

ISLAMIC DIGITAL LITERACY ASSISTANCE BASED ON COGNITIVE RESILIENCE TO COUNTER HOAXES AND AI-GENERATED CONTENT IN RURAL COMMUNITIES

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Abstract

The rapid expansion of digital media and Artificial Intelligence (AI) has significantly increased the spread of hoaxes, misinformation, and AI-generated content, posing serious challenges for rural communities with limited digital literacy. This community assistance program aimed to strengthen cognitive resilience through an Islamic digital literacy approach that integrates digital competencies with the Islamic principles of *tabayyun* (information verification), honesty, and ethical responsibility. The program employed participatory methods, including workshops, interactive discussions, digital fact-checking simulations, and mentoring sessions involving community members, youth, and local religious leaders. The activities focused on enhancing participants' abilities to critically evaluate online information, identify AI-generated content, verify digital sources, and apply Islamic ethical values in responsible digital engagement. The findings indicate improved awareness of misinformation risks, stronger critical thinking skills, and greater commitment to ethical information sharing. This initiative demonstrates that integrating Islamic values with cognitive resilience provides an effective and sustainable model for empowering rural communities to navigate the increasingly complex digital information ecosystem.

INTRODUCTION

The rapid advancement of digital technology and Artificial Intelligence (AI) has fundamentally transformed the way people access, produce, and disseminate information. Social media platforms, instant messaging applications, and AI-powered content generation tools have created unprecedented opportunities for communication and knowledge sharing. However, these developments have also accelerated the spread of hoaxes, misinformation, disinformation, and AI-generated content that is increasingly difficult to distinguish from authentic information. Rural communities are particularly vulnerable to these challenges due to limited digital literacy, inadequate access to reliable information sources, and insufficient understanding of AI-based technologies. As a result,

the rapid circulation of false information may negatively influence social harmony, public decision-making, and community trust, making digital literacy an urgent priority for rural development (Sofa, 2025).

Recent studies on digital literacy have primarily emphasized technical competencies such as accessing, evaluating, and utilizing digital information. Although these competencies are essential, they are often insufficient to address the sophisticated forms of misinformation emerging in the era of generative AI. AI-generated text, manipulated images, synthetic audio, and deepfake videos require higher-order cognitive abilities that enable individuals to critically assess information before accepting or disseminating it. Therefore, the concept of cognitive resilience has gained increasing attention as an educational approach that equips individuals with critical thinking, analytical reasoning, adaptive judgment, and resistance to manipulation. Strengthening cognitive resilience is particularly important for rural communities where digital transformation is progressing rapidly while critical digital competencies remain relatively underdeveloped (Harifah & Sofa, 2025).

Within the Islamic perspective, responsible digital engagement is inseparable from ethical values derived from the Qur'an and Sunnah. The principle of *tabayyun* encourages Muslims to verify information before believing or sharing it, while values such as *amanah* (trustworthiness), *ṣidq* (truthfulness), and *maslahah* (public benefit) provide moral guidance for ethical communication in digital environments. These values offer a comprehensive framework for addressing contemporary information disorders because they emphasize not only technical verification but also moral accountability and social responsibility. Integrating Islamic ethical principles with cognitive resilience can therefore create a holistic model of digital literacy that develops both critical reasoning and ethical awareness, enabling communities to respond wisely to the growing challenges of AI-generated misinformation (Fitriyah & Sofa, 2026).

Based on these considerations, this community assistance program aims to strengthen the cognitive resilience of rural communities through an Islamic digital literacy approach that integrates digital competencies with Islamic ethical values. The program adopts participatory educational activities, including workshops, fact-checking simulations, discussions, and practical mentoring on identifying hoaxes and AI-generated content. Unlike conventional digital literacy initiatives that mainly focus on technology utilization, this program introduces an innovative assistance model that combines critical thinking, information verification, and Islamic ethical principles into a unified framework. This integrative approach is expected to enhance the capacity of rural communities to critically evaluate digital information, responsibly utilize emerging AI technologies, and contribute to the development of resilient, ethical, and digitally informed rural societies.

LITERATURE REVIEW

Digital literacy has evolved from a basic ability to access digital technologies into a multidimensional competence encompassing information evaluation, critical thinking, digital communication, media ethics, and responsible participation in online environments. Contemporary scholars argue that digital literacy is no longer limited to technical skills but also includes the capacity to recognize misinformation, evaluate source credibility, and make informed decisions in increasingly complex digital ecosystems. The emergence of Artificial Intelligence has further expanded the scope of

digital literacy because AI-generated text, images, videos, and voice synthesis have introduced new challenges in distinguishing authentic information from manipulated content. Consequently, digital literacy programs must move beyond technology utilization toward developing critical reasoning and ethical judgment that enable individuals to navigate AI-driven information environments effectively (Sa'diya et al., 2026).

The concept of cognitive resilience has recently gained prominence as an educational strategy for strengthening individuals' resistance to misinformation, manipulation, and cognitive bias. Cognitive resilience refers to the ability to critically analyze information, question unsupported claims, adapt to rapidly changing information environments, and maintain sound judgment when confronted with misleading content. Unlike conventional digital literacy, which primarily emphasizes operational digital skills, cognitive resilience integrates analytical thinking, reflective reasoning, and evidence-based decision-making. Several studies indicate that individuals possessing strong cognitive resilience are less likely to believe or disseminate hoaxes because they employ systematic verification, compare multiple information sources, and critically assess digital content before accepting its validity. Therefore, cognitive resilience represents an essential component of digital citizenship in the era of generative Artificial Intelligence (Mardiya & Sofa, 2025; Sa'diya et al., 2026).

From an Islamic perspective, digital literacy should be grounded not only in technological competence but also in ethical responsibility. Islamic teachings provide a comprehensive moral framework through principles such as *tabayyun* (verification of information), *sidq* (truthfulness), *amanah* (trustworthiness), *'adl* (justice), and *maslahah* (public benefit), which collectively guide responsible communication and information sharing. The Qur'an explicitly encourages believers to verify information before acting upon it to prevent injustice and social harm. These ethical values are increasingly relevant in today's digital environment, where misinformation, AI-generated content, and algorithm-driven communication can easily influence public opinion. Integrating Islamic ethical principles into digital literacy initiatives therefore strengthens both cognitive competence and moral awareness, encouraging responsible digital behavior that benefits individuals and society (Arifin & Sofa, 2025).

Despite the growing body of literature on digital literacy, AI ethics, and Islamic education, few studies have developed an integrated assistance model that combines Islamic digital literacy with cognitive resilience to address hoaxes and AI-generated content within rural communities. Existing research generally focuses either on digital skills, media literacy, or Islamic ethical values as separate domains, leaving a conceptual and practical gap in community-based interventions. This study addresses that gap by proposing an Islamic Digital Literacy Assistance model that integrates cognitive resilience, digital fact-checking practices, and Islamic ethical principles into a participatory community empowerment framework. The model offers a novel contribution by positioning Islamic values as practical mechanisms for strengthening critical thinking, enhancing information verification, and building resilient rural communities capable of responding wisely to the challenges of the contemporary AI-driven information ecosystem.

RESEARCH METHODS

This study employed a community-based participatory approach to strengthen Islamic digital literacy and cognitive resilience among rural communities in addressing hoaxes and AI-generated content. The assistance program was implemented through a series of educational activities, including interactive workshops, group discussions, digital fact-checking simulations, case-based learning, and mentoring sessions. Participants consisted of village residents, youth organizations, community leaders, and religious leaders who were actively involved throughout the program. The assistance materials focused on identifying misinformation, recognizing AI-generated content such as synthetic images and AI-produced text, evaluating the credibility of digital information sources, and applying Islamic ethical principles, particularly *tabayyun* (information verification), *amanah* (trustworthiness), and *sidq* (truthfulness), in responsible digital communication (Hasanah & Sofa, 2026).

Program evaluation adopted a qualitative descriptive design to assess participants' learning experiences and behavioral changes following the assistance activities. Data were collected through participant observation, semi-structured interviews, focus group discussions, and reflective questionnaires administered before and after the program. The collected data were analyzed using qualitative content analysis by identifying recurring themes related to digital awareness, cognitive resilience, critical information evaluation, and the application of Islamic ethical values in digital environments. The findings were interpreted to evaluate the effectiveness of the assistance model and to formulate recommendations for developing sustainable Islamic digital literacy programs that enhance rural communities' resilience against hoaxes, misinformation, and AI-generated content.

RESULTS AND DISCUSSION

The implementation of the Islamic Digital Literacy Assistance program revealed that rural communities possess a high level of enthusiasm for adopting digital technologies but often lack the competencies required to critically evaluate online information. Initial observations indicated that many participants relied heavily on social media and instant messaging platforms as their primary sources of news without consistently verifying the credibility of the information received. Furthermore, most participants were unfamiliar with AI-generated content, including synthetic images, AI-produced text, and manipulated videos, making them more vulnerable to misinformation and digital manipulation. These findings highlight that the principal challenge is not limited to technological access but also involves insufficient critical thinking skills and limited awareness of emerging AI-driven information threats. Consequently, digital literacy initiatives in rural communities should emphasize both technical competencies and cognitive preparedness to address the evolving digital information landscape.

The assistance program was conducted through interactive workshops, group discussions, digital fact-checking simulations, and mentoring activities that integrated Islamic ethical values into digital literacy education. Participants were introduced to practical techniques for verifying online information by comparing multiple credible sources, recognizing indicators of manipulated content, and utilizing digital verification tools before sharing information. Simultaneously, facilitators emphasized the Islamic principles of *tabayyun*, *amanah*, *sidq*, and *maslahah* as ethical foundations for responsible communication in digital spaces. This combination of practical digital skills and Islamic

moral values encouraged participants to view information verification not only as a technical process but also as a religious and social responsibility. As a result, participants demonstrated greater caution in responding to online information and became more aware of the ethical consequences of spreading unverified content.

The program also demonstrated significant improvements in participants' cognitive resilience, reflected in their enhanced ability to question suspicious information, critically analyze digital content, and resist emotional manipulation commonly found in hoaxes and AI-generated misinformation (Nurhamsalim & Sofa, 2025). During simulation activities, participants showed greater confidence in distinguishing authentic information from fabricated content by examining evidence, checking publication sources, and identifying inconsistencies in AI-generated materials. The incorporation of cognitive resilience into Islamic digital literacy expanded participants' understanding beyond operational digital skills toward reflective thinking and informed decision-making. This outcome suggests that strengthening cognitive resilience is essential for building communities capable of adapting to increasingly sophisticated forms of digital deception created by generative Artificial Intelligence.

The findings further indicate that the proposed assistance model offers an innovative framework for community empowerment by integrating digital literacy, cognitive resilience, and Islamic ethical principles into a unified educational approach. Unlike conventional digital literacy programs that primarily focus on technology use, this model promotes holistic capacity building by simultaneously developing technical competence, critical reasoning, and moral responsibility. Such an integrative approach contributes to the formation of resilient rural communities that are better equipped to navigate AI-driven information ecosystems while maintaining ethical communication practices grounded in Islamic values. Therefore, the model has strong potential to be replicated in other rural communities through collaboration among village governments, educational institutions, religious organizations, and community leaders as part of sustainable digital transformation and misinformation prevention initiatives.

CONCLUSION

The Islamic Digital Literacy Assistance program demonstrated that integrating cognitive resilience with Islamic ethical values effectively enhances rural communities' capacity to address hoaxes and AI-generated content. The combination of digital literacy training, fact-checking practices, and the Islamic principles of *tabayyun*, *amanah*, *sidq*, and *maslahah* enabled participants to critically evaluate digital information while fostering ethical responsibility in online communication. The program not only improved participants' technical abilities to identify misinformation but also strengthened their critical thinking, digital awareness, and commitment to responsible information sharing. These findings indicate that Islamic digital literacy should be understood as a holistic educational approach that combines technological competence, cognitive resilience, and moral values to build trustworthy and informed digital citizens.

Furthermore, this community assistance model offers an innovative and sustainable framework for empowering rural communities in the era of Artificial Intelligence. By integrating cognitive resilience with Islamic digital ethics, the program addresses both the technological and moral dimensions of emerging digital challenges. The model has strong potential for wider implementation through collaboration among village governments, educational institutions, religious organizations, and community

leaders. Future community engagement initiatives are encouraged to expand this framework by incorporating AI literacy, digital fact-checking technologies, and continuous mentoring to strengthen community resilience against evolving forms of misinformation and promote an ethical, inclusive, and resilient digital society.

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