



## THE CONTRIBUTION OF GEOGRAPHY LEARNING TO DISASTER PREPAREDNESS OF STUDENTS IN PUBLIC SENIOR HIGH SCHOOLS IN KENDARI

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### ABSTRACT

*This research aims to see how to learn geography, how students' disaster preparedness are, and how the contribution of geography learning to disaster preparedness of students in Public Senior High School in Kendari. By using a quantitative approach, the data were collected through observation and questionnaires in 5 schools in Kendari which were distributed to 150 students and 10 teachers. The results of students' learning geography with several indicators are presented as follows; with learning variable, 12.5% is categorized as low, 46.5% moderate, 41% high; with preparedness variable, 25.5% is categorized as low, 49.5% medium, 25% high. There is a contribution of geography learning to disaster preparedness with the coefficient of determination  $R^2$  of 39.4% while 60.6% is from other factors. Then, the influence of X on Y can be written in the form of a regression equation, namely  $(Y = 55.998 + 0.159 X)$ . Based on the regression equation, it can be denied that geography learning has a positive correlation with disaster preparedness of students in Public Senior High School in Kendari*

**Keywords:** *Geography learning, Disaster Preparedness, Contribution*

### INTRODUCTION

Natural disasters are events that can suddenly happen anytime and anywhere to anyone (Mitchell, 2016). Humans cannot completely control disaster. Disasters can take various forms, such as floods, earthquakes, tornadoes, and landslides, or even disasters triggered by technology and humans, such as plane accidents, fires, bomb explosions, chemical poisoning and so on. (Davis et al., 2019). All these incidents have an impact on the aspects of human life and livelihood (Hodge et al., 2017). The impact can be in the form of casualties or material loss.

Natural disasters are problems that almost all countries around the world have (Alcántara-Ayala, 2002). Indonesia is one of the countries that is most prone to natural disasters because of its location which coincides with the three most active plates in the world, namely the Pacific, Indo-Australian and Eurasian plates. (Kusumastuti et al., 2014).

Almost every year, disasters in Indonesia always occur and cause casualties and material losses. Based on the data released by the National Disaster Management Agency (2020), it is stated that throughout 2020 there have been 2,952 disaster events that resulted in 370 deaths, 536 injured, 39 missing and 6,450,903 people displaced.

Kendari City, Southeast Sulawesi Province is one of the regions in Indonesia with a high level of disaster prone. Disaster Risk Index (IRB, Indeks Resiko Bencana) of Kendari has a score of 148 which is included in the high category with the threat of disasters in the form of floods, earthquakes, fires, drought, extreme weather, landslides, and abrasion. (Amri et al., 2018). The most dominant natural disaster is flooding. Kendari is an area prone to flooding due to its geographical conditions in the form of lowlands, high rainfall, and overflow from one of the largest rivers there, the Wangu River.

(Wurjatmiko et al., 2018). In addition, disasters that need special attention in Kendari are earthquakes that can occur at any time (Hanifa et al., 2019).

The floods and earthquakes in Kendari are like a time bomb that can explode at any time. If there are no careful preparations, then the disaster will take a lot of losses and casualties. Moreover, disasters can also have a negative impact on a person's mental health (Tkachuck et al., 2018). Communities must have a level of preparedness in facing the natural disasters that can occur at any time, so that they can reduce the risk of injury and damage due to disasters because we are able to overcome temporary disturbances from the dangers of these disasters. (Paton, 2003).

### **Preparedness Concept**

There are fundamental differences between disaster preparedness and mitigation that need attention. Disaster preparedness can be defined as a person's readiness to respond to and face disasters, while disaster mitigation is an effort to reduce the risk arising from a disaster. (Kyne et al., 2020). Meanwhile, disaster mitigation can be defined as actions taken in order to reduce the impact of a disaster carried out before a disaster occurs, including long-term preparations and efforts. (Ningrum, 2017).

Disaster preparedness is an important strategy in disaster mitigation efforts (Labrague et al., 2016). Preparedness is a critical phase in disaster management because preparedness greatly determines independence, response success, level of suffering, and the safety of victims when a disaster occurs (Wurjatmiko et al., 2018). Disaster preparedness must have clear measures, so that it can be easy to identify the level of community preparedness for disasters that occur in their homes. (Havwina et al., 2017).

Disaster preparedness indicators can be measured from their knowledge, attitudes and actions towards disasters (Adiyoso & Kanegae, 2012; Mishra & Suar, 2012). The form of disaster preparedness includes gathering resources, preparing plans, and executing planning properly when a disaster occurs (Becker et al., 2013). Therefore, several

experts have suggested that disaster preparedness must include 3 basic components, namely; (1) fulfilling basic necessities such as a three-day supply of food and water, a radio or battery-operated communication device, and a flashlight; (2) preparing a written emergency evacuation plan; and (3) providing medicines (Burke et al., 2012; Chilton & Alfred, 2017). Meanwhile, the preparedness indicator according to UNESCO (2013) has four indicators, including knowledge, emergency response plans, early warning systems and resource mobilization.

### **Geography Learning**

Disaster preparedness must be taught from an early age, so that the internalization of disaster preparedness can be carried out effectively. This is done because children are an important subject in disaster management, and they are a very vulnerable group when a disaster occurs (Baytiyeh & Öcal, 2016; Harvatt et al., 2011). Therefore, schools are the most suitable places to teach preparedness. In Indonesia, efforts have begun to improve disaster preparedness at the school level through the school disaster response program (Kamil et al., 2020).

Geography is one of the subjects studied in Senior High School (SMA, Sekolah Menengah Atas) which has special material on disaster studies. Geographical scientists for decades have indeed carried out a lot of research and even practical application of natural hazards and disasters (Fuhrmann et al., 2008; Mönter & Otto, 2018). Geography studies various kinds of disasters caused by the interaction between nature and nature, humans and humans or humans and nature (Kamil et al., 2020). So, geography learning in Senior High School becomes one of the most important agents in cultivating disaster preparedness for students.

Geography subjects have great potential to improve students' disaster preparedness (Kamil et al., 2020). However, this contribution must of course be balanced with the geography teacher's ability to choose the most appropriate materials, media, learning resources, and learning models. The material provided must be able to accommodate students in knowing where they live, the level

of vulnerability, and the risks that may arise in the event of a disaster (Al-Nofli, 2018; Mönter & Otto, 2018; Nandi & Havwina, 2018). Teachers also need to use learning media so that disaster material is more interesting and easier for students to understand (Prasetya et al., 2018). Learning media that can be used can be in the form of visual, audio, or audio visual.

Learning resources are also important in determining the success of learning. Learning resources are useful to support the success of the learning process. (Sudjana & Rivai, 1989). Learning resources are in the form of messages, people, materials, tools, methods, and the environment. In addition to learning resources, teachers also need to determine the most appropriate learning model. The learning model has a function as a teacher guide in carrying out learning (Trianto, 2015). While the learning models that can be used in accordance with the 2013 Curriculum guidelines are problem-based learning models, project-based learning models, and discovery (Yani and Ruhimat, 2013). This study aims at determining (1) Geography learning on disaster preparedness in Public Senior High Schools in Kendari, (2) Disaster preparedness of students in Public Senior High Schools in Kendari and (3) Contribution of geography learning to disaster preparedness of students in Public Senior High Schools in Kendari.

**RESEARCH METHOD**

The research method chosen in this study is a survey method with a quantitative approach. Robert Groves, a leading survey expert, says "surveys produce information of a statistical nature". Survey is the basic form of

quantitative". Survey research asks several respondents about their beliefs, opinions, characteristics, and behaviors that have occurred or are currently happening (Groves, 2010).

Meanwhile, this research was conducted in Public Senior High Schools in Kendari, Southeast Sulawesi, where this area is one of the areas prone to disasters. The location was chosen based on the existence of floods and earthquakes which often occur recently. This research was conducted on students and teachers at the Senior High School level in Kendari who had received material on mitigation and adaptation of natural disasters or geographic material about disasters.

**RESULTS AND DISCUSSION**

Description of geography learning data in Public Senior High Schools in Kendari

**1. Geography Learning in terms of Learning Materials**

The results of the measurement of Geography Learning in students show that it is classified as very good, it is shown from several aspects of knowledge such as material, media, learning resources and learning models with the number of respondents around 150 students. As it is seen in the first indicator, namely the learning material with a percentage of 3% belonging to the low category, 47.3% belonging to the medium category and 49.3% belonging to the high percentage, this certainly shows that the learning of students in the material indicators that students get. Furthermore, it has been presented in Table 1.

**Table 1.** Teacher Intensity in the Use of Types of Media on Material about Disaster

Intensity	Providing material about disasters		Providing material on the types of natural disasters		Providing material on Characteristics of natural disasters		Providing material Understanding the area Potentially Unsafe of disaster	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Frequently	6	60.00	3	30.00	5	50.00	6	60.00
Rarely	4	40.00	4	40.00	4	40.00	4	40.00
Ever	0	0	3	30.00	1	10.00	0	0
Never	0	0	0	0	0	0	0	0
Total number of teachers	10	100.00	10	100.00	10	100.00	10	100.00

*Source: Results of Data Processing (2021)*

In Table 1, it can be concluded that the teacher's intensity in delivering learning about natural disasters and disaster preparedness in Senior High School in Kendari is that most of them have provided material according to the syllabus and lesson plans used.

## 2. Learning Geography in terms of Learning Media

In the second indicator, the learning media with a percentage of 14.7% is in the low category, 48.7% is in the medium category and 36.7% belongs to the high

percentage. It certainly shows that the use of media in geography learning that teachers give to the students is good enough so that it can support learning optimally. Moreover, it is also proven that the questionnaire given to the teacher on this media indicator is used to see the intensity of media use in geography learning on material about disaster. The results describe the intensity of using learning media, and it is proven that teachers mostly use visual and audio-visual media. Furthermore, it has been presented in Table

**Table 2.** Teacher Intensity in the Use of Types of Media on Materials about Disaster

No	Intensity	Audio Media		Visual Media		Audio Visual Media	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1	Frequently	0	0	3	30	3	30
2	Rarely	0	0	6	60	6	60
3	Ever	5	50.00	1	10	1	10
4	Never	5	50.00	0	0	0	0
Total number of teachers		10	100.00	10	100.00	10	100.00

In Table 2., it can be concluded that the intensity of the use of instructional media in geography learning in Senior High School in Kendari tends to use more visual and audio-visual media.

## 3. Learning Geography in terms of Learning Resources

In the learning source indicator, the percentage results obtained indicate that 22.0% are classified as low, 40.7% are in the medium category and 37.3% are classified as high. This certainly shows that the use of learning resources in geography learning that is provided by the teacher to students is quite good with the

*Source: Results of Data Processing (2021)*

percentage of medium and high categories indicating large numbers so that it can be said that the learning resources provided to students are many and varied, so that they can support optimal learning takes place.

Moreover, it is also proven that the questionnaire given to the teacher on this media indicator is used to see the intensity of media use in geography learning on material about disaster. The results describe the intensity of using learning media, and it is proven that teachers mostly use visual and audio-visual media. Furthermore, it has been presented in Table 3

**Tabel 3.** Intensity of Using Learning Resources on Materials about Disasters

Intensity	Information Messages		Tools/ Equipment		Teacher/ Instructor		Materials (Books, Slides, Pictures)		Environment (Place)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Frequently	0	0	3	30	7	70	7	70	1	10
Rarely	0	0	6	60	3	30	3	30	6	60
Ever	5	50	1	10	0	0	0	0	3	30
Never	5	50	0	0	0	0	0	0	0	0

Total number of teachers	10	100.00	10	100.00	10	100.00	10	100.00	10	100.00
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*Source: Results of Data Processing (2021)*

In Table 3, it can be concluded that the intensity of using learning resources in geography learning in Public Senior High Schools in Kendari uses many references to the use of learning resources in a variety of ways by making use of all the learning resources available in the school.

#### 4. Learning Geography in terms of the Learning Model

The learning model indicator shows that 8.7% is in the low category, 50.7% is in the medium category and 40.7% is in the high percentage. This certainly shows that the learning model

that is given to students turns out to be easily accepted by students as evidenced by the moderate and high percentage of categories which get quite good scores, this is also supported by the teacher himself who has been Give a questionnaire about the learning model with the results described, namely that the average teacher uses the 2013 curriculum learning models with very frequent intensity, but especially in this disaster material the teacher is more dominant in using project-based learning models. Furthermore, it has been presented in Table 4.

**Table 4.** The intensity of the Use of Learning Models in Materials on Disasters

Intensity	Project Based Learning		Problem Based Learning		Discovery Learning	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Frequently	6	60.00	3	30.00	5	50.00
Rarely	4	40.00	4	40.00	4	40.00
Ever	0	0	3	30.00	1	10.00
Never	0	0	0	0	0	0
Total number of teachers	10	100.00	10	100.00	10	100.00

Based on Table 4, it can be concluded that the intensity of using models in geography learning in Senior High School in kendari uses the 2013 curriculum learning models that are quite often used by teachers. So, overall in terms of all learning indicators, both teachers and students in Public Senior High School in Kendari, based on the data obtained, it shows a fairly good number. It can be seen from the combined data where each indicator shows the percentage which is in the medium and high category, while there are still some students who fall into the low category.

This shows the need to improve the quality of learning and learning carried out by every teacher and school in an effort to make learning in every classroom and school better and more productive, especially during a pandemic of COVID-

*Source: Results of Data Processing (2021)*

19 learning that is only done through online learning, teachers and the school are of course more giving a role or carrying out good and correct tasks and are also more creative even though learning is done online and from home, of course it will experience its own difficulties, for teachers and students to give and receive learning well. However, it is not an obstacle to continue the desired learning.

#### 5. Description of Student Preparedness Data in Senior High School in Kendari

This research was conducted in 5 schools in Kendari City with the number of respondents around 150 students in class XI in the second semester who received the subject matter of natural disaster mitigation with an average time allocation of 6 weeks x 4 lesson hours

where every 1 lesson hour with a time of 45 minutes.

The data collection technique is done by observing the school and by using a facility of *google form* which can be accessed via a link that has been shared with respondents and can be filled in

directly via *gadget* or *smartphone*. several indicators, namely aspects of knowledge, emergency response plans, early warning systems and resource mobilization. For more details, it has been presented in Table 5.

**Table 5.** Disaster Preparedness Learners in Senior High School in Kendari

Indicators	Low		Moderate		High		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Knowledge	10	6.7	99	66.0	41	27.3	150	100
Emergency Response Plan	31	20.7	94	62.7	25	16.7	150	100
Early Warning System	83	55.3	17	11.3	50	33.3	150	100
Resource Mobilization	29	19.3	87	58.0	34	22.7	150	100

*Source: Results of Data Processing (2021)*  
 High School in Kendari can be said to be quite good.

Overall, of all the indicators for students in Public Senior High School in Kendari, based on the data obtained, it shows that each indicator has different levels of categories, but if it is averaged, the numbers of moderate category dominates low and high categories, and this is shown in Figure 4.14 that shows the medium category at the highest number except for the early warning system indicator. It can be concluded that the preparedness of students in Public Senior

## 6. Contribution of Geography Learning to Students' Preparedness in Kendari City

Measuring the contribution of geography learning to the readiness of students in this case is measured using SPSS Statistics 22 which is presented in the table as follows Table 6.

**Table 6.** Coefficient of Determination Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.394 <sup>a</sup>	.037	.031	6.479

a. Predictors: (Constant), Geography Learning

Based on Table 6, it can be concluded that the correlation value (*r*) between the Geography Learning variable on the disaster preparedness variable is 0.194 while the *R square* value is 0.37. Thus, geography learning variables

*Source: Results of Data Processing (2021)*  
 contribute 39.4% to the disaster preparedness variable, while 60.6% is influenced by other factors. The F test in this study is presented in Table 7 as follows

**Table 7.** F Test ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	241,877	1	241,877	5,761	,018 <sup>b</sup>
	Residual	6213,457	148	41,983		
	Total	6455,333	149			

- a. Dependent Variable: Students' Disaster Preparedness  
 b. Predictors: (Constant), Geography Learning

Based on Table 7, the calculation results show that the F test results for learning geography on disaster preparedness obtained an  $F_{count}$  value of 5,761 and  $F_{table}$  of 3.90 (df. N1. 150). Because  $F_{count} > F_{table}$ , then it can be said that the contribution of X is significant to Y. Furthermore, if the criteria use a significance value (*Sig.*), the significance

*Source: Results of Data Processing (2021)*  
 value of the calculation is 0.018 while the criteria for significance is  $<0.05>$ . Thus, based on the results of calculations, geography learning contributes to student disaster preparedness at Public Senior High School in Kendari. Meanwhile, the following simple linear regression testing is presented in Table 8 as follows:

**Table 8.** Partial t Test Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	55.998	4.642		12.064	.000
	Pembelajaran Geografi	.159	.066	.194	2.400	.018

- a. Dependent Variable: Students' Disaster Preparedness

Based on table data *coefficients* above, then the effect of X on Y can be written in the form of a regression equation, namely  $(Y = 55.998 + 0.159 X)$ . Based on the regression equation, it can be concluded that geography learning has a positive correlation to disaster preparedness for students in Public Senior High School in Kendari. Based on the results of hypothesis testing, it can be concluded that  $H_1$  is accepted, and  $H_0$  is rejected. This is based on the results of the F test which shows that there is a contribution of geography learning to disaster preparedness for Public Senior High School students in Kendari.

The contribution of geography learning to disaster preparedness as a whole shows the effect of being in the medium category. This shows that geography learning also affects disaster preparedness measures, with the coefficient value between variables indicating that there is a contribution. Furthermore, the results of the correlation study show that there is a positive influence between disaster information literacy and disaster preparedness, in

*Source: Results of Data Processing (2021)*  
 other words, if the learning ability of students increases, it will also increase students' disaster preparedness.

**CONCLUSION**

The contribution of geography learning to disaster preparedness with the correlation value (r) between the Geography Learning variable and the disaster preparedness variable is 0.194 while the R square value is 0.37. Thus the geography learning variable contributes to the disaster preparedness variable by 39.4% while 60.6 % influenced by other factors. Then, the effect of X on Y can be written in the form of a regression equation, namely  $(Y = 55.998 + 0.159 X)$ . Based on the regression equation, it can be concluded that geography learning has a positive correlation to disaster preparedness for students in Public Senior High School in Kendari. This means, in other words, if the Geography Learning of Learners is good in planning, implementing and evaluating in class, it will have an impact on increasing students' disaster preparedness. So that Geography Learning can be said to be an effort to increase self-capacity in shaping attitudes and concern for disaster preparedness.

## RECOMMENDATIONS

Recommends for further researchers to deepen research studies, especially on reviewing disaster mitigation in schools considering that Indonesia is a country shrouded in the dominance of natural disasters such as earthquakes, tsunamis, volcanic eruptions, and others, besides that it is also a reference for several related disaster parties in mitigating disasters. nature that occurs in Kendari City and other areas.

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