

Disaster Risk Reduction Learning Model in the School Curriculum

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Abstract

This research discusses the "Disaster Risk Reduction Learning Model in the School Curriculum," which shows a positive impact on increasing student awareness, material integration, active involvement, teacher training, and relevant curriculum development. The research results indicate that this learning model is successful in instilling a deep understanding of disaster risk and the necessary mitigation steps, so that students become more sensitive and proactive in dealing with potential threats in their environment. Integrating disaster risk reduction material with other subjects such as science and geography helps students see relationships between disciplines and apply concepts in a broader context. Active involvement of students through interactive methods, such as simulations and role-playing, improves social and collaboration skills that are essential in disaster management. Effective teacher training plays an important role in the implementation of this model, enabling teachers to deliver material in ways that are innovative and responsive to student needs. In addition, developing curricula adapted to local conditions allows students to understand and overcome specific challenges in their communities. The evaluation and feedback system implemented provides valuable information for students and teachers, supporting continuous improvement in the teaching and learning process. Overall, this research confirms that the disaster risk reduction learning model contributes significantly to students' preparedness and resilience in facing disasters.

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I. INTRODUCTION

Geologically, Indonesia is at the meeting point of the world's three main plates, namely the Eurasian Plate, the Pacific Plate and the Indo-Australian Plate. This makes Indonesia known as a country located in the ring *of fire* or the Pacific circle of Fire. This condition is one of the main causes of Indonesia's frequent natural disasters. Disaster itself is defined as an event that can threaten and disrupt people's lives, such as loss of life and property (Nuraeni, et al., 2020). As a result, Indonesia must be prepared to face disasters that have the potential to threaten people's lives, both from a physical perspective such as loss of life and property, as well as from a broader socio-economic perspective. Therefore, understanding and managing disaster risk is important in various aspects of development in Indonesia, including policy, disaster education, and strengthening community mitigation to be more resilient in facing disasters.

Indonesia is a region that is vulnerable to various types of natural disasters that often occur, such as volcanic eruptions, droughts, earthquakes, tsunamis, forest fires, flash floods, landslides, and others. These disasters resulted in material losses and claimed many victims. According to Law no. 24 of 2007, everyone must receive education, training, counseling and skills in disaster management, both in normal circumstances and when there is a potential for disaster. Through education, it is hoped that disaster risk reduction efforts can be maximized, by integrating disaster education into the school curriculum (Wulandari et al., 2023).

Disasters are events or series of events that threaten and disrupt people's lives and livelihoods, which can be caused by natural, non-natural or human factors. The impact of this disaster includes loss of life, environmental damage, property loss, and psychological impacts. Unpreparedness in dealing with disasters, especially in areas with high economic value, can result in huge losses (Wulandari, et al., 2023). The mind clearly looks for patterns, and we can remember and retrieve information better when the information is embedded in a meaningful context such as in a curriculum that includes disaster aspects as an important aspect in the learning process. While subject-bound education treats students as passive recipients, requiring them only to provide feedback in the form of bits and pieces of skills and facts given to them, integrative education encourages the building of broad "mental programs" that require students to use the skills and information in a new and realistic context.

Disasters can be categorized into three types, namely natural disasters, non-natural disasters and social disasters. Natural disasters are defined as events that are beyond human control and occur unexpectedly, both in terms of time, method and location. In Indonesia, natural disasters are quite frequent events. Each region in Indonesia faces various threats of natural disasters, depending on geographical conditions. Examples of natural disasters that often occur include earthquakes, tsunamis, volcanic eruptions, landslides, floods, fires, tornadoes, tidal waves, and so on (Yutaro, et al, 2023).

With the potential for disaster, anticipatory steps are needed to deal with it. Education is the right way to provide understanding about disasters, which in turn can foster a culture of disaster mitigation from an early age. Considering the potential threat of disasters, disaster education is an urgent need. Schools are an ideal means for conveying knowledge and instilling attitudes so as to produce behavior that is prepared for disasters (Rahmat, H. K., & Kurniadi, A., 2020). Disaster mitigation education is an important need for students to reduce the impact of natural disasters both now and in the future. However, currently material related to disasters has not been directly or indirectly taught in formal education, whether at primary, secondary or tertiary levels. Disaster education is currently mostly delivered to the public through socialization and training which is incidental and has not been carried out in a structured or massive manner (Yunas, Ramadhi, R., & Alius, 2024).

Disaster mitigation learning can be done through schools or directly to the wider community. In order for schools to be able to implement this lesson, it needs to be included explicitly in the curriculum. Disaster mitigation materials must have clear basic competencies. Competencies that need to be added to the curriculum include natural, non-natural and social disaster mitigation. Natural disaster mitigation competency includes the basics of mitigating against earthquakes, mountain eruptions, landslides, floods, storms, and so on. Apart from that, the curriculum must also include basic competencies regarding social disasters that are relevant for Civics and religion subjects, with competencies related to friendly, polite, tolerant, considerate, respectful, caring, and so on. (Anafiah, S., & Rezkitia, 2023).

Schools, as educational institutions in society, need to provide learning related to disaster preparedness to all school members. It is hoped that this education can spread from schools to the wider community. By having an understanding of disaster preparedness, school residents will be better prepared to face natural events which are God's will and cannot be avoided, so that potential losses can be minimized compared to just surrendering when a disaster occurs (Suryadi, et al., 2024). The ability of the school community to mitigate disasters becomes the basic capital of the school community when a disaster occurs.

Disaster mitigation education is important to introduce and teach to school children to prevent and minimize the impact of potential disasters in the future. One of the necessary mitigation programs is fire disaster mitigation, which aims to prevent or reduce the impact

of fire disasters. Disaster preparedness is very helpful in reducing the number of victims due to fire. The importance of fire disaster mitigation for students is to provide experience, knowledge and build a disaster response attitude. This program is a good form of education to protect themselves. (Sa'ban, et al., 2024).

Education is one effective way to reduce disaster risk, by including subjects related to natural disasters as mandatory lessons for students at all levels, especially in schools located in disaster-prone areas. The teaching approaches applied in the Disaster Risk Reduction (DRR) curriculum are generally still limited. In many cases, the material taught does not involve the community and does not meet the need for interactive, participatory and field-based learning, which develops competence, literacy and self-confidence. Examples of interactive, investigative, experience-based and real-action learning can be found in various case studies, but their number is still limited. Evidence regarding effective learning approaches is limited, although learning about hazards and disasters can trigger strong emotional responses in students. The need for learning that prioritizes affective aspects is increasingly important because the increase in disaster events makes pre-disaster learning increasingly relevant (Kristian & Setyasih, 2023). From the explanation above it is important to formulate a learning model for disaster risk reduction in the school curriculum. This is done to provide reading material to educational institutions, schools, teachers, students and the community in general about appropriate models for disaster management.

2. RESEARCH METHOD

The research method used in this study is a qualitative approach with a literature research design. The aim of this research is to develop and evaluate a learning model that can be integrated into the school curriculum, with the hope of increasing students' awareness of disaster risk reduction. The initial stage of this research is to conduct a literature review to understand the basic concepts of disaster risk reduction as well as best practices in disaster mitigation education. This study involved searching various sources, such as scientific journals, books, research reports, and policy documents relevant to disaster mitigation. The findings from this literature review serve as the theoretical basis underlying the development of the learning model that will be applied.

In this research, researchers did not go directly to the field, but instead focused on analyzing written sources that discuss various aspects of disaster risk reduction in an educational context. Researchers examined various existing educational theories and policies, as well as explored references regarding approaches that have been implemented in schools to teach disaster mitigation. From this literature analysis, researchers formulated an ideal learning model, which can combine interactive teaching methods such as group discussions and simulations which have been proven effective based on previous studies.

After that, the researchers provided recommendations for developing a better curriculum based on the results of the analysis, with the aim that Disaster Risk Reduction (DRR) education can be integrated effectively in schools. Evaluation of the results of this literature review was carried out by referring to existing theories and connecting them with best practices found in the literature. This research aims to produce an effective learning model in increasing students' awareness about disaster risk reduction and providing recommendations for educational policies that can be implemented in schools.

3. RESEARCH RESULTS AND DISCUSSION

Based on the literature study that has been carried out, there are several things that need to be done in an effort to develop a disaster risk reduction learning model in the school curriculum as follows:

1. Increasing Student Awareness

Disaster management is a process that must be carried out continuously and sustainably by individuals, groups and communities to deal with various potential dangers, with the aim of reducing the impact of disasters whose arrival time cannot be predicted (mitigation). Mitigation is defined as continuous action aimed at reducing or eliminating long-term risks to assets and human lives. Thus, mitigation can be understood as an effort so that society can avoid the negative impacts of potential disasters that may occur (Yutaro, et al., 2023).

The learning model implemented in this research succeeded in increasing students' awareness of the importance of disaster risk reduction. Students demonstrated significant progress in their understanding of the various mitigation steps that can be taken when faced with a disaster. By using interactive and collaborative learning methods, students are directly involved in discussions, simulations and practical activities related to disaster risk reduction. This approach not only helps them understand the basic concepts of disaster mitigation, but also encourages them to think critically about steps that can be taken in emergency situations.

Disaster preparedness in schools is an important shared agenda that involves the responsibilities of the school community and school stakeholders. The school community includes all individuals who are in the school environment and play a role in learning activities, such as students, teachers, education staff and school principals. School stakeholders are all elements of society who have an interest in the school, including community members and institutions around the school (Lukman, S., & Muhammad, 2023).

One of the disaster mitigation efforts that can be carried out is reforestation. Reforestation emphasizes the importance of mitigation through reforestation, water sources are decreasing and the level of tree felling is higher compared to tree planting. This material is also presented through a simple simulation that shows the process of landslides occurring during heavy rain in forest areas and residential areas without trees. Students were very enthusiastic in observing this simulation, so that the landslide disaster mitigation material remained more in their memories. Apart from simulations, we also invite students to directly practice reforestation around water sources. The aim is to raise their awareness of water sources in the surrounding environment (Fitrianto, et al., 2023).

During the learning process, students are introduced to various disaster scenarios and asked to design appropriate mitigation strategies. This allows them to apply the knowledge they have acquired and understand its relevance in everyday life. Through this comprehensive learning experience, students not only hone practical skills, but also develop a proactive attitude in dealing with possible disasters. Thus, the applied learning model succeeded in building deeper awareness among students regarding their responsibilities in disaster risk reduction and gave them the tools to contribute to personal and community safety.

Physical mitigation can be done by building buildings that are designed to be earthquake resistant and have a symmetrical structure. In addition, the choice of building location must be considered so that the risk of being affected by an earthquake can be minimized. Foundations and other supporting equipment must be adapted to applicable safety standards. Building materials also need to meet standards and, if possible, use earthquake-friendly materials to make them safer and stronger. The use of lightweight materials is also recommended because it can speed up the construction process and reduce the risk of damage due to earthquakes (Fitrianto, 2023).

By taking advantage of available resources, children can build self-confidence and independence without relying on others. This independence and self-confidence is strengthened through disaster management practices carried out through simulations. Through these three stages, this knowledge becomes capital for students to determine the steps they can take when a disaster occurs (Bakti, et al., 2023).

Various learning models can be applied in the teaching and learning process so that children gain meaningful learning experiences according to their stage of development. Therefore, teachers need to strive to implement this learning model. One model that can be used is integrated learning. Integrated learning, which combines certain material in a subject with a theme as a unifying activity, is expected to be able to motivate children in learning and provide knowledge, attitudes and skills that are meaningful to them (Pranajati, 2022). Disaster education plays a role in increasing preparedness and reducing vulnerability to disasters. Therefore, education in schools is very important to build students' awareness of disaster risks in the school environment and encourage preparedness actions (Rahmat, H. K., & Kurniadi, A., 2020)

The following are several important points in increasing students' awareness of disaster risk reduction in schools:

- 1) Education and basic disaster knowledge. Provides basic information about the types of disasters (such as earthquakes, floods, fires, and landslides), their causes, and the impacts they cause. This education is important so that students understand the risks that exist in their environment.
- 2) Emergency response simulation and training. Hold regular disaster simulations, such as earthquake or fire simulations, to train students to respond to emergency situations. This simulation helps students develop practical skills in dealing with disasters and improve their preparedness.
- 3) Reforestation and environmental conservation activities. Involving students in reforestation or greening activities, especially in disaster-prone areas such as hillsides or around water sources, to help reduce the risk of natural disasters such as landslides and drought.
- 4) Formation of student groups concerned about disasters. Form a student group or team that focuses on disaster risk reduction. This team can play a role in disseminating information about disaster mitigation to their friends and assisting in disaster preparedness in the school environment.
- 5) Collaboration with related institutions or organizations. Invite disaster institutions or organizations, such as the Regional Disaster Management Agency (BPBD) or the Red Cross, to provide outreach and special training to students regarding disaster mitigation. This collaboration can improve students' knowledge and skills.
- 6) Use of visual media and technology. Utilize visual media, such as videos, posters and technology-based applications, to help students understand disaster and mitigation concepts in an interactive and interesting way.
- 7) Promotion of a culture of preparedness in the school environment. Encourage a culture of preparedness in schools by creating regulations or policies that support disaster risk reduction, such as maintaining a clean environment, disposing of rubbish in its proper place, and reporting damage to school infrastructure that could be a disaster risk.

2. Teacher Training

Teachers who are trained in the disaster risk reduction learning model have better abilities in delivering material to students. They can utilize the knowledge and skills they have learned to create more interesting and relevant learning experiences. With this

training, teachers not only understand basic concepts related to disaster mitigation, but can also integrate them into the curriculum in a creative way.

School principals and teachers are quite responsive and ready to face disasters, because they are used to dealing with floods that occur every year. Their experience of dealing with floods in the past makes them understand the actions that need to be taken when a flood strikes. All teachers at the school can be said to be quite responsive and ready to face flood disasters, even though the school has not held training or simulation of disaster emergency response plans (Suryadi, et al., 2024). Teachers who lack knowledge about disaster mitigation and the steps that need to be taken to prepare themselves for disaster situations (Okviasanti, et al., 2024).

In recent years, various institutions and organizations, including government agencies, NGOs, and educational institutions at both national and regional levels, have attempted to increase public education and awareness regarding disaster risk reduction. Various activities were carried out, such as including disaster material in local content, training for teachers, campaigns and advocacy, as well as visits to schools to carry out disaster drill simulations. However, these efforts are still poorly coordinated and have not been integrated into a framework that can be mutually agreed upon (Pranajati, 2022). The importance of this is because disasters have an impact on damage to school infrastructure and social conditions as disasters do. Disaster risk mapping provides information about locations with a high level of risk based on three main characteristics: threat, vulnerability and capacity. Data from these three aspects in each region is used to understand the risk level of a disaster so that action can be taken to reduce the risk according to the existing problem. Mitigation in Makassar City for flood disasters is still not very responsive, because there are still many losses due to this disaster. Therefore, more effective mitigation policies are needed to reduce risks (losses) when disasters occur (Bongi, et al., 2020).

A more innovative approach to teaching allows teachers to use a variety of methods and tools that can increase student participation. For example, they can design simulations of disaster situations that are close to real conditions, so that students feel the urgency and complexity faced in emergency situations. In addition, teachers can apply role plays to help students understand the various perspectives that exist, both as rescuers and as affected communities.

With creativity in teaching, teachers can create an interactive and collaborative learning environment, where students feel more involved and motivated to learn. This not only increases students' understanding of disaster risks, but also encourages them to develop a proactive attitude in facing these challenges. Through this rich learning experience, it is hoped that students will be better prepared and able to contribute to disaster management efforts in the future.

The following needs to be done in teacher training efforts in disaster risk reduction:

- 1) Basic disaster mitigation training. Provides a basic understanding of the types of disasters, such as earthquakes, floods and fires, and their impacts. Teachers are trained to recognize disaster risks in the school environment and its surroundings.
- 2) Preparedness and evacuation plans. Teach teachers about preparing effective evacuation plans, including evacuation routes, gathering points, and coordination with related parties. This involves conducting evacuation simulation exercises with students on a regular basis.
- 3) First aid and basic assistance. Train teachers in basic first aid skills, such as injury care, CPR (cardiopulmonary resuscitation), and treatment of minor injuries, so that they are ready to treat students or school residents injured in a disaster.

- 4) Integrating disaster education into the curriculum. Equip teachers with methods for integrating disaster risk reduction material into subjects, such as science, geography and civics, so that students can better understand how to deal with disasters.
- 5) Post-disaster psychosocial management. Providing knowledge to teachers about basic psychological support and post-disaster recovery techniques to help students overcome trauma and stress after disaster events.
- 6) Utilization of technology in disaster education. Train teachers in using applications, digital simulations and other technologies to predict, monitor and disseminate information related to disasters, so that students can more easily understand and practice mitigation.
- 7) Collaboration and networking with disaster management institutions. Building teachers' skills to work together with disaster agencies, government and community organizations so they can get support and accurate and up-to-date information regarding disasters.

3. Relevant Curriculum Development

Each country carries out curriculum revisions periodically, usually every 3 to 5 years. The Curriculum (or Pedagogy) Department in the Ministry of Education is responsible for implementing the revision. The revision process took place over several years, from class to class. The actual revision process is a long series and begins a year before the revision for each class. A new curriculum, whether in the form of new subjects or revised content of existing subjects, can only be taught at the start of a new cycle after obtaining approval from the Ministry of Education.

Disaster curricula are very important in disaster-prone countries, including Indonesia, so that children can gain early knowledge about disasters. This curriculum is more effectively delivered at the primary and secondary school levels, because it is easier to remember compared to practices that are often forgotten. This knowledge is very much needed, especially for those who live in earthquake-prone areas. Indonesia itself is prone to disasters such as earthquakes, tsunamis and volcanic eruptions. The government has issued a map of areas prone to tsunamis and volcanoes, so education is very necessary. In this way, from school age, all Indonesian people can understand the potential for disasters in their respective regions and can avoid existing risks. When disaster knowledge is ingrained, we can be more effective in minimizing the impact of disasters (Kristian & Setyasih, 2023).

Disaster preparedness education is now a priority for the National Disaster Management Agency (BNPB) in the formal education system, driven by the safe school campaign and a government circular regarding the mainstreaming of disaster risk in schools issued by the Ministry of National Education on March 31 2010 (Circular Letter Number 70a/ SE/MPN/2010). The Minister of National Education appealed to governors, mayors and regents throughout Indonesia to implement disaster management in schools through three steps: 1) Strengthening institutional roles and increasing student capacity; 2) Integrate disaster mitigation material into the formal education curriculum, both in extracurricular and extracurricular activities; 3) Building partnerships and networks between various parties to support the implementation of disaster mitigation in schools (Masrianda, 2024).

Various learning models can be applied in the teaching and learning process so that children gain meaningful learning experiences according to their stage of development. Therefore, teachers need to strive to implement this learning model. One model that can be used is integrated learning. Integrated learning, which combines certain material in a subject with a theme as a unifying activity, is expected to be able to motivate children in learning and provide knowledge, attitudes and skills that are meaningful to them

(Pranajati, 2022). Disaster education plays a role in increasing preparedness and reducing vulnerability to disasters. Therefore, education in schools is very important to build students' awareness of disaster risks in the school environment and encourage preparedness actions (Rahmat, H. K., & Kurniadi, A., 2020).

The importance of curriculum development lies in the ability to adapt teaching materials to the needs and characteristics of local communities. For example, if an area is vulnerable to certain disasters, such as floods or earthquakes, the curriculum should include an in-depth understanding of the causes, impacts, and steps that can be taken to reduce those risks. It also includes training on how to react in emergency situations and how to contribute to mitigation efforts in their communities.

The following curriculum developments that are relevant in disaster risk reduction include:

- 1) Integration of disaster education in subjects. Incorporate material related to disaster mitigation into subjects such as geography, science, social studies, and citizenship education to provide a basic understanding of types of disasters and how to deal with them.
- 2) Project-based learning about disaster preparedness. Encourage students to carry out projects or research that focus on identifying local disaster risks, preparing evacuation plans, or simulating disasters at school.
- 3) Structured disaster modules and materials. Develop special modules or learning materials that cover types of disasters, their causes, impacts, as well as mitigation and preparedness measures. This material can be adapted to educational levels from elementary to high school.
- 4) Regular disaster training and simulation. Hold disaster simulations and evacuation drills regularly as part of the curriculum, so that students and school staff are better prepared to face emergency situations.
- 5) Value education and preparedness attitudes. Instill the values of preparedness, courage and a sense of responsibility towards oneself and the community in facing disasters. This can be conveyed through discussions, inspirational stories, and collaborative activities.
- 6) Utilization of technology and media in disaster education. Integrate technology such as disaster simulation applications, educational videos, or interactive games that educate about disaster mitigation, so that students more easily understand risks and how to deal with disasters.
- 7) Collaboration with related institutions. Collaborating with the Regional Disaster Management Agency (BPBD) and other organizations to access the latest information, training programs and resources that can strengthen the disaster curriculum in schools.
- 8) Assessment and evaluation in disaster preparedness. Develop assessment methods to measure students' understanding and preparedness in facing disasters, for example through tests, projects, or evacuation simulation practices.

4. Evaluation and Feedback

The evaluation system implemented in disaster risk reduction learning functions as an important tool for providing constructive feedback for students and teachers. Through this evaluation process, both students and teachers can identify strengths and weaknesses in understanding and applying the material taught. The resulting feedback is not only formative, but also helps in determining which areas need strengthening or improvement.

Good disaster mitigation management includes several things, including: establishing a structural and non-structural disaster mitigation approach, formulating a

disaster mitigation policy with a clear division of responsibilities, establishing an effective disaster mitigation strategy, and implementing effective preparedness steps to earthquake and tsunami. This includes preparedness before a disaster, handling during a disaster, and recovery after a disaster occurs (Nuraeni, et al., 2020).

For students, evaluation provides an opportunity to reflect on their understanding of the concepts they have studied. By knowing which aspects, they have mastered and which still need improvement, students can focus more on their learning efforts. It also creates better self-awareness about how they can apply the knowledge gained in real situations regarding disaster risks.

On the other hand, teachers also gain valuable insights from this evaluation system. By analyzing student evaluation results, teachers can assess the effectiveness of the teaching methods used. If it is discovered that many students are having difficulty with a particular concept, teachers can adjust their teaching strategies to better meet students' needs. This creates a continuous learning cycle and encourages improvements in the quality of teaching and student learning outcomes.

The following things that need to be done in evaluation and feedback in disaster risk reduction can include:

- 1) Evaluate the readiness and response of students and school staff. Assess the readiness of students and school staff in facing disasters, such as their ability to understand evacuation routes, their respective roles, and emergency actions that need to be taken when a disaster occurs.
- 2) Review of the implementation of disaster simulation. Review the implementation of the simulation periodically to ensure evacuation procedures are running according to plan. Feedback from each of these exercises can be used to identify weaknesses and necessary improvements.
- 3) Assessment of learning materials and disaster curriculum. Evaluate the effectiveness of learning materials used in the disaster curriculum, including their relevance, completeness and understandability for students. Material that is less effective can be revised based on feedback.
- 4) Surveys and questionnaires to collect feedback. Using surveys or questionnaires to collect opinions from students, teachers and parents regarding the implementation of disaster education, both in terms of understanding the material and mental readiness.
- 5) Evaluate the availability of supporting facilities and infrastructure. Ensure that supporting facilities, such as evacuation signs, fire extinguishers and first aid equipment, are available and in good condition. This evaluation includes routine checks and updates to facilities as needed.
- 6) Review of cooperation with disaster management agencies. Evaluate the effectiveness of collaboration with related institutions, such as the Regional Disaster Management Agency (BPBD) or the Red Cross, to ensure that the assistance and information obtained is relevant and up to date.
- 7) Monitoring and assessing student competency development. Develop ongoing assessment methods to monitor the development of students' understanding and skills in disaster mitigation, including knowledge tests, practical exercises, and projects related to preparedness.
- 8) Use of feedback for continuous improvement. Use evaluation results and feedback to update disaster risk reduction policies, procedures and curricula to make them more effective and adaptive to school conditions and needs.

4. CONCLUSION

By paying attention to the explanation above, the conclusions in the effort to compile research on disaster risk reduction learning models in the school curriculum are:

- 1) Implementation of the disaster risk reduction learning model in the school curriculum shows a significant impact on increasing students' awareness and preparedness in facing disaster risks. The integration of relevant material provides not only theoretical knowledge, but also practical skills that can be applied in real situations, strengthening students' readiness to face disasters in their environment.
- 2) Active involvement of students in learning using interactive methods such as simulations and role plays has proven effective in increasing cooperation and developing social skills. This approach allows students to understand disaster mitigation concepts in more depth and prepares them with skills that are useful in emergency situations.
- 3) Teacher training oriented towards disaster risk reduction is essential in creating a learning environment that is innovative and responsive to student needs. Well-trained teachers can facilitate effective learning and guide students in understanding disaster mitigation measures in a way that is easy to understand and can be applied in everyday life.
- 4) Developing a curriculum that is appropriate to local conditions is key to ensuring that the teaching material provided is relevant to the challenges and risks faced by students. This curriculum adjustment allows students to better understand the threats that exist in their environment and face the challenges of disasters more effectively. The evaluation and feedback system implemented also plays an important role in assessing student understanding and learning effectiveness, ensuring continuous improvement in the teaching process.

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