



Disaster in Javanese Mythological Narratives: Learning from Semeru Eruptions

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Abstract: This study explores integrating environmental ethics, cultural traditions, and technological innovation into disaster mitigation education to enhance the resilience of communities vulnerable to natural disasters, particularly those near Mount Semeru. Employing a qualitative, phenomenological methodology, this research examines Javanese cultural perspectives on human-nature relationships and their implications for disaster preparedness. Data collection involved interviews with village elders, community leaders, and village youth; document analysis of Javanese philosophical texts, mythology, and oral traditions; and expert consultations with scholars in Javanese cosmology and disaster education. Thematic and comparative analyses were conducted to identify key patterns in disaster perception and response. The findings reveal that the Semeru community's mitigation strategies are deeply rooted in traditional wisdom, classified into narrative, mystical, and functionalistic guidance, forming the basis of the 'Triple N' model: Nuturi, Niteni, and Nindaki. This framework emphasizes socialization, internalization, and enculturation to strengthen disaster awareness and community leadership. The study contributes to disaster education by bridging traditional knowledge with modern mitigation strategies, offering a culturally grounded approach that enhances community preparedness and response effectiveness. The Triple N model offers a culturally grounded framework that enhances disaster education, strengthens community resilience, and supports the development of a disaster mitigation curriculum.

Keywords: disaster education; eruption; javanese advice; mythology

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INTRODUCTION

Natural disasters pose a constant threat to cultures worldwide, especially in areas with high environmental vulnerability. Communities often create unique sign systems that integrate cultural and natural processes to address persistent natural hazards (Nazaruddin, 2022; Sevieri et al., 2020; Shammi et al., 2020). The cultural viewpoint on disasters, their societal repercussions, and the chronicling of these occurrences are inherently connected to political changes and supposed heavenly intercessions (Sastrawan, 2022; Sevieri et al., 2020). In disaster-prone regions, local entities are essential in assisting post-disaster relocation initiatives (Iuchi & Mutter, 2020). The relationship between culture and disaster response underscores the need to integrate social and technological solutions to enhance mitigation efforts. Technological improvements have markedly enhanced disaster response methods, as evidenced by the monitoring of Semeru's eruption (Iguchi et al., 2008). The growing dependence on technology underscores its crucial function in improving preparedness and mitigation methods for volcanic eruptions and other natural disasters.

Local governments are essential in initiating a disaster response; however, they also have specific responsibilities. Local government agencies are liable for social services and assistance in the aftermath of a disaster (Flanagan et al., 2020). Responding to disasters involves more than just aid provision. This suggests that some planning is needed in advance. Integrated disaster management is the collaboration among various sectors, including community-based organizations, non-governmental organizations, international and regional relief agencies, public health entities, and public administration. This form of collaboration can enhance sustainability (Corburn et al., 2020). Teaching communities ways to mitigate disasters aids preparedness; thus, it is a vital strategic approach (Rofiah et al., 2021). The ability and technology to provide advanced warning and community preparedness, especially for volcanic eruptions, have greatly improved through smartphone applications (Wahyuningtyas et al., 2021). Such initiatives are essential for improving public education and disaster preparedness in areas prone to disasters.

Training programs focused on disaster preparedness have shown effectiveness across various contexts, including in agriculture impacted by natural disasters. As one study suggested, training communities to manage controlled burning of forests and peatlands significantly enhances agricultural productivity and food security (Rozaki et al., 2023). Environmental ethics significantly contributes to the neglect of disaster management in the Candipuro and Pronojiwo regions adjacent to Mount Semeru. These communities focus on environmental ethics, especially ecocentrism, and operate within a wider moral philosophy of sustainability (van Bommel et al., 2023). Interest in sustainability and environmental protection suggests that ethics impacts the willingness to

purchase green products, including among undergraduates (Aguilar-Gallegos et al., 2022). When moral considerations are coupled with environmental concerns, the need for self-control and ethical accountability in disaster management becomes even more striking (Nielsen & Hofmann, 2021).

Disaster preparedness strategies, like other types of planning, are tied to culture. For Javanese communities, it is critical to sustain their environmental and biodiversity knowledge so that this knowledge is successfully intergenerational. Examples of sustainable agriculture knowledge include soil maintenance, advanced farming techniques, market subsidies, and government programs that support farmers' access to subsidized supplies (Pratiwi et al., 2022). It does not seem that all people from Candipuro and Pronojiwo subscribe to the belief of anthropocentrism (Putranto et al., 2020). Environmentally oriented ethics are indeed rooted in culture. The application of modern Indonesian culture, such as through multimedia and curricular interactions, is also (Fitriadi et al., 2024). Integrating cosmological perspectives from traditional societies alongside global approaches offers a robust foundation for the development of effective environmental ethics (Callicott & McRae, 2017).

Gadamer's environmental research framework regarding education for disaster mitigation demonstrates the Javanese cosmology's philosophy within environmental ethics (Callicott & McRae, 2017). Personal spheres of faith offer deep veins of religious, trusting, and spiritual life to one's biography (Slatter, 2023). Keyword translation and interlinear interpretation, as forms of imparting counsel, play profound roles in the construction of societal norms, identity, and genealogical memory among the Javanese (Ricci, 2023). One must turn to traditional historiography of the Southeast Asian archipelago for pre-modern period historiography of the region (Fusté-Forné, 2022; Sevieri et al., 2020). Culinary and foraging practices in mountainous areas exhibit strong ecological fidelity to the environment (Fusté-Forné, 2022; Sevieri et al., 2020). The cultural heritage of the Hindu Kush mountains illustrates the amalgamation of ethnobotany, wild food plants, culinary systems, and traditional wisdom (Abdullah et al., 2021).

A substantial component of disaster education is how mythology shapes how people think and talk about culture. Beliefs in myths often shape how people act in relation to the environment and disasters. People are afraid of bats because they think they carry diseases or are signs of evil spirits (Low et al., 2021). Hindu mythology is a useful way to think about how non-humans communicate with one another and how good and evil are portrayed (Dash et al., 2024). The mythology of ancient Iran also shows a battle between good and evil forces (Amini, 2024). Political mythology, which stems from historical adaptations of imperial stories, continues to shape how people understand culture today (Lebid et al., 2024). Mythology has also been fundamental in the growth of global storytelling styles and screenwriting models (Bodet, 2022; Hambly, 2021).

Disaster education is widely recognized as an important part of disaster preparedness. Disaster education programs that work are an important part of making communities more resilient and ready (Tsai et al., 2020). Information campaigns have been used in various parts of the world and across the US to promote disaster education (Abunyewah et al., 2020). Disaster education raises awareness and changes behaviors that help lower risk (Zhong et al., 2021). Disaster education is also crucial for rebuilding after a disaster because it emphasizes the benefits of being strong and rebuilding (Sakurai et al., 2020). Education and capacity-building programs that equip communities with the knowledge and skills to mitigate the effects of disasters are important components of disaster risk reduction (Kitagawa, 2021). Scholars say that disaster education should be a part of formal curricula so that disaster preparedness strategies become part of the system (Hasan et al., 2021). Traditional knowledge is also a handy tool for preventing disasters because it includes wisdom passed down through generations from lived experiences and community activities (Suarmika et al., 2022).

Strategic planning and disaster preparedness have both proactive and reactive dimensions. In this regard, intelligent computing, real-time processing, and more sophisticated communication networks mark spectacular progress in UAV technology for emergency response (Alsamhi et al., 2022). In the context of earthquake preparedness, it is worth noting the distinction between mitigation and management, as both require distinct yet harmonizing strategies (Srividhya et al., 2020). This study also emphasizes the need to go beyond underinvestment in pre-preparedness and to avoid over-reliance on relief, which is a departure from the usual post-disaster management approach. Economically, disasters affect 'social capital', a constituent of human capital, and the ability of communities to sustain themselves over the long term (Wu & Guo, 2021). The study makes significant progress in understanding how government spending, disaster risk, and economic growth interact. This is valuable information for both researchers and policymakers.

The suggestions in this paper are essential for making SAR missions more effective, as they offer new ways to address problems that arise during disasters. This examines how cultural factors affect a community's strength and its response to disasters. By understanding these dynamics, the community can create disaster management plans that respect and incorporate local cultural practices, making their interventions more effective. Many articles may focus only on quantitative data about the effects of disasters, rather than on qualitative data such as community stories and cultural heritage. This mistake offers researchers an opportunity to fill gaps by examining how cultural identity shapes people's responses to and recovery from disasters. This study aims to develop a comprehensive model for integrating environmental ethics, cultural traditions, and new

technologies into disaster mitigation education. It does this by recognizing the bigger picture of disaster education. This research aims to help us better understand how vulnerable communities can be more resilient to disasters by connecting traditional knowledge with modern ways to reduce damage.

METHODS

This study is qualitative, as shown by Alhazmi and Kaufmann (2022), who used a phenomenological approach to examine Javanese cultural views on the relationship between people and nature, particularly in the context of disaster preparedness education. This study used a philosophical perspective to examine how local wisdom views environmental disasters and how these views affect community resilience. The insights gained are expected to foster a greater appreciation of nature and contribute to the development of sustainable disaster mitigation strategies.

Data collection in qualitative research is crucial for obtaining rich data. The interview type in this study is semi-structured to explore how disaster education is passed down from generation to generation through the ancestral culture of residents around Mount Semeru. This allows for in-depth exploration of disaster education. This study used respondents from Village elders (3), community leaders (2), and village youth (2) in the Mount Semeru area. In addition, focus groups were conducted to explore collective views on a topic, especially discussions with Community leaders, individuals affected by the Semeru eruption, and traditional elders who participated in the focus groups to share insights on disaster preparedness and their interpretations of the eruption in local belief systems (see Table 1).

Table 1. Profile of informants

Informants	Age (years)	Gender	Position	Location
Informant 1	59	Male	Village elders	Kamar Kajang
Informant 2	19	Male	Village youth	Kebonagung
Informant 3	60	Male	Community leader	Sumberwuluh
Informant 4	68	Male	Village elders	Kajar Kuning
Informant 5	24	Male	Village youth	Poncosumo
Informant 6	58	Male	Community leader	Sukosari
Informant 7	63	Male	Village elders	Krajan

This study also checked philosophical texts, mythology, and oral traditions to extract wisdom about human-nature relationships and disaster resilience. In addition to consulting experts to improve the accuracy of cultural interpretations, this study also engaged scholars specializing in Javanese cosmology, disaster mitigation education, and environmental ethics to complement its findings.

Before data analysis, this study used observation, interviews, and documentation to collect data on the culture of disaster mitigation. Following data collection, the investigator proceeded with data reduction, which included sorting, summarizing, and selecting elements of disaster mitigation through culture for the community around Mount Semeru. Moreover, data presentation according to Miles and Huberman's framework fits the definition of organized data compilation, which, in their framework, aids in drawing conclusions and insights, and data that is successfully presented is clear. The Miles and Huberman framework is a robust and systematic approach to qualitative data analysis, offering significant advantages in terms of structure and flexibility (Alsharari & Al-Shboul, 2019; Klingberg et al., 2024). The final step in data analysis is to aggregate the insights from the study or to verify the claims made based on it. Findings from different sources are checked against historical data and earlier research to note the constantly changing nature of perceptions and responses to disasters and their management. Insight from conventional wisdom and scientific inquiry is blended to devise a culture-based framework for education on disaster mitigation.

RESULT AND DISCUSSION

This study's findings show that the people of Candipuro and Pronojiwo have a robust Javanese cultural view that integrates Mount Semeru into their 'Falsafah Jawa.' This philosophy describes the relationship between the macrocosm (the larger universe) and the microcosm (the self and human mind). From this perspective, Javanese teachings and mythology regarding Mount Semeru serve as an essential form of disaster education, enabling the local communities to understand and respond to volcanic eruptions effectively.

"I got the phrases from my parents' teachings: '*Aku metu nggowo bondo*' and '*Tur yo nggowo mowo*'". (Informant 3)

"When I was little, I remember the most about '*Aku njaluk tulung, Siro kabeh kudu waspodo*,' that is what remains in my mind about being alert to Mount Semeru". (Informant 4)

The analysis highlights that for the residents living on the slopes of Mount Semeru, an eruption is not merely a geological event but also a phenomenon laden with symbolic meanings. Semeru's eruption conveys messages embedded in traditional Advice (Petuah) and mythology that guide the community in disaster preparedness. These forms of advice can be categorized into three types: narrative Advice, mystical Advice, and functionalistic Advice. Among these, narrative advice is the most widely accepted and serves as a reference for disaster education. The advice about the volcano is based on mountain-based research by [Permana](#) (2020) on the formation system of the sacred advice of Merapi (see Table 2).

Table 2. Perception and Formation of Javanese Advice

Community Perception of Mount Semeru Eruption	<i>Aku metu nggowo bondo</i> (Semeru comes out with a gift) <i>Tur yo nggowo mowo</i> (but also carries a threat)
Instructions or warnings from Mount Semeru, which were obtained from the knowledge of the title of the Semeru slope community	<i>Yen Aku wis tau</i> (if Semeru has given a big thunder sign)
Preparedness in facing the threat of the Semeru eruption	<i>Aku njaluk tulung, Siro kabeh kudu waspodo</i> (Semeru asks for help, so that all citizens must be more careful) <i>Gage ndang muduno</i> (hurry up to immediately go down to the gathering point) <i>Ojo podo ngenteni Aku</i> (do not wait for Semeru)
The ontological form for humans is always to remember God	<i>Eling marang janji-Ku</i> (to always remember God)

Table 1 illustrates the key elements of advice, including the perception of eruptions, warnings from Mount Semeru, and the community's preparedness strategies. The data indicate that the local wisdom transmitted through advice plays a crucial role in shaping the community's disaster response. Key phrases such as "*Aku metu nggowo bondo*" (Semeru comes out with a gift) and "*Tur yo nggowo mowo*" (but also carries a threat) reflect the dual nature of the eruption, emphasizing both its potential benefits and hazards. Similarly, expressions like "*Aku njaluk tulung, siro kabeh kudu waspodo*" (Semeru asks for help, so that all citizens must be more careful) and "*Gage ndang muduno*" (hurry up to immediately go down to the gathering point) serve as direct instructions for evacuation and preparedness.

"The story about Mount Semeru's phenomenon, especially when it was about to erupt, became a lesson for me that I got directly from my parents. Children today are different, unlike when I was told they did not believe it". (Informant 1)

Furthermore, the belief system surrounding Mount Semeru is deeply rooted in Javanese cosmology. The people of the Semeru slopes consider the mountain as the embodiment of *Jagat Gede* (the great universe), representing both divine presence and ancestral spirits. This perception reinforces a sacred connection between the community and the volcano, where understanding and respecting Semeru's Advice is seen as a means of maintaining harmony and preventing disaster. The findings indicate that myths play a significant role in shaping the cultural and spiritual beliefs of the communities surrounding Mount Semeru. The Semeru region is deeply embedded with various mythologies, including the influence of Nyi Roro Kidul, Sanghyang Wenang, and the Punakawan. Nyi Roro Kidul, or Roro Kidul, is a prominent character in Javanese folklore, revered for her putative dominion over the southern ocean and tempests. She is known to coastal populations as a power for good, endowed with the attributes of a deity and guardian, symbolizing fertility and spiritual protection.

"I acknowledge my ancestors' message about Mount Merapi's phenomenon, and the vigilance of natural phenomena passed down from generation to generation. However, it differs from my child, who does not believe in it now". (Informant 6)

"My parents told me about the Mount Semeru phenomenon, but I was torn between believing it and not." (Informant 2)

Sanghyang Wenang, a deity said to guard the region around Mount Merapi, is viewed as the guardian of the area's natural features. An offering is provided to this deity to stave off natural calamities such as volcanic eruptions. In Javanese folklore, the Punakawan, particularly Semar, is an essential character. He is a comic actor

and a philosopher in many traditional performances, including Wayang Kulit and Wayang Orang, and he teaches audiences important moral lessons. The Javanese creation myth regarding Naga Anantaboga and Naga Nenggala embodies cosmological notions of the community. The region's conception of the universe portrays it as under the constant protection of a primordial serpent, suggesting a profound and sacred union between the natural world and the spiritual realm. Beyond these mythological figures, the study finds that the perception of Mount Semeru as a sacred entity remains unchanged among the local communities. The belief in supernatural beings, their hierarchical structures, and their governance over the supernatural realm persists. Many people continue to perceive Mount Semeru as the palace of spirits, thereby reinforcing the volcano's sacred status within their cultural framework. This belief system shapes the community's response to natural disasters, particularly volcanic eruptions, which are often interpreted through the lens of mythology rather than purely scientific explanations.

The Tantu Panggelaran book says that Mount Semeru was brought into being and planted by Lord Brahma and Lord Vishnu. This mountain was originally the peak of Mount Meru in India. The two gods brought Mount Semeru to the Land of Java to be used as an earth stake. According to the book "Tantu Panggelaran," before Mount Semeru existed, the island of Java floated in the ocean due to a lack of stabilizing pressure. Historical accounts suggest that a deity transported Mount Meru from India to the island of Java. Initially, this mountain was located at the westernmost tip of Java. However, due to its imbalance, the mountain was divided into sections, with Semeru situated on the eastern side and Penanggungan on the western side. Mount Semeru features a peak called Mahameru, the highest point on the island of Java. It surpasses the elevations of peaks such as Mount Slamet, Sumbing, Sindoro, and Gede Pangrango. Mahameru is revered as the eternal summit of the gods, serving as a conduit between humans and the heavens. Ranu Kumbolo is a lake situated at the base of Mount Semeru. To reach this location, hikers must navigate challenging and exhausting trails. Despite its reputation as an exotic destination, the waters of Ranu Kumbolo are reportedly used in religious rituals. Consequently, mountain climbers are prohibited from bathing, washing, or pitching tents within a minimum distance of 10 meters from the lake. According to ancient legends, a goldfish inhabiting the lake is believed to be the reincarnation of a goddess, regarded as the guardian of Ranu Kumbolo's beauty. Furthermore, numerous tales suggest that the lake is protected and watched over by a goddess. It is said that this goddess often appears adorned in a yellow kebaya. If there is Mbah Marijan (deceased) in Semeru, then there is "Mbah Dipo" in Semeru. "Mbah Dipo," one of the keys to Mount Semeru, has passed away. Even so, "Mbah Dipo" is still remembered by the surrounding community. One of Mbah Dipo's messages is that if Mount Semeru erupts, the residents must move to the river and are prohibited from going to Mount Sawur.

"This message from Semeru is also the same as the message from Merapi. Nature gave a message to Mbah Dipo before, 'If Mount Semeru erupts, do not run towards the mountain'" (Informant 4)

Science education aims systematically to develop and sustain learners' curiosity about, enjoyment of, and understanding of how natural phenomena can be explained (Dovgyi & Matusevych, 2022). The disaster education model based on Semeru's Advice and the findings of researchers on warning and community preparedness for the eruption of Mount Semeru in the Semeru slope community is shown in Figure 1.

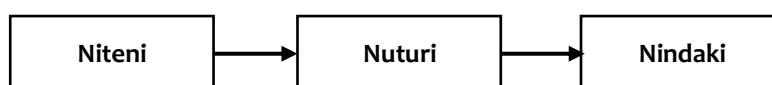


Figure 1. Model "Triple N"

In the context of developing a disaster education model focused on warning and community preparedness for Mount Semeru's eruptions, researchers have introduced the 'Triple N' model. The first component, 'Niteni,' pertains to the cognitive domain. It emphasizes the community's ability to comprehend Mount Semeru and detect changes in natural phenomena indicative of an impending eruption. Such signs include loud rumbling, ashfall that darkens the atmosphere, the arrival of hot clouds known as 'Wedus Gembel,' and the migration of animals from mountainous areas.

"Since childhood, our ancestors taught us about Javanese philosophy, one of which is about Mount Semeru" (Informant 7)

The second component, 'Nuturi,' relates to the affective domain and derives from the word 'Pitatur,' which means 'advice.' It is envisaged that the community will offer constructive advice to foster mutual awareness. When signs of an eruption are observed, it is expected that individuals will remind one another to adopt a cautious attitude ('Waspodo') in response to the threat posed by Mount Semeru. The third component, 'Nindaki,' addresses the psychomotor domain. It involves the community carrying out actions prescribed by the

Semeru Principles. From a Semeru perspective, the advice encourages individuals to remain 'eling' (mindful) of divine protection for safety. Beyond the non-empirical aspects, the model also emphasizes empirical skills, urging the community to develop independent and spontaneous leadership abilities for self-preservation. When eruption signs appear, the community is expected to proceed to designated gathering points instinctively. This inheritance occurs through processes of socialization and enculturation. The process of socialization, or "conventionalization". In this long process, an individual will learn to unite himself (integrate) with his community environment. The community will learn to live by and uphold the customs, rules, and social norms generally accepted by the community.

According to [Triandis \(1964\)](#), the process of enculturation, or the process of "civilization," is commonly studied in a "tropology", which is a long process from the time an individual is born until the end of his life. In this long process, an individual will learn to unite himself (integrate) with his cultural environment. People will learn according to their mindset and attitude towards the customs, norms, and rules that apply in their cultural environment. The transmission of Semeru's teachings is of significant importance to the community residing on the slopes of Semeru. This guidance heightens their awareness and enhances their readiness to assume leadership roles independently and spontaneously. The process of imparting Semeru's wisdom is crucial in fostering these capabilities. During the socialization process, individuals—from children to adults—internalize the values embedded in Semeru's teachings. These values evolve into norms and guide community actions in preparation for potential threats posed by the eruption of Mount Semeru.

The assimilation and integration of cultural values into community members' core values align their thoughts, attitudes, and behaviors with the community's cultural framework. The effectiveness of socialization depends primarily on everyone's awareness, willingness, and firm resolve to embrace and adhere to the community's culture, ultimately making it an integral part of their identity. Ki Hadjar Dewantara's philosophy comprises three concepts in the internalization process: *Ngerti* (Know), *Ngrasa* (Feel), and *Nglakoni* (Perform). Based on these concepts, researchers have developed a disaster education model consisting of *Niteni*, *Ngroso*, and *Ngalokoni*, which can be translated roughly as 'understanding the essence of the advice', 'internalizing the advice as it originates from the community itself', and 'implementing the prescribed actions of the advice', respectively. Enculturation is the process by which individuals learn and adapt their thoughts and behaviors to align with the customs, norms, and regulations of their culture. This includes the passing on of Semeru's teachings through the culture developed by the people of the Semeru Slopes. To enhance the Semeru Slope community's disaster preparedness in the face of an impending eruption, the researcher has devised a model to preserve Semeru's Advice through disaster education for posterity. For the visualization of the concept image, please refer to the accompanying transmission process image.

The integration of technology and modern advancements into traditional wisdom has immensely transformed disaster management strategies over the years. This study analyzes the interpretation and depiction of natural disasters in Javanese mythology, particularly the eruption of Semeru. More recent findings suggest that the narratives serve as cultural mirrors, illustrating communal resilience, adaptive mechanisms, and multifaceted strategies for confronting environmental challenges ([Camponeschi, 2021](#)). This research adds an innovative dimension by illustrating the interface between folklore and contemporary disaster management, showcasing the value of traditional wisdom in contemporary practices ([Wu & Chen, 2023](#)). Despite the insights this research provides, it is important to note the biases that may arise from a traditionalist perspective, as well as the limitations posed by a predominantly Javanese focus.

Improvements in response mechanisms have been complemented by technological advances, such as monitoring tools used to track volcanic eruptions, including Sandar Semeru. This has enabled timely warning and mitigation actions to be put in place ([Iguchi et al., 2008](#)). These trends align with [Iuchi and Mutter \(2020\)](#), who highlight the pivotal role of locals in aiding relocated individuals in the wake of natural disasters. Effective coordination among local communities, particularly with technological tools, government agencies, and bureaucratic structures, enables a smooth, efficiently managed transition during crises.

Local governments play a pivotal role in disaster management, not only during immediate relief efforts but also in the long-term rebuilding of affected communities. [Flanagan et al. \(2020\)](#) argue that providing social services and assistance during post-disaster recovery is a fundamental responsibility of local administrations. This sentiment is echoed by [Corburn et al. \(2020\)](#), who advocate for the involvement of various sectors, including public health, international aid organizations, and local communities, in fostering sustainable disaster management strategies. Disaster education emerges as a key component of these strategies, as [Rofiah et al. \(2021\)](#) highlight the positive impact of educational initiatives on enhancing community preparedness. [Wahyuningtyas et al. \(2021\)](#) further illustrate this, noting the role of smartphone applications in providing real-time disaster warnings and facilitating disaster education.

The effectiveness of disaster education is not limited to its role in immediate response but extends to its long-term impact on community resilience. [Rozaki et al. \(2023\)](#) demonstrate that communities educated about disaster mitigation strategies are better equipped to handle the aftermath of environmental disasters, such as forest and peatland fires, thereby protecting their agricultural livelihoods. This is particularly pertinent

in regions where cultural perceptions and traditional ecological knowledge intersect with modern environmental ethics, as [van Bommel et al. \(2023\)](#) suggest that integrating moral principles into disaster management reinforces the need for ethical responsibility, which is deeply rooted in many communities' cultural frameworks.

In the context of Javanese culture, the transmission of disaster-related knowledge is critical in shaping community responses to threats such as volcanic eruptions. As [Lavigne et al. \(2008\)](#) point out, Javanese communities are often guided by intergenerational knowledge transmission, where elders impart essential survival strategies to younger generations. However, this process is not without challenges, as older generations face increasing economic and social pressures that threaten the continuity of such knowledge transfer. Despite these challenges, Javanese communities continue to draw on a rich tradition of environmental ethics that informs their disaster response strategies.

The implications of this work extend academic discourse; they contribute to a deeper understanding of how cultural narratives shape community responses to crises, ultimately fostering a more integrated approach to disaster preparedness and response that values scientific evidence and indigenous wisdom ([Li et al., 2025](#)). This collaboration between traditional knowledge and scientific research paves the way for more holistic disaster management frameworks that respect cultural heritage while addressing pressing environmental issues ([Li et al., 2025](#)). This approach can be implemented by developing educational modules that integrate local wisdom with contemporary scientific methods, tailored to the local context and students' needs. It supports project-based learning that encourages students to understand and apply traditional knowledge to address disaster challenges, while enhancing their critical thinking and creativity. Integrating traditional knowledge and modern technology can enrich the learning process and strengthen community-level disaster preparedness through collaboration among educators, government, and communities.

This study's proposed model, 'Triple N', suggests that the use of mythological stories in disaster education can elevate the cultural relevance and implementation of disaster preparedness frameworks. The model combines cognitive, affective, and psychomotor components to motivate communities to 'read' and understand the signs of impending disasters, and to internalize and act on them. The model nurtures internal motivation and individual responsibility, enabling people to actively protect themselves, their families, and the community. This model is consistent with the community-focused approach in disaster risk reduction outlined by [de Mendonca et al. \(2016\)](#), particularly in relation to more vulnerable populations. [Park \(2020\)](#) supports this by calling for more integrated approaches to disaster education that blend scientific information and cultural narratives to increase relatability, further asserting the need for disaster education. [Houghton et al. \(2017\)](#) demonstrate the strong effectiveness of entertainment-education approaches with culturally relevant themes in engaging communities in emergency preparedness. These studies underscore the need to include cultural narratives in disaster risk management to strengthen community resilience.

CONCLUSION

This study concludes that integrating traditional wisdom into a contemporary disaster education framework is important. Utilizing the Semeru community's Triple N model can foster a deeper understanding of disaster preparedness that is aligned with local cultural practices and beliefs. Embracing culturally rooted strategies paves the way for more effective, sustainable disaster management solutions that honor heritage and innovation. Integrating cultural perceptions, mythological narratives, and contemporary disaster response models provides a comprehensive, culturally relevant framework for disaster education. Community resilience is strengthened when individuals recognize early signs of disaster, internalize precautionary measures, and take informed action, as demonstrated in the Semeru community. This fusion of traditional wisdom and modern techniques strengthens preparedness and fosters a more robust response to future volcanic eruptions.

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