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ENHANCING CHILDREN'S AWARENESS OF DISASTER MITIGATION THROUGH INNOVATIVE EDUCATIONAL MEDIA IN RAMBIPUJI VILLAGE

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Abstrak: Desa Rambipuji merupakan daerah rawan bencana di Kabupaten Jember yang berpotensi mengancam individu khsusunya anak-anak sebagai kelompok yang rentan terhadap bencana. Namun, hingga saat ini belum ada program intervensi yang secara khusus menyasar anak-anak sebagai upaya untuk mengedukasi mereka terkait mitigasi bencana. Oleh karena itu, pengabdian ini dilakukan dengan mengacu pada pedoman SPAB (Satuan Pendidikan Aman Bencana) yang disusun Badan Nasional Penanggulangan Bencana. Pengabdian ini dikemas dalam Gerakan Edukasi Mengerti Bencana Rambipuji (GEMBIRA) dengan tujuan memberikan edukasi pada anak-anak sehingga memiliki kesadaran mitigasi bencana yang baik. Target program pengabdian ini adalah untuk meningkatkan pemahaman mitigasi bencana pada anak melalui edukasi berbasis media edukasi inovatif dan mini simulasi bencana. Pengabdian ini juga menetapkan target pendukung dalam upaya mewujudkan kesadaran mitigasi bencana melalui pembentukan konsep program dan penguatan kelembagaan sebagai nilai keberlanjutan program. Program pengabdian ini melibatkan Pemerintah Desa Rambipuji dan Desa Tangguh Bencana (Destana) Rambipuji sebagai mitra, serta SDN 3 Rambipuji dan MI Miftahul Ulum sebagai sasaran program. Implementasi program dilaksanakan melalui Focus Group Discussion (FGD) untuk membentuk konsep program dan penguatan kelembagaan. Hasil program ini menunjukkan adanya peningkatan pemahaman siswa terhadap kesadaran mitigasi bencana. Melalui program ini juga terbentuk konsep program yang dapat diaplikasikan oleh stakeholder terkait dan secara kelembagaan melahirkan fasilitator dan kader anak yang berperan dalam keberlanjutan program. Secara keseluruhan, program ini mencapai target yang ditetapkan dan mendapat respon positif dari mitra program pengabdian dan stakeholeder terkait.

Kata Kunci: rawan bencana, mitigasi bencana, edukasi bencana, media edukasi inovatif

Abstract: Rambipuji Village is a disaster-prone region in Jember Regency that can potentially threaten individuals, particularly children, as a vulnerable group to disasters. However, no intervention programme has been specifically aimed at educating children regarding disaster mitigation. Therefore, this service was carried out following the Disaster Safe Education Unit (SPAB) principles developed by the National Agency for Disaster Management (BNPB). This service was organised in the Gerakan Edukasi Mengerti Bencana Rambipuji (GEMBIRA) to educate children and develop awareness of disaster mitigation. This service programme aims to increase children's understanding of disaster mitigation through education based on innovative educational media and mini-disaster simulations. The programme has also set supporting targets to generate disaster mitigation awareness by establishing a programme concept and institutional strengthening as the programme's sustainability value. This service programme involved the Rambipuji Village Government, the Desa Tangguh Bencana (Destana) and the Sekolah Dasar Negeri (SDN) 3 Rambipuji and Madrasah Ibtidaiyah (MI) Miftahul Ulum as programme partners. The programme was implemented through Focus Group Discussions (FGDs) to establish the programme concept and institutional strengthening. The results show an increase in students' understanding of disaster mitigation awareness. This program also developed a programme concept that other related stakeholders could apply and institutionally created facilitators and child cadres who play a role in the programme's sustainability. This programme achieved the goal and received a positive response from the participants and related stakeholders.

Keywords: disaster-prone, disaster mitigation, disaster education, innovative educational media

Introduction

Jember Regency is one of the potentially disaster-prone regions. It is surrounded topographically by mountains and borders the South Coast. In the north, it is bordered by the Argopuro Mountains and Mount Raung, east by the Gumitir Mountains, west by Mount Semeru and south by the South Coast. Consequently, this area is potentially prone to tsunamis, earthquakes, landslides and floods. In addition, the Jember Regency is included in the order with a high prone level with a score of 162.85 in 2020 (Wahidah, Juwita, & Arifin, 2023).

Rambipuji Village, located in Jember Regency, is considered one of the disaster-prone areas for floods, earthquakes and tornadoes. Floods are the main threat among these disasters due to the Dinoyo River flowing through the village. The river has four headwaters from the Argopuro mountain slopes: the Klepuh, Karangpakel, Boma and Kaliputih rivers. The flood, which is 80-100 cm in height, has become a routine disaster during the rainy season, causing physical and non-physical damage. Tornadoes are other disasters that cause damage to buildings and fallen trees that hamper community activities. The threat of earthquakes also requires attention from relevant stakeholders due to the massive threat of destruction.

Based on the conditions mentioned previously, minimising the impact of disasters is crucial. In this case, the Rambipuji Village Government and the "Desa Tangguh Bencana" (Destana) Team, as the agency responsible for disaster prevention and management, have implemented a series of programmes targeting the community. However, until recently, based on the results of observations, the programmes run in general have only targeted adults and have not been precisely and consistently targeting children as the primary target. Based on observations, the programmes that have been implemented generally only targeted adults and have not yet specifically targeted the children. Consequently, it will be a severe issue as disasters affect all groups, including children. Therefore, the preparedness of the community, especially children, needs to be improved since they are prone to the impact of disasters and require specific efforts to enhance their knowledge related to disaster mitigation (Andrianie & Habiby, 2021; Ansori & Santoso, 2020; Pambudi, et al., 2019; Ulya, Hapidin, & Akbar, 2023). This programme is aligned with Undang-Undang No. 24 Year 2007 on Disaster Management; children are one of the susceptible groups when disasters strike.

The lack of disaster mitigation awareness among children in Rambipuji Village requires a practical program from relevant stakeholders. Therefore, this community service was organised as a Gerakan Edukasi Mengerti Bencana Rambipuji (GEMBIRA) programme. This programme focuses on education through innovative media, which consists of modules, mockups, and flash cards. Several previous studies and community service programmes revealed that education is important in creating disaster mitigation awareness (Astuti, Setiawan, & Setyaningrum, 2023). In addition, the community service team also designed simulation practices that enable children to put disaster mitigation theory into action. This media is a practical tool to improve children's cognitive skills related to disaster awareness (Utami, 2023). Joyful learning through the simulation process can improve students' understanding, thus supporting the effectiveness of learning (Asmawadi, 2021). Therefore, education is important in mitigating disasters

(Magdalena, Shodikoh, & Pebrianti, 2021; Pahleviannur, 2019). In this service programme, the efforts to develop disaster mitigation awareness in children are not merely oriented towards students but also on the programme concept and institutions comprising facilitators and child cadres as the key to programme sustainability.

This community service programme employs a child-friendly approach by utilising innovative educational media with simulation practices to enrich the scientific literature and the previous community service and research on disaster preparedness and mitigation. In addition, this service is an effort to implement the Disaster Safe Education Unit (SPAB) promoted by the government. Previous relevant studies used approaches in disaster mitigation education through storytelling, games and singing methods (Rahmawati, et al., 2023). Furthermore, other studies are focusing on the implementation of Disaster Preparedness School or Sekolah Siaga Bencana (SSB) policies in areas with high disaster potential, such as in West Sumatra (Saputra, et al., 2021) or Lombok (Angraini, et al., 2019).

Based on the aforementioned background, a service programme is required in collaboration with the Village Government and Destana Rambipuji to build disaster mitigation awareness among children in Rambipuji Village. This programme aims to enhance children's understanding and awareness of disaster mitigation through education based on innovative educational media and mini-disaster simulation practices. In addition, the efforts to achieve disaster mitigation awareness are also carried out by establishing a programme concept and developing an institutional system to sustain the programme. Through this programme, children, as vulnerable groups, are prepared to face disasters in Rambipuji Village.

Method

This community service programme aims to build disaster mitigation awareness among children as a disaster-prone group. To achieve this goal, the programme team set a target to increase children's understanding of disaster mitigation. In addition, the team also set supporting targets, namely the formulation of programme and institutional concepts through facilitators and children's cadres (GEMBIRA cadres), to ensure the sustainability of the post-service programme. This program employed innovative media-based education, including modules, mockups and flash cards implemented through mini-disaster simulations. Through an interactive educational process and combining innovative media simultaneously, can stimulate students' motor skills and provide the opportunity to encourage children's sensitivity in dealing with disaster situations. Moreover, schools are essential to developing the community's understanding and disaster resilience (Mutch, 2023). Therefore, providing disaster education through the use of creative and innovative tools and media can significantly increase student interest in the learning process (Noviana, et al., 2023; Toyoda, et al., 2021). Figure 1 depicts the stages of this community service programme.

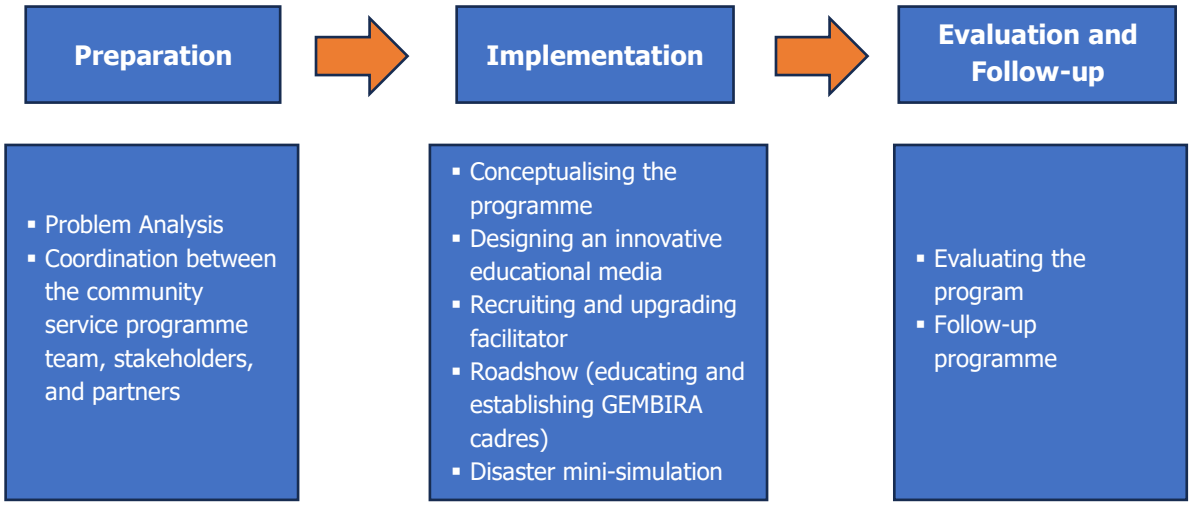

Figure 1. The stages of the community service program

Preparation Stage

There were two stages in the preparation stage, including field problem analysis and internal team coordination. Problem analysis was carried out with discussions involving the team, the Village Government, and the Destana Rambipuji team to identify potentials, problems, and disaster threats in the area. The results of the problem analysis were subsequently coordinated with the internal team to determine the focus and target of participants in the service program.

Implementation Stage

The first activity at this stage was the conceptualisation of the programme involving the service programme team, the Village Government, Destana Rambipuji, and the school as partners through a series of Focus Group Discussions (FGDs). The programme concept was aligned with the Disaster Safe Education Unit (SPAB) principles developed by the National Agency for Disaster Management (BNPB) through child-friendly education. The following activity was to create innovative educational media, including modules, mockups and flash cards. The three educational media were developed through discussions and consultations with Destana and schools to produce appropriate media from the aspects of disaster and education for children's age. The following activity was to create innovative educational media, including modules, mockups and flash cards. The three educational media were developed through discussions and consultations with Destana and schools to produce appropriate media from the aspects of disaster and education for children's age. The further activity was to establish and upgrade facilitators who have a role in ensuring sustainability after implementing the programme.

At this stage, facilitators were recruited openly, with five training sessions to equip them with good capabilities in understanding disaster mitigation and education based on innovative educational media for children. The following activity was a roadshow that included education based on creative educational media, tests and establishing GEMBIRA cadres. This activity used

three innovative educational media and followed up with a group test to measure students' understanding. Furthermore, the team, facilitators, and teacher's council selected GEMBIRA cadres to assist in child-friendly disaster socialisation and education. The last activity at this stage was a mini disaster simulation involving GEMBIRA cadre members. Through a case study of a flood disaster, the cadres learnt about evacuation and rescue procedures when dealing with floods, recognising disaster-prone points, knowing evacuation routes, and proper first aid.

Evaluation and Follow-up Stage

Evaluation was carried out at this stage to examine the effectiveness and achievements of the programme. The programme team encouraged GEMBIRA facilitators and cadres to conduct similar programmes in the future in their surrounding schools.

Result and Discussion

Preparation

In the initial stage, the team first analysed the potential threats or problems faced by Rambipuji Village through discussion sessions with the Village Government and Destana Rambipuji. The results showed that Rambipuji Village is prone to floods, earthquakes and tornadoes. In addition, it was also found that Rambipuji Village does not yet have a programme for disaster mitigation among children, who are a vulnerable group.

The community service team conducted an extensive study to determine the programme's partner. MI Miftahul Ulum was chosen as a programme partner due to the situation and condition of the school, which is vulnerable to earthquake disasters. The school building consists of two storeys with narrow entrance and exit hallways. This school has a large number of students, which will be a serious obstacle during disaster evacuation. Meanwhile, SDN Rambipuji 03 was chosen due to its vulnerability to floods and tornadoes, as the school is located near the Dinoyo River, a flood-prone area.

Establishment of programme concept

The programme concept was formulated through Focus Group Discussions (FDD) involving Destana and schools by referring to disaster mitigation education standards and appropriate educational approaches to children's conditions. This process resulted in a concept contained in an educational guide through innovative tools to stimulate children's enthusiasm and achieve optimal results. The concept can be continuously and sustainably implemented by related stakeholders, especially school disaster teams, through disaster mitigation cadres and facilitators.

Creating innovative educational media

Innovative educational media was designed based on the SPAB guidelines through collaboration between the service programme team and Destana. It produced media such as modules, mockups and flash cards (see Figure 2). The material in the media and modules was displayed simplistically and visualised as child-friendly media. In the media design process, the team discussed with experts from Destana to ensure the media met the BNPB standards.

(a) (b)

(c)

Figure 2. Innovative education media: a) Module, b) *Fash card*, c) Mockup

In implementing the programme, all media, such as modules, mockups and flashcards, have different functions. The service programme team printed several modules distributed to each group during the education session. The module was intended to facilitate students' understanding through materials with child-friendly language and visualisation. The modules include explanations of floods, earthquakes and tornadoes. Meanwhile, the use of mockups was focused on flood disaster education, considering that this disaster has the highest intensity in Rambipuji Village. This mockup was created to illustrate the flooding process in Rambipuji Village, including the 2007 heavy flood that submerged the village. Flash cards were distributed to the GEMBIRA cadres established in each school to provide them with learning resources packaged in educational cards that attract children visually. The flashcards provide brief information about disaster education that can be accessed by scanning the QR Code. Cadres and their friends use these flashcards to learn disaster information.

Establishment and upgrading of facilitators

At this stage, facilitators were recruited as programme volunteers, where most applicants were Destana members. Ten facilitators were selected for this process, and they directly participated in an upgrading programme to improve their disaster capabilities and master

disaster education approaches for children. The upgrading programme was conducted in five main sessions and was followed by several additional meetings to strengthen capacity. Through this programme, facilitators stated that there was an increase in disaster insights and knowledge related to appropriate approaches in child-friendly disaster education. Disaster knowledge and a good understanding of the approach and use of educational media can effectively achieve programme targets (Arigiyati, Kusumaningrum, & Kuncoro, 2021).

Education Roadshow, Evaluation and GEMBIRA Cadre Establishment

Implementing the programme at MI Miftahul Ulum involved 135 students from grades 4 and 5. Meanwhile, the programme at SDN Rambipuji 3 involved 60 students from grades 4, 5 and 6. The selection of students in grades 4, 5 and 6 as programme participants was based on the rationale that students in these grades can understand disaster mitigation material and practice it correctly.

The implementation of education was organised by dividing students into several groups. Through this group, students can discuss with their peers to increase the student's engagement in the learning process. This learning method can develop students' activeness during the learning process (Triantoro, et al., 2023). One hundred thirty-five students at MI Miftahul Ulum were divided into six groups, and 60 students at SDN Rambipuji 03 were divided into four groups. Each group consisted of 15-20 children. Through this grouping method, students have an opportunity to discuss disaster issues. In addition, students in groups can actively engage in the Q&A session.

Figure 3. Educating children on disaster mitigation awareness through interactive learning

The facilitator asked the students several questions about the disaster in each educational session (see Figure 3). Students who successfully answered the questions received rewards from the service programme team. This session succeeded in encouraging students' enthusiasm to actively engage in arguing and Q & A process. At this stage, the service programme team and Destana developed standards for assessing student understanding based on the level of activeness. It is categorised as a good understanding if 20% or more participants can answer

questions. Otherwise, it is categorised as a lack of understanding. Table 1 presents the questions used in the interactive session to assess participants' initial understanding of disasters.

Table 1. Questions in the interactive session

No	Questions	Good	Lack
1	What do you know about earthquakes, floods and tornadoes?	V	
2	What are the causes of earthquakes, floods and tornadoes?	V	
3	What are the impacts of earthquakes, floods and tornadoes?	V	
4	How do you anticipate earthquakes, floods and tornadoes to minimise their impact?		V
5	What should you do when an earthquake, flood or tornado strikes?		V
6	What should you do after an earthquake, flood or tornado?		V
7	What are the items in a disaster preparedness bag?		V
8	Do you know about Desa Tangguh Bencana (DESTANA)?	V	
9	Do you know about the National Agency for Disaster Management (BPBD)?		V

Source: Data from researchers (service programme team)

Through this programme, most students can understand the types of disasters, their causes and their impacts. However, some students do not understand pre-, during and post-disaster mitigation efforts. Therefore, disaster education in this programme has several sessions, namely the introduction of floods, earthquakes, and tornadoes and the introduction of disaster preparedness bags. The module that the service programme team has designed becomes a reference for educational material that is visually presented to students. This module encapsulates the material in the SPAB guidelines and was presented in a child-friendly language and visual appearance. The module introduced the types of disasters and their mitigations in the pre-, during and post-disaster stages. In the educational process of using the module, students were enthusiastic about reading it to learn about disasters and their mitigation.

The mockup was the main attraction for students during the educational roadshow. Through this media, children can get an explanation of the process of flooding that can be observed visually. The visualisation depicts the occurrence of flash floods in Rambipuji Village in 2006 and other flood disasters. This media explains the flooding process and educates children about the causes, the spot of disaster-prone points and evacuation routes. During the session, participants were actively involved in interactive discussions and Q&A. Participants also focused on paying attention to the material presented by the speakers. The ability of teachers or speakers to utilise technology can support conducive and interactive learning (Arigiyati, Kusumaningrum, & Kuncoro, 2021).

Another media used in the education process is Flash Cards. It provides information on floods, earthquakes, and tornadoes, designed to be simple but eye-catching. This media is in a card, with one side containing a description of the disaster and the other containing a QR code to access educational materials and videos. This media was explicitly given to selected GEMBIRA cadres as learning materials to educate their peers. The teachers involved also appreciated this media since they had been facing difficulties with how students could use gadgets appropriately in learning.

The educational media used during the educational roadshow successfully increased children's enthusiasm (see Figure 4). The modules, mockups, and flash cards allowed them to

learn from new experiences and encouraged their interest. Educational media is effective in helping students receive lessons visually and auditory (Yusuf & Amin, 2016). Students' knowledge also increases when BPBD and Destana are introduced as the groups responsible for disasters. Thus, students' cognitive knowledge will develop through learning experiences and activities (Mifroh, 2020). It underpins the importance of increasing children's knowledge of various aspects of disaster management.

Figure 4. The use of innovative educational media

The programme team organised a group competition through quiz games to evaluate post-education understanding based on innovative educational media. Each group received ten questions (see Table 2) and they had one minute to dicussed each question.

Table 2. Questions for the quiz game session

No	Questions
1	What types of disasters that have occurred in Rambipuji Village?
2	Who is responsible for dealing with disasters in Rambipuji Village?
3	What does the acronym BPBD and DESTANA stand for?
4	What are the negative impacts of earthquakes?
5	What are the causes of floods that have occurred in Rambipuji Village?
6	What should you do when playing on the riverbank when there is heavy rain and the water level suddenly rises?
7	What can you use for shelter during an earthquake at school?
8	What are the essential items to take with you when you evacuate?
9	When a tornado occurs, what should you do?
10	What is prohibited during a flood disaster?

Source: Data from researchers (service programme team)

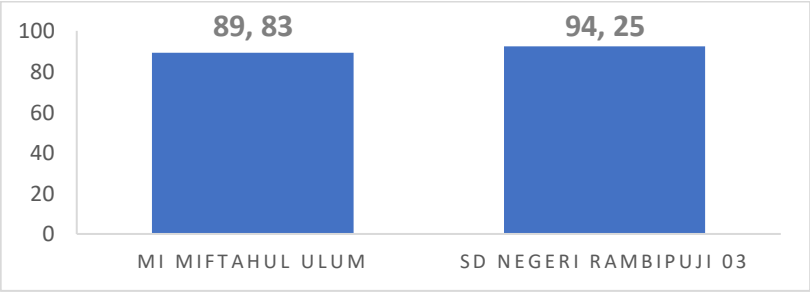

Figure 5. The average grade in the quiz game session

Figure 5 illustrates that students gained an understanding of disasters and their mitigation through the quiz game approach during the education programme. Disaster education based on innovative educational media is one of the alternative solutions to increase children's disaster mitigation awareness. In addition, the peer tutor approach is an effective way to increase the involvement of all participants and positively impacts disaster understanding. This approach provides an opportunity for students to express their arguments, which can train their affective skills. It helps students learn how to give and receive feedback, express opinions, develop writing skills, and improve other practical skills (Triantoro et al., 2023). The service programme team also interviewed several participants, and one of the participants stated: '*The activities in this programme are very exciting. I now have a better understanding of disasters and their mitigation. I am very interested in the flood mockup because it is very unique. I also got a reward for this activity*.

Establishment of GEMBIRA cadres

GEMBIRA cadres were established in MI Miftahul Ulum and SDN Rambipuji 03, with five children as cadres in each school (see Figure 6). GEMBIRA cadres were selected based on their activeness and understanding of disasters and mitigation during the education (training) process. Afterwards, the programme team, facilitators, and teachers discussed the cadre candidates and selected the five best cadres for each school. These five cadres received a briefing on their duties as peer education agents. The team also provided the cadres with flashcards and disaster education brochures to help them educate their peers. To show appreciation for the selected cadres, the service programme team rewarded them with books and school stationery.

Figure 6. Establishment of GEMBIRA cadres in two school

Mini Disaster Simulation

The mini disaster simulation was held on 11 August 2024 at Dinoyo Village in Rambipuji as a disaster-resilient area for children. This activity involved the service programme team, facilitators, Destana, local communities, and 10 selected GEMBIRA cadres from each school (see

Figure 7). Mini-simulation activities focus on efforts to introduce flood disasters to children through watching educational films as learning media. Through the simulation, students learned and understood the dangers of playing or doing activities on the riverbank when it rains and identifying potential dangers when the river's water level rises. In addition, students understand how to be calm when facing disasters and respond appropriately to disasters. First aid methods were also introduced to help children understand what to do for disaster victims.

Figure 7. Implementation of mini-disaster simulation

Follow-up

At this stage, the service programme team and stakeholders inaugurated the GEMBIRA cadres and facilitators selected through this service programme. The programme concept developed in this programme can be a reference for facilitators who want to conduct another future disaster mitigation programme for schools. Overall, the programme's implementation received appreciation from stakeholders, especially the teachers at each school. One of the school principals stated that educating children on disaster mitigation is an important effort to deal with disasters appropriately.

Conclusion

In general, through a programme called Gerakan Edukasi Mengerti Bencana Rambipuji (GEMBIRA), this community service can achieve disaster awareness for children in Rambipuji Village. It can improve children's awareness and understanding of disaster management and mitigation. In addition, the programme generated the concept of disaster management through the establishment of GEMBIRA cadres and disaster facilitators for children. GEMBIRA cadres and facilitators in this programme will become agents in disaster management and sustainability programmes, especially at the primary school education level.

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References

Andrianie, P. S., & Habiby, W. N. (2021). Pendidikan Karakter Anak Dalam Situasi Darurat Bencana. *Abdimas Dewantara*, *4*(1), 89–99. www.aisyiyah.or.id

Angraini, L. M., Syamsuddin, S., Wirawan, R., Qomariyah, N., & Sukrisna, B. (2019). Pendampingan Sekolah Siaga Bencana Sebagai Upaya Mitigasi Bencana di SMK Kehutanan Qomarul Huda Lombok Barat. *Jurnal Pengabdian Magister Pendidikan IPA*, *2*(1). https://doi.org/10.29303/jpmpi.v1i2.263

Ansori, M. H., & Santoso, M. B. (2020). Pentingnya Pembentukan Program Sekolah Siaga Bencana Bagi Kabupaten Bandung Barat. *Prosiding Penelitian Dan Pengabdian Kepada Masyarakat*, *6*(3), 307. https://doi.org/10.24198/jppm.v6i3.22975

Arigiyati, T. A., Kusumaningrum, B., & Kuncoro, K. S. (2021). Pelatihan Pembuatan Media Pembelajaran Berbasis Smartphone. *Kanigara: Jurnal Pengabdian Kepada Masyarakat*, *1*(2), 140–149. https://jurnal.unismabekasi.ac.id/index.php/devosi/article/view/6914%0Ahttps://jurnal.unismabekasi.ac.id/index.php/devosi/article/download/6914/2500

Asmawadi, A. (2021). Fun Learning Melalui Media Whatsapp Pada Pembelajaran Jarak Jauh Untuk Kelas 1 Sekolah Dasar. *Elementary: Jurnal Inovasi Pendidikan Dasar*, *1*(1), 1–10. https://doi.org/10.51878/elementary.v1i1.16

Astuti, S. P., Setiawan, E., & Setyaningrum, I. F. (2023). Pendidikan dasar bencana bagi pemuda untuk meningkatkan kesadaran akan bencana. *Transformasi: Jurnal Pengabdian Masyarakat*, *19*(1), 1–12. https://doi.org/10.20414/transformasi.v19i1.4971

Magdalena, I., Shodikoh, A. F., & Pebrianti, A. R. (2021). *Pentingnya media pembelajaran untuk meningkatkan minat belajar siswa SDN Meruya Selatan 06 PaGI*. *3*, 312–325.

Mifroh, N. (2020). Teori perkembangan kognitif Jean Piaget dan implementasinya dalam pembelajaran di SD/MI. *Jurnal Pendidikan Tematik*, *1*(3), 253–263. https://siducat.org/index.php/jpt/article/view/144

Mutch, C. (2023). How schools build community resilience capacity and social capital in disaster preparedness, response and recovery. *International Journal of Disaster Risk Reduction*, *92*(April), 103735. https://doi.org/10.1016/j.ijdrr.2023.103735

Noviana, E., Faizah, H., Mustafa, M. N., Elmustian, Hermandra, Kurniaman, O., Rusandi, M. A., & Situmorang, D. D. B. (2023). Understanding "Tunjuk Ajar Melayu Riau": Integrating local knowledge into environmental conservation and disaster education. *Heliyon*, *9*(9), e19989. https://doi.org/10.1016/j.heliyon.2023.e19989

Pahleviannur, M. R. (2019). Edukasi Sadar Bencana Melalui Sosialisasi Kebencanaan Sebagai Upaya Peningkatan Pengetahuan Siswa Terhadap Mitigasi Bencana. *Jurnal Pendidikan Ilmu Sosial*, *29*(1), 49–55. https://doi.org/10.23917/jpis.v29i1.8203

Pambudi, D. I., Dahlan, U. A., Baik, S., Bencana, M., & Dasar, S. (2019). *Pengembangan Media Pop Up Book Sebagai Edukasi Mitigasi Bencana*. 23–24.

Rahmawati, A., Furi Laelasari, M., Magfiroh, M., Susilawati, H., & Utami Damayanti, Z. (2023). Edukasi Mitigasi Bencana Sebagai Upaya Pencegahan Bencana Alam Dillingkungan Sekolah Mi Al-Mansyuriah Kelurahan Limusnunggal. *Jurnal Pendidikan, Humaniora, Linguistik Dan Sosial (Jagaddhita)*, *1*(2), 93–98. https://doi.org/10.58268/jagaddhita.v1i2.52

Saputra, H., Roswati, R., Fatmawati, F., Novita, Y., & Nelvawita, N. (2021). Sekolah Siaga Bencana SMPN 1 Kecamatan XI Tarusan, Kabupaten Pesisir Selatan, Provinsi Sumatera Barat, Indonesia. *El-Jughrafiyah*, *1*(1), 37. https://doi.org/10.24014/jej.v1i1.14040

Toyoda, Y., Muranaka, A., Kim, D., & Kanegae, H. (2021). Framework for utilising disaster learning tools classified by real and virtual aspects of community space and social networks: Application to community-based disaster risk reduction and school disaster education on earthquakes in Japan for during- and pos. *Progress in Disaster Science*, *12*. https://doi.org/10.1016/j.pdisas.2021.100210

Triantoro, D. A., Nafisah, R., Husna, F., Syam, F., Syahrani, R. A., Fitri, A., Asgha, A. Y., Nova, M. A., & Ridha, I. (2023). Enhancing disaster communication literacy based on traditional games among West Aceh students. *Transformasi: Jurnal Pengabdian Masyarakat*, *19*(2), 330–343. https://doi.org/10.20414/transformasi.v19i2.8642

Ulya, S., Hapidin, H., & Akbar, Z. (2023). SIGANA Banjir: Game Edukasi Kesiapsiagaan Bencana Banjir Untuk Anak Usia 5-6 Tahun. *Murhum : Jurnal Pendidikan Anak Usia Dini*, *4*(2), 151–164. https://doi.org/10.37985/murhum.v4i2.311

Utami, N. T. (2023). Meningkatkan Kognitif Anak Usia Dini melalui Media Flashcard. *Mitra Ash-Shibyan: Jurnal Pendidikan Dan Konseling*, *6*(01), 43–52. https://doi.org/10.46963/mash.v6i01.692

Wahidah, N., Juwita, O., & Arifin, F. N. (2023). Pengelompokkan Daerah Rawan Bencana di Kabupaten Jember Menggunakan Metode K-Means Clustering. *INFORMAL: Informatics Journal*, *8*(1), 22. https://doi.org/10.19184/isj.v8i1.29542

Yusuf & Amin. (2016). Pengaruh Mind Map dan Gaya Belajar Terhadap Hasil Belajar. *Keguruan Dan IImu Tarbiyah*, *1*(1), 85–92. http://www.ejournal.radenintan.ac.id/index.php/tadris/article/view/893%0Ahttp://www.ejournal.radenintan.ac.id/index.php/tadris/article/download/893/766