The Habituation Of Landslide

by Adrie F Assa

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The Habituation Of Landslide Disaster Mitigation Literacy To Elementary School Students On Slopes Of Mount Salak, Indonesia

Freddy Johanis Rumambi[1] , Audery G. Tangkudung[2] , Adrie Frans Assa[3] , Dwi Novita Sari[4] , Suryani[5]

[1,2,4,5]*Institute Bisnis dan Multimedia asmi, Indonesia*
[3]*Universitas Kristen Krida Wacana, Indonesia*

Abstract

Disaster understanding in elementary school students is important to emphasize through habituation of disaster mitigation literacy because Indonesia is a country with a high potential for natural disasters in each of its provinces. This study aims to determine the steps to habituate the literacy of landslide disaster mitigation in the learning of elementary school students on the slopes of Mount Salak, Indonesia. The study respondents were selected using purposive sampling techniques consisting of 8 teachers who have been teaching for more than 15 years, and 7 students from grades 4, 5 and 6 in four schools on the slopes of Mount Salak, Indonesia. Data collection was carried out using in-depth interviews with guidelines that have been adjusted based on aspects and sub-aspects of disaster mitigation literacy. The data are analyzed and classified according to aspects and sub-aspects using the Bogdan & Biklen model which consists of data reduction, correlating data, and drawing conclusions. The results show that teachers have implemented disaster literacy mitigation measures through the stages of preparation, implementation, reflection and results. The learning outcomes from the implementation of this literacy consist of aspects of knowledge, skills, and disaster response attitudes. Furthermore, there are eight categories that are included in these three learning outcomes, namely disaster knowledge, preparenss knowledge, response knowledge, prevention awareness, prevention values, prevention sense of responsibility, preparedness action and response behaviors.

Introduction

The potential for disaster in Indonesia is also one of the highest. It was recorded that 8,422 disasters occurred in 2015-2020, of which 78% of disasters that occurred were hydrometeorological disasters (landslides, floods, droughts, forest and land fires, tidal waves) and 22% geological disasters. In general, the trend of disasters in Indonesia is increasing from year to year (Kurniawan, 2019). One of the provinces with the largest number of hydrometeorological disasters is in West Java. Based on BNPB data in 2020 there were 852 landslides and 280 floods which caused 307,540 houses to be affected with 1,042,058 people affected with a total of 1,861 disasters. In 2021, the total incidence of hydrometeorological disasters in West Java Province was 2,141, which was dominated by events in the Bogor Regency area. The disaster that occurred in Bogor Regency in January-November 2021 recorded as many as 645 incidents,

one of which occurred in a landslide disaster around Mount Salak, precisely in Cigombong District. The latest data in May 2022 recorded that there was a landslide as high as 7 meters due to high rainfall and seepage from adjacent natural springs at that location point (BNPB, 2022).

The number of natural disaster events is one of the reasons for the importance of disaster literacy or community awareness efforts in facing a disaster. Disaster literacy is a keyword that must be understood by the community so that they fully understand that the geographical location of their country is in an area that is prone to disasters. Education for the younger generation is one of the determining factors in disaster risk reduction activities. The existence of disaster education can also encourage the realization of a disaster-resilient generation (Hafida, 2018). This is supported by Shah, Ye, Abid, Khan, & Amir (2018) who stated "education enhances individual resilience and ability to deal with disaster risks". Therefore, disaster risk reduction as stated in Law Number 24 of 2007 concerning Disaster Management must be integrated into educational programs so as to be able to give birth to a disaster-literate generation).

The findings of previous studies reveal that disaster risk reduction (DRR) education through disaster mitigation literacy for students and school teachers is essential to build teachers and students' understanding of the causes, nature, and impacts of natural disasters. It also fosters a range of competencies and skills that enable teachers and students to proactively contribute to disaster prevention and mitigation. Many studies have also examined that the influence of student participation in disaster education programs always has a good impact, and the results are very effective (Purwani et al, 2019). Similarly, school-based disaster education programs help improve community disaster preparedness (Rahma, 2018).

According to Kousky (2016), disaster mitigation in early childhood is important, because disasters can have an impact on children, such as having an impact on their physical health, mental impacts, and continuity of education. The length of time a child can accept a disaster that occurs, and can rise again to live his life is very dependent on the surrounding environment, namely his family, community, and the environment where he lives. Therefore, it is necessary to make efforts to provide knowledge about natural disaster mitigation, especially for children who have limited knowledge and physical knowledge when facing disasters. They need to be instilled "Disaster Mitigation Literacy", so that they are aware of the dangers they will face and have the knowledge to be able to protect themselves. Education in schools becomes one of the effective means to reduce disaster risk by including subject matter on natural disasters as a compulsory lesson for every student at all levels, especially in schools that are in disaster risk areas. Not only through in-class education that is integrated into the lesson, but socialization outside the classroom is also needed so that students know

information about disasters as a whole.

Theoritical Studies

Disaster mitigation literacy is an important component of disaster prevention education. To equip teachers with an essential understanding of disaster prevention, disaster prevention literacy from individual teachers needs to be grown first (Lan & Lai, 2015; Chung, 2016). Operational literacy can be defined as "the ability to identify, understand, interpret, create, communicate and calculate, using printed and written materials related to various contexts" (UNESCO, 2005). And it involves a continuum of learning that will allow individuals to achieve their goals, develop their knowledge and potential, and participate fully in society and society at large (UNESCO, 2005). Disaster prevention literacy can be conceptualized as the development of a proactive attitude to apply disaster prevention knowledge to overcome disasters and the ability to rehabilitate and improve life after disasters. Disaster prevention literacy is also defined as a combination of various abilities and skills including cognition, skills, and emotions, which will allow a person to respond, analyze and reflect in the face of disasters for the well-being of his life. (Chiang, 2018). In general, disaster prevention literacy consists of a correct understanding of life-threatening disasters, a proactive attitude towards disaster information and disaster prevention, as well as adequate capabilities and skills for disaster prevention (Sin-Cheng, 2010). In particular, disaster prevention literacy consists of three dimensions according to Ikeda et al (2021); Chung & Yen (2016) namely (1) disaster prevention knowledge, (2) disaster prevention attitudes, and (3) disaster prevention skills. Furthermore, there are eight categories that are included in these three dimensions, namely disaster knowledge, preparenss knowledge, response knowledge, prevention awareness, prevention values, prevention sense of responsibility, preparedness action and response behaviors.

Awareness of disaster mitigation measures to reduce disasters can be created through educational channels and capacity building by applying certain science and technology and using counseling services with simulation techniques (Indriyani 2011). This needs to be done both through formal and non-formal education (Rizaldy 2018). The emphasis on disaster mitigation involves awareness and capacity building, as well as physical development in the face of related threats (Suarmika & Utama 2017). The aim is to build a system that combines technological engineering with legal, administrative, economic, managerial, and educational aspects to ensure development and social stability. The steps taken include developing scientific studies and utilizing modern technology to create mitigation mechanisms according to local conditions (Meliana, 2020).

One of the mitigation efforts that are often applied is to establish disaster-safe schools that require three main pillars: safe learning facilities,

school disaster management, and mitigation education (Ministry of Education and Culture 2015; UNISDR & Global Alliance for Disaster Risk Reduction & Resilience in Education Sector, 2017). Further, the framework establishes important principles that take into account people with special needs. These guidelines and policy principles advocate a two-track approach to risk reduction projects, including comprehensive accessibility, universal building design, non-discrimination, coordination, and collaboration across all disaster mitigation educational activities.

The elements used in disaster literacy education are as follows according to Rofiah, Kawai, Hayati (2021) including (1) strong initiatives to carry out disaster mitigation literacy initiated by themselves for all students; (2) modification of infrastructure and learning environment to accommodate student needs; (3) expand disaster mitigation literacy learning methods; (4) include children in disaster literacy; (5) awareness of school management and strategies for carrying out disaster mitigation literacy; (6) broad stakeholder involvement in disaster mitigation education.

Rachmaningtyas et al, 2021 explained that there are four steps in the implementation of disaster mitigation literacy in learning consisting of preparation, implementation, reflection and results. In more detail the research framework is presented in Figure 1.

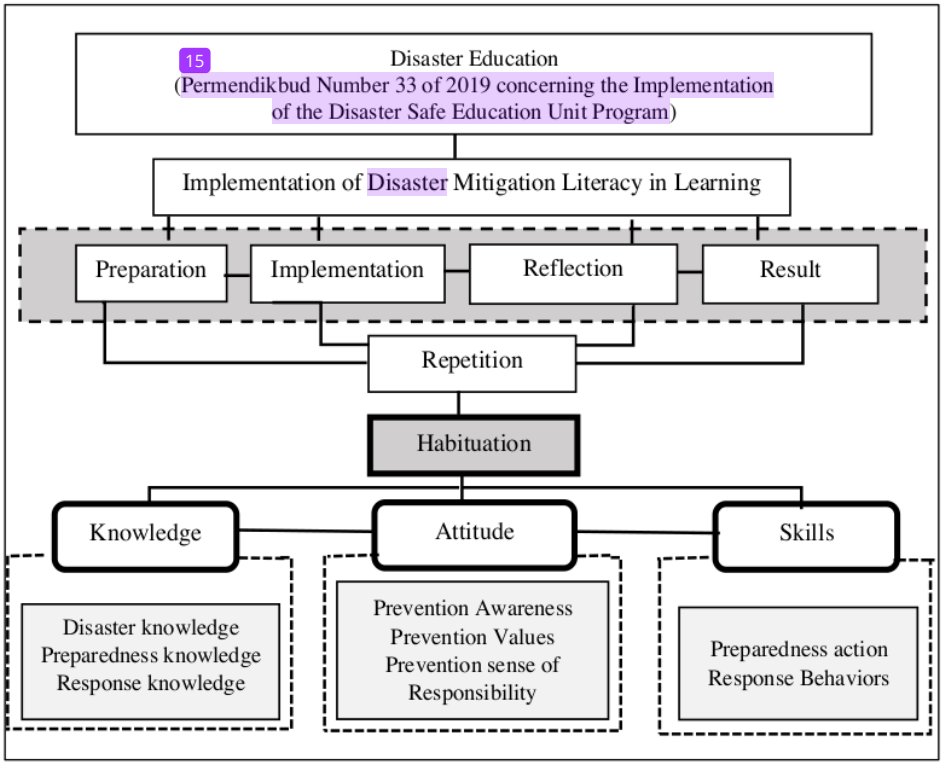

Figure 1. Research Framework

Method

Research design

This research is a qualitative research with a phenomenological type of research. This research is based on curiosity about the extent of teachers' experiences in habituating landslide disaster mitigation literacy practices in elementary school students. This experience can be the main reason to know the correct and appropriate understanding of disaster mitigation literacy in teachers and the results of literacy habituation to students.

Research Samples

Respondents of this study were selected using purposive sampling techniques. Respondents consisted of 7 teachers and 6 students from four elementary schools on the slopes of Mount Salak. The selected teacher has a teacher with a bachelor's degree in elementary school teacher education who has had teaching experience for at least 15 years and understands the implementation of disaster mitigation literacy, especially landslides in learning. Students come from upper-class students (grades 4, 5, and 6) so it is easier to carry out interviews

Data Collection Technique and Instrument

The data collection technique in this study used in-depth interview techniques conducted with teachers and learners. The research instrument is in the form of interview guidelines consist of questions that have been adjusted to the aspects and sub-aspects of landslide disaster mitigation literacy.

Table 1. Aspects and Sub-Aspects of landslide disaster mitigation literacy in learning

Aspects	Sub-Aspects
Preparation for literacy habituation in learning	- Teachers' knowledge and understanding of disaster mitigation literacy applied in schools - Supporting tools in preparation for the implementation of landslide disaster mitigation literacy in learning - Targets to be achieved in landslide disaster mitigation literacy in learning that have a direct impact on student achievement
Implementation of literacy habituation in learning	- Implementation of landslide disaster mitigation literacy in accordance with learning guidelines in the classroom - Efforts made so that landslide disaster mitigation literacy runs well - Assessment and evaluation system for students in the implementation of literacy habituation of landslide disaster mitigation
Reflection of literacy habituation in learning	- Teacher commitment in carrying out literacy habituation of landslide disaster mitigation in learning - Obstacles experienced in the implementation of landslide disaster mitigation literacy

	- Supervision of the implementation of landslide disaster mitigation literacy
The Result of literacy habituation in learning	- Student learning outcomes in the implementation of landslide disaster mitigation literacy habituation include knowledge, skills and attitudes

Data Analysis Techniques

The field data obtained are then analyzed and classified according to the aspects and sub-aspects studied. The data analysis model used is the Bogdan and Biklen model (2007), with the aim of making it easier to narrow down the findings which are then adjusted to the research objectives that lead to the meaningfulness of the existing phenomenon. The first step is to reduce the interview data then presented in a table adapted to the aspects. The final stage is to connect aspects

Trustworthiness

The triangulation method is used as a step to check the validity of data in qualitative research (Campbell et al, 2020). Qualitative research has different techniques in terms of validity, trustworthiness, and objective results compared to quantitative research (Flick, 2018). Triangulation leads to the similarity of respondents' points of view at different times in data collection. Interviews were conducted for an average of 30-45 minutes in each teacher respondent and learners to get in-depth information about disaster mitigation literacy measures in learning. Disaster mitigation literacy habituation steps consist of the stages of preparation, implementation, reflection, and results. Literacy results are deepened by revealing the achievement of knowledge, skills, and attitudes. The next stage is to conduct interview transcripts, data reduction, verify findings, and draw conclusions tailored to the literacy aspect.

Results

The results obtained in this study are divided into two main aspects, namely literacy in landslide natural disaster mitigation in teachers and in students. Literacy in teachers is related to the steps of preparation, implementation, reflection and the results of literacy habituation. Meanwhile, students are related to the results of literacy habituation in the realm of knowledge, skills and attitudes.

Aspect 1. Preparation for literacy habituation of landslide disaster mitigation

Response	Sub-aspects	Verify Findings
- Teachers know and understand about the potential for landslides that occur in the school environment due to the geographical conditions of the school on the slopes of Mount	Teachers' knowledge and understanding of disaster mitigation literacy applied in schools	Literacy habituation is based on the teacher's understanding of the potential for landslide disasters in the surrounding

Salak. - Disaster mitigation literacy is understood by teachers as a preventive and repressive effort against landslide disaster		environment and the literacy steps that need to be applied in learning. Although literacy support tools are still limited, only limited to thematic books and e-books, students are expected to be able to understand disaster mitigation literacy both in terms of knowledge, skills and attitudes.
- Teachers use thematic books and e-books as a source of reading on student disaster mitigation - Supporting facilities in the implementation of literacy consist of LCD projectors, laptops, disaster storybooks.	Supporting tools in preparation for the implementation of landslide disaster mitigation literacy in learning	
- The landslide disaster mitigation targets that are expected to be achieved by students consist of aspects of knowledge, skills, and disaster attitudes	Targets to be achieved in landslide disaster mitigation literacy in learning that have a direct impact on student achievement	

Preparation for the implementation of landslide disaster mitigation literacy starts from the teacher's awareness of the importance of literacy to further understand how ideally the implementation of disaster literacy is. Supporting tools have also been prepared by teachers to maximize the implementation of literacy in learning that can improve student achievement in the realm of knowledge, skills, and disaster attitudes in particular and other achievements in general.

Aspect 2. Implementation of literacy habituation of landslide disaster mitigation

Response	Sub-aspects	Verify Findings
- The implementation of soil disaster mitigation literacy in learning is carried out in theory and practice - The implementation of the theory is inserted in the subject matter, while the practice is carried out simply	Implementation of landslide disaster mitigation literacy in accordance with learning guidelines in the classroom	Disaster mitigation literacy has been implemented in learning both in theory and practice. Student-centered learning methods are the focus in the implementation of literacy, to prioritize the activeness of students in learning. The implementation of literacy ends with an evaluation
- The application of 15-30 minutes of reading activities that are routinely carried out as a form of reading literacy that is able to increase the knowledge of disasters of students - Learners are given the opportunity to retell and conclude readings about disasters - Participants write a summary of	Efforts made so that landslide disaster mitigation literacy runs well	

the reading results on the topic of disaster - Simple practical activities for the prevention of landslide disasters		carried out by teachers on aspects of knowledge, skills and attitudes.
- The assessment system is carried out by the homeroom teacher of each class which includes the cognitive, affective, and psychomotor domains of students about landslide disaster mitigation.	Assessment and evaluation system for students in the implementation of literacy habituation of landslide disaster mitigation	

The implementation of disaster literacy has been carried out in theory and practice in learning. Starting with reading activities 15-30 minutes at the beginning of learning, during breaks, or at the end of learning. Literacy activities are focused on the participation of learners as the main target of the activity. Furthermore, students are given the opportunity to retell, conclude, or summarize the reading results. In the implementation of the practice, students plant trees, are accustomed to throwing garbage in their place as an effort to prevent landslides. The assessment system is carried out by teachers in the realm of disaster knowledge, attitudes, and skills.

Aspect 3. Reflections on the habituation of landslide disaster mitigation literacy

Response	Sub-aspect	Verify Findings
- High commitment to the implementation of disaster mitigation literacy for students - It is very important to from a preparedness attitude towards the presence of landslide disasters.	Teacher commitment in carrying out literacy habituation of landslide disaster mitigation in learning.	Teachers have a high commitment to the implementation of landslide disaster mitigation literacy considering the geographical conditions of schools on the mountainside. Although they encountered some technical obstacles in the field due to the lack of facilities and lack of coordination with the place office, it did not reduce the enthusiasm of teachers in getting used to disaster mitigation literacy in students.
- Supporting facilities such as textbooks, disaster-themed storybooks are still minimal - There is no cooperation between schools and the Education office and/or the National Disaster Management Agency (BNPB) - There has never been a simulated disaster evacuation in person	Obstacles experienced in the implementation of landslide disaster mitigation literacy.	
- Implementation of internal literacy supervision involving principals of fellow teachers - There has been no regular evaluation from the relevant Education office	Supervision of the implementation of landslide disaster mitigation literacy	

Teachers as facilitators of education in schools, are fully aware of the importance of implementing landslide disaster literacy for students and are fully committed to its implementation. Despite the many obstacles and limitations in its implementation, teachers still try to maximize the habituation of literacy in students.

Aspect 4. The result of habituation of landslide disaster mitigation literacy

Response	Sub-aspect	Verify Findings
- In general, students understand the concept of landslide disasters - Students know the steps to take When a disaster occurs - The formation of introspection and disaster response - Learners grow awareness and internalize the values associated with disasters	Student learning outcomes in the implementation of landslide disaster mitigation literacy habituation include knowledge, skills and attitudes.	Growing learners' understanding of disaster knowledge, :titude awareness, and actions.

In general, students have understood the concept of disaster mitigation literacy, but in more depth, interviews were carried out with students to find out the achievements of the results of the implementation of landslide disaster mitigation literacy in schools, which consisted of aspects of knowledge, skills, and attitudes.

Knowledge

Indicators used in measuring students' understanding of landslide disaster mitigation literacy include disaster knowledge, preparedness knowledge, and emergency response knowledge.

Sub-Aspect	Literacy result in students
Disaster knwowledge	- Students are able to understand the definition of a landslide disaster and analyze the causes of the occurrence - Students are able to explain the impact of landslide disasters on the school environment and the surrounding community
Preparedness knowledge	- Students are aware of landslide disaster mitigation procedures in school - Students know the action plan in dealing with landslide disasters
Emergency response knowledge	- Students understand what steps to take when a landslide disaster uccors

Attitude

The indicators used in measuring the attitudes of students in the realm of disasters consist of awareness of prevention, the values of disaster prevention, and a sense of

responsibility in disaster prevention

Sub-Aspect	Literacy result in students
Awareness of prevention	- Student have awareness of potential for landslide that occur in the school environment - Students have curiosity in finding information on landslide disasters that uccor
Disaster prevention values	- Participants are able to foster religious value, humanity, concern, mutual cooperation, against landslides
Prevention sense of responsibility	- Students have a sense of responsibility in socializing landslide - Students have a sense of responsibility in preventing landslides disaster

Skills

The indicators used in assessing the achievement of students' skills in the implementation of landslide disaster mitigation literacy are preparedness action, response behaviors

Sub-Aspect	Literacy result in students
Preparedness action	- Students are quite aware of evacuation routes and shelter locations if a landslide disaster occurs - Students have not participated in training activities on landslide disaster mitigation and disaster assistance
Response behaviors	- Students are able to ensure their own safety in the event of a landslide - Students are able to help others to evacuate themselves during a landslide

Discussion

Based on the results of the study, it is known that the implementation of landslide disaster mitigation literacy has been implemented both in theory and practice in learning. The implementation of literacy is facilitated by teachers and students as the subject of literacy targets. This disaster mitigation literacy is very important to do because the geographical conditions of the school are on the mountainside, and the potential for disaster is very high. Literacy aims to improve students' disaster response abilities by encouraging them to think and act proactively for safety in the event of a disaster (Chung & Yen, 2016; Noviana et al, 2021; Ikeda et al, 2021). Disaster management must be integrated into educational programs so as to be able to give birth to a disaster-literate generation, in line with Shah, Ye, Abid, Khan, & Amir (2018) who stated that "education enhances individual resilience and ability to deal with disaster risks". Disaster mitigation literacy in schools is expected to be able to provide students with an understanding of pre-disaster, disaster, and post-disaster preparation (Putra et al, 2021). Integrating disaster literacy in learning certainly needs to be

supported by all stakeholders in schools consisting of students, teachers, the school environment, education offices, to disaster agencies. It aims to achieve maximum learning outcomes and experiences from students towards disaster education.

Landslide disaster mitigation literacy at the elementary school level is carried out through four steps, namely preparation, implementation, reflection, and results. The implementation of literacy begins with a comprehensive understanding by teachers of the concept of disaster mitigation literacy. With this capacity, it is hoped that teachers will be able to transfer this knowledge to students properly (Ye et al, 2020). Teachers prepare tools that support the implementation of literacy such as textbooks, reading books, and other disaster practice tools. The implementation of literacy in learning is divided into the realm of theory and practice. Both are expected to focus on the activ participation of students, so that they are able to understand the concept of disaster mitigation well. Activities carried out by students include reading books for 15-30 minutes every week, retelling reading topics, summarizing the results of reading activities about disaster materials. The lack of facilities other than reading books is a significant obstacle in literacy.

Another obstacle faced in disaster mitigation literacy is related to practical learning. There has never been a disaster mitigation simulation. In fact, disaster mitigation measures in the world of education are more effective if applied using simulation techniques (Rofiah et al, 2021; Maryani, 2021). The simulation can be carried out simply by using mitigation equipment such as evacuation routes, protection posts, emergency response posts. In addition, schools can also cooperate with the National Disaster Management Agency (BNSP) and the Education Office. Collaborating with a community of nature lovers and disaster volunteers to participate in disaster mitigation activities in the world of education. Collaboration in humanitarian activities is urgently needed to produce efficient performance (Bealt & Mansouri, 2018; Pollock et al, 2019; Rico, 2019). Evaluations carried out in disaster mitigation literacy are carried out internally by teachers as homeroom teachers and principals at the school level.

The results of disaster mitigation literacy activities include the realm of knowledge, skills, and disaster attitudes of students. In general, aspects of knowledge and attitudes are more mastered by students. students know the concept of a landslide disaster which includes causes, impacts, mitigation procedures and action plans in dealing with landslide disasters. Learners' curated disaster mitigati knowledge will encourage them to contribute proactively to disast prevention and mitigation (Kamil et al, 2020; Shaw et al, 2021; Symanski et al, 2022). In the aspect of attitude, the growth of awareness, religious values, humanity, concern, mutual cooperation, towards the existence of a landslide disaster and his body

feels responsible in carrying out socialization and preventive actions. In terms of skills, students tend not to have adjusted because they have never carried out landslide disaster simulation activities. This practical activity needs to be improved because it is to add to the learning experience of students in a real way, especially in the aspect of disaster skills.

Conclusion and Recommendation

Based on the results and discussion, it was concluded that the habituation of landslide disaster mitigation literacy is still focused on aspects of knowledge and attitudes of students, while in the aspects of student skills needs to be improved. In strengthening the literacy habits of landslide disaster mitigation, teachers have tried to incorporate in learning. The habituation steps include preparation, implementation, reflection, and results. The repetition of these literacy steps is one of the habituation efforts carried out by the teacher. With the implementation of this literacy, it is hoped that the mastery of disaster knowledge of students will always increase. To maximize literacy habituation, the recommended things are integrated cooperation between stakeholders, such as the education office and local disaster agencies. This collaboration can result in a more effective and efficient implementation of disaster mitigation literacy.

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Freddy Johanis Rumambi (corresponding author) is an candidate professor at the Faculty of Economics, Management Study Program, Graduate school Institut Bisnis and Multimedia asmi, Jakarta Indonesia. His research interest includes environmental management and disaster education.
Email: freddyrumambi@ibmasmi.ac.id

Audrey G. Tangkudung is lecturer at the Faculty of Economics, Management Study Program, Graduate School Institut Bisnis and Multimedia asmi, Jakarta Indonesia.
Email : audreygdt2018@gmail.com

Adrie Frans Assa is an candidate professor at the Faculty of Economics, Management Study Program, Universitas Kristen Krida Wacana, Jakarta Indonesia. His research focus on strategic management, leadership, and human recource management.
Email: adrie.assa@ukrida.ac.id

Dwi Novita Sari is a junior lecturer in Institut Bisnis and Multimedia asmi, Jakarta, Indonesia. She is also active in the research and community service unit at IBM asmi. Her research interest includes management research evaluation, instrument development, and measurement.
Email: dwinovita@ibmasmi.ac.id

Suryani is a student in Institut Bisnis dan Multimedia asmi, Jakarta, Indonesia. She is actively involved in research and as a research assistant
Email: suryani@gmail.com

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