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Teachers' Creativity In Developing Kamishibai Media To Enhance Disaster Awareness Among Elementary School Students

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ABSTRACT

Both Indonesia and Japan are situated in the Pacific Ring of Fire, characterized by high vulnerability to natural disasters. However, the implementation of disaster education in Indonesian elementary schools continues to face challenges, including the scarcity of contextual visual aids and the prevalence of one-way lecture methods. Kamishibai, a traditional Japanese visual storytelling art, offers substantial potential as an alternative instructional medium that synthesizes visual power, oral narration, and interactive theatrical expression to concretize abstract hazard concepts for young learners. This study aims to analyze teachers' creativity in designing Kamishibai media and to evaluate its effectiveness in disaster mitigation instruction. This research employed a quantitative descriptive evaluative survey approach. The study involved 36 educators across various educational levels, including elementary schools, kindergartens, junior high schools, and special education schools in West Java. Data collection utilized a Kamishibai media evaluation questionnaire comprising 12 items on a 1–5 Likert scale, open-ended questions regarding prior mitigation teaching practices, and visual documentation of the Kamishibai media produced by the teachers. Data were analyzed using univariate descriptive statistics to determine frequency distributions, satisfaction percentages, and mean scores. Results: The evaluation of Kamishibai media implementation yielded an overall grand mean score of 4.54 out of 5.00 (90.7% satisfaction rate). The highest ratings were achieved for the medium's capacity to concretize abstract disaster concepts (mean = 4.78; 100% positive response) and to facilitate structured content delivery (mean = 4.72; 100% positive response). The instructional materials developed by teachers during the workshop demonstrated diverse contextual mitigation themes, such as a flood scenario entitled "When the Flood Comes," earthquake simulations emphasizing the "drop, cover, and hold on" technique, as well as landslide mitigation and hillside environmental conservation. Furthermore, 97.2% of teachers deemed Kamishibai significantly more effective than conventional lectures, capable of fostering active classroom discussion (mean = 4.67), and recommended its sustained implementation in disaster-resilient school programs (mean = 4.61). Kamishibai media grounded in teacher creativity has proven to be highly effective, communicative, and accommodating of diverse student learning styles, making it an exemplary instructional aid for early disaster preparedness education in elementary schools.

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INTRODUCTION

Both Indonesia and Japan are countries exposed to high disaster risks, including earthquakes, tsunamis, volcanic eruptions, floods, and extreme weather events. In Japan, disaster education is instituted from an early age through schooling, routine drills, and pedagogical practices that foster students' capacity to think critically and act independently during emergencies (Senda, 2024). Furthermore, Japan possesses extensive experience in utilizing traditional creative media, such as kamishibai, as an engaging educational instrument to help students comprehend disaster typologies, early warning indicators, and mitigation protocols in an accessible manner (Sundawa et al., 2020). Conversely, Indonesia faces substantial hurdles in strengthening disaster literacy education (Ajar & Ronggowulan, 2022), constrained allocation of formal curricula dedicated to disaster mitigation in primary education (Muzani et al., 2022), a deficiency of structured training facilities and evacuation drills (Wardhani et al., 2024), and persistent cultural fatalism wherein disasters are perceived strictly as inevitable destiny (Christia et al., 2026). Nonetheless, building community resilience necessitates proactive, collaborative learning initiated early within educational units (Shiwaku & Shaw, 2008). Furthermore, fostering environmental consciousness and localized hazard mitigation—such as within the Greater Bandung metropolitan area—demonstrates that successful educational interventions hinge directly upon early, active participation by school communities and the public (Komalasari et al., 2021). Consequently, disaster mitigation education serves as a pivotal strategy to cultivate foundational knowledge, practical skills, and emergency preparedness, where creative media can shape individuals who not only recognize environmental hazards but are also proficient in executing life-saving measures during crises (Shoji et al., 2020).

Conceptually, contemporary disaster mitigation education extends beyond theoretical awareness of hazards; it encompasses a holistic competence to access, comprehend, appraise, and apply disaster information across the phases of prevention, preparedness, emergency response, and recovery (Çalışkan & Üner, 2021). Moreover, integrating disaster risk reduction (DRR) frameworks into daily classroom instruction represents a prerequisite for establishing an enduring safety culture in schools (Kitagawa, 2021). Preliminary investigations into kamishibai have substantiated its capacity to elevate students' awareness of disaster risks (Sundawa et al., 2020). Nevertheless, its practical adoption has rarely been systematically leveraged to develop disaster consciousness as a decision-making tool. This has resulted in a marked discrepancy between the demand for comprehensive disaster literacy and the scarcity of instructional tools capable of concurrently engaging cognitive, affective, and psychomotor domains. In this context, teachers' creativity plays a central role in contextualizing safety protocols to match children's developmental psychology (Sari & Suswandari, 2025). Kamishibai exhibits exceptional pedagogical adaptability by combining sequential picture cards, structured oral narration, and dialogic performance, thereby allowing educators to tailor narrative arcs, character design, and localized hazard scenarios to the realities of the school environment (Aerila et al., 2025). Through the art of "paper theater," kamishibai stimulates visual and auditory multiliteracies that nurture emotional resonance and participatory learning (McGowan, 2015).

This study aims to analyze and delineate teachers' creativity in developing kamishibai media as a disaster mitigation instrument for elementary school students. Specifically, it examines how educators formulate narratives, visual illustrations, and mitigation messages, while assessing the efficacy of kamishibai in concretizing risk concepts and instilling school-based disaster preparedness.

RESEARCH METHODS

This investigation utilized a quantitative descriptive design employing an evaluative media survey approach (Sugiyono, 2014). The research population comprised 36 educators actively teaching

across elementary schools (SD/SDIT) and special education schools (SLB) in West Java Province, Indonesia.

The research instruments consisted of a structured evaluation questionnaire and visual media documentation forms encompassing: (1) demographic background, teaching tenure, disaster education experience, and previously deployed instructional media; (2) photographic and thematic documentation of the kamishibai cards produced during training workshops; and (3) perceptual assessment of kamishibai media efficacy using 12 items measured on a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). Empirical data were processed using univariate descriptive statistical analysis to establish frequency distributions, response percentages, and mean values across all evaluated indicators.

RESULTS AND DISCUSSION

1. Teachers' Prior Experience Profile and Range of Instructional Mitigation Media

Based on questionnaire data collected from 36 educators, 88.9% (n = 32) were female and 11.1% (n = 4) were male. A majority of 77.8% (n = 28) indicated prior experience delivering disaster materials in their classrooms, whereas 22.2% (n = 8) had never taught mitigation topics. The distribution of instructional media previously employed by these teachers is detailed in Table 1.

Table 1. Profile of Teachers' Experience and Prior Disaster Mitigation Instructional Media

No.	Pedagogical Experience Variable	Classification / Media Modality	Frequency (n)	Percentage (%)
1	Disaster Teaching Experience	Previously Taught	28	77.8%
		Never Taught	8	22.2%
2	Previously Utilized Media (n = 28)*	Online Video / YouTube	14	50.0%
		Manual Illustrations / Wall Posters	6	21.4%
		Physical Drills / Disaster Songs	6	21.4%
		Digital Slides (PowerPoint / Canva / IFP)	4	14.3%
		Conventional Storybooks	3	10.7%
		Conventional Oral Lectures	2	7.1%

**Note: Multiple responses permitted; respondents utilized combinations of instructional media.*

To elucidate the proportional distribution of instructional media deployed by teachers prior to the training workshop, the relative share of each medium is illustrated in Figure 1.

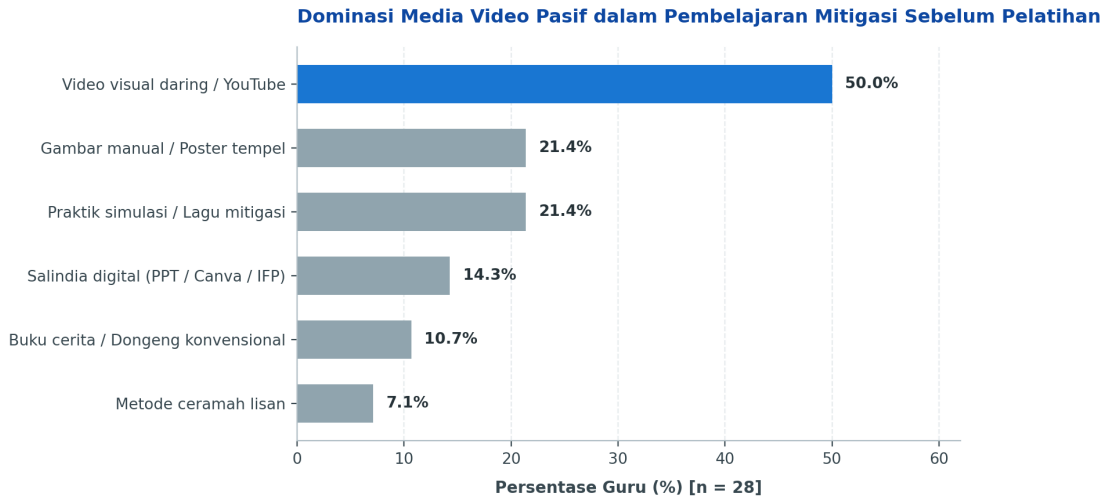


Figure 1. Distribution of Disaster Mitigation Instructional Media Used by Teachers Prior to the Training

As reflected in Figure 1, instructional practices were heavily reliant on unidirectional video streaming (50.0%) and rote lecture formats. In primary school settings, reliance on passive video media frequently encounters structural constraints, such as electrical outages, absent projection hardware, and minimal reciprocal communication. These empirical observations reaffirm prior literature indicating that disaster preparedness education in Indonesian elementary schools is frequently hindered by the absence of practical, self-contained, and context-specific visual media (Oktari et al., 2018).

2. Diversity of Kamishibai Media Developed by Teachers During the Educational Mitigation Workshop

During the capacity-building workshop titled "Optimization of Kamishibai Based Learning Media", educators were guided to construct serial storyboards addressing localized hazard profiles. Participants produced complete sets of large-format kamishibai plates featuring vibrant front-facing illustrations and reverse-side narrator cues. The pedagogical artifacts created by the teachers are documented in Figure 2.



Figure 2. Documentation of Kamishibai Media Produced by Teachers at the Disaster Mitigation Educational Workshop

Qualitative appraisal of the artifacts in Figure 2 reveals teachers' creativity materialized across three core thematic clusters: (1) Hydrometeorological Disaster Mitigation (Floods): A notable work titled "When the Flood Comes" (Ketika Banjir Datang) portrayed household dynamics as floodwaters

submerge a residential area. The narrative integrated explicit instructions regarding self-evacuation, disconnecting main electrical circuit breakers, securing critical identification documents in elevated waterproof containers, and orderly boat evacuation assisted by emergency rescue teams; (2) Geological Disaster Mitigation (Earthquakes): Educators illustrated classroom environments experiencing seismic shock. Imagery focused on standardized self-protection drills, specifically executing the "drop, cover, and hold on" protocol beneath sturdy desks, shielding head and cervical regions with backpacks, and walking in unhurried, single-file lines toward open assembly fields without pushing; (3) Environmental Degradation, Landslides, and Climate Extremes: Several teachers linked hazard prevention to ecological stewardship in sloped terrains. Visuals emphasized hillside reforestation to stabilize topsoil, contrasted against the impacts of extreme thermal droughts represented by parched, cracked earth and relentless sun exposure. This thematic focus on flooding and environmental preservation aligns with the findings of Komalasari et al. (2021), who demonstrated that establishing environmental stewardship and hydro-meteorological disaster risk reduction requires participatory paradigms cultivated early within school and community settings. These artifacts illustrate that educators possess the inventive capacity to translate technical risk concepts into child-friendly, engaging, and localized visual media.

3. Evaluation of Kamishibai Media Effectiveness in Disaster Mitigation Learning

Teachers' assessments regarding the pedagogical utility of kamishibai were evaluated across 12 criteria, as summarized in Table 2.

Table 2. Distribution of Teachers' Evaluation on Kamishibai Media Implementation

No.	Evaluated Instructional Indicator	Mean	SA (5)	A (4)	N (3)	D (≤ 2)	Positive
1	Facilitates structured content delivery	4.72	72.2%	27.8%	0.0%	0.0%	100.0%
2	Concretizes abstract disaster concepts	4.78	77.8%	22.2%	0.0%	0.0%	100.0%
3	Conserves time and classroom management energy	4.36	47.2%	41.7%	11.1%	0.0%	88.9%
4	Enhances student attentiveness and enthusiasm	4.50	52.8%	44.4%	2.8%	0.0%	97.2%
5	Stimulates active inquiry and dialogic exchange	4.67	69.4%	27.8%	2.8%	0.0%	97.2%
6	Accommodates varied learning styles (V, A, K)	4.44	52.8%	38.9%	8.3%	0.0%	91.7%
7	Accelerates comprehension of safety protocols	4.36	41.7%	52.8%	5.6%	0.0%	94.4%
8	Strengthens long-term procedural retention	4.44	47.2%	50.0%	2.8%	0.0%	97.2%
9	Cultivates calm and decisive emergency comportment	4.42	50.0%	44.4%	2.8%	2.8%	94.4%
10	Demonstrates superiority over standard lectures	4.67	69.4%	27.8%	2.8%	0.0%	97.2%
11	Instills teacher confidence in curriculum integration	4.47	52.8%	41.7%	5.6%	0.0%	94.4%
12	Endorsed for sustainable school disaster resilience	4.61	63.9%	33.3%	2.8%	0.0%	97.2%
	Cumulative Grand Mean	**4.54**	**57.4%**	**37.7%**	**4.6%**	**0.3%**	**95.1%**

A comparative visualization of the mean scores obtained across the 12 evaluation indicators is presented in Figure 3.

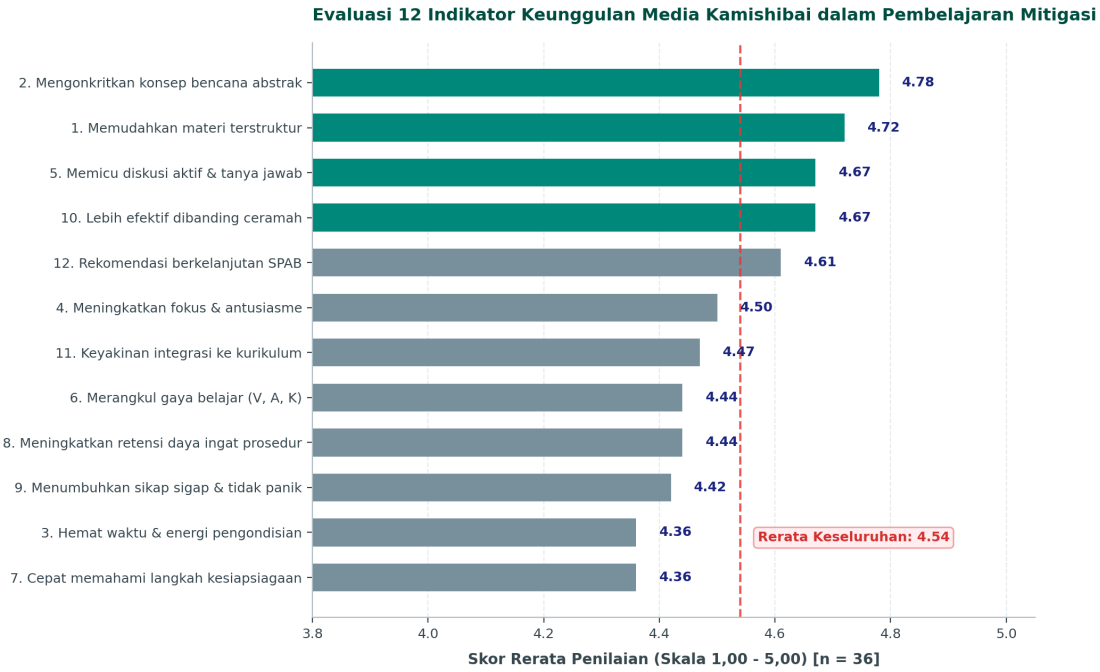


Figure 3. Mean Scores Across 12 Indicators of Kamishibai Media Excellence in Disaster Mitigation Learning (Scale 1.00–5.00)

Empirical data in Table 2 and Figure 3 confirm that kamishibai achieved an outstanding reception, recording an aggregate grand mean of 4.54 out of 5.00 (90.7% satisfaction rate). Perfect consensus (100% positive agreement) was registered on its capacity to concretize abstract hazard phenomena (mean = 4.78) and facilitate systematic, sequential instruction (mean = 4.72). The spatial separation—where visual panels face the learners while narratological text faces the instructor—provides essential dual-channel cognitive scaffolding.

From a theoretical standpoint, this synchronized audio-visual alignment operationalizes Mayer's (2021) Cognitive Theory of Multimedia Learning. By processing complementary verbal and non-verbal streams through separate channels, kamishibai mitigates cognitive overload, enabling primary students to encode complex multi-step survival protocols into long-term memory schemes more reliably (mean = 4.44). The comparative advantage of this medium is evidenced in Indicator 10, wherein 97.2% of educators affirmed that kamishibai is markedly superior to traditional lecturing (mean = 4.67) and uniquely potent in triggering spontaneous, critical inquiry (mean = 4.67). The theatrical dimension of the wooden stage (butai) and rhythmic plate sliding commands sustained focus, accommodates diverse sensory modalities (visual, auditory, kinesthetic; mean = 4.44), and fosters crisis readiness without instilling psychological trauma (mean = 4.42). Furthermore, high teacher confidence in curriculum assimilation (mean = 4.47) and definitive endorsements for ongoing institutional adoption (mean = 4.61) directly support the national mandate for Disaster-Resilient Educational Units (Badan Nasional Penanggulangan Bencana [BNPB], 2021). Creative, culturally rooted media such as kamishibai effectively democratize disaster literacy into an empowering pedagogical practice.

CONCLUSION

Teachers' creativity in designing and implementing kamishibai media contributes substantially to strengthening disaster literacy and preparedness behaviors among elementary school students. The diverse visual materials produced during training demonstrate educators' aptitude for translating contextual hazards—specifically floods, earthquakes, and landslides—into pedagogical, child-friendly narratives. Empirical evaluation by 36 educators established an exceptional grand mean score of 4.54 out of 5.00 (90.7%), excelling notably in elucidating abstract hazard dynamics (4.78), structuring

content delivery (4.72), stimulating participatory classroom dialogue (4.67), and outperforming conventional rote lecturing (4.67). Teachers exhibited decisive confidence in embedding this medium into integrated curricula and strongly endorsed its continuous deployment to realize genuinely disaster-resilient learning institutions.

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