

Implementation of the Make A Match Strategy as a Medium for Fire Disaster Preparedness Education in Schools

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<https://doi.org/10.58439/bsn.v4i2.439><https://e-journal.saku.co.id/index.php/BSN>Puji Setya Rini^{1*}, Putri Rahmi¹, and Miskiyah Tamar¹

Abstract

Introduction: Preparedness for fire disasters in schools is very important, especially since children are a vulnerable group. Unfortunately, most elementary schools do not yet have an effective educational approach to teaching disaster management. The Make A Match learning model, as an interactive game-based method, has the potential to be an innovative solution to improve students' knowledge and skills in dealing with fires.

Methods: This activity was conducted at SD Muhammadiyah Palembang, involving 60 students from grades IV–VI as participants. The implementation method included the delivery of fire safety material, the application of the Make A Match learning model, and an evacuation simulation. The evaluation was carried out using a pre-test and post-test descriptive comparison to measure knowledge improvement, accompanied by direct observation of students' participation, cooperation, and responsiveness during the activities. In addition, teachers played an active role as facilitators and co-evaluators, assisting in guiding the students during group work, monitoring behavior during the simulation, and engagement.

Results: The results of the activity showed an increase in students' understanding of the topic of fire by 30–35% based on test results. In addition, students showed a more alert attitude, were active in the activity, and were able to follow the evacuation simulation well. Teachers and school officials provided positive feedback on the learning method used.

Conclusion: The application of Make A Match proved to be effective in increasing students' preparedness for fire disasters because it was able to combine cognitive, affective, and motor elements in learning. Fun learning also strengthened student engagement and created a collaborative learning atmosphere. Disaster education through this approach is recommended to be integrated into the elementary school curriculum on an ongoing basis.

Keywords: Disaster preparedness, fire, elementary school, Make A Match.

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INTRODUCTION

Disaster preparedness is an important part of risk mitigation efforts, especially in school environments inhabited by vulnerable groups such as children. One of the most frequent threats with a significant impact on life and property safety is fire. Fires in schools can occur due to negligence, poor electrical installations, or a lack of safety equipment, and often cause significant material and non-material losses. Based on a number of incidents in the field, most school residents, especially

students, do not yet fully understand what actions to take in the event of a fire. This shows that the level of preparedness for fire disasters is still relatively low, especially in terms of knowledge of mitigation and initial emergency response (Seyedin et al., 2020).

Unfortunately, however, schools are still far from ideal in terms of their preparedness for fires. Studies show that most schools do not have adequate emergency evacuation plans, safety officers, or disaster training. Even in special schools, early warning systems and evacuation training are still not implemented systematically (Raphela & Ndaba, 2024).

Efforts to improve preparedness cannot be achieved through one-way lectures or occasional simulation training alone. An educational approach that is active, participatory, and tailored to the learning characteristics of students, especially at the elementary school level, is required. In this context, the Make A Match learning model presents an innovative solution. Make A Match is part of cooperative learning that uses card games to match questions and answers. This activity engages students directly and actively, making the learning process more enjoyable and memorable (Juliani et al., 2021). Therefore, an appropriate educational approach is needed to improve students' understanding and preparedness from an early age.

In a more specific study, Make A Match based on disaster material has been proven to be able to increase students' interest and independence in learning, as well as strengthen their conceptual understanding of disaster mitigation, including fires (Infatih & Wijaya, 2022). One learning model that is considered effective in addressing these challenges is the Make A Match strategy. This is a cooperative learning model that involves matching cards containing questions and answers in pairs. This strategy creates a fun and active learning atmosphere, which is very suitable for teaching disaster-related material to elementary school students. In addition, this model allows students to learn while playing, which is very suitable for the learning style of elementary school-aged children (Juliani et al., 2021).

Research also shows that Make A Match-based learning can increase interest, independent learning, and student understanding of disaster material, including in the context of fire. This model combines visual, kinesthetic, and social learning, making it suitable for children's learning styles (Infatih & Wijaya, 2022). Furthermore, recent studies also show that fire preparedness education programs conducted in schools can significantly improve students' knowledge, attitudes, and practices in dealing with potential disasters (Ahmed & Saad, 2024).

The main objective of this community service activity is to improve elementary school students' preparedness for fire disasters through an innovative and enjoyable educational approach, namely by using the Make A Match learning model. This model was chosen because it has been proven effective in improving students' understanding of important concepts, including in the context of disasters (Juliani et al., 2021).

Specifically, this activity aims to equip students with basic knowledge about the causes, effects, and ways to anticipate and respond to fires in the school environment. This education is very important given the low level of student understanding of rescue measures in the event of a fire, as found in a number of previous studies. In addition, through simple simulations and educational activities, students are also trained to understand basic emergency evacuation procedures and the use of lightweight fire extinguishers (Situngkir et al., 2024).

Overall, this activity also aims to encourage schools to adopt learning strategies that integrate disaster education into regular learning activities. Thus, a culture of disaster awareness can begin to be formed from an early age, and schools can become safer environments that are better prepared to face potential fire risks (Ahmed & Saad, 2024).

Although many studies have explored disaster education and school preparedness programs, most have focused on knowledge dissemination or simulation-based training rather than on interactive and participatory learning models suitable for young students. Furthermore, there is still a lack of community service activities that

integrate innovative cooperative learning strategies—such as the *Make A Match* model—into fire disaster preparedness education at the elementary school level. This gap highlights the need for educational interventions that not only transfer knowledge but also actively engage students, teachers, and schools in developing a sustained culture of preparedness. Therefore, this community outreach program seeks to fill that gap by implementing the *Make A Match* strategy as a fun and participatory medium to enhance elementary students' understanding, attitudes, and practical readiness toward fire disaster situations.

Based on this background, the community service team designed a fire disaster management education activity by applying the *Make A Match* strategy as an educational medium for fire disaster preparedness in elementary schools. This activity not only aims to convey information about fire prevention, but also to train critical thinking, cooperation, and decision-making skills in emergency situations. Through attractive and educational media, students are expected to have a better understanding of the importance of fire preparedness and know the steps to take to save themselves and help others. This activity is expected to equip students with the basic knowledge and skills to act appropriately when faced with a fire.

METHOD

This community service activity was carried out through an educational approach based on participation and application, utilizing the *Make A Match* learning model as the main medium for delivering disaster-related material, particularly about fires. The activity was carried out at one of the predetermined partner elementary schools, involving 60 upper-grade students (grades IV–VI) as the main participants.. The *Make A Match* model was chosen because it has been proven effective in improving students' understanding of educational material in a fun and collaborative way (Infitah & Wijaya, 2022).

The first step in this activity was coordination and initial observation at the school location. The community service team identified the school's infrastructure

readiness in dealing with fires, including the availability of evacuation routes, fire extinguishers (APAR), and emergency response procedures that the school already had in place. Previous studies have shown that the readiness of the physical environment and policies in schools greatly influence the success of disaster preparedness education (Krnjić & Cvetković, 2021).

Next, the core activity was carried out in the form of a one-day interactive workshop, which consisted of several main sessions. The first session was the delivery of disaster material, in which the team conveyed basic information about the causes of fires, their impacts, prevention methods, and self-rescue measures. The material was delivered using visual media such as posters, animations, and short videos to make it easier for elementary school students to understand. Research shows that multimedia-based educational methods are very effective in increasing students' awareness of disaster risks (Krnjić & Cvetković, 2021).

The second session was the implementation of the Make A Match model. In this session, students were divided into small groups and given cards containing questions and answers about fires. This matching activity was carried out competitively and collaboratively, encouraging students not only to learn cognitively but also to practice social skills and teamwork. The use of educational games has proven to be effective in disaster education, including for elementary school children (Dinar Nur Inten et al., 2023).

The third session was a fire evacuation simulation, in which students practiced self-rescue procedures under the guidance of facilitators. This simulation was based on a simple fire scenario at school. The results showed that the fire simulation significantly improved students' knowledge and preparedness for fire disasters (Situngkir et al., 2024).

The activity ended with a reflection and evaluation session, where students filled out questionnaires to assess how much their understanding had changed before and after the activity. This evaluation was followed by a discussion with teachers and school officials to develop strategies for continuing disaster preparedness education

in the school environment. The implementation of training that involved technology and active participation proved to be effective in shaping long-term disaster response attitudes (Pohan et al., 2024).

RESULTS AND DISCUSSION

The community service activities carried out at SD Muhammadiyah Palembang successfully produced positive results in improving students' preparedness for fire disasters. The results of these activities can be analyzed from four main aspects, namely increased knowledge, the effectiveness of the Make A Match method, the success of the evacuation simulation, and support from the school.

1. Increased Student Knowledge and Awareness

Make A Match-based learning has proven to be suitable for elementary school children. Students who tend to have visual and kinesthetic learning styles can easily understand the material through card matching games. This activity also indirectly instills the concept of disaster response through a process of learning while playing. Research by Infitah & Wijaya (2022) supports these findings, showing that the Make A Match method can increase students' interest in learning and understanding, especially in disaster-related material (Infitah & Wijaya, 2022).

After participating in a series of educational activities and simulations, students demonstrated a significant increase in their knowledge of fire hazards. This was evidenced by the results of a simple pre-test and post-test, which showed an average increase in student scores of 30–35%. Whereas previously students only understood that “fire is dangerous,” they can now explain the causes of fire, prevention methods, evacuation procedures, and basic use of fire extinguishers. This improvement is in line with the results of research by Situngkir (2024), which shows that fire education and simulation can directly improve students' understanding significantly (Situngkir et al., 2024).

2. The Effectiveness of the Make A Match Model in Disaster Education

The Make A Match model successfully creates a fun, interactive learning environment that encourages collaboration among students. When playing the card-matching game about fires, students appear more active, focused, and enthusiastic. This process helps strengthen their memory of important information about fire safety. Research by Infitah & Wijaya (2022) shows that Make A Match, when linked to the theme of disaster, can increase students' interest in learning, cooperation, and independence in understanding fire safety material (Infitah & Wijaya, 2022).

Based on the results of the pre-test and post-test, students experienced an increase in their understanding of the causes of fire, preventive measures, and evacuation procedures. In addition to cognitive aspects, this activity also shaped positive attitudes among students, such as concern for safety, courage to act in emergencies, and greater awareness of environmental risks. This increase in understanding and attitude is in line with the results of a study by Situngkir (2024) which shows that a combination of education and simulation can directly improve students' preparedness in dealing with fires (Situngkir et al., 2024).

Furthermore, this game-based learning approach is particularly suitable for elementary school-aged children as it addresses the cognitive, affective, and social aspects of students. This aligns with the findings of Dinar Nur Inten et al (2023), which state that an educational game-based disaster literacy approach can increase children's sensitivity to disasters and foster an emergency response mindset from an early age (Dinar Nur Inten et al., 2023).

3. Success of the Evacuation Simulation

The evacuation simulation conducted as part of this activity proved to be a memorable and practical learning experience for the students. In the simulation, students practiced responding to alarm sounds, finding evacuation routes, and gathering at a safe point in less than 5 minutes. In addition, they also learned to recognize safety symbols, the location of fire extinguishers, and how to act when trapped in smoke. The application of collaborative methods such as Make A Match not only increases knowledge, but also students' ability to work together and make

quick decisions during evacuation simulations. Students' responses during evacuation drills show that they are able to follow instructions correctly, recognize evacuation routes, and gather at safe points.

Practical experiences like this are crucial in building mental and motor preparedness when facing real disasters. These findings are reinforced by the results of a study Phatisena (2024), which shows that simulation-based learning (both virtual and real) significantly improves students' ability to survive and react during fire incidents (Phatisena et al., 2024).

4. Positive Responses from Teachers and Schools

In addition to the results from students, teachers and principals also reported that this activity had a positive impact on student behavior and knowledge in the classroom. Several teachers reported that students became more aware of safety procedures and more alert to potential fire hazards in the school environment. Schools were also interested in making similar activities part of their annual disaster preparedness program agenda. A study by Pohan et al (2024) recommends that disaster preparedness education should be systematically integrated into the elementary school curriculum as it can shape long-term emergency response behavior (Pohan et al., 2024).

5. Limitation

This community service activity was conducted only once within a short period and involved 60 students from a single elementary school, which limits the generalization of the results. The evaluation relied mainly on simple pre- and post-test comparisons without statistical analysis or follow-up observation, so long-term behavioral changes could not be measured. In addition, limited time and resources prevented continued monitoring and reinforcement by teachers, potentially affecting the sustainability of the program's impact.

CONCLUSIONS

This community service activity shows that the Make A Match learning strategy can be an effective educational method in improving fire disaster preparedness in elementary schools. Through a fun, interactive, and participatory approach, students not only gain cognitive knowledge about fire, but are also able to develop responsive attitudes, collaborative skills, and decision-making abilities in emergency situations. The improvement in students' understanding after the activity was demonstrated by the results of a simple evaluation (pre-test and post-test), as well as their active responses during the fire evacuation simulation. In addition, this activity also shows that schools have a strategic role in shaping a disaster awareness culture from an early age. Collaboration between the outreach team, teachers, and students was an important factor in the success of this program.

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