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Knowledge analysis of students in disaster mitigation mount erupts

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Abstract. The purpose of this study was untukmenganalisis the extent to which the knowledge of students in disaster management volcanoes and coherence of the matter physics. This type of research is descriptive qualitative peneitian. The sample used in this study are students of class X SMA N 1 Batipuh. The result is knowledge migasi learners to disasters volcanoes of 61.33% categorized as very poor and linkages with disaster physics of matter volcanoes obtained at KD 3.9 on material and energy businesses and KD 3:10 on the material momentum and impulse.

1. Introduction

Disaster is an event or series of events that threaten and disrupt the lives and livelihood caused by both natural factors and or non-natural factors and human factors resulting in the emergence of human lives, environmental damage, loss of property and the psychological impact [1].

Volcanic eruptions are disasters caused by natural factors, namely the eruption of the volcano. The eruption of the volcano is not only a hot cloud, but also cold lava. According to Van Bemmelen (1994) in the book vulkanolgi [2] defines the lava is "a mudflow containing debris and the angular blocks of volcanic origin" means a stream of mud containing chunks of lump-tapered originating from volcanic activity.

Disaster volcanic eruption is a natural phenomenon that occurs due to extremely high gas pressure in the bowels of the earth resulting in the magma deep within the earth pushed to the surface of the earth. History of volcanic eruptions have shown that the impact of the primary disaster caused by the eruption could cause casualties are relatively higher than in the secondary disaster. However, the threat of secondary disaster will be much longer and often contributes great damage and loss, which often berdampaknegatif severe for people around Merapi area [3].

Efforts to reduce the risk of disaster mitigation, by providing training or education for disaster risk reduction before, while and after the disaster. If you can not prevent and reduce the risk of such disasters, the ravages of mountain be catastrophic for life [4]. School is a place where we can gain knowledge and a place to socialize the volcanic eruption disaster mitigation. By combining learning with the surrounding environment such as volcanic eruptions. Physics is a science that studies the natural phenomena and the eruption of Mount Merapi is a natural phenomenon that can be studied physics learning.



2. Method

This research is a qualitative descriptive study. Qualitative research method is also called naturalistic methods for research conducted on natural conditions (natural setting) [5]. Bodgan and Taylor defines qualitative methodology as a research procedure that produces descriptive data in the form of words written or spoken of people and behaviors that can be observed [6]. Data collection methods used were the questionnaire method. Questionnaire used in the form of open questionnaire (open questionnaire) is a questionnaire with questions give freedom to the respondent to answer according to their understanding [7].

This research has been conducted in SMAN 1 Batipuh. The population in this study were all students of class X of SMAN 1 Batipuh consisting of 8 classes. While the study sample was taken by purposive random sampling technique, derived class X IPA 2 with the number of students 28 people as samples. Qualitative research procedures according are as follows [7]: define the focus of research, collect data, process the data, analyzing data, and presenting data.

The research method used in obtaining the data by using non-test. In the non-test technique is used sheets prior knowledge learners questionnaire captured data is data questionnaire prior knowledge catastrophic volcanic eruptions as a data collection to determine the level of knowledge of students. Data analysis techniques divided into two. (A) qualitative data analysis techniques. The results of the questionnaire research quality assessment instruments catastrophic volcanic eruptions knowledge is a form of qualitative data. Qualitative data were categorized in the form of value, namely, SB (Very Good), B (Good), C (Enough), K (Less) [8]. (B) quantitative data analysis techniques in the form of value categories are converted into quantitative data. The quantitative data from the questionnaire scores quality assessment instrument in the form of assessment, namely SB: 4, B: 3, C: 2 K: 1.

Analysis of scores can be done by dividing the score obtained with the ideal score is then multiplied 100%. So it can be expressed in the equation:

$$P = \frac{A}{B} \times 100 \% \quad (1)$$

Information:

P = Percentage

A = score obtained

B = the ideal score

Category classification of this analysis are presented in Table 1.

Table 1. Initial Knowledge Assessment Criteria Students

Interval score	Criteria
(75-100)%	Very good
(50 to 74.99)%	Well
(25 to 49.99)%	Enough
(0 to 24.99)%	Less

3. Results and Discussion

Based on the questionnaire in the scatterplot learner X class SMAN 1 Batipuh as much as 8 classes and the results of analysis of knowledge on disaster mitigation volcanoes are presented in Table 2 below.

Table 2. Analysis of learners' knowledge of disaster mitigation volcanoes

No.		analysis	Criteria
1	Before disaster strikes	55%	Very less
2	When disaster strikes	59%	Very less
3	After the disaster	70%	less

Based on the above results we can conclude learners knowledge of the volcanic eruption disaster is very low when averaged at 61.33% were categorized as very less. Based. so the eruption of Mount Merapi disaster mitigation they have never done. Although in such a state of disaster mitigation

knowledge of volcanoes is very important to know. As one of the countermeasures against disasters volcanoes.

Material analysis carried out on the material grade X semester 2 showed conformity with catastrophic material volcanoes in Table 3.

Table 3. Data analysis of the suitability of the material with material physics catastrophic volcanic eruption

NO	Basic competencies	percentage	Criteria
1	KD 3.7: motion	20%	Very less
2	KD 3.8: Newton's laws	46.66%	Very less
3	KD 3.9: Work and energy	93.33%	Very good
4	KD 3.10: momentum and impulse	93.33%	Very good
5	KD 3.11: vibration	26.66%	Very less

Based on the analysis performed on grade material grade X semester 2 was found that learning materials that can be integrated with disaster material is found in the volcanic eruptions KD 3.10 and 3.11 for the concepts of volcanoes often found in such materials.

4. Conclusion

Based on the analysis of disaster mitigation knowledge and material analysis conducted found that learners' knowledge of disaster mitigation volcanoes of 61,33% and categorized as very less physical material analysis performed on the X class 2nd semester physics obtained suitable material integrated with catastrophic volcanic eruption namely the effort and energy on material at KD 3.9 and KD momentum and impulse at 3:10 suitability of 93.33% which is considered very suitable. In accordance with the demands of the curriculum that learning materials should be implemented based on the potential of the area. Learning to integrate disaster volcano eruption is suitable carried out to schools whose territory has the potential to such disasters

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