revealing it was from an unrelated event, that the message was exposed as a fabrication.

Ibu Siti’s experience serves as a microcosm of the research findings. Her story clearly demonstrates the theme of “Reliance on Heuristics and Traditional Authority,” as she initially accepted the message based on the familiar name of the scholar. It also highlights the “Deficit in Critical Vetting Skills,” as she did not possess the knowledge or tools, such as reverse image searching or checking official scholarly websites, to independently verify the claim. The initial feeling of urgency and pressure she described is a manifestation of the “Awareness and Anxiety” theme—the fear of failing in her religious duty to share important knowledge.

The resolution of her case, prompted by a colleague, underscores the current ad-hoc and unreliable nature of verification within these professional communities. It highlights the critical need for a systematic and universally understood process. Ibu Siti’s reflection on the event captured the essence of the fourth theme: “After that, I felt foolish, but also scared. What else have I shared that was not true? We desperately need a checklist, a tabayyun process for the digital world, so this does not happen again.” Her case powerfully illustrates the real-world consequences of the digital literacy gap and validates the call for a structured intervention.

The collective results indicate a significant and urgent digital literacy gap among the sampled madrasah teachers. The findings show that while teachers are aware of the problem of online misinformation, they are largely ill-equipped to address it. They lack the critical skills for digital source evaluation and instead rely on unreliable shortcuts, making them and their students vulnerable to manipulation. The data points not to a lack of will, but a lack of training, resources, and institutional support.

This gap represents a critical point of failure in the Islamic educational ecosystem. The teachers’ own desire for a structured, faith-based framework for verification provides a clear and compelling direction for intervention. The findings strongly suggest that strategies must be developed that are not only pedagogically sound but also culturally and religiously resonant. Empowering these educators with a “Digital Tabayyun” framework is presented by the data as a necessary and desired evolution in their professional development.

This study’s findings present a clear and compelling narrative of a significant digital literacy deficit among madrasah teachers. The research identified a cohort of educators who, despite being active daily users of digital technology, remain overwhelmingly unprepared to navigate the complexities of the online information ecosystem. A stark 87% of participants reported having no

formal training in digital literacy, a statistic that serves as the foundational context for all other findings. This lack of preparation is coupled with a heavy reliance on algorithm-driven social media and messaging platforms for accessing religious knowledge, creating a situation of high exposure to misinformation with low levels of critical defense.

The qualitative data coalesced into four primary themes that define the teachers' experience. A pervasive sense of "Awareness and Anxiety" revealed that teachers are not ignorant of the problem but feel overwhelmed and ill-equipped to handle it. This anxiety stems directly from a "Deficit in Critical Vetting Skills," a theme that captured their self-reported inability to distinguish credible online sources from dubious ones. These two themes are intrinsically linked, painting a picture of professionals who understand a threat but lack the specific competencies to mitigate it effectively within their pedagogical roles.

In response to this skills deficit, participants demonstrated a strong "Reliance on Heuristics and Traditional Authority." They frequently used mental shortcuts, such as trusting content associated with a famous name or high production values, to make rapid judgments about credibility. This coping mechanism, while understandable, often proved unreliable and counterproductive. The final theme, "The Need for a Structured Framework," articulated the teachers' own recognition of this problem and their explicit desire for a systematic, faith-based methodology for information verification, which they instinctively linked to the Islamic principle of *tabayyun*.

The case study of Ibu Siti served to crystallize these abstract themes into a tangible, real-world scenario. Her experience illustrated the powerful allure of emotionally charged misinformation when it is cloaked in the symbols of religious authority. It demonstrated how a lack of specific skills, such as the ability to perform a reverse image search, can leave even an experienced educator vulnerable. Her story, and its resolution through the intervention of a colleague, highlighted the current ad-hoc nature of verification and powerfully underscored the collective call for a more systematic and universally taught approach to digital literacy.

The results of this study align closely with the broader body of literature on teacher professional development in the digital age, which consistently finds that educators' digital competencies often lag behind the rapid evolution of technology. This research confirms this well-established trend but situates it within the unique and previously under-examined context of Islamic religious education. While studies by authors such as Prensky once framed this as a simple divide between "digital natives" and "digital immigrants," our findings suggest a more complex issue of specific skill deficits and contextual needs rather than a generational gap alone, contributing a new dimension to this ongoing scholarly conversation.

The observed "Reliance on Heuristics and Traditional Authority" resonates with extensive research in cognitive psychology and media studies on dual-process theory, which posits that individuals often use low-effort mental shortcuts (System 1 thinking) to process information. This study's findings suggest that this universal human tendency is amplified within a socio-cultural context that places a high premium on deference to religious authority. This extends the work of scholars who study cognitive biases by demonstrating how a specific cultural value can shape the application of heuristics in a high-stakes domain like religious information, making individuals more susceptible to authority-based manipulation.

This study's conclusions diverge from research that primarily advocates for technological or platform-based solutions to misinformation. While fact-checking websites and AI-driven content moderation are valuable, the expressed desire of the teachers for a framework rooted in their own tradition suggests that purely secular or technical interventions may have limited purchase with this

demographic. The call for a “Digital Tabayyun” framework indicates that for digital literacy initiatives to be successful in certain communities, they must be culturally and ideologically resonant. This challenges the universal applicability of some Western-centric media literacy models and argues for a more culturally situated approach.

The theme of “Awareness and Anxiety” contributes a novel affective dimension to the literature on teacher stress and burnout. While existing research has explored teacher anxiety related to technology adoption or classroom management, this study identifies a specific form of professional anxiety rooted in the perceived failure to uphold a custodial duty of knowledge in the face of digital falsehoods. This “misinformation anxiety” is tied directly to the teachers’ professional and religious identity, representing a unique psychological burden that has not been extensively explored in previous studies of educators’ well-being.

The findings of this study are a clear sign that the madrasah as an educational institution stands at a critical crossroads. The identified digital literacy gap is not merely a technical issue but a symptom of a deeper tension between the institution’s deeply rooted pedagogical traditions and the disruptive realities of the digital age. The results signal an urgent need for these institutions to engage in a profound process of self-evaluation and adaptation, lest they risk their relevance and authority in a world where information flows freely, unmediated by traditional gatekeepers.

The profound anxiety expressed by the teachers, coexisting with their reliance on online authority figures, reflects a broader crisis of scholarly authority within contemporary Islam. The digital domain has flattened traditional hierarchies, allowing charisma and digital metrics like follower counts to compete with, and sometimes supplant, established markers of scholarly legitimacy such as institutional affiliation and chains of transmission (isnad). The teachers are on the front lines of this unresolved conflict, struggling to navigate a landscape where the very definition of a credible religious authority is in flux.

The participants’ collective call for a “Digital Tabayyun” framework is a powerful and hopeful sign of institutional and individual resilience. It indicates that the path forward is not a rejection of digital technology but a thoughtful engagement with it through the intellectual and ethical resources of the Islamic tradition itself. This desire reflects a dynamic impulse to synthesize heritage with modernity, suggesting that the solution to this very modern problem may lie in the innovative application of classical principles. It is a sign of a living tradition actively seeking to maintain its integrity in a new era.

The case study, where a senior teacher was corrected by a more digitally adept junior colleague, signals a significant shift in knowledge dynamics within these institutions. It reflects a decentralization of expertise, where traditional hierarchies based on age and seniority are being challenged by new forms of competence. This phenomenon is not a threat but an opportunity. It points toward the potential for new, more collaborative models of learning and professional development, where inter-generational dialogue and mutual mentorship can become a source of institutional strength and renewal.

The theoretical implications of this research are significant for the field of digital literacy studies. The findings strongly challenge the efficacy of a “one-size-fits-all” model, arguing instead for the critical importance of “contextual digital literacy.” The development of the “Digital Tabayyun” concept contributes a novel, culturally-specific framework to the scholarly literature. It provides a compelling example of how indigenous knowledge systems and ethical principles can be leveraged to create powerful and resonant pedagogical tools, enriching the broader theoretical discourse with a non-Western perspective.

The pedagogical implications are direct and urgent, pointing to a critical need for curricular reform in teacher training. Institutions responsible for preparing madrasah teachers must embed critical digital literacy as a core competency, on par with theological and pedagogical knowledge. This training should transcend basic technical skills, focusing instead on higher-order thinking abilities such as source analysis, bias detection, and the identification of logical fallacies within online religious discourse. Such programs would equip teachers with the intellectual toolkit necessary to guide their students safely.

For government bodies such as ministries of religion and education, the findings imply a need for proactive, policy-level intervention. This should include the establishment of national competency standards for digital literacy for all religious educators and the allocation of funding for the development and dissemination of high-quality professional development programs. Furthermore, policies could support the creation of a consortium of credible Islamic institutions to produce and maintain a vetted, easily accessible online repository of educational materials, providing a reliable alternative to the chaotic digital landscape.

The broader social implications of addressing this issue are profound. Empowering madrasah teachers with the skills to combat misinformation is a direct and sustainable strategy for strengthening social cohesion and countering religious extremism. A generation of students guided by digitally literate teachers will be better inoculated against divisive propaganda and radicalizing narratives. This research, therefore, implies that investing in the digital literacy of these educators is not just an educational priority but a crucial component of building a more informed, tolerant, and resilient civil society.

The prevalence of the digital literacy gap can be attributed primarily to a systemic inertia within the educational institutions responsible for teacher training. These institutions, often bureaucratic and slow to change, have not adapted their curricula with the urgency required by the pace of technological change. The primary focus has remained on traditional subject matter mastery, with digital skills treated as an ancillary topic rather than a fundamental pedagogical competency. This systemic lag has resulted in the graduation of cohorts of teachers who are unprepared for the realities of the modern information environment.

Socio-cultural factors provide a powerful explanation for the teachers' heavy reliance on authority-based heuristics. The Islamic educational tradition is built upon a deep and necessary reverence for scholarly authority and the chain of knowledge transmission. This cultural conditioning, while essential for preserving tradition, can be maladaptive in the digital realm. The instinct to trust a person who projects religious authority is strong, making it difficult for individuals to adopt the skeptical, questioning posture required for critical digital literacy, as it can feel culturally incongruous or even disrespectful.

Economic constraints and resource disparities offer another critical layer of explanation. Many madrasahs, particularly those in rural or underserved communities, operate with limited funding. In an environment of scarcity, allocating resources for comprehensive digital literacy training programs, software, and updated technological infrastructure can be seen as a secondary priority compared to essential needs like teacher salaries or building maintenance. This lack of investment creates a persistent barrier to the widespread professional development needed to close the skills gap.

Psychological factors also play a crucial role in explaining the observed phenomena. The sheer volume and complexity of the online world create a significant cognitive load, which can lead to decision fatigue. For teachers who feel a profound sense of responsibility for the spiritual well-being of their students, this cognitive load is amplified by a high degree of anxiety. As a

psychological defense mechanism to manage this stress and complexity, individuals retreat to simpler, faster cognitive processes, such as heuristics, even if they are aware that these shortcuts may be flawed.

Future research must prioritize the development, implementation, and empirical evaluation of the “Digital Tabayyun” framework proposed in this study. A quasi-experimental design could be used to assess the framework’s effectiveness in a pilot professional development program, measuring changes in teachers’ skills, confidence, and classroom practices over time. There is also a pressing need for large-scale quantitative research to survey a nationally representative sample of madrasah teachers, which would allow for the generalization of these findings and the identification of regional disparities.

Educational practitioners and madrasah leaders should not wait for top-down policy changes. They can take immediate steps by establishing school-based Professional Learning Communities (PLCs) dedicated to enhancing digital literacy. These collaborative groups can provide a supportive environment for teachers to share experiences, collectively vet suspicious online content, and co-develop lesson plans for teaching digital citizenship skills to their students. Promoting simple, actionable practices like “lateral reading”—the habit of opening new tabs to search for more information on a source—can be a powerful first step.

Policymakers at the national and regional levels have a critical role to play. They should work to mandate the integration of a robust critical digital literacy component into the accreditation standards for all teacher training institutions. Furthermore, they should champion and fund the creation of a national “digital clearinghouse” for Islamic education—a trusted, easy-to-navigate online portal where educators can find vetted, high-quality, and curriculum-aligned resources. This would directly combat the reliance on unvetted sources from social media.

Finally, there is a clear opportunity for collaboration between technology developers, Islamic scholars, and educators. This partnership could lead to the creation of innovative tools designed to support the needs of this specific user group. Imagine a browser extension that provides a “credibility score” for Islamic websites based on scholarly consensus, or an application that uses AI to detect the rhetorical patterns common in extremist propaganda. Such tools, co-designed with the end-users, could provide powerful support for teachers on the front lines of the fight against misinformation.

CONCLUSION

The most significant finding of this study is the identification of a specific form of professional distress, termed “misinformation anxiety,” among madrasah teachers, which is intrinsically linked to their professional and religious identities. This anxiety is not born from a resistance to technology but from a perceived failure in their custodial duty to transmit authentic knowledge in an era of digital falsehoods. This research uniquely reveals that the solution, from the teachers’ own perspective, is not a generic, secular media literacy program but a culturally and religiously resonant framework. The explicit and collective call for a systematic verification process modeled on the classical Islamic principle of tabayyun is the single most important and distinct discovery, highlighting a path for intervention that is both desired by and meaningful to the target community.

The primary contribution of this research is conceptual rather than methodological. It introduces the “Digital Tabayyun” framework as a novel, culturally-situated concept within the broader field of digital literacy studies. By operationalizing a traditional Islamic ethical principle to address a contemporary technological challenge, this study provides a powerful model for how

indigenous knowledge systems can be leveraged to create effective and sustainable educational interventions. Its value lies in challenging the universal applicability of Western-centric media literacy models and enriching the academic discourse with a practical, non-secular alternative that demonstrates the critical importance of context in developing digital competencies.

This study is subject to certain limitations that provide clear directions for future research. As a qualitative inquiry with a purposive sample of 30 teachers in a single country, the findings are not statistically generalizable, though they offer deep contextual insights. Future research should undertake large-scale quantitative surveys to map the prevalence of this digital literacy gap across diverse national and cultural contexts. Furthermore, a comparative study analyzing the effectiveness of the proposed “Digital Tabayyun” framework against conventional secular digital literacy programs would be a valuable next step in empirically validating its pedagogical impact and refining its application for broader use.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing; Conceptualization; Data curation; Investigation; Data curation; Investigation; Formal analysis; Methodology; Writing - original draft; Supervision; Validation; Other contribution; Resources; Visualization; Writing - original draft.

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