**ANIMATION VIDEO AS A LEARNING MEDIA FOR EARTHQUAKE DISASTER PREPAREDNESS IN EARLY CHILDREN**

**Afifaturrahmi1, Sofia Hartati2, Zarina Akbar3**

1,2,3 Early Childhood Education Programs, Postgraduate, State University of Jakarta, Jakarta

Author’s email:afifahtaisir@gmail.com, sofiahartati@unj.ac.id,

zarina\_akbar@unj.ac.id

Corresponding author: [afifahtaisir@gmail.com](mailto:afifahtaisir@gmail.com)

**Abstract.** Indonesia is located between the world's tectonic plates. Therefore, Indonesia is prone to earthquakes. Earthquake natural disasters are vibrations from within the earth that then propagate to the earth's surface, causing various damage and taking lives. Thus, it is very important to provide disaster preparedness education from an early age as an effort to reduce disaster risk or disaster management efforts in schools, one of which is by using animated earthquake videos that are interesting and easy for children to understand. So that children can know how to save themselves when a disaster occurs and direct the steps that must be taken when a threat occurs around them. Using a literature review approach, this paper aims to explain why earthquake preparedness education is very important, especially as early as possible to reduce disaster risk. The findings in this paper indicate that the use of animated video media as a learning medium for earthquake disaster preparedness in early childhood helps maximize learning objectives, namely knowledge about earthquake disasters and earthquake preparedness. This is also by the technological era which aims to facilitate learning and maximize learning objectives. The findings in this paper are expected to explain how earthquake preparedness is learned for early childhood in Indonesia.

**Keywords:** early childhood education, disaster preparedness, earthquake

1. **INTRODUCTION**

Children are one of the vulnerable groups most at risk of being affected by disasters (Peraturan Pemerintah Republik Indonesia Nomor 21 Tahun 2008, 2008). Children's vulnerability to natural disasters is caused by a limited understanding of the risks around them, which results in no preparedness in dealing with natural disasters. As the opinion (Daniel, 2010) states that observation focuses on protecting children from harmful experiences, being in danger is an unintended consequence so that it can limit the growth and development of children.

Under the mandate of Law Number 35 of 2014 concerning Amendments to Law Number 23 of 2002 concerning Child Protection. The government, local government, and other state institutions are obliged to provide special protection to children in emergencies, including children who are victims of natural disasters. This is also stated in Law Number 24 of 2007 concerning Disaster Management in Chapter V which regulates the Rights and Obligations of the Community. Article 26 paragraph 1 point (a) states that everyone has the right to obtain education, training, and skills in disaster management. Meanwhile, the obligations of each parent are stated in article 27 point (b) which is to carry out disaster management activities (Apriliani et al., 2017). This means that disaster mitigation must be sought to be disseminated to the wider community. One of them is children who are one of the most vulnerable groups to disasters.

Disaster risk management and reduction can be provided through learning to improve community preparedness, especially for children. Through disaster preparedness education, students are expected to be able to think and act quickly, precisely, and accurately when facing disasters (Desfandi, 2014). Disaster preparedness education in schools can use any media or method that can be helpful and interesting for children so that learning can optimize learning objectives. Digital media and technology are seen as tools to support learning. Media and technology are expected to transform schools into innovative, student-centered, and interactive learning environments. Media is no longer considered only as a teaching and learning tool but more broadly as part of the social and cultural environment of children (Syarah, 2020). Audio-visual media has good and clear capabilities because of its ability to display a live image and is supported by the ability to produce sound, which can also be broadcast in large sizes (Kristanto, 2018). So that learning objectives can be more easily achieved.

Other studies have also shown that counseling using the video animation method can have a greater effect on increasing preparedness. Based on the overall results of the study, it can be seen that video playback animation can help increase a person's knowledge significantly so that this media can be used in learning earthquake preparedness by paying attention to videos that are more interesting and not boring. After playing the video, respondents at least experienced an increase in earthquake preparedness in the very prepared category. Based on Wells' knowledge of preparedness is an effort to reduce the risk and impact of disaster losses, namely knowledge about disasters, actions to prepare, support and rebuild communities after a disaster occurs. Knowledge of disasters is the key to preparedness (Amri et al., 2020).

Relevant to previous research, conducted by Suryani Irma, et al with the results of research which stated that there was an increase in preparedness knowledge in dealing with earthquake disasters at State Elementary School 19 Banda Aceh (Irma Suryani, 2014). This is an effort to prepare the community through elementary school students in dealing with earthquake disasters that may occur and are unexpected. Another relevant study was also conducted by Solfiah Yeni, et al (Y. S. Solfiah et al., 2020) entitled "Early Childhood Disaster Management Media Through Picture Story Book" disaster.

1. **LITERATURE REVIEW**

**2.1 Earthquake Disaster**

Based on the disaster preparedness framework made by LIPI and Unesco, preparedness is grouped into 4 parameters, namely; knowledge and attitude (knowledge and attitude), planning and emergency (emergency planning), warning system (warning system), and resource mobilization. More knowledge to measure basic knowledge about natural disasters such as characteristics, symptoms, and causes. Emergency planning on knowledge about what actions have been prepared in the face of natural disasters. The warning system is what efforts exist in the community in preventing victims from disasters through existing warning signs. Meanwhile, resource mobilization is more about the potential and increasing resources in the community such as skills, funds, and others (Nugroho, 2007).

Preparedness is community empowerment that is equipped with preparedness for earthquake disasters that can be carried out by all parties for mutual safety in efforts to reduce disaster risk. According to Solfiah (Y. Solfiah et al., 2019) that preparedness is an action that allows governments, communities, and individuals to respond quickly and effectively to disaster situations. The preparation stages include formulating an appropriate disaster management plan, maintaining resources, and providing training to the community. Earthquake disaster preparedness aims to reduce disaster risk or reduce the impact of an earthquake on the community and the surrounding environment. Earthquakes are vibrations originating from the earth due to friction or collision of plates and faults that cause damage or threats to public safety. As explained (Arief Mustofa Nur/Balai Informasi dan Konservasi Kebumian Karangsambung – LIPI, 2010) that earthquakes are genuine vibrations from within the earth, originating in the earth which then propagate to the earth's surface due to fractures of the earth breaking and shifting violently.

There are many impacts of natural disasters, especially earthquakes, including the destruction of infrastructure and the loss of everything that causes trauma, especially for children. Children who are affected by disasters experience a double burden in addition to physical injuries and also experience psychological trauma. Psychologically, children experience stress and trauma because of the disaster that befell them. Disaster Risk Reduction (DRR) in primary schools aims to foster: (1) human values ​​and attitudes towards disaster risk; (2) understanding of disaster risk and motivation; (3) knowledge and skills of disaster prevention both individually and in the community; and (4) emergency response capability (Winarni & Purwandari, 2018).

* 1. **Earthquake Animation Videos**

As for the reason for using animated videos for earthquake alerts, according to Lorna A & Ioanna P, animated films are made by sequencing a series of still images to give the impression of moving. They can be produced in a variety of ways through drawings, models, and computer graphics, and form a large part of children's cultural delights, along with the popularity of films such as Toy Story (Walt Disney Pictures, 1995) and Finding Nemo (Walt Disney Pictures, 2003). Because very little research has been done regarding digital film production by children. (Lorna Arnott, Ioanna Palaiologou, 2018). Other researchers also stated that multimedia devices have the quality to improve early childhood education. Animation greatly affects children's minds and enhances their academic achievement. Presentation through a slide projector enhances children's attention. The results showed that animation in the story provides opportunities for children to observe, manipulate and investigate and the use of a slide projector increases children's involvement in education (Shilpa & Sunita, 2013).

In addition, Amelia Lina, et al (Amelia et al., 2015) stated that animated videos are considered appropriate for the development of thinking and learning characteristics of early childhood. As stated by Nur Zuama S, & Agusniatih Andi (Zuama & Agusniatih, 2020)) that learning resources are everything that has the potential to be learned and is in the child's environment and provides fun and learning experiences. Thus helping children to understand various things in the teaching and learning process, both inside and outside the classroom. One of the learning resources that can be used is animated video media that can provide fun and enthusiasm and help children understand various things.

Animated learning media according to Darojah (2011) animated film media is an audiovisual media in the form of a series of inanimate images that are sequentially on the frame and projected mechanically electronically so that they appear alive on the screen (Hasanah & Nulhakim, 2015). Animated media are images that are made to look alive so that they can attract children's attention and are fun for children.

More specifically regarding audio-visual media which includes animated videos, as Silvio (Silvio, 2010) argues that based on the perspective of professional animators and art scholars who define animation as a medium. It can be concluded that animation is an audio-visual media that is projected to display the content contained in it (knowledge) and is expected to build an innovative, interactive, and child-centered learning environment. Currently, the perspective of audio-visual media (animation) as a teaching-learning tool, but more broadly as part of the social and cultural environment of children.

1. **RESEARCH METHODS**

This journal uses a literature review method that collects and analyzes data based on existing journals and literature. Literature and journals are used to support and build views on animated videos as learning media for earthquake preparedness for early childhood. This research was conducted in Lombok Indonesia which took 3 months to find and review existing sources.

1. **RESULT AND DISCUSSION**

Psychological distress and cognitive problems caused by the impact of the earthquake are things to be considered and overcome. As it is known that earthquakes can come at any time and happen to anyone because disasters are natural disasters that occur due to nature itself. Therefore, everyone is expected to have information and knowledge about disaster management measures to reduce disaster risk and losses. According to (Law No. 24 of 2007 concerning Disaster Management, 2007) disaster is a series of events that affect people's lives caused by natural factors or due to human negligence. Resulting in safety, damage, loss of property, and prolonged psychological problems. This is supported by Solfiah's opinion which defines a disaster as an event that can befall the community and result in losses. Losses due to disasters can be reduced if community resources can be increased. As a component of society, children need to be prepared to know about disaster management (Y. S. Solfiah et al., 2020).

As stated by Delicado et al (Delicado et al., 2017) that International bodies and scientific research have called for children to be included in disaster preparedness and risk reduction, to hear their voices to address their specific needs and vulnerabilities, and utilize their capacities. them in terms of building community resilience. Citizens are more likely to adhere to the plans and rules they have helped build and that can be an important element of strengthening resilience. Children are an important part of the community but their perceptions and needs are not the same as adults and they have an important role in risk prevention and mitigation.

Experiences of international institutions in the field, as well as case studies in the scientific literature (Shaw et al. 2004; Mitchell et al. 2008; Tanner 2010; Lopez et al. 2012; Towers et al. 2014; Ronan et al. 2016) show that involving children Children both at the stage of prevention and mitigation of potential disasters as well as in the stage of rescue, relief, and rehabilitation of a disaster have a positive impact in terms of reducing risks and impacts. The use of animated video media as a learning medium for earthquake disaster preparedness in early childhood helps maximize the learning objectives, namely increasing children's preparedness for earthquake disasters. Also, the importance of earthquake preparedness education as early as possible as disaster management and earthquake risk reduction. This is based on various kinds of literature that have been studied.

**CONCLUSION**

Early childhood is a group that is vulnerable to the risks and threats of disasters that befall them. So that in government regulations, children are a group that gets special protection from the threat of disaster. Therefore, to reduce the risk of disasters that can befall children, empowering children, one of which is through learning about earthquake disaster preparedness, is expected to reduce disaster risk and community protection efforts through children by preparing children for earthquake disasters.

Disaster preparedness learning for early childhood can be done anywhere and by anyone. One of them can be done in formal educational institutions through learning about earthquake disaster preparedness. Learning about earthquake disaster preparedness can use various animated video media that are interesting, varied, and easily understood by children. Animated video media can help maximize learning objectives. As it is known that nowadays children cannot be separated from technology, so utilizing technology as a learning medium is a right solution.

Animated videos are very effective in transferring understanding about earthquakes so that children can understand earthquakes and earthquake rescue and response. In addition, earthquake animation videos can mature children's knowledge and readiness to face earthquakes so that children are more cognitively and emotionally mature. It can be concluded that disaster preparedness education needs to be given as early as possible and needs to be considered so that it can be included in the official education curriculum.

The findings in this paper indicate that the importance of earthquake preparedness education is carried out as early as possible as a form of reducing earthquake risk and inculcating knowledge and readiness of children to face earthquake disasters. In addition, the importance of children's involvement in learning earthquake disaster preparedness, so as to maximize the potential and knowledge of children. And the use of animated video media as a learning medium for earthquake preparedness in early childhood helps maximize learning objectives, namely children's knowledge and preparedness for earthquakes. Learning about earthquake disaster preparedness is expected to reduce disaster risk and community protection efforts through children by preparing children for earthquake disasters.

**REFERENCES**

Amelia, L., Hayati, F., & Milfayetti, S. (2015). *Integrating Disaster Alert Kindergarten Watching into Preschool Education : Designing a Professional Disaster Mitigation Education Model to Early Children*. *2*.

Amri, I., Ansariadi, Amiruddin, R., Palutturi, S., Mallongi, A., Nur, R., & Sari, N. E. (2020). The influence of disaster counseling with animation video on preparedness students in elementary school in Palu. *Medico-Legal Update*, *20*(1), 1302–1306. https://doi.org/10.37506/v20/il/2020/mlu/194482

Apriliani, D. A., Adiarti, W., & Info, A. (2017). *Early Childhood Education Papers ( Belia ) Personal Safety Knowledge of Landslide Disaster Based on The Application of Adobe Flash CS5 Media At Kindergarten PGRI Tunas Patriot Banjarnegara*. *6*(2).

Arief Mustofa Nur/Balai Informasi dan Konservasi Kebumian Karangsambung – LIPI, K. (2010). *GEMPA BUMI, TSUNAMI DAN MITIGASINYA*. *7*(1).

Daniel, B. (2010). Concepts of Adversity, Risk, Vulnerability, and Resilience: A Discussion in the Context of the 'Child Protection System.' *Social Policy and Society*, *9*(2), 231–241. https://doi.org/10.1017/s1474746409990364

Delicado, A., Rowland, J., Fonseca, S., de Almeida, A. N., Schmidt, L., & Ribeiro, A. S. (2017). Children in Disaster Risk Reduction in Portugal: Policies, Education, and (Non) Participation. *International Journal of Disaster Risk Science*, *8*(3), 246–257. https://doi.org/10.1007/s13753-017-0138-5

Desfandi, M. (2014). Urgensi Kurikulum Pendidikan Kebencanaan Berbasis Kearifan Lokal Di Indonesia. *SOSIO DIDAKTIKA: Social Science Education Journal*, *1*(2). https://doi.org/10.15408/sd.v1i2.1261

Hasanah, U., & Nulhakim, L. (2015). Pengembangan Media Pembelajaran Film Animasi Sebagai Media Pembelajaran Konsep Fotosintesis. *Jurnal Penelitian Dan Pembelajaran IPA*, *1*(1), 91. https://doi.org/10.30870/jppi.v1i1.283

Irma Suryani, 2 Sri Adelila Sari dan 3 Sri Milfayetty. (2014). *Model Quantum Teaching dalam Meningkatkan Pengetahuan Kesiapsiagaan Bencana Gempa Bumi di Sekolah Dasar 19 Banda Aceh*. *2*(2), 88–92.

Kristanto, W. (2018). Pengembangan Film Pendek Berbasis Karakter Pada Anak Usia Dini ( Penelitian dan Pengembangan di Taman Kanak-Kanak Islam Terpadu Wildani Surabaya ) yang of the culture and life of the school .” Education by Elkind and Sweet 2014 ). karakter banyak orang te. *JURNAL PENDIDIKAN USIA DINI*, *Volume 12*, 175–189. https://doi.org/: https://doi.org/10.21009/JPUD.121 15

Nugroho, A. C. (2007). *kajian kesiapsiagaan masyarakat dalam mengantisispasi bencana gempa bumi dan tsunami di Nias Selatan*.

Peraturan Pemerintah Republik Indonesia Nomor 21 Tahun 2008. (2008). Peraturan Pemerintah Republik Indonesia Nomor 21 Tahun 2008. *Peraturan Pemerintah Republik Indonesia Nomor 21 Tahun 2008*.

Purnamasari, I. (2016). Perbedaan reaksi anak dan remaja pasca bencana. *Jurnal PPKM I*, 49–55.

Shaw, R., & Kobayashi, M. (2004). The role of schools in creating an earthquake-safer environment. *Educational Facilities and Risk Management: Natural Disasters*, *9789264028*, 41–48. https://doi.org/10.1787/9789264028340-en

Shilpa, S., & Sunita, M. (2013). A Study About Role of Multimedia in Early Childhood Education A Study About Role of Multimedia in Early Childhood Education. *International Journal of Humanities and Social Science Invention*, *2*(6), 80–85.

Silvio, T. (2010). Animation: The New Performance? *Journal of Linguistic Anthropology*, *20*(2), 422–438. https://doi.org/10.1111/j.1548-1395.2010.01078.x

Solfiah, Y., Risma, D., -, H., & Kurnia, R. (2019). the Knowledge of Early Childhood Education Teachers About Natural Disaster Management. *KINDERGARTEN: Journal of Islamic Early Childhood Education*, *2*(2), 159. https://doi.org/10.24014/kjiece.v2i2.8090

Solfiah, Y. S., Risma, D., Hukmi, & Kurnia, R. (2020). Early Childhood Disaster Management Media Through Picture Story Books. *JPUD - Jurnal Pendidikan Usia Dini*, *14*(1), 141–155. https://doi.org/10.21009/141.10

Syarah, E. S. (2020). *Understanding Teacher's Perspectives in Media Literacy Education as an Empowerment Instrument of Blended Learning in Early Childhood Classroom*. *14*(2).

Winarni, E. W., & Purwandari, E. P. (2018). Disaster Risk Reduction for Earthquake Using Mobile Learning Application to Improve the Students Understanding in Elementary School. *Mediterranean Journal of Social Sciences*, *9*(2), 205–214. https://doi.org/10.2478/mjss-2018-0040

Zuama, S. N., & Agusniatih, A. (2020). *Disaster Mitigation Game Model Used For Circuit Game of Liquefaction as a Children’s Learning Resource in West Palu District*. *454*(Ecep 2019), 228–233. https://doi.org/10.2991/assehr.k.200808.045