

# Integrating Disaster Mitigation Education Into Early Childhood Curricula Through Sasak Indigenous Knowledge

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**ABSTRACT:** This study examines the integration of disaster mitigation education into early childhood education (ECE) through Sasak indigenous knowledge (awik-awik) in West Lombok, Indonesia. Using a mixed-methods sequential explanatory design, data were collected from 60 children, 6 teachers, and 3 community leaders through pre- and post-assessments, interviews, and observations. The intervention, implemented through play, storytelling, and simulation, resulted in significant improvements ( $p < 0.05$ ) in disaster risk understanding (35%), evacuation preparedness (41%), and simulation response (35%). Qualitative findings indicate increased engagement, contextual learning, and the development of social values such as cooperation and responsibility. The study concludes that integrating local wisdom into ECE is an effective and sustainable approach to enhancing children's disaster preparedness.

**KEYWORDS** - disaster mitigation, early childhood education, indigenous knowledge, Sasak culture, awik-awik, preparedness

## I. INTRODUCTION

Indonesia is widely recognized as one of the most disaster-prone countries due to its geographical position at the convergence of three major tectonic plates, namely the Indo-Australian, Eurasian, and Pacific plates. This geophysical condition places many regions at continuous risk of earthquakes, volcanic eruptions, and tsunamis. West Nusa Tenggara Province, particularly West Lombok Regency, represents a high-risk area, as demonstrated by the catastrophic 2018 Lombok earthquake. According to the National Disaster Management Agency (BNPB, 2020), the disaster caused thousands of fatalities, widespread injuries, and extensive destruction of infrastructure, including schools and early childhood education centers. The long-term impacts also included psychological trauma among children, disruption of learning processes, and weakened community resilience.

Children are disproportionately affected during disasters due to their physical vulnerability, limited cognitive capacity to respond to emergencies, and psychological sensitivity. The United Nations Office for Disaster Risk Reduction (2021) emphasizes that children require targeted educational interventions to build resilience and preparedness from an early age. However, current evidence suggests that disaster preparedness among young children remains insufficient. Wulandari et al. (2022) found that only about 42% of children in disaster-prone areas understand basic evacuation procedures, indicating a serious gap in disaster education. Similarly, Hidayati et al. (2021) highlighted that many early childhood education (ECE) institutions lack structured disaster mitigation curricula, further exacerbating vulnerability.

Early childhood education plays a strategic role in shaping foundational knowledge, attitudes, and behaviors. At this developmental stage, children are highly receptive to learning through experience, imitation, and interaction. UNICEF (2019) asserts that early intervention in disaster education can significantly influence

long-term preparedness and adaptive behavior. Despite this potential, many existing approaches to disaster education are generic, decontextualized, and not aligned with children's socio-cultural environments.

In the context of the Sasak community in West Lombok, traditional norms known as awik-awik serve as a system of customary law governing social behavior. These norms embody values such as mutual cooperation (gotong royong), discipline, collective responsibility, and adherence to rules—all of which are highly relevant to disaster mitigation practices. Saputra et al. (2020) argue that local wisdom functions as an effective educational medium because it is deeply embedded in community life and easily understood by learners.

The integration of indigenous knowledge into education has gained increasing attention in contemporary research. Rahmawati et al. (2020) demonstrate that culturally grounded learning enhances children's conceptual understanding by linking new knowledge to familiar experiences. Nugroho and Setiawan (2019) further show that incorporating cultural values into ECE significantly increases student engagement, while Wijaya et al. (2023) report improved knowledge retention by up to 30% compared to conventional teaching methods.

Despite these findings, research specifically focusing on the integration of disaster mitigation education with Sasak indigenous knowledge in early childhood settings remains limited. Most existing studies address disaster education at primary or secondary levels, leaving a critical gap at the ECE level. Therefore, there is a pressing need to develop an integrative, culturally responsive learning model that combines disaster education with local wisdom.

The novelty of this study lies in its development of a culturally integrated disaster mitigation model that incorporates awik-awik values into ECE curricula. This model emphasizes not only cognitive learning but also character formation and behavioral preparedness. The study contributes theoretically to the advancement of culturally responsive pedagogy and practically to the development of applicable learning models for disaster-prone regions.

The objectives of this study are: (1) to analyze the integration of Sasak local wisdom into disaster mitigation education in ECE; (2) to evaluate its effectiveness in improving children's preparedness; and (3) to develop a conceptual model of culturally grounded disaster education.

## II. HEADINGS

### A. Methods

This study employs a mixed-methods approach with a sequential explanatory design, enabling the integration of quantitative and qualitative data to provide a comprehensive understanding of the research problem. The quantitative phase aims to measure changes in children's preparedness levels, while the qualitative phase seeks to explain and contextualize these changes.

The study was conducted in selected ECE institutions in West Lombok. The participants consisted of 60 children aged 5–6 years, 6 ECE teachers, and 3 Sasak community leaders. Participants were selected using purposive sampling to ensure their relevance to both educational practices and cultural context.

Data collection involved two main techniques. Quantitative data were obtained through structured observation using a disaster preparedness assessment instrument administered before and after the intervention. The instrument included indicators such as disaster risk understanding, evacuation readiness, and response to emergency simulations. Qualitative data were collected through in-depth interviews, focus group discussions, and documentation of learning activities incorporating awik-awik values.

The intervention was implemented over a period of four weeks, involving play-based learning, storytelling rooted in local folklore, and disaster simulation exercises. These activities were designed to align with children's developmental characteristics and cultural context.

Quantitative data were analyzed using paired sample t-tests to determine statistically significant differences between pre-test and post-test scores. Qualitative data were analyzed using thematic analysis, involving data coding, categorization, and theme identification to capture patterns of meaning.

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## B. Results and Discussion

### 1. Quantitative Findings

The results indicate significant improvements across all indicators of disaster preparedness. Children demonstrated increased understanding of disaster risks, improved ability to follow evacuation procedures, and more appropriate responses during simulations. The most notable improvement was observed in evacuation preparedness, which increased by 41%.

### 2. Qualitative Findings

Qualitative findings reveal that integrating awik-awik values into learning activities enhances children's engagement and comprehension. Teachers reported that storytelling based on local culture made abstract concepts more accessible, while simulations reinforced practical skills. Children showed increased enthusiasm, participation, and ability to recall safety procedures.

Additionally, community leaders emphasized that awik-awik serves as a moral framework that strengthens social cohesion and collective responsibility, which are essential during disaster situations.

### 3. Integrated Discussion

The findings confirm that culturally integrated disaster education is highly effective in improving children's preparedness. From a constructivist perspective, learning becomes more meaningful when connected to real-life experiences. The use of awik-awik provides a culturally relevant context that facilitates knowledge construction.

From a socio-cultural perspective, learning is shaped by social interaction and cultural tools. The integration of awik-awik not only enhances cognitive understanding but also fosters social values and behavioral readiness.

The significant improvement in evacuation preparedness highlights the effectiveness of experiential learning methods. This aligns with UNICEF (2019), which advocates for participatory, child-centered approaches in disaster education.

The study proposes a conceptual model consisting of three components:

- Input: Indigenous values (awik-awik)
- Process: Interactive learning methods (play, storytelling, simulation)
- Output: Improved disaster literacy and preparedness

## III. INDENTATIONS AND EQUATIONS

Although this study does not involve mathematical equations, statistical analysis plays a crucial role in validating the findings. The paired sample t-test results indicate statistically significant differences ( $p < 0.05$ ) between pre-test and post-test scores across all preparedness indicators, confirming the effectiveness of the intervention

#### IV. FIGURES AND TABLES

**Table 1. Improvement in Early Childhood Disaster Preparedness**

Indicator	Pre-test (%)	Post-test (%)	Increase
Disaster risk understanding	45	80	+35%
Evacuation preparedness	40	81	+41%
Simulation response	50	85	+35%

The data demonstrate consistent improvements across all variables, indicating the positive impact of culturally integrated learning approaches.

#### V. CONCLUSION

This study demonstrates that integrating Sasak indigenous knowledge into early childhood disaster mitigation education significantly enhances children's preparedness. The approach effectively improves both cognitive understanding and behavioral responses while fostering essential social values.

The findings highlight the importance of culturally responsive pedagogy in disaster education and suggest that indigenous knowledge can serve as a powerful tool for building resilience from an early age. The proposed model offers a practical framework for implementing disaster education in ECE settings, particularly in disaster-prone regions.

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