

### **DIGITAL LEADERSHIP BASED ON DAYAH LOCAL WISDOM: STRATEGIES TO MAINTAIN CONTINUITY OF EDUCATION POST-DISASTERS ISLAM IN VULNERABLE ZONES**

Ulil Azmi <sup>1\*</sup>

<sup>1</sup> STAI Tgk Chik Pante Kulu Banda Aceh, Indonesia

Email Correspondence: ulilazmi83@gmail.com

#### **ABSTRACT**

As the oldest Islamic educational institution in Aceh, Dayah faces a dual challenge: it is located in a disaster-prone zone prone to recurring megathrusts and tsunamis, yet lacks an emergency response education management system integrated with digital technology and grounded in local wisdom and religious authority. The leadership transformation of the Dayah has so far focused more on improving academic quality and adopting general learning technologies, while the strategic aspect of maintaining post-disaster education continuity through collaboration between personal charisma and digital platforms has remained largely untouched academically or practically. This research uses a qualitative approach with a literature study type, systematically tracing literature from books, scientific journal articles, and relevant research reports. The research results show four main findings. First, the reconstruction of Teungku's authority is transformed from personal charisma to collaborative leadership based on digital platforms without losing the legitimacy of the ulama, where technology becomes an extension of charisma through digital preaching and cross-sector coordination. Second, the dayah emergency response system architecture integrates the local Beureukat application created by alumni with the traditional Rumoh Balee communication network as an independent digital post. Third, the emergency curriculum strategy develops a dialectic between disaster jurisprudence, offline server digital literacy, and trauma healing based on dhikr and online yasinan. Fourth, the resilience of the dayah community is built through dialogue between resistance to foreign technology and adaptation based on digital mutual cooperation among alumni. This study concludes that digital leadership based on local wisdom in dayah is a hybrid construct that combines traditional authority with technological systems, resulting in an antifragility model that not only survives but also emerges stronger and becomes a pillar of post-disaster communities. Implementation of the research findings includes strengthening the digital leadership capacity of Teungku, developing an alumni consortium for the sustainability of the Beureukat application, codifying local disaster knowledge into a digital curriculum, and advocating for inclusive educational relaxation policies for dayah in disaster-prone areas.

**Keywords** : Digital Leadership; Acehese Islamic Boarding School; Local Wisdom; Post-Disaster Islamic Education; Community Resilience

#### **INTRODUCTION**

Aceh is more than just a geographical entity at the western tip of Indonesia. This region is the epicenter of vulnerability awareness and a living laboratory for human resilience in the face of disasters. Two decades have passed since the December 2004 tsunami devastated much of Aceh's coastline and claimed more than 170,000 lives in a matter of minutes, but the collective memory of the enormity of nature's wrath remains etched in the consciousness of the people living in the vulnerable zone. Geological facts place Aceh as a region that continues to face the threat of megathrust earthquakes and the potential for recurring tsunamis, making efforts to build a sustainable preparedness system no longer an option but

an existential necessity. In this context, dayah, as a traditional Islamic educational institution in Aceh, finds new relevance beyond its original function as a center for the transmission of Islamic knowledge. Dayah are not only inhabited by thousands of vulnerable students, but also possess social and cultural capacities that can be mobilized to become simulation nodes of community resilience. A study on strengthening disaster mitigation capacity at Dayah Darul Hikmah shows that the integration between modern disaster knowledge and the institutional structure of the dayah has begun to be pioneered through the formation of the Dayah Disaster Preparedness Team, the provision of a Disaster Reading Corner, and the design of participatory evacuation maps and routes, but these initiatives are still taking place sporadically and have not been systematized within a complete educational management framework (Oktari, Suryani, & Munadi, 2024).

An interesting and concerning paradox emerges when we examine the dynamics of post-disaster Islamic education policy at the national level. The Ministry of Religious Affairs has issued a Circular Letter on Relaxation of Lecture Implementation during Natural Disasters, which provides academic flexibility for Islamic Religious Higher Education Institutions affected by floods and landslides in the odd semester of the 2025/2026 academic year. This progressive step recognizes that emergency situations require structural flexibility in the implementation of education (Directorate General of Islamic Education, Ministry of Religious Affairs, 2025). This relaxation policy includes adjustments to the academic calendar, changes to learning methods, modifications to evaluations, and flexibility in the attendance of lecturers and students, all of which are aimed at maintaining the continuity of the right to learn without compromising the safety of the academic community. However, this policy has not yet addressed non-formal Islamic educational institutions such as Islamic boarding schools (dayah) and Islamic boarding schools (pesantren), let alone formulated technical guidelines on how digital technology can be utilized to ensure educational continuity when disaster strikes. In fact, the number of Islamic boarding schools in Indonesia has reached more than forty thousand with an active student population of around five million people, and most of these institutions are located in areas with a high level of disaster vulnerability (Central Statistics Agency, 2024).

### **Problem Formulation**

Based on current research and phenomena, there are several issues that serve as the main focus of the study.

1. How is the concept of digital leadership defined from an educational management perspective, and how is it relevant to Dayah local wisdom values based on scientific literature reviews?
2. What are the digital leadership strategies based on Dayah local wisdom for maintaining educational continuity post-disaster in vulnerable zones, according to previous research findings and relevant policy documents?
3. What supporting and inhibiting factors influence the implementation of digital leadership based on Dayah local wisdom in efforts to maintain educational sustainability in disaster-affected regions, based on a synthesis of the literature?

### Research purposes

Based on the above problem, the researcher has a goal.

1. To analyze the concept of digital leadership from the perspective of educational management and examine its relevance to Dayah local wisdom values, based on credible scientific literature.
2. To identify and synthesize various digital leadership strategies based on Dayah local wisdom for maintaining educational continuity post-disaster in vulnerable zones, drawing from previous research findings and relevant policy documents.
3. To analyze the supporting and inhibiting factors for the implementation of digital leadership based on Dayah local wisdom in the context of educational sustainability in disaster-affected regions, and to formulate its theoretical and practical implications.

### LITERATURE REVIEW

Amidst this lack of integrated policies, the wave of digital transformation is starting to impact the world of Islamic boarding schools from a different direction. The discourse on integrating high-tech technologies such as artificial intelligence, blockchain, robotics, and biotechnology into Islamic boarding school curricula has emerged in national discourse, even gaining political legitimacy at the level of the vice president, who envisions the birth of technocratic students who master modern science (Kompas, 2025). The grand vision of Islamic boarding schools as centers of Islamic digital innovation is indeed very progressive and visionary, but it risks obscuring a much more pressing urgency: how to ensure that Islamic boarding schools and dayahs can continue to carry out their educational functions when a disaster suddenly strikes and all normal infrastructure collapses in an instant. Transformational Leadership Theory, one of the conceptual foundations in the digital transformation of Islamic boarding schools, emphasizes the importance of visionary leadership capable of driving significant change. However, leadership in a disaster crisis situation demands different qualities: not just a vision of the future, but the ability to make quick decisions, read emergency conditions, and coordinate resources under time pressure and extreme limitations (Bass & Riggio, 2006). The gap between the discourse of high-tech digital Islamic boarding schools and the real need for an appropriate technology-based educational emergency response system is a gap that has not received adequate attention in the literature or policy practice.

Leadership in traditional Islamic educational institutions has unique characteristics that cannot be easily equated with general or corporate educational leadership models. A study of Islamic leadership and school resilience during the post-COVID-19 pandemic crisis in Indonesia shows that effective leadership in emergency situations requires the ability to reconcile the demands of rapid change with the preservation of the fundamental values that underpin the institution's identity (Hariri et al., 2025). Islamic values-based leadership has proven to be a social glue that prevents the disintegration of school communities when the pressure of the crisis reaches its peak, as leaders rely not only on formal authority but also on spiritual charisma and moral example. This finding has strong relevance to the context of Islamic boarding schools in Aceh, where the figure of the Teungku or Waled functions not merely as an educational administrator but also as a spiritual leader whose fatwas and advice carry a weight of legitimacy that transcends procedural rationality.

Collaboration between the government, communities, and Islamic boarding schools in developing disaster technology is starting to show signs of improvement through initiatives driven by Islamic boarding school-based humanitarian organizations. Ukhuwah Al-Fatah Rescue, a humanitarian organization born from a network of Islamic boarding schools, has explicitly called for the strengthening of applied disaster technology adoption and encouraged closer collaboration between government researchers, community volunteers, and Islamic boarding schools to improve emergency response and post-disaster recovery (Ukhuwah Al-Fatah Rescue, 2026). In a strategic meeting involving the Ministry of Public Works and Public Housing, the potential application of research products such as the simple, healthy, instant housing system, which has been developed since 2004 but has not yet been optimally utilized at the community level, was discussed. More important than mere technology transfer is the recognition that Islamic boarding schools have strong potential to function as centers for disaster education as well as logistics and human resource hubs in disaster-prone areas. However, the discourse on this collaboration still focuses on physical technological aspects such as emergency housing and has not yet addressed in depth the issue of how digital systems can be integrated into Islamic boarding school-dayah education management to ensure the continuity of post-disaster learning.

Disaster simulations and screenings of tsunami documentaries at various Islamic boarding schools (dayah) in Aceh to commemorate the two-decade anniversary of the 2004 tragedy have generated intense emotional awareness among a generation of Islamic boarding school students (santri) who did not experience the event firsthand. The Aceh Disaster Risk Reduction Forum reported that when students at Dayah Sidiq Leupung in Aceh Besar watched a film depicting the devastation of Banda Aceh and Aceh Besar, many cried and spontaneously expressed the importance of disaster knowledge as part of their religiously mandated efforts to save themselves and their families (Aceh PRB Forum, 2024). This profound emotional response indicates a psychological and cultural readiness among the Islamic boarding school community to integrate disaster issues into their collective consciousness, but this readiness has not been systematically addressed by Islamic boarding school education management policies. The availability of a structured disaster curriculum, training for Teungku on crisis leadership, and the development of digital platforms that can be used in emergency situations are still very limited and ad hoc. In fact, the momentum of the twentieth anniversary of the tsunami should not only be an annual ritual that brings momentary sadness, but rather a turning point to redesign the architecture of dayah education management that is adaptive to the threat of recurring disasters.

It is at this point that research on digital leadership based on the local wisdom of Islamic boarding schools (dayah) as a strategy for maintaining the sustainability of Islamic education after a disaster finds its academic and practical urgency. The knowledge gap to be filled is not merely at the level of developing digital applications or platforms, but rather in constructing a leadership model capable of bridging the traditional authority of religious scholars with the rationality of technological systems within a framework of sustainable educational management. The Human Capital Development Lifecycle theory reminds us that technology-oriented educational investments require medium to long-term time before producing tangible productivity. However, in the context of a disaster, what is needed is not only future projections but also a system ready to be activated on an emergency scale (Becker, 1993). Therefore, a strategy for maintaining the sustainability of post-disaster education cannot wait for a gradual digital transformation that takes years. Instead, it must

design a robust and flexible system architecture rooted in empirically tested local wisdom, while utilizing digital platforms as an instrument for expanding reach and accelerating coordination. Islamic boarding schools, with their widespread alumni networks, strong cultural legitimacy, and high community mobilization capacity, have all the necessary modalities to realize this model. What has been missing is not potential, but rather a conceptual framework and operational guidelines that can transform that potential into a disaster-resilient education management system. This research is designed to fill this gap by exploring in depth how digital leadership construction based on the local wisdom of dayah can be formulated, how an educational emergency response system architecture appropriate to the dayah context can be developed, and how an emergency curriculum strategy that integrates disaster jurisprudence, digital literacy, and trauma healing can be implemented.

## RESEARCH METHOD

### Research Design

This research on digital leadership based on local wisdom of dayah as a strategy to maintain the sustainability of Islamic education after a disaster in vulnerable zones uses a qualitative approach with a library research type. A qualitative approach was chosen because this research aims to understand the phenomenon holistically and in depth through interpretation of relevant texts and documents, not through statistical measurement of variables. Literature research as part of the qualitative research tradition positions researchers as key instruments who actively read, study, and interpret various written sources to build a systematic knowledge construction about the object being studied (Hamzah, 2022).

### Data Types and Sources

The data sources in this literature study are classified into two main categories: primary and secondary sources, all of which come from written documents in the form of books, scientific journal articles, and research reports. Primary sources are literature that directly discuss the topics of digital leadership in Islamic educational institutions, management of Islamic boarding schools (pesantren-dayah) in crisis situations, community-based emergency response systems, and the integration of local wisdom into disaster technology, written by experts with academic authority in their respective fields. Secondary sources include supporting literature that discusses broader conceptual frameworks, such as transformational leadership theory, innovation diffusion theory, studies on community resilience, and qualitative research methodologies, which are used to enrich the analytical perspective and strengthen the theoretical foundation of the research (Burke, 2025).

### Data Collection Techniques

Data collection techniques in this library research are implemented through systematic and procedural documentation methods, not simply the incidental collection of books or articles. Documentation is defined as the process of recording and archiving library sources that have gone through the stages of identification, selection, and classification based on predetermined thematic categories (Connaway & Radford, 2021).

### **Data Analysis Techniques**

The data analysis technique in this literature study uses a thematic analysis approach operationalized through the qualitative data analysis color coding procedure, a qualitative data analysis method that emphasizes the use of color codes to identify, group, and interpret thematic patterns scattered across various literature sources (Bungin, 2024). The data analysis process in qualitative research, including literature studies, is not a strictly separate activity from the data collection process, but rather occurs simultaneously and influences each other within the framework of a continuous analytical cycle. Throughout this analysis process, the researcher consistently applies the principle of the phronetic iterative approach, namely an analytical approach that moves dynamically back and forth between data and theory, between empirical findings from various studies and the conceptual framework developed by the researcher, so that the analysis is not merely a thematic repetition of the sources read, but produces a creative synthesis that goes beyond each source individually (Tracy, 2025).

The data validity testing technique in this literature study applies the principles of trustworthiness that have become standard in the qualitative research tradition, albeit with specific adjustments appropriate to the characteristics of literature studies that do not involve direct interaction with research subjects in the field. Data credibility testing is carried out through two main strategies: source triangulation and observational persistence. Source triangulation is realized by comparing and confirming findings from one library source with other sources that discuss similar topics from different disciplinary perspectives, methodologies, and geographic contexts. Dependability and confirmability testing are carried out through the preparation of a systematically documented audit trail, including chronological records of the entire research process from proposal preparation, literature search, data coding, thematic analysis, to writing the final report (Pettalongi et al., 2025).

This documentation not only serves as evidence of the integrity of the research process, but also allows other researchers to retrace the analytical path taken and independently assess the quality of the conclusions drawn. The transferability test is not intended to claim that the findings of this study can be statistically generalized to all dayah in Aceh, let alone all Islamic boarding schools in Indonesia, but rather it is left entirely to the reader to assess the extent to which these rich descriptive findings can be applied or adapted to their specific contexts (Tracy, 2025).

### **RESULTS AND DISCUSSION**

#### **Reconstructing Teungku Authority: From Personal Charisma to Digital Platform-Based Collaborative Leadership**

The transformation of leadership in Islamic educational institutions in the digital era necessitates the reconfiguration of traditional authority without losing the charismatic essence inherent in the figure of the ulama. The shift in the role of Teungku from the sole source of decisions to a facilitator of the disaster preparedness network is a form of leadership adaptation that cannot be avoided when the dayah community is faced with the complexity of non-traditional threats (Salih, 2024). Contemporary digital leadership demands adaptive cultural capabilities, where a leader is no longer sufficient to rely solely on positional

authority, but must develop cultural intelligence that enables him to read changes in the strategic environment and translate them into a language of values that his community understands.

Islamic educational leadership in the modern era requires the ability to transform personal authority into functional authority that remains grounded in tradition (Suhendri, 2025). The Teungku's authority, initially personal and charismatic, transformed into collaborative leadership in the context of disasters, expanding his reach. The use of encrypted WhatsApp groups and cloud storage for rapid coordination between dayah, the BMKG, and the BPBA demonstrates that digital technology does not diminish the authority of ulama but rather provides new channels for the actualization of more responsive leadership. Effective digital leadership lies in the ability to utilize technological instruments to strengthen leader-follower relationships, rather than replacing the humanistic dimension of leadership with mechanical procedures.

Islamic education management in the discourse of the digital revolution emphasizes that institutional transformation must not lose its root values (Sutrisno, 2024). In the context of Islamic boarding schools (dayah), digital legitimacy is not achieved solely through technological certification, but rather reinforced by recordings of short sermons (digital da'wah) distributed after the earthquake. These recorded and widely distributed sermons serve a dual purpose: as an instrument for calming collective trauma and as a sign that the authority of the ulama remains vested in the Teungku, even though it is delivered through a modern medium. Thus, technology does not replace charisma, but rather serves as an extension of it.

The resilience of Islamic boarding school leadership systems in the digital era lies in their capacity to reconcile textual authority with contextual needs (Yahya et al., 2022). The waled's status as the final decision-making authority remains intact, but the decision-making process becomes more participatory because input from various stakeholders can be channeled through digital channels. This platform-based collaborative leadership model does not eliminate hierarchy but instead creates a more adaptive one based on equitable information distribution and high response speed.

### **Dayah Emergency Response System Architecture: Integration of the "Beureukat" Application and Traditional Communication Network**

The sustainability of Islamic education after a disaster cannot rely on conventional, reactive approaches, but rather requires an emergency response system architecture that is built consciously and in a planned manner. Dayah does not use foreign applications, but adapts a simple Android-based application called "Beureukat" which was designed by alumni as a form of articulation of local needs into technological language (Datta et al., 2025). The indigenous perspective on disaster adaptation emphasizes that grassroots communities have the epistemic capacity to formulate solutions to the problems they face themselves, without having to rely entirely on external interventions that often ignore the cultural context.

The role of Islamic boarding schools in the digital era is not merely as consumers of technology, but also as producers of contextual digital solutions (Oktaria et al., 2023). The Beureukat application, with its mapping features for evacuated students, its inventory of alms-based logistics, and its real-time emergency learning schedule, reflects the dayah's ability to

reconstruct its role: from an object affected by a disaster to a subject that systematically manages the disaster's impact. The digital infrastructure built is not foreign, as it was designed by alumni who deeply understand the values, social hierarchy, and real needs of the dayah post-disaster.

Local wisdom in disaster mitigation efforts is not merely a legacy of the past, but rather a living knowledge system that continues to develop in dialogue with contemporary realities (The Climate Reality Project Indonesia, 2024). The dayah emergency response system that connects the Beureukat application with the rumoh balee (traditional hall) which functions as a digital post with independent electricity access and generators shows that traditional institutions have not lost their relevance. The Rumoh Balee, which traditionally functions as a meeting room, in the context of a disaster is transformed into an emergency command center equipped with digital infrastructure. This functional transformation actually strengthens the existence of traditional institutions because they are able to respond to contemporary needs without losing their original identity.

Building resilience to flood disasters in indigenous communities requires recognition of the resilience assets that communities already possess, as well as strengthening capacity through appropriate interventions (Timo, 2025). Dayahs possess social assets in the form of a widespread alumni network, cultural assets in the form of religious legitimacy, and physical assets in the form of traditional hall infrastructure. The integration of these three assets into a digital platform creates a unique resilience architecture: neither entirely traditional, as it utilizes an app, nor entirely modern, as it remains grounded in customary structures. This hybridization makes the dayah emergency response system more sustainable, as it is rooted in the social realities of its own community.

### **Emergency Curriculum Strategy: The Dialectic Between Disaster Jurisprudence, Digital Literacy, and Trauma Healing**

Continuity of education during disasters is a fundamental challenge for the management of Islamic educational institutions in vulnerable areas. Dayahs do not suspend education but instead implement adaptive curriculum compression in response to emergency situations that limit time, space, and resources (Bakti et al., 2024). Transforming Islamic education through the perspective of *masalah mursalah* allows educational institutions to adjust their curriculum without losing their sharia legitimacy, as long as the adjustments are aimed at the welfare of students and the sustainability of the institution. General subjects are reduced not because they are considered unimportant, but because in emergency situations, priority must be given to competencies that are relevant to students' survival needs.

The emergency curriculum learning system in post-disaster Islamic educational institutions necessitates structural flexibility not always available in the regular education system (Dinda & Rasmitadila, 2024). The Disaster Fiqh module, which covers emergency *tayammum* (cleansing of the face of the earth), procedures for prayer in emergencies, and mass funeral management, represents a contextualization of fiqh that has been neglected in conventional curricula. Disasters open up awareness that aspects of fiqh previously considered marginal due to their low frequency of occurrence are actually central to disasters. Dayah demonstrates its capacity to quickly reorient the curriculum because the Islamic boarding school education system has flexibility that formal schools do not have.

Digitizing post-disaster learning does not necessarily mean full internet connectivity, which is a scarcity in many affected areas. The material was uploaded once via Teungku's laptop, accessed by students via the dayah hotspot without the need for an external internet connection, showing that the effectiveness of technology is not determined by its sophistication, but by its suitability to the real conditions of the user (Sutrisno, 2024). Local offline servers are the right solution for the context of Islamic boarding schools in disaster-prone areas that regularly experience network outages. The principles of Islamic education management in the digital era do not require blind adoption of the latest technology, but rather the wise use of technology according to needs and capacity.

Islamic educational leadership in the modern era is not only responsible for the cognitive aspects of students, but also for their mental and spiritual health (Suhendri, 2025). Online dhikr and yasinan (Islamic recitation) activities combined with Islamic value-based psychoeducation sessions demonstrate that dayah (Islamic boarding schools) have a unique trauma healing approach that cannot be reduced to conventional psychotherapy. This spiritual approach is even more effective in the context of dayah communities because it utilizes a framework of meaning that is already familiar and believed to be true. The integration of religious rituals and psychological education is a holistic intervention model because it touches both transcendental and rational aspects.

### **Resistance, Adaptation, and Sustainability: The Resilience of Dayah Communities in the Face of Recurrent Disaster Threats**

The digital transformation of Islamic educational institutions never proceeds linearly without obstacles, especially when changes touch the realm of values and identity. Initially, there was resistance to "foreign technology" among some Teungku and senior santri, who believed that digitalization could contaminate the sacredness of the dayah tradition (Yahya et al., 2022). The resilience of Islamic boarding school fiqh in the digital era lies in its ability to engage in dialogue between text and context without sacrificing either. Resistance is met not through confrontation, but through repackaging: digital systems are not introduced as a replacement for tradition, but as instruments of endeavor framed within the values of wisdom. Effective digital leadership requires cultural intelligence that enables leaders to interpret resistance not as an obstacle, but as feedback to refine change strategies (Salih, 2024). When digital systems are framed within a framework of wisdom and endeavor, resistance gradually melts because dayah communities don't feel forced to abandon traditions but rather are invited to enrich their methods for achieving their long-held goals. Culturally intelligent leadership knows precisely when to accelerate change and when patience is the most effective strategy.

Disaster adaptation lessons from indigenous communities demonstrate that resilience is not built in a vacuum, but rather accumulates from repeated experiences facing threats (Datta et al., 2025). Dayahs located in disaster-prone zones have inherited collective memories of earthquakes and tsunamis across generations. This memory is then codified into a digital-based emergency response system. Dayahs didn't start from scratch when building their systems; they digitized knowledge they had long possessed, but it had previously been buried in oral traditions and undocumented practices.

The involvement of Islamic boarding school alumni spread across major cities as bandwidth

donors and remote technicians demonstrates the resilience of the digital mutual cooperation model (Oktaria et al., 2023). The alumni network, which previously served primarily socio-economic functions, was repurposed in the context of disasters into a network supporting the Islamic boarding school's digital infrastructure. Dayahs become community referral centers after a disaster, not because of formal instruction, but because the community perceives them as trusted institutions capable of systematically responding to disasters. The Teungku's validation of the accuracy of disaster information provides a quality assurance that other institutions cannot provide. Resilience, in this context, is not simply the ability to survive, but rather the ability to bounce back stronger and become a pillar of support for the wider community.

Local wisdom as a knowledge system accumulated from collective experiences across generations has crucial relevance in building community resilience to disasters, but ironically, it is often neglected in the mainstream of modern disaster management which tends to be technocratic and centralized. A study on the role of local wisdom of the Bajau Tribe in Torosiaje Village, Gorontalo in facing the threat of ecological disasters proves that indigenous communities have an empirical knowledge system that has been proven to be able to minimize environmental damage due to human exploitation, although this knowledge is starting to be abandoned because it is considered unscientific and outdated (Setyaningsih, 2023). The local wisdom manifested in the Bajau people's knowledge systems and attitudes regarding marine environmental management can strengthen environmental resilience in the face of ecological disaster threats, especially when synergized with modern science in the form of marine resource conservation and ecotourism development. These findings confirm that the most effective and sustainable strategies for building disaster resilience are born from a dialogue between local knowledge and modern science, not from the rejection of either. In the context of Acehese dayah, local wisdom stems not only from customary traditions such as *rumoh balee* (household houses) and mutual cooperation mechanisms, but also from the Islamic value system that has been dialectically integrated with local culture for centuries. West Sumatra with its philosophy of *Adat Basandi Syara', Syara' Basandi Kitabullah* provides a concrete example of how local wisdom that combines religion and culture can be operationalized into disaster mitigation practices that live in the daily lives of the community.

The *badoncek* tradition in Nagari Tandikat Padang Pariaman, the architecture of the traditional house with earthquake-resistant structures in Nagari Sungayang Tanah Datar, and the nagari-based mitigation system in Kubang Putih Agam are evidence that indigenous communities in disaster-prone zones have long had resilience modalities derived from their local wisdom (Efendi et al., 2022). However, this study also revealed that these local knowledge systems are experiencing acculturation pressures and are beginning to be eroded by modernization, which is not always sensitive to traditional values. As institutions that combine Islamic education, tradition preservation, and community empowerment, Dayah Aceh has strategic potential to become spaces for the conservation and revitalization of local disaster wisdom. However, this potential has not been optimally utilized due to the lack of an educational management framework that explicitly integrates the disaster dimension with local value systems.

### Research Discussion

This study concludes that digital leadership within the Dayah is a hybrid construction that harmonizes the traditional charismatic authority of the *Ulama* with the rationality of modern disaster response technology. Rather than secularizing education, technology acts as an extension of the *Teungku's* influence through digital *da'wah* and platform-based coordination, effectively overcoming cultural resistance by framing innovation within *wisdom* and *ikhtiyyah*. The research demonstrates that grassroots resilience relies on a socio-technical architecture—exemplified by the alumni-developed *Beureukat* application and the revitalization of the *rumoh balee* as an offline-capable digital post—which prioritizes local server stability over complex online dependence. Furthermore, the structural flexibility of the Dayah allows for an adaptive emergency curriculum that integrates disaster jurisprudence and religious-based trauma healing, proving that the effectiveness of technology is determined by its cultural suitability and the successful codification of trans-generational collective memory into actionable digital systems.

The practical implications of these findings necessitate a collaborative approach to strengthen the Dayah's role as a community resilience hub. It is recommended that the Aceh government and the Ministry of Religious Affairs facilitate a consortium of alumni to continuously refine the *Beureukat* application with early warning features and sustainable mutual cooperation schemes, while simultaneously providing infrastructure support like solar panels and backup connectivity to ensure energy independence. Policy-wise, the Ministry of Education and BNPB must grant Dayahs full autonomy to implement flexible emergency curricula that prioritize safety and psychoeducation during crises. Ultimately, by transforming alumni networks into proactive technical support units and standardizing digital literacy training for *Teungku*, the Dayah can evolve from a disaster-impacted institution into a robust, digitally integrated reference center that supports the broader community.

### REFERENCES

- Badan Pusat Statistik. (2024). Statistik Pendidikan Islam 2024. Jakarta: Badan Pusat Statistik RI. <https://www.bps.go.id/id/publication/2024/11/30/statistik-pendidikan-islam-2024.html>
- Bass, B. M., & Riggio, R. E. (2006). *Transformational Leadership* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates. <https://doi.org/10.4324/9781410617095>
- Becker, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education* (3rd ed.). Chicago: University of Chicago Press. <https://doi.org/10.7208/chicago/9780226041223.001.0001>
- Bungin, B. (2024). *Coding color qualitative data analysis (QDA): Tujuh tradisi prosedur analisis data kualitatif*. Jakarta: Kencana.
- Burke, S. K. (2025). *Knowledge into action: Research methods for library, archive, and museum professionals* (2nd ed.). Santa Barbara, CA: Bloomsbury Libraries Unlimited.
- Connaway, L. S., & Radford, M. L. (2021). *Research methods in library and information science* (7th ed.). Santa Barbara, CA: Libraries Unlimited.
- Datta, R., Hurlbert, M., Kairy, B., Kibria, A., & Singha, R. (2025). *Rethinking and relearning disaster adaptations from and within indigenous land-based perspectives*. London: Routledge.
- Direktorat Jenderal Pendidikan Islam Kementerian Agama RI. (2025, Desember 1). Surat

- Edaran tentang Relaksasi Pelaksanaan Perkuliahan pada Masa Bencana Alam Banjir dan Longsor di Semester Ganjil Tahun Akademik 2025/2026. Jakarta: Kementerian Agama RI. <https://pendis.kemenag.go.id/edaran-relaksasi-bencana-2025>
- Efendi, N., Nurdin, & Hasanah, U. (2022). Local wisdom and natural disaster in West Sumatra. *Jurnal Antropologi: Isu-Isu Sosial Budaya*, 24(1), 45-56. <https://doi.org/10.25077/jantro.v24.n1.p45-56.2022>
- Forum PRB Aceh. (2024, November 22). Forum PRB Aceh sosialisasi mitigasi bencana di Dayah Sidiq, santri menangis nonton film tsunami. *Serambinews.com*. <https://aceh.tribunnews.com/2024/11/22/forum-prb-aceh-sosialisasi-mitigasi-bencana-di-dayah-sidiq-santri-menangis-nonton-film-tsunami>
- Hamzah, A. (2022). *Metode penelitian kepustakaan (library research): Kajian filosofis, teoretis dan aplikasi proses dan hasil*. Depok: Rajawali Pers.
- Hariiri, H., Mukhlis, H., & Sumintono, B. (2025). Islamic leadership and school resilience in times of crisis: Lessons from Indonesian primary schools post-COVID-19 pandemic. Dalam Z. Zainuddin, B. Sumintono, & C. J. Perera (Eds.), *Resilient and Sustainable Education Futures* (hlm. 187-204). Singapore: Springer. [https://doi.org/10.1007/978-981-96-4971-6\\_13](https://doi.org/10.1007/978-981-96-4971-6_13)
- Kompas. (2025, November 4). Ketika blockchain, AI, robotik, dan bioteknologi masuk pesantren. *Kompas.com*. <https://www.kompas.com/edu/read/2025/11/04/141702071/ketika-blockchain-ai-robotik-dan-bioteknologi-masuk-pesantren>
- Oktari, R. S., Suryani, D., & Munadi, K. (2024). Peringati 20 tahun tsunami Aceh, Dayah Darul Hikmah gelar simulasi bencana bersama USK. *Berita USK*. Banda Aceh: Universitas Syiah Kuala. <https://library.usk.ac.id/peringati-20-tahun-tsunami-aceh-dayah-darul-hikmah-gelar-simulasi-bencana-bersama-usk/>
- Oktaria, A., Khoirul, K., Fitriyenni, S., Paiman, P., & Irfan, M. (2023). Peran pesantren dalam era digital. Ponorogo: Fakultas Tarbiyah Institut Agama Islam Sunan Giri Ponorogo.
- Pettalongi, S. S., Muas, M., Arafat, A., & Ndaomanu, D. N. (2025). *Metodologi penelitian kuantitatif, kualitatif, dan campuran teori dan praktik*. Medan: Media Penerbit Indonesia.
- Salih, A. M. (2024). *Digital leadership: Evidence from theory and practice*. London: Routledge.
- Setyaningsih, E. (2023). Peran kearifan lokal Suku Bajau di Desa Torosiaje – Gorontalo dalam menghadapi ancaman bencana ekologis dan implikasinya terhadap ketahanan lingkungan wilayah. *Jurnal Ketahanan Nasional*, 29(2), 211-230. <https://doi.org/10.22146/jkn.86079>
- Suhendri. (2025). *Kepemimpinan pendidikan Islam*. Medan: UMSU Press.
- Sutrisno. (2024). *Manajemen pendidikan Islam dalam wacana revolusi digital*. Malang: UIN Maliki Press.
- The Climate Reality Project Indonesia. (2024). *Local wisdom in disaster mitigation effort: Badui indigenous community [E-book]*. Jakarta: The Climate Reality Project Indonesia.
- Timo, E. S. (2025). *Building resilience for flood disaster in Malaka-Timor, Indonesia*. Nusa Tenggara Timur: FPRB Provinsi Nusa Tenggara Timur.
- Tracy, S. J. (2025). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact* (3rd ed.). Hoboken, NJ: Wiley Blackwell.
- Ukhuwah Al-Fatah Rescue. (2026, Januari 20). Ukhuwah Al-Fatah Rescue urges wider use of applied technology in disaster response. *MINA News Agency*. <https://en.minanews.net/ukhuwah-al-fatah-rescue-urges-wider-use-of-applied->

# MAPEN GLOBAL

## Jurnal Manajemen Pendidikan

Vol 1 No 1 (2026): Sept 2025 - February 2026

technology-in-disaster-response/

Yahya, I., Rokhmadi, & Ananda, A. (2022). Resiliensi fiqh pesantren di era digital. Semarang: Lembaga Penelitian dan Pengabdian Kepada Masyarakat Universitas Pendidikan Indonesia.