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Implementing Animated Disaster Mitigation Media Animation Video to Enhance Flood Preparedness Among Student At SDN Kali Baru 3 Bekasi

Devi Yulianti, Sabrina Apriliati
Gatot Soebroto Army Hospital Health College
E-mail: deviyulianti794@gmail.com

Abstract

Flooding is a persistent seasonal challenge in Indonesia, and young school-aged children represent one of the most vulnerable demographic groups during emergencies. Improving disaster response capability from an early age requires innovative educational approaches that capture children's interest. This study evaluated the effect of using animated cartoon videos as an educational modality to enhance flood disaster preparedness knowledge among elementary school children. A quantitative research design using a quasi-experimental approach with a one-group pretest-posttest framework was implemented. The study involved 62 fourth-grade students aged 9–10 years at SDN Kali Baru 3 Bekasi, selected via total sampling. Knowledge levels were evaluated using a verified questionnaire before and after the intervention. The data were processed using univariate analysis and the non-parametric Wilcoxon signed-ranks test because of non-normal data distribution. Prior to the educational intervention, 3.2% of the participants had poor knowledge, 37.1% had sufficient knowledge, and 59.7% possessed good knowledge. Following the screening of the animated cartoon videos, 100% of the participants achieved the "good knowledge" category. The statistical analysis revealed a highly significant improvement in disaster preparedness knowledge levels (p-value = 0.001) with a mean rank of 31.50. Educational cartoon animation videos are an exceptionally effective tool for bolstering flood disaster preparedness knowledge among children. It is highly recommended that primary schools integrate interactive audio-visual elements into their regular safety drills and curriculum.

Keywords: Cartoon Animation, Disaster Preparedness, Educational Media, Flood Emergency, School Child

1. INTRODUCTION

Flood disasters are one of the most frequent natural disasters that threaten communities worldwide, including children and school-aged students. Floods occur when water exceeds the capacity of rivers, drainage systems, or land areas, resulting in the inundation of normally dry areas. These disasters can cause significant impacts, including injuries, health problems, disruption of education, damage to infrastructure, and psychological effects among affected populations. Children are considered a vulnerable group because they often have limited knowledge, experience, and ability to respond appropriately during emergency situations [1].

Indonesia is one of the countries that frequently experiences hydrometeorological disasters, particularly floods, due to high rainfall intensity, environmental changes, and urban drainage problems. In urban areas such as Bekasi, West Java, flooding remains a potential threat that can affect daily activities, including school learning processes. Elementary school students are among the groups who require special attention because they spend a significant amount of time at school, where emergency preparedness and safety awareness need to be strengthened [1].

Disaster preparedness education at the elementary school level plays an important role

in building students' knowledge, attitudes, and skills to face disaster situations. Schools are not only places for academic learning but also strategic environments for developing a culture of disaster prevention and safety. Disaster Risk Reduction (DRR) education can improve students' awareness of hazards, understanding of evacuation procedures, and ability to make appropriate decisions during emergencies. The United Nations Office for Disaster Risk Reduction (UNDRR) emphasizes that education and knowledge are essential components in reducing disaster risks and increasing community resilience [2].

However, disaster mitigation education for elementary school students often faces challenges, particularly in selecting learning media that are attractive, easy to understand, and suitable for children's cognitive development. Conventional teaching methods, such as lectures and printed materials, may not always effectively maintain students' attention or improve their understanding of complex disaster concepts. Therefore, innovative educational approaches using visual and interactive media are needed to enhance students' engagement and learning outcomes [3].

Animated video media is considered an effective educational tool because it combines visual images, movement, narration, and sound to deliver information in an interesting and memorable way. Animation can simplify complex concepts, demonstrate disaster scenarios, and illustrate correct preparedness behaviors, such as recognizing flood risks, preparing emergency supplies, following evacuation routes, and protecting oneself during flooding events. Through animated disaster mitigation videos, students can learn in a more enjoyable and meaningful manner, which may improve their readiness and confidence when facing disasters [4].

Children and youth are important stakeholders in disaster risk reduction because they can become agents of change within their families and communities. Empowering children through disaster education can strengthen resilience and promote safer communities. UNDRR highlights that involving children and youth in disaster risk reduction activities is essential because they are directly affected by disasters and need appropriate knowledge and skills to respond effectively [2].

SDN Kali Baru 3 Bekasi is located in an area where flood preparedness education is relevant due to the potential risk of flooding in the surrounding environment. Providing disaster mitigation education through animated videos is expected to increase students' knowledge and preparedness toward flood hazards. An animated disaster mitigation video can serve as an innovative learning medium that supports teachers in delivering disaster preparedness materials effectively and encourages students to actively participate in creating a culture of safety. [5].

Based on these considerations, this study entitled "Implementing Animated Disaster Mitigation Media Animation Video to Enhance Flood Preparedness Among Students at SDN Kali Baru 3 Bekasi" aims to examine the effectiveness of animated disaster mitigation videos in improving flood preparedness among elementary school students. This research is expected to contribute to the development of effective disaster education strategies and support the implementation of school-based disaster risk reduction programs [9].

2. RESEARCH METHODOLOGY

This study deployed a quantitative research design utilizing a quasi-experimental approach structured around a one-group pretest-posttest framework. This design allowed for a direct within-subject comparison of baseline knowledge levels against post-intervention scores. The research was carried out at SDN Kali Baru 3 Bekasi, West Java, Indonesia, on December 9, 2024. The target population consisted of fourth-grade elementary students who had never participated in formal disaster response drills or received structured safety training.

3. RESULTS AND DISCUSSION

A. Univariate Analysis

The univariate analysis establishes the baseline and post-test frequencies of the participants' knowledge categories as detailed below:lack the situational awareness and practical skills required to navigate a sudden disaster safely, resulting in an elevated risk of emotional trauma and physical injury during extreme flood events. [6].

A primary factor contributing to this vulnerability is the lack of institutionalized disaster preparedness education at the elementary school level. Conventional teaching methods often rely heavily on dense text materials and passive lectures, which fail to engage younger audiences effectively or cultivate durable emergency retention. To bridge this gap, modern educational methodologies suggest leveraging interactive audio-visual materials tailored to the cognitive psychology of young learners. Animated cartoons offer a compelling blend of color, motion, dynamic sound, and narrative-driven scenarios that simplify abstract safety guidelines into digestible, actionable strategies. [3].

SDN Kali Baru 3 Bekasi regularly faces extreme flooding during the monsoon season, with flood waters entering classrooms and halting educational activities. This direct environmental exposure demands that students possess proactive self-protection mechanisms. This study was undertaken to evaluate the empirical influence of structured cartoon animation video education on flood disaster preparedness knowledge among young students aged 9–10 years at this highly affected school site [7].

Table 3.1: Pre-test Knowledge Levels (N = 62)

Knowledge Category	Frequency (f)	Percentage (%)
Poor	2	3.2
Sufficient	23	37.1
Good	37	59.7
Total	**62**	**100.0**

Table 3.2: Post-test Knowledge Levels (N = 62)

Knowledge Category	Frequency (f)	Percentage (%)
Poor	0	0.0
Sufficient	0	0.0
Good	62	100.0
Total	**62**	**100.0**

The baseline data indicates that a notable portion of children (59.7%) already maintained a "good" tier of baseline awareness. This pre-existing comprehension is primarily attributed to their lived experiences, as the school and its surrounding neighborhood face regular inundation during seasonal rains [12]. Lived experience serves as an informal instructor, naturally enhancing baseline awareness regarding simple concepts like recognizing rising waters or moving electrical appliances. However, the remaining 40.3% who fell into the poor and sufficient categories highlight a clear deficit in structured emergency strategies, which can compromise safety under pressure [5].

B. Bivariat Analysis

To assess the statistical significance of the change, a normality screening was performed. The Shapiro-Wilk test yielded significance levels of $p = 0.006$ for the pre-test and $p = 0.000$ for the post-test. Because both values fell below the 0.05 threshold, the data violated normal distribution assumptions, requiring the use of the Wilcoxon signed-ranks test.

A total sampling strategy was adopted, yielding an active sample size of 62 respondents who met the inclusion criteria and secured parental consent. The primary independent variable was the delivery of disaster education via

a specialized 10-minute cartoon animation video detailing flood indicators, emergency packing, contact numbers, evacuation etiquette, and post-flood health precautions. The dependent variable was the student's preparedness knowledge level [8].

Data collection relied on a pre-validated 20-item closed-ended questionnaire. Knowledge levels were classified into three descriptive tiers based on raw scores: Poor (<56%), Sufficient (56%–75%), and Good (>75%). Following the initial baseline pre-test, the video intervention was screened, followed immediately by an identical post-test. Data processing was conducted via statistical software, utilizing a Shapiro-Wilk normal distribution check followed by a non-parametric Wilcoxon signed-ranks test.

Table 3.3: Wilcoxon Signed-Ranks Test Metrics

Ranks Matrix	N	Mean Rank	p-value
Negative Ranks	0	0.00	
Positive Ranks	62	31.50	**0.001**
Ties	0	-	

The Wilcoxon test output indicates a highly meaningful improvement, yielding a p-value of 0.001 ($p < 0.05$). All 62 participants experienced a definitive positive shift in their knowledge metrics, without a single negative rank or tie. This shift underscores the high efficiency of animated teaching tools. By combining simplified safety narratives with visually stimulating imagery, cartoon videos successfully capture children's attention, making complex instructions memorable and actionable during sudden flood emergencies [7].

4. CONCLUSIONS AND RECOMMENDATIONS

This study demonstrates that utilizing cartoon animation videos as an educational medium exerts a highly significant positive effect on the flood disaster preparedness knowledge of children aged 9–10 years. The structured visual tool unified the cohort, moving 100% of the students into the "good knowledge" standard. Elementary schools located in flood-prone areas should actively move away from text-heavy materials and embed short, localized safety animations into their core curricula to build a highly resilient, disaster-ready generation from an early age.

REFERENCE

[1] World Health Organization (WHO). (2023). *Floods: Health Topics*

[2] United Nations Office for Disaster Risk Reduction (UNDRR). (2020). *Engaging Children and Youth in Disaster Risk Reduction and Resilience Building*

[3] United Nations Office for Disaster Risk Reduction (UNDRR). (2024). *Raising a Resilient Generation: Ensuring Disaster Preparedness for Children*

[4] Komalasari, D., et al. (2022). Utilizing cartoon animation to drive elementary engagement. *Educational Media Review*, 18(2), 145-152.

[5] Sugiyanto, S., Rizki, M., & Mashar, H. M. (2024). Pengaruh Edukasi dengan Media Video Animasi terhadap Pengetahuan dan Sikap Anak Usia Sekolah. *Ghidza: Jurnal Gizi Dan Kesehatan*, 8(1), 1–5.

[6] Dwi Prajayanti, E., et al. (2024). Lived experience and disaster preparedness among community members in urban areas. *Journal of Emergency Management*, 15(3), 112-120.

[7] Oktavianti, N., & Rahmah Fitriani, D. (2021). Hubungan Pengetahuan dengan Kesiapsiagaan Remaja dalam Menghadapi Banjir di Samarinda. *Journal Educational of Nursing (JEN)*, 4(2), 76-83.

[8] Daniarista, A., et al. (2024). Barriers in disaster mitigation interest among elementary school children. *Journal of School Safety*, 12(2), 88-95.

[9] Desiani, N. K., et al. (2022). Health and safety awareness levels among adolescent

groups prior to structured outreach. *Indonesian Journal of Nursing Practice*, 6(1), 34-41.

[10] Donana, R., et al. (2024). Comparative analysis of animation-based health education tools. *Ghidza: Jurnal Gizi dan Kesehatan*, 8(1), 12-19.

[11] Indo Syaputri, R., et al. (2023). Audio-visual media selection for pediatric health interventions. *Journal of Pediatric Nursing Insights*, 9(4), 210-218.

[12] Prasetyo, W., & Djoko Tjahjono, H. (2021). Pendidikan Kesehatan Terhadap Pengetahuan Kesiapsiagaan Masyarakat Dalam Menghadapi Bencana Banjir Di Daerah Petemon Surabaya. *Jurnal Keperawatan*, 13(1), 45-52.

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