



## THE EFFECT OF RECITATION METHOD ON HIGH SCHOOL STUDENTS' SELF-EFFICACY IN EARTHQUAKE PREPAREDNESS

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### ABSTRACT

**Background:** Earthquake preparedness is the key to preventing potential damage to people who are affected, therefore education about managing earthquake situations is needed. Self-efficacy helps to carry out regular activities with expected results since they're convinced in their abilities. In this case, the researcher provided education about applying the recitation method to learn about earthquake preparedness. **Objective:** This study aimed to analyze the effect of the recitation method on earthquake preparedness on high school students' self-efficacy in Jember. **Method:** The method used a quasi-experimental design with the non-equivalent control group. The samples were 136 students selected by simple random sampling and divided into an intervention group and a control group. The data were analyzed by T-Test Dependent and Mann Withney. **Results:** The result showed a p-value of T-Test Dependent in the intervention group was 0.000 ( $< 0.05$ ) and in the control group was 0.023 ( $< 0.05$ ), hence there was a difference in self-efficacy before and after intervention in the two groups, while Mann Whitney the comparison between the intervention group and control group was 0.047 ( $< 0.05$ ), so there was a significant difference in self-efficacy between two groups. **Conclusion:** Based on the result of this study, learning with the recitation method is effective to improve students' self-efficacy toward earthquake preparedness. Students who are involved in the recitation method are expected to be convinced of their own abilities because they have been through cognitive and motivational processes toward the formation of self-efficacy in earthquake preparedness.

**Keywords:** Earthquake preparedness, recitation method, self-efficacy

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### INTRODUCTION

Indonesia is a country that has a high level of vulnerability to disasters because it is in the circle of fire or Pacific Ring of Fire. Indonesia is also located at the confluence of three active plates, namely the Eurasian plate, the Pacific plate, and the Indo-

Australian plate, which are the causes of natural disasters, one of which is earthquake (Tatisina et al., 2020).

It was recorded that in 2017 there was an earthquake disaster in Tasikmalaya, West Java which resulted in 5,213 houses being damaged. In 2018 there were several



earthquakes with big magnitudes in Indonesia, including the earthquake that occurred in Lombok, East Nusa Tenggara with a magnitude of 7 on the Richter Scale which resulted in 564 people dying and the largest earthquake in Indonesia 2018 occurred in Donggala, Palu, Sigi, and Parimo, Central Sulawesi with a magnitude of 7.4 on the Richter Scale which resulted in 87,625 people being displaced and 2,101 people dying. In 2019 there were 30 earthquakes and in 2020 there were 18 earthquakes that hit Indonesia with various damaging effects (BNPB, 2021).

Jember Regency has a complete regional topography ranging from the highlands to the coast so it has a risk of disaster. BPBD of Jember Regency released information that there were 224 disasters and this number increased by more than 100% from the events of 2017 (Prakoso et al., 2020). On December 16<sup>th</sup>, 2021, an earthquake shook Jember Regency with a magnitude of 5.1, causing people to panic and several buildings were damaged there was another earthquake on January 7<sup>th</sup>, 2022 with a magnitude of 4.9 centered on the sea 139 km southwest of Jember (Supriadi & Su'udi, 2021; Supriadi, 2022). This incident, it proves that earthquakes are natural disasters that often hit Indonesia, including Jember Regency with various impacts caused.

To anticipate the impact of earthquakes on disaster-prone areas, preparedness is needed which is a key priority for people who feel the impacts of earthquakes (Husna et al., 2020). Earthquake preparedness requires confidence in the actions to be taken so as to be able to control the situation against the threat of earthquakes which will later form self-efficacy in earthquake preparedness. People with self-efficacy can help to take action with the expected results because they have confidence in their own abilities and can influence preparedness for future disaster threats. The higher a person's self-efficacy level, the higher a person's

preparedness in dealing with disasters (Yu et al., 2020).

One way to improve self-efficacy to reduce the impact of earthquakes is to provide education about earthquake preparedness. Self-efficacy appears from a person's confidence in achieving the desired goal and can be achieved through cognitive or education provided by the material giver (Abbasi et al., 2020). Giving education aims to increase preparedness for earthquake disasters and reduce disaster risk. A school is a place where the education, knowledge, and skill of students take place. Giving education about earthquake preparedness in school is an effective, dynamic, and sustainable means in an effort to disseminate disaster education to improve preparedness (Winarni et al., 2021).

In providing education or learning, various methods can be used. One of the methods used in learning is the recitation method. The recitation method is a method in which the material provider gives certain assignments to students and is believed to be effective in improving learning outcomes and students will be held accountable for the tasks they do (Wicaksono et al., 2021). Research conducted by Ariyanti et al., (2021) that the recitation method can affect student learning outcomes. The recitation method is a method that gives assignments to students where if there are students who don't submit assignments, they don't get grades. Therefore, students will be motivated to undergo learning to improve memory with what they have written and worked on. Based on this background, this research was conducted to determine the effect of learning with the recitation method on students' self-efficacy about earthquake preparedness.

## METHODS

The research was conducted using a quasi-experimental design with the non-equivalent control group. Data collection



was carried out in July-August 2022 at SMA N 1 Jember. The study population was students of class XI and XII who had never participated in earthquake preparedness training. The research sample was taken by simple random sampling method and the calculation of sample size using the G\*Power application. The total sample obtained was 136 and the sample was divided into two groups, there were 68 students in the intervention group with the recitation method and 68 students in the control group with the disaster preparedness ebook.

Self-Efficacy measurements were carried out before and after the intervention and were given to all research respondents. The instruments used are the General Self-Efficacy Scale (GSES) in the context of disaster with a validity value used the Pearson Product Moments test of 0.528-0.707 and a value of reliability used the Cronbach Alpha test of 0.847 (Lidya et al., 2020).

The first procedure of research was to explain the purpose and course of the

research to respondents. Furthermore, the intervention group learned with the recitation method about earthquake preparedness whose implementation was divided into three phases. The first phase was the phase of giving assignments to students in the form of did assignments to make a summary related to earthquake preparedness in accordance with the references that have been given by researchers and assignments adapted to students' abilities. The second phase was the phase of doing assignments where students did the assignments that have been given and the researcher provided guidance so that students completed the assignments well. The final phase was the assignment accountability phase where students collected assignments that have been done, carry out discussion sessions regarding earthquake preparedness, and assessed student work. Whereas the control group was only given a disaster preparedness ebook issued by BPBN to read independently.

## RESULTS

### Respondent Characteristics

**Table 1.** Respondent Characteristics According to Class, Age, and Sex (n=136)

Respondent Characteristics	Intervention (n=68)		Control (n=68)		Total	
	n	%	n	%	n	%
<b>Class</b>						
XI	36	52.9	36	52.9	72	52.9
XII	32	47.1	32	47.1	64	47.1
<b>Age</b>						
15	0	0.0	3	4.4	3	2.2
16	29	42.6	31	45.6	60	44.1
17	29	42.6	30	44.1	59	43.4
18	10	14.7	4	5.9	14	10.3
<b>Sex</b>						
Male	25	36.8	25	36.8	50	36.8
Female	43	63.2	43	63.3	86	63.2

Table 1 shows the results of the distribution of the characteristics of the respondents that the majority of the respondents were class XI students as many

as 72 students (52.9%), the majority of respondents were 16 years old as many as 60 students (44.1%), and the majority of the gender of the respondents were female as



many as 86 students (63.2%). High school students are teenagers with a vulnerable age of 16-19 years. Giving earthquake preparedness education or training to adolescents can affect self-efficacy in carrying out disaster preparedness, especially earthquakes. The higher the self-efficacy of adolescents, the more prepared they are in dealing with disaster situations, shown by strong confidence in their own abilities to prepare for earthquake preparedness and making decisions for disaster emergency actions. Strong self-belief makes adolescents more responsive to earthquake emergencies through earthquake preparedness that can be honed from earthquake preparedness training or education (Mariam et al., 2021).

### Intervention Group with Recitation Method

**Table 2.** Differences between pre and post-self-efficacy test scores of the recitation method in the intervention group (n=68)

Self Efficacy Score	Mean ± S.D.	Sig.
Pre-test	30.66 ± 4.325	0.000
Post-test	33.19 ± 3.699	

Table 2 shows the results of the differences in pre and post-tests of students' self-efficacy before and after being given learning recitation methods related to earthquake preparedness. The test used was T-Test Dependent because the data were normally distributed and shows a significance value of 0.000 (<0.05) which showed that was a difference in self-efficacy before and after learning with the recitation method in the intervention group and the recitation method had an effect on improving students' self-efficacy.

The study results are in line with the research of Moon & Hyun (2019) that there was an effect of providing education with blended learning methods to improve

students' self-efficacy. Education delivered to students becomes a cognitive process that builds students' self-efficacy to increase self-confidence in the abilities to complete assignments, improve learning outcomes, and direct students to the expected good habits.

In this study, the delivery of earthquake preparedness education used the recitation method to increase self-efficacy. Research conducted by Ariyanti et al., (2021) shows that the recitation method has an influence on increasing students' knowledge and learning motivation because it encourages students to be active in learning, doing assignments according to student's abilities, and being active in discussions. The encouragement to complete the task fosters a sense of motivation in understanding the learning material.

The process of formation of self-efficacy consists of cognitive, motivational, affective, and selection processes (Bandura, 1997). In the recitation method, cognitive and motivational processes dominate the formation of self-efficacy where students are asked to study and work on assignments about earthquake preparedness material and get motivated to complete and take responsibility for the work done. Student self-efficacy formed in the recitation method is that students know their abilities, are active in learning, and are confident and ready to implement earthquake preparedness.

In addition to the process of forming self-efficacy, there are sources of forming self-efficacy including one's own experience in completing a given task, seeing the experience of others who have successfully completed the task as the expected goal, listening to input from peers to increase motivation in learning, and how is the physical condition as well as emotional in response to the tasks given (Yıldız et al., 2019).



### Control Group with Disaster Preparedness Book

Table 3. Differences between pre and post-self-efficacy test scores of the disaster preparedness book in the control group (n=68)

Self Efficacy Score	Mean ± S.D.	Sig.
Pre-test	31.18 ± 4.015	0.023
Post-test	32.32 ± 4.985	

Table 3 shows the results of the differences in pre and post-tests of students' self-efficacy before and after being given the BNPB disaster preparedness guidebook in the form of an ebook. The test used was T-Test Dependent because the data were normally distributed and shows a significance value of 0.023 (<0.05) which showed that there were differences in self-efficacy before and after being given the disaster preparedness handbook in the control group was read independently in the control group and there was an influence on improving self-efficacy.

The results of the study are in line with the research of Setiawan & Ena (2019) that there was a relationship between reading interest and self-efficacy which indicates that if interest in reading is high, it will be followed by an increase in self-efficacy. This is because people feel that they are sure to complete reading a book independently without any direction from the teacher. Another reason is that the individual understands and is able to explain the theme of the reading book.

Self-efficacy is an assessment of oneself regarding the ability to compose and carry out an action that is used to achieve the expected goals (Bandura, 1997). The formation of self-efficacy from reading interest is formed from several sources, including the experience of being able to complete reading, seeing other readers who are able to complete reading so that they are also motivated to finish

reading, getting verbal persuasion to build interest in reading, and how the physical and emotional conditions in reading (Setiawan & Ena, 2019).

### Differences between Intervention Group and Control Group

Table 4. Differences post self-efficacy test scores between intervention group and control group (n=136)

Group	Median	Min – Max	Sig.
Intervention Group	2.00	-8 – 11	0.047
Control Group	1.00	-10 – 15	

Table 4 shows the results of differences in students' self-efficacy scores after being given treatment between the intervention group and the control group. The value used is the value of the difference ( $\Delta$ ) between the post and pre-test. The test used was Mann Whitney because the data were not normally distributed and showed a significance value of 0.047 (<0.05) which indicated that there were differences in self-efficacy between the intervention group and the control group. The difference in self-efficacy between the intervention group and the control group was due to the different treatments. The recitation method in the intervention group has stages that involve the process of forming self-efficacy and students are required to be active in learning while giving e-books in the control group only relies on students' interest in reading.

In the academic field, students' self-efficacy is associated with a belief in completing assignments, compiling learning activities, and living with academic expectations for themselves and others, getting success professionally so that it can be said that the better the self-efficacy that students have, the better the effort spent to achieve high academic results as an expected goal (Olivier et al., 2019).





The increase in self-efficacy to earthquake preparedness in the intervention group was due to the recitation learning method which was able to increase students' knowledge and motivation because students were actively encouraged to learn and complete tasks according to their respective abilities and were motivated to participate in learning so as to strengthen memory in lessons with assigned tasks done independently (Ariyanti et al., 2021). The existence of encouragement to learn and motivation in completing tasks becomes the process of forming students' self-efficacy which is included in cognitive processes and motivational processes.

The formation of self-efficacy is formed from several processes, namely cognitive processes, motivational processes, affective processes, as well as selection processes (Bandura, 1997). The formation of self-efficacy in the recitation method implemented is a cognitive process that can be passed in the phase of working on tasks on the recitation method. The implementation of the task phase is in the form of students doing assignments in accordance with the provisions that have been given by researchers and students learning related to earthquake preparedness independently. Experience in doing assignments and studying independently will form self-efficacy in carrying out earthquake preparedness. Furthermore, the motivation process is carried out by providing encouragement or motivation to students that they are able to complete the tasks given because they have been adjusted to their abilities. In the recitation method, providing encouragement or motivation is included in the phase of task implementation where the supervisor provides motivation to the student. In addition to providing motivation that they are able to complete the task, researchers also provide motivation that they will be able to carry out earthquake preparedness if they study the preparedness material well. Doing the assigned assignments is not only

a burden on students, but a provision so that they are able to carry out earthquake preparedness. The third process is an affective process by asking students to collect assignments and account for the tasks that have been done. The affective process looks at how students' attitudes and enthusiasm in collecting assignments and participating in the discussion process related to earthquake preparedness. In the recitation method, these activities are included in the task responsibility phase. The final process is a selection process that gives students the opportunity to select and select earthquake preparedness information that is in accordance with predetermined goals. It aims to form a belief in oneself to carry out actions in accordance with the decisions taken.

In the control group, the treatment given was the provision of disaster preparedness handbooks in the form of e-books to be read independently. The advantage of using e-books is that they have easy access and mobility, and have various designs such as the use of colors, writing styles, and illustrations so that they attract students' reading interest. However, the disadvantage of using e-books is the effect of pain or discomfort in the eyes if you stare at the screen continuously (Majid et al., 2019).

Based on the results of research, recitation methods and the provision of guidebooks equally affect the self-efficacy of students in earthquake preparedness. However, in the recitation method, students are encouraged to learn independently, complete tasks as goals to be achieved, foster a sense of responsibility and discipline, and get motivated that students are able to complete educator tasks. The advantage of using a guidebook is that it has easy access with interesting illustrations and can be read independently, but providing a guidebook can increase self-efficacy if students have a high interest in reading and are confident of benefiting from reading.



## CONCLUSION

In this study, it can be concluded that learning the recitation method can affect the formation of students' self-efficacy in earthquake preparedness learning because there is a difference between the pre-test and post-test scores in intervention students. In addition, the learning of effective recitation methods to improve students' self-efficacy in earthquake preparedness was evidenced by the significant differences between the intervention group and the control group. Students involved in the research are expected to be confident in their own ability to carry out earthquake preparedness because they have gone through cognitive processes and motivation for the formation of self-efficacy in learning recitation methods.

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