

The Influence of the Teams Games Tournament Method on Elementary School Students' Knowledge of Preparedness Eruption Disaster

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ABSTRACT

Preparedness is an activity to anticipate pre-disaster mitigation so that each individual is always ready and prepared to face natural disasters. This study aims to determine the knowledge of school-aged children about pre-disaster preparedness for the eruption of Mount Kelud. This study used a pre-experimental method with a sample size of 31 respondents taken through purposive sampling technique. Data collection was done using a questionnaire. The results of the study showed a significant increase in knowledge. The pre-test results showed that there were no respondents in the good knowledge category, but after being given education using the Time Games Tournament method, there were 23 respondents (74%) in that category. Additionally, the category of sufficient knowledge increased from 0% to 26%, and the category of poor knowledge decreased from 100% to 0%. The Time Games Tournament method is an effective learning technique for delivering pre-disaster preparedness knowledge in a fun way. This method can also increase students' spirit, enable them to actively participate, foster a sense of togetherness and mutual respect, and improve creativity. Therefore, educators and health workers are expected to apply an educational program using the Time Games Tournament learning method in conducting health education.

Keywords: preparedness, education, Team Games Tournament, school age child

Background

Indonesia is in the ring of fire area which is often called the ring of fire, so there are often volcanic disasters erupting (1). One of the mountains that is still active in East Java is Mount Kelud with an altitude of 1,731 meters above sea level. Mount Kelud is located on the border between Kediri Regency, Blitar Regency, and Malang Regency. Until now Mount Kelud has erupted more than 30 times, with the last eruption occurring on February 14, 2014 (2)

The erupting mountain disaster that occurred in Indonesia resulted in the community experiencing culture shock. This happens because of lack of knowledge and community unpreparedness in anticipating natural disasters, so it is necessary to increase education about preparedness. Preparedness education can be provided to the community, especially school-age children. Elementary school (SD) children are very vulnerable to becoming victims of volcanic eruptions because their abilities and knowledge related to disaster preparedness are very lacking.

One of the schools directly affected by the Kelud eruption is SDN Penataran 03, because of its geographical condition which is in a radius of five to ten kilometers and is located in one of the disaster buffer villages, which is located on KRB III Ring I Gunung Kelud. The teachers and students are already aware of the danger of Mount Kelud eruption.

This is evidenced by the experience of eruptions that occurred in 2007 and 2014 that residents have evacuated independently. The results of the interview with the Principal some of the teachers have attended training and simulation on disasters, while the students have never received training and simulations related to the Mount Kelud eruption disaster.

Increasing awareness of school-age children on volcano disaster preparedness is carried out through educational efforts with interesting and fun methods. One of the educational methods that can be applied is the Team Games Tournament (TGT) method. TGT method consists of 5 stages, namely: class presentation, learning in teams, games, tournaments, and team recognition. The results of the research title The Effect of the Team Games Tournament Learning Model Assisted by Media Card Sort on Science Learning Outcomes of Grade IV Students at MI Ikhwanul Djauhariah, better science learning outcomes were obtained, academic achievement became good, students learned more enthusiastically and passionately and creatively(3)

The results of the research about the influence of the school watching method on the disaster preparedness behavior of school children showed that the preparedness of elementary school-age children in the intervention group was included in the good category as much as 92% while in the control group as much as 32%, so that there was an influence of the school watching method on the preparedness behavior of elementary school-age children (4).

Based on the background above, researchers are interested in conducting research with the title: The influence of education using the Team Games Tournament method to increase knowledge of pre-disaster preparedness for the eruption of Mount Kelud students of SDN Penataran 03.

Methods

This study used a pre-experimental design in which there was no control group to be compared with the experimental group. The population in this study is students at SDN Penataran 03. Especially grade 4 and grade 5 who have met the inclusion criteria. Sampling using Purposive sampling technique with a large sampel 31 respondents. Respondents were given a pretest, then the second session was given education using the Teams Games Tournament (TGT) method with paper, whiteboard, and the third session was given a posttest where the questionnaire was the same as the pretest. Data analysis in this study was carried out by non-parametric statistical analysis (sample 31), which tested the difference in dependent variables before and after intervention with the Wilcoxon signed-rank test is one type of non-parametric test used to test significant differences between two related variables measured on ordinal or interval scales. This test is usually used when the data do not meet the assumption of normality, or if the sample size used is too small to use a parametric test. The Wilcoxon signed-rank test involves comparing the differences between each (different) data pair against a population median of zero. The test then calculates the ranking of those differences, and compares those rankings to the predetermined Wilcoxon distribution. If the resulting test value is smaller than the specified critical value, it can be concluded that there is a significant difference between the two samples or the two related variables.

Results

Pretest and Posttest Knowledge Component Results

Table 1. Pretest and Posttest Knowledge Component Results

Category	Knowledge Component			
	Pretest		Posttest	
	f	%	f	%
Good	0	0	23	74
Enough	0	0	8	26
Less	31	100	0	0

results of measurements using Wilcoxon were obtained (sig.000)

From the table above, it is known that the results of measuring the Pre-Disaster Preparedness Knowledge component of Pre-Disaster Preparedness Pretest and Posttest results have increased in Posttest, namely: originally good 0 respondents to 74% (23 respondents), enough from 0 respondents to 26% (8 respondents), and less than 100% (31 respondents) to 0.

The Wilcoxon signed-rank test involves comparing the differences between each (different) data pair against a population median of zero. The test then calculates the ranking of those differences, and compares those rankings to the predetermined Wilcoxon distribution. If the resulting test value is smaller than the specified critical value, it can be concluded that there is a significant difference between the two samples or the two related variables.

According to the results of the study, it is known that the results of measurements using Wilcoxon were obtained (sig.000), so there is an influence on the use of learning methods with the TGT model on school-age students.

Discussion

Based on the results of treatment research using the TGT method on preparedness to face the eruption of Mount Kelud from 31 respondents, the majority of whom were 10-year-old students, there was an increase in posttest on pretest and posttest knowledge, namely originally the good knowledge category of 0 respondents to 23 respondents (74%), the sufficient category from 0 respondents to 8 respondents (26%), and the category of less than 31 respondents (100%) to 0 respondents.

The Teams Games Tournament (TGT) learning method, developed by David De Vries and Keath Edward, is one way to convey knowledge. The TGT learning model has advantages such as making learning fun, increasing morale, allowing students to play an active role, allowing repetition of learning materials, giving rewards, fostering a sense of community, mutual respect, and increasing creativity (3). This model makes students more enthusiastic in learning because in this model there are games or tournaments in the learning process so that they do not make students bored, sleepy and so on (5). Supported by research results the application of the Teams Games Tournament (TGT) type cooperative learning model in physical education subjects can increase participation (6). With this method teachers can apply techniques to increase students' learning motivation in the learning process and communication between students tends to be more active (7). Based on the decisionmaking criteria and testing, the cooperative learning model of TGT type in the interest learning Arabic language in VII grade students was categorized into strong category (8)

The results of the comparison of pretest with posttest on 31 respondents showed an increase in

knowledge after being given education using TGT. The Wilcoxon signed rank test shows a value of $Z = -4.891$ sig.000, which shows a significant difference between the pretest and posttest. This is supported research, which shows a positive and significant influence. Teams Game Tournament (TGT) Learning Model Assisted by Media Card Sort on the science learning outcomes of grade IV students at MI Ikhwanul Djauhariah Bengkulu City as evidenced by the test results ". Research also shows that education with the TGT method can provide broad and in-depth knowledge and fun learning (3). Based on research results, the Teams Games Tournament can improve the learning outcomes of fourth grade students at SDN Tambakmas 2, especially in the material rounding numbers, even though this material is classified as having a high level of difficulty (9). Cooperative Learning Model TGT type is adapted to the syntax which is standard, group division which is based on the explanation from teachers about heterogeneity, and equal distribution of the level of difficulty of the questions given to each group(10). Therefore, education with the TGT method can be an alternative to increase students' knowledge in a different way than usual.

According to researchers, the Teams Game Tournament (TGT) Learning Model can have a positive and significant influence on increasing student knowledge. Education with the TGT method has advantages in delivering learning, such as making learning more fun, increasing student enthusiasm, and allowing students to play an active role in learning. Education with the TGT method is very important to be applied to learning in schools, especially in increasing student knowledge. This method can motivate students to be more active in learning and improve their learning outcomes. In addition, the TGT method can also provide a fun and entertaining learning experience for students, which can help strengthen their motivation and desire to continue learning. However, of course, the TGT method is not the only effective learning method. There are many other learning methods that can also provide benefits and advantages for students in acquiring broader and deeper knowledge. Therefore, further research and experiments need to be conducted to test the effectiveness of various learning methods in improving student learning outcomes.

Conclusion and Recommendations

Education using the Teams Games Tournament method affects students' knowledge in dealing with pre-disaster preparedness for the eruption of Mount Kelud. It is expected that students can use the results of this research as a reference in studying and applying pre-disaster preparedness for volcanic eruptions, and for educators and health workers can apply educational programs using the TGT learning method in conducting health education

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