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Enhancing Disaster Preparedness Skills through Mitigation Education in Group B Early Childhood Education

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ABSTRACT
Disaster preparedness has not been optimally integrated into early childhood education, resulting in limited preparedness skills among children in disaster-prone areas. Although disaster mitigation education has been widely promoted, empirical evidence regarding its implementation at the early childhood level remains limited. This study aimed to improve disaster preparedness skills through mitigation education in Group B of an early childhood education institution in a flood-prone area. This research employed a classroom action research design based on the Kemmis and McTaggart model, conducted in two cycles consisting of planning, action, observation, and reflection stages. The participants were 15 children, and the intervention was carried out over six learning sessions. Data were collected through observation, interviews, and field notes, and analyzed using a combination of qualitative and quantitative approaches. The results showed a consistent improvement in children's disaster preparedness skills, with the average score increasing from 5.27 in the pre-cycle to 7.73 in Cycle I and 10.13 in Cycle II, out of a maximum score of 12. These findings indicate that mitigation education is effective in enhancing disaster preparedness skills among early childhood learners. It is recommended that disaster mitigation education be systematically integrated into early childhood learning to foster awareness and preparedness from an early age, particularly in disaster-prone environments.

Keywords: Classroom Action Research; Disaster Preparedness; Early Childhood Education; Mitigation Education.

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1. INTRODUCTION

Disaster preparedness is an essential life skill that needs to be introduced from an early age, particularly in disaster-prone areas. However, in practice, disaster education has not been optimally integrated into early childhood education, resulting in limited preparedness skills among young children. This condition is concerning given that children are among the most vulnerable groups during disasters due to their limited knowledge, awareness, and response capabilities (Rahiem & Widiastuti, 2020; Mutch, 2019).

Early childhood education plays a crucial role in supporting children's holistic development, including cognitive, social, and emotional aspects. At this stage, children are highly receptive to learning experiences, making it a strategic period to introduce disaster mitigation concepts (Fadlillah, 2014; Nurani et al., 2022). Providing appropriate educational stimuli can help children develop awareness, knowledge, and basic skills related to disaster preparedness.

Disaster preparedness refers to a set of knowledge, attitudes, and skills that enable individuals to anticipate, respond to, and recover from disaster events (Adiyoso & Kanegae, 2013). In the context of early childhood, disaster education should not only focus on theoretical understanding but also emphasize practical and experiential learning approaches, such as simulations and interactive activities, which have been shown to improve children's preparedness (Septikasari & Ayriza, 2020).

Despite the growing attention to disaster education, most existing studies focus on primary and secondary education levels, while research at the early childhood level remains limited (Amri et al., 2021). Furthermore, studies that specifically apply classroom action research to improve disaster preparedness skills in early childhood settings are still scarce. This indicates a gap in empirical evidence regarding effective strategies for integrating disaster mitigation education into early childhood learning.

Field observations conducted at Rinjani Jaya Early Childhood Education in Morowali District revealed that disaster mitigation education had not been systematically implemented. The institution is located in an industrial and flood-prone area, where environmental changes such as deforestation and land development frequently trigger flooding during heavy rainfall. However, children's disaster preparedness skills—such as recognizing disaster signs, responding appropriately, and understanding post-disaster actions—were still below expectations. In addition, teachers' limited knowledge and the absence of standard operating procedures further hindered the implementation of disaster preparedness education.

Based on these conditions, there is a need for an effective and contextual learning approach to improve children's disaster preparedness skills. One potential approach is disaster mitigation education implemented through classroom action research, which allows continuous improvement of learning practices through iterative cycles of planning, action, observation, and reflection (Kemmis & McTaggart, 1988).

Therefore, this study aims to improve disaster preparedness skills among Group B early childhood learners through the implementation of disaster mitigation education in a flood-prone environment.

2. METHOD

This study employed a participatory and collaborative classroom action research (CAR) approach aimed at improving children's disaster preparedness skills through the implementation of mitigation education. Classroom action research involves a cyclical process that integrates action and reflection to enhance educational practices.

The research design followed the model proposed by Kemmis and McTaggart (1988), which consists of four stages: planning, action, observation, and reflection. This model was selected because it allows continuous improvement of teaching and learning processes through iterative cycles and collaborative reflection between researchers and teachers.

The study was conducted in an early childhood education setting involving 15 children in Group B. The research was implemented in two cycles, with each cycle consisting of three learning sessions. Each cycle included the stages of planning the learning activities, implementing mitigation education, observing children's responses and participation, and reflecting on the outcomes to inform the subsequent cycle.

Data were collected using observation sheets, interviews, field notes, and documentation. Observation sheets were used to assess children's disaster preparedness skills based on predetermined indicators, while interviews and field notes were utilized to capture the learning process and contextual factors during the implementation.

The data analysis employed a mixed-methods approach. Qualitative data were analyzed using the interactive model of Miles and Huberman, which includes data reduction, data display, and conclusion drawing/verification. Quantitative data were analyzed using descriptive statistics to examine improvements in children's disaster preparedness skills across cycles. The results were presented in the form of tables and graphs to illustrate the progression of learning outcomes

3. RESULTS AND DISCUSSION

The results of this study indicate a consistent improvement in children's disaster preparedness skills across the pre-cycle, Cycle I, and Cycle II. The improvement was measured using the Developmental Achievement Level (TCP) based on indicators such as recognizing disaster signs, responding appropriately during disasters, and understanding post-disaster actions. Disaster preparedness in early childhood is closely related to the development of knowledge, attitudes, and practical skills that can be strengthened through structured educational interventions (Kousky, 2016; Pfefferbaum et al., 2018).

In the pre-cycle, the average TCP score was 5.27 out of a maximum score of 12, indicating that children's disaster preparedness skills were still relatively low. At this stage, most children demonstrated limited understanding of disaster-related concepts and were not able to respond appropriately in simulated situations. This condition reflects that disaster mitigation education had not been effectively implemented in the learning process, which is consistent with previous findings that disaster education is often not systematically integrated into early childhood settings (Mutch, 2019; UNICEF, 2019).

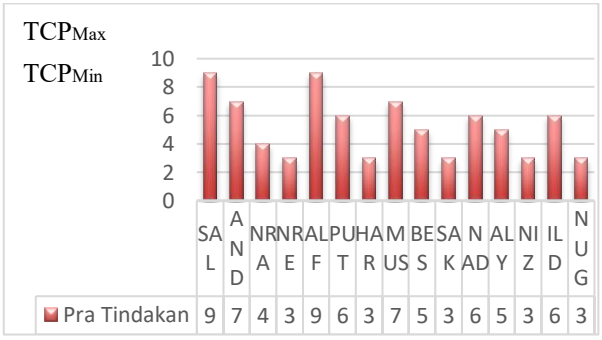

Figure 1. Pre-cycle disaster preparedness

After the implementation of mitigation education in Cycle I, children's disaster preparedness skills showed improvement, with the average TCP score increasing to 7.73. Although this result had not yet reached the predetermined minimum criterion (TCPMin = 9), it indicates that the use of interactive and experiential learning activities began to positively influence children's understanding. Learning approaches that involve active participation, such as simulations and contextual activities, are known to enhance children's engagement and comprehension in early childhood education (Fadlillah, 2014; Nurani et al., 2022; UNDRR, 2020). However, several children still experienced difficulties in applying their knowledge in practical situations, indicating the need for improvement in instructional strategies.

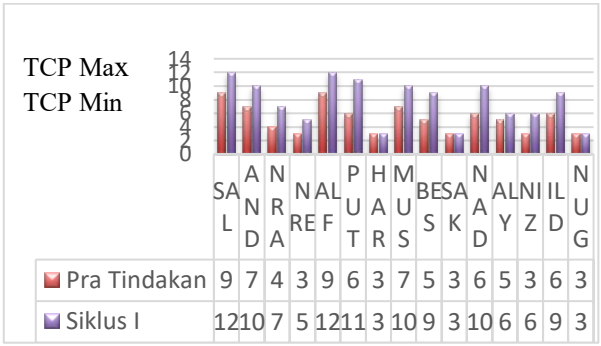

Figure 2. Cycle I results

Based on the reflection results in Cycle I, improvements were made in Cycle II by enhancing learning media, increasing the intensity of simulation activities, and reinforcing key concepts through repeated practice. As a result, children's disaster preparedness skills improved significantly, with the average TCP score reaching 10.13, exceeding the minimum criterion. Most children were able to recognize disaster signs, respond appropriately, and demonstrate better understanding during simulation activities. This finding aligns with previous studies showing that repeated practice and simulation-based learning significantly improve disaster preparedness in children (Septikasari & Ayriza, 2020; Rahiem & Widiastuti, 2020; Amri et al., 2017).

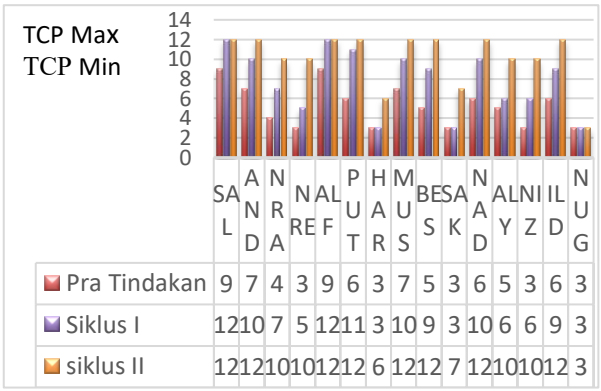

Figure 3. Cycle II results

The progressive improvement across cycles demonstrates that disaster mitigation education, when delivered through interactive, contextual, and experiential approaches, can effectively enhance disaster preparedness skills in early childhood. These findings also support the view that early disaster education contributes to building a culture of preparedness and resilience from an early age (Paton & Johnston, 2017; UNDRR, 2020).

Furthermore, the classroom action research approach contributes to the effectiveness of the intervention by allowing continuous refinement of teaching strategies through iterative cycles (Kemmis & McTaggart, 1988). This process enables educators to adapt learning activities based on children's responses, resulting in more meaningful and effective learning outcomes.

In the context of disaster-prone environments, integrating mitigation education into early childhood learning is highly important. It not only improves children's knowledge but also fosters awareness and readiness to respond to potential disasters. Therefore, disaster mitigation education should be systematically incorporated into early childhood education practices to support the development of children's preparedness from an early age.

4. CONCLUSION

This study demonstrates that the implementation of disaster mitigation education through a classroom action research approach effectively enhances disaster preparedness skills among Group B children in early childhood education. Through iterative cycles of planning, action, observation, and reflection, learning activities were continuously improved to better support children's understanding and responses to disaster situations.

The findings indicate a significant and consistent improvement in children's disaster preparedness skills, as reflected in the increase in average scores from 5.27 in the pre-cycle to 7.73 in Cycle I and 10.13 in Cycle II (out of a maximum score of 12). Furthermore, the majority of children successfully achieved the minimum development criteria, indicating that the intervention was effective in reaching the targeted learning outcomes.

These results highlight that disaster mitigation education, when delivered through interactive, contextual, and experiential learning approaches, can play a critical role in developing young children's awareness, knowledge, and readiness to face potential disasters. This underscores the importance of integrating disaster education into early childhood curricula, particularly in disaster-prone areas.

However, this study is limited by its small sample size and specific research context. Therefore, future studies are recommended to explore the implementation of mitigation education in broader settings and with more diverse participants to strengthen the generalizability of the findings.

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