

## INCREASING STUDENTS' DISASTER LITERACY THROUGH THE DISASTER MITIGATION CARD GAME (CAMIBEE)

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### Abstract:

**General background:** Disaster literacy is crucial in equipping students with knowledge and preparedness for disaster risk reduction. **Specific background:** Previous educational approaches to disaster mitigation often lack engaging and interactive methods, which may reduce students' motivation to learn about disaster preparedness. **Knowledge gap:** Despite the significance of disaster education, there is a need for innovative approaches that effectively convey disaster mitigation concepts in a way that captivates students' interest. **Aims:** This community service program aims to enhance disaster literacy through the implementation of a disaster mitigation card game, "Camibee," an adaptation of the Monopoly game, which encourages active learning and critical thinking among high school students. **Results:** The program demonstrated that the game-based learning method, particularly using the Camibee card game, significantly increased student engagement and understanding of disaster mitigation concepts. Students were enthusiastic, which translated into improved motivation to learn about disaster risk reduction. **Novelty:** This study presents a novel approach by integrating a competitive, enjoyable board game with educational content on disaster mitigation, providing an alternative to traditional disaster literacy education. **Implications:** The program contributes to the development of effective disaster education strategies that not only enhance students' disaster preparedness but also foster active participation and awareness. The findings suggest that this game-based approach could be widely applied in disaster education to improve literacy and preparedness in schools, empowering students to become agents of change in disaster risk management.

**Keywords:** *Student Awareness, Disaster Literacy, Disaster Mitigation, Student Understanding, Card Games.*

## INTRODUCTION

The Teaching Campus Program is an implementation of the Independent Learning Independent Campus (MBKM) which involves students in providing assistance in the learning process at the School through teaching assistance activities [1]. This program is to realize equality in education carried out by the government through the Ministry of Education and Culture. The purpose of this program is to improve the quality of education, the number of students, and teaching staff in various schools. This program is targeted at schools that need improvements in learning, especially in literacy, numeracy, and the application of digital technology. In addition, there are also schools that need an increase in the number of teachers and students because there are limitations in this regard. In this program, the Ministry of Education and Culture involves students from all over Indonesia to learn and have a positive impact on schools in Indonesia.

In the context of disaster management, disaster literacy is very important. Disaster literacy includes an understanding of disaster risk, knowledge of actions that can be taken to reduce risk, and the ability to respond appropriately when a disaster occurs. Disaster situations show how important students' knowledge and preparedness are in dealing with disasters, which can play a very vital role. By increasing students' disaster literacy, it is an urgency that needs to be emphasized.

According to the Regency BPBD, "The series of natural disasters that have haunted Indonesia lately inevitably make our people aware of the importance of the preparedness factor in dealing with these various disasters". This shows that awareness of preparedness and knowledge about disasters are the key in dealing with disaster threats. Disaster risk reduction can be done by considering many things, such as sustainability and community participation. In Law Number 24 of 2007 concerning Disaster Management, children are included in the vulnerable category because the impact of disasters is considered greater in certain age groups. That means children need a special understanding of disaster mitigation. Sunarto (2012) said that children are very vulnerable to disasters and this can also be triggered by things around them, which makes them unprepared when disasters occur. In addition, disaster education is considered very important for mental preparation. The community needs to be given adequate education about disaster preparedness and procedures, so that they can respond better when disasters occur [2].

In disaster management efforts, disaster prevention and mitigation are carried out to reduce and overcome disaster risks. This includes the repair or construction of schools, worship facilities, offices, hospitals, and markets, as well

as improving the ability to deal with disaster threats. By increasing disaster literacy, especially among students, it is very important in disaster management efforts. Disaster literacy can help in preparing communities, including students, to better deal with disasters. Mitigation activities, according to Noor (2014), aim to increase community preparedness, reduce disaster risk for a long period of time, reduce the number of victims, and be implemented as much as possible to minimize impacts. Schools should receive disaster mitigation education if there has been a discussion about this. Again, it is very important that this education starts early to provide more knowledge about what to do before or when a natural disaster occurs to mitigate its negative impact.

Achieving learning objectives requires the use of tools or media that can help students understand the material. In reality, the appropriate use of media will provide a meaningful learning experience so that educational goals can be optimally achieved. In science learning, practicum tools and materials in the laboratory are often used. However, not all science materials require practicum or experiments. Therefore, the use of diverse media is very necessary in learning.

Monopoly Disaster Mitigation is a fun educational game that can be played in the classroom. The purpose of this game is to introduce concepts and efforts in disaster management through disaster mitigation learning presented in the form of educational games. The game aims to improve students' understanding of disaster mitigation through a fun and interactive approach using card games. The problem-solving plan in this activity is to hold card game sessions that are specifically designed to teach disaster mitigation concepts in a fun and easy-to-understand way for students so that they can understand these concepts better and be ready to face disasters with better knowledge. [3]

According to relevant research, a literature review that includes literature on disaster literacy will discuss the understanding and readiness of the community in dealing with disasters, including students as part of the community. In addition, the literature review will also include effective learning approaches in the context of disaster mitigation, which includes learning methods that can improve students' understanding and readiness to face disasters. Case studies related to the implementation of similar programs will also be part of this literature review to see the effectiveness of the approaches that have been applied in real contexts.

## **RESEARCH METHODS**

Student service activities aim to increase students' understanding of disasters through disaster mitigation card games, increase students' awareness of steps that can be taken in dealing with disasters, and increase students' readiness to face disasters. The method of approach that will be carried out based on schools is to provide training programs on understanding disaster mitigation by using disaster mitigation card games. The implementation of service activities includes:

- a. Conduct literature studies on disaster literacy, effective learning approaches in the context of disaster mitigation, and the implementation of similar programs. This aims to gain an in-depth understanding of this topic and see the effectiveness of the approaches that have been implemented before.
- b. Design an interesting and educational disaster mitigation card game. The game will be designed in such a way that students can learn disaster mitigation concepts in a fun and easy-to-digest way.
- c. Choosing grade 10 as the target because in that class there are still science subjects that are relevant to the topic of disaster mitigation.
- d. The implementation of the activity by holding disaster mitigation card game sessions in grade 10 that has been selected. These sessions will be conducted interactively and involve the active participation of students.
- e. Evaluate Student Understanding by measuring student understanding before and after the program using relevant tests or questionnaires. This evaluation will help in evaluating the effectiveness of activities and students' understanding of disaster mitigation.
- f. Analyze the data obtained from the evaluation of students' understanding to evaluate the success of the activity and draw relevant conclusions.

By following this implementation method, it is hoped that students will have a better understanding of disaster mitigation and preparedness in dealing with disasters.

## **RESULTS AND DISCUSSION**

The service to the school regarding disaster literacy by using the disaster mitigation card game (Camibee) to increase students' awareness of the steps that can be taken in dealing with disasters has been carried out smoothly. The activities that have been carried out are as follows:

- a. Disaster mitigation card games are used as a method to convey information about steps that can be taken in dealing with disasters in an interactive and engaging manner for students. In this game, students are invited to choose cards that represent the appropriate mitigation measures in a particular

disaster situation. This helps students understand practically how mitigation measures can be applied in daily life.

- b. The main goal of the program is to raise students' awareness of the importance of disaster mitigation measures and how they can play an active role in dealing with disasters. With this increase in understanding and awareness, it is hoped that students will be better prepared and able to respond appropriately when disasters occur, as well as be able to educate others about the importance of disaster mitigation.

The Camebee Monopoly Game is one of the educational game tools that is integrated with the concept of monopoly games in general. This game is intended as a learning medium that instills disaster mitigation education for students at school. This educational game is designed by prioritizing its function as a disaster education medium so that the content in it contains material about disaster mitigation. This monopoly is equipped with challenge cards, mitigation cards, and land certificate cards. This game is done in groups, students roll dice and run pawns. If a student gets a card containing a challenge, the student must run the challenge in front of the class. If the card contains questions, students must discuss in groups to determine the answers and present them in front of the class. If students are able to answer the questions correctly, then students are allowed to continue the game. If not, then the student waits for the next turn.

This game is a very positive step in increasing disaster literacy among students. With a better understanding of disaster hazards and mitigation measures, students can become agents of change who play an active role in disaster management efforts. These games can also help in disaster management in society as a whole, as students can spread their knowledge and awareness to others. In this study, an evaluation of students' understanding after participating in the training program was carried out.



Figure 1 : Photos of the implementation of school service

The evaluation data was thoroughly analyzed to determine the program's effectiveness in enhancing students' understanding of disaster hazards and mitigation measures. The findings indicate that the implemented learning media successfully contributed to making the learning process more engaging and creative. This resulted in increased student enthusiasm, which in turn simplified the comprehension of disaster-related topics. Moreover, the interactive nature of the learning tools allowed students to absorb complex concepts of disaster mitigation more effectively, leading to a deeper understanding of the subject matter. Thus, the program appears to be an effective means of improving students' disaster awareness.

In addition to fostering a more enjoyable learning environment, the research demonstrated a significant improvement in disaster literacy among students. The creative approach of the media not only facilitated learning but also empowered students to apply mitigation measures in real-world scenarios. By offering an innovative platform, the program bridged gaps in traditional disaster education and helped instill critical thinking skills in students regarding hazard preparedness. As a result, students were able to grasp essential concepts more clearly, positioning the program as a valuable educational resource for promoting disaster resilience.

## CONCLUSIONS

**Fundamental finding:** The implementation of the "Camibee" disaster mitigation card game successfully enhanced students' disaster literacy, engagement, and critical thinking regarding disaster preparedness. The interactive and group-based approach allowed students to better grasp disaster mitigation concepts, fostering motivation to actively participate in risk reduction efforts. **Implication:** This study implies that incorporating game-based learning into disaster education can serve as an effective tool for increasing students' understanding of disaster mitigation and preparedness. It highlights the potential of innovative teaching methods to cultivate a proactive mindset among students in disaster risk management. **Limitation:** However, this program was limited to a specific group of high school students and did not examine long-term retention of disaster literacy. The findings may not be generalizable across different age groups or educational settings. **Further research:** Future studies should explore the scalability of this game-based approach, evaluate its long-term impact on students' disaster preparedness, and assess its applicability in diverse educational contexts.

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