PERCEPTION TOWARD TEACHING PERFORMANCE IN NATURAL DISASTER EDUCATION: CASE OF PRIMARY SCHOOL TEACHERS IN MERAPI VOLCANO AREA, INDONESIA

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Abstract

The present study described the implementation of natural disaster prevention education at primary school level by assessing teachers' perception toward their performance in teaching natural disaster related content. The study adopted descriptive survey design. The participants for the study were a hundred and ninety one (191) teachers from 24 purposely selected primary schools in three sub-districts near Merapi Volcano in Sleman district, Yogyakarta Special Region, Indonesia. Questionnaire instrument was used for data collection. The data were analyzed using simple frequency and percentages. The findings revealed that majority of the teachers could effectively integrate the natural disasters content to their main teaching subjects by using textbooks and modules under various kinds of teaching methods and they checked their students' understanding toward learning content on natural disasters using behavior, attitude and written tests.

Keywords: perception, teaching performance, natural disasters education, primary schools, teachers, Merapi volcano

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1. INTRODUCTION

Indonesia is a country with huge potential for natural disasters due to its location in the confluence of three major active tectonic plates (the Eurasian, Indian-Australian, and Pacific) which is supported by variations in the configuration of relief with a wet tropical climate. Natural disasters from earthquakes, tsunamis, volcanic eruptions, floods, landslides, and many others have often occurred in the country and caused people's death and damages in which one of the causes of casualties in any natural disasters is low level of preparedness of the school community and the lack of knowledge about natural disasters among people due to: i). There is no national policy on education about disaster prevention, ii). In the era of decentralization of education, the integration of the efforts of disaster risk reduction into the learning activities at schools has not been done, and iii). Only few provinces have already had a policy in local regulations on disaster management (Ministry of National Education, 2010).

Disaster risk reduction (DRR) or disaster prevention is about putting in place measures to limit the negative impacts of natural disasters, especially the frequent medium-scale disasters that continually erode the development gains of communities (AIFDR, 2012). Disaster risk reduction activities can either reduce the likelihood of a disaster that occurs or strengthen a community's ability to respond and cope with a disaster.

The importance of disaster prevention has ever been internationally emphasized by Kofi Annan, the former Secretary General of the United Nations (Strategy for a Safer World in the 21st Century: Disaster and Risk Reduction, Geneva, July 9, 1999) in which he stated:

> "We must, above all, shift from a culture of reaction to a culture of prevention. Prevention is not only more humans than cure; it is also much cheaper.... Above all, let us not forget that disaster prevention is a moral imperative, no less than reducing the risks of war."

Furthermore, the third priority of the Hyogo Framework for Action recommended nations to use knowledge, innovation and education to build a culture of safety and resilience at all levels. Disaster risk reduction education and safe school buildings are two key priority areas for action outlined in the Hyogo Framework for Action 2005-2015.

Disaster risk reduction education aims at preparing students and thereby local people to gain basic knowledge on how to recognize the early features of a natural disaster, how to

rescue themselves, their families, and the environment, and how to perform self and environment-based prevention and rehabilitation (Inayati Dewi, 2010). Through disaster risk reduction education, people learn to anticipate disasters, reduce the chance of occurrence and mitigate the impact when they do occur. For school case, disaster related subjects are most urgent and central among the many topics from school curricula to be taught to students because (i) students need to be taught about hazards and risk reduction (ii) schools are the centre for community-based disaster risk reduction, and (iii) schools should be physically protected from natural hazards.

Materials content of disaster risk reduction education that can be disseminated at schools include matters related to: i). Knowledge on disaster management and practices before (pre) disaster, when there is disaster, and after (post) disaster events, in accordance with the thinking skills and physical development of learners, and ii). Development of disaster awareness culture, based on knowledge and attitudes that cover recognition, knowledge, understanding of the types, sources and magnitude of natural hazards at school and residence; understanding of the disasters history at school; understanding of vulnerability and capacity of school; understanding of the effort in facing disasters; behavior and perception of disaster risk; and vulnerability and capacity (Ministry of National Education, 2010).

2. RECENT INDONESIAN GOVERNMENT POLICY ON DISASTER-RISK REDUCTION EDUCATION

Despite the fact that the curricula at basic education level have already included disaster content materials, due to the rise of disasters that occurred in Indonesia during 2010-2011 such as earthquake, volcano eruptions, and flood which claimed many victims, the Ministry of National Education decided to make and implement the recent special disaster risk reduction education curriculum at school levels throughout of the country. From young generation perspective, this policy is very crucial because children have the rights to be safe from disasters and also play important role in disaster risk reduction. Children need to be trained with appropriate knowledge and skills to save themselves during disasters.

Ministry of National Education, supported by United Nations Development Program (UNDP) has collaborated in the implementation of disaster risk reduction knowledge integration into school curriculum. This decision has been stipulated in a national policy

through Circular Letter of National Education Minister No. 70a/SE/MPN/2010 on Mainstreaming of Disaster Risk Reduction at School which is addressed to all Governors, Regents and Mayors throughout Indonesia, calling for the implementation of disaster management at schools level through three activities, namely: 1). empowerment of institutional role and capacity of school community; 2). DRR integration into formal school level curriculum, both intra as well as extra-curricular programs; and 3). Development of inter-stakeholder partnership and network to support DRR implementation at schools.

All the tree activities mentioned above should be done based on the strategy document of Mainstreaming Disaster Risk Reduction at Schools issued by Ministry of National Education that functions as a guide for education policy makers and managers at school level (headmaster, teachers, and school committee) in preparing the disaster risk reduction program for students in primary and secondary levels (Ministry of National Education, 2010).

The policy itself has immediate objective to make children safer during disasters and to prepare them as agents of change who may spread knowledge to larger communities especially to their own families; while the long term objective is to prepare children, as future generations, with disaster prevention, mitigation and preparedness knowledge (Bambang Indriyanto as cited by UNDP Indonesia, 2010).

The implementation of the newest disaster curricula began in the academic year of 2011/2012, especially in areas prone to natural disasters like Bengkulu, West Sumatra, Yogjakarta, Central Java, Bali, Maluku, Papua, and East Nusa Tenggara provinces. The learning materials taught in the disaster curricula cover issues of earthquake, tsunami, floods, droughts, and fires which are integrated into each appropriate school subject in primary and secondary levels such as Natural Science, Social Studies, Geography, Indonesian Language, Mathematics, and Religion (Ministry of National Education, 2010).

3. OBJECTIVES

To know how well the implementation of natural disaster prevention education at schools level is, the study aimed at describing primary school teachers' perception toward their

performance in teaching natural disaster related content in one of natural disasters prone areas in Yogyakarta Special Region, near Merapi volcano.

4. RESEARCH AREA

The study was conducted at 24 primary schools which were which were within a similar distance to Merapi volcano and belong to Sleman District of Yogyakarta Special Region.

Merapi is Indonesia's most active volcano that supports about 1.1 million inhabitants in 300 villages above 200 meters and lies approximately 30 km north from Yogyakarta city (Thouret et al, 2000). It erupts on average every 5-10 years and is feared for its deadly pyroclastic flows. The name "Merapi" from old Javanese language means "the one making fire".

Historically, at least 70 people were killed when Merapi volcano erupted in 1994 after its lava dome collapsed. The volcano killed an estimated 1.300 people in 1930. It also erupted in 2006 when it belched hot clouds, emitted glowing lava and showered its areas with dust rains (Antara, 2010). At that time, Indonesian officials evacuated 11,000 villagers from around Mount Merapi volcano, as lava and scalding clouds of gas poured down its upper slopes (The Guardian, 2006). About 339 people were killed when the volcano erupted in 2010.

The schools involving in the study were located in Cangkringan, Pakem, and Turi sub-districts that were determined as highest risk areas according to the risk map of Merapi volcano.

Cangkringan is located in north-east of Sleman district capital city. The distance from Cangkringan sub-district capital city to Sleman district capital city is 25 kilometers. Cangkringan sub-district capital city is situated in 7.66406’ LS and 110.46143' BT. It has total area of 4.799 Ha. During 2010 Merapi volcano eruption, the number of population in this sub-district reached 4.492 with 1,116 included in the risk prone group (Antara, 2010).

Pakem is located in the highlands on the slopes of Merapi volcano, in the north of Sleman district capital city. The distance from Pakem sub-district capital city to Sleman district capital city is 14 kilometers. It is situated in 77.66708 LS and 110.42011' BT with the total area of 4384.04 Ha. During 2010 Merapi volcano eruption, Pakem had a population of 6.871

with 2.102 people included in the risk prone group and with a capacity of accommodating 6.900 refugees (Antara, 2010).

Turi is the northernmost sub-district in Sleman district, directly adjacent with Magelang district, Central Java. The distance from Turi sub-district capital city to Sleman district capital city is only kilometers. During 2010 Merapi volcano eruption, Turi had 2.218 villagers with 527 people grouped in the risk prone area and a barrack capacity of accommodating 2.400 refugees (Antara, 2010).

5. METHOD

5.1. Sampling

The research participants in this study were 191 teachers in the 24 purposely selected primary schools. They were 112 (58.64%) classroom teachers and 79 (41.36%) specialized teachers in all grades (I to VI) respectively. The specialized teachers were those who taught a single subject matter such as Religion, Sport, Art, and English. Other demographics characteristics of the participants, with additional basic information were provided in Table 1.

Characteristics (N=191)		**%**
Gender	Male	31.94
	Female	68.06
Age	Less than 31	18.32
	31-40	12.56
	41-50	36.13
	51-65	31.41
	Not identified	1.57
Education background	Diploma	23.56
	Bachelor	66.50
	Not identified	9.95
Teaching experience	Less than 4 years	10.47
	4-10 years	26.70
	11-20 years	12.56
	More than 20 years	49.21
	Not identified	1.05

Table 1: Characteristics of all teacher participants

5.2 Instrument

Questionnaire that included the personal data of respondents and self-assessment toward teaching performance in natural disaster education was used in this study. The questionnaire consisted of 10 items in 5 point Likert Scale from strongly agree (SA), agree (A), disagree (D), to strongly disagree (SD) followed by free reasons for each item.

5.3 Procedure

All teacher participants were given self-assessment questionnaire along with an explanatory paper. They were given a week to complete the questionnaire and 191 teachers returned it during July 2012.

5.4 Analysis

Descriptive statistics were employed to analyze the data in the form of percentage based on five categories. The thematic analysis was performed to describe the teachers' reasons presented with a pie-chart.

6. RESULT AND DISCUSSION

The following table described the distribution of the teacher participants' responses in the questionnaires.

ITEMS	RESPONSE				
	SA %	A (%)	D (%)	SD (%)	NA (%)
1. I use textbooks or modules to teach children about natural disasters	11.52	57.60	25.13	2.62	3.14
2. I would rather teach about natural disasters alone than integrate it to the main subject such as natural science and social science	6.81	29.32	56.02	1.57	6.28
3. I have ever taught about earthquake and volcanic eruption to my students	25.13	64.40	4.71	1.05	4.71

4. I never teach about flood and landslides to my students	1.57	12.04	58.11	24.08	4.19
5. I only use chalk and talk when teaching about natural disasters	1.05	13.09	69.11	12.04	4.71
6. My knowledge about natural disaster prevention is still limited	8.38	74.87	10.10	2.10	3.66
7. I can effectively integrate the natural disaster content to my teaching subjects	7.33	64.40	21.10	1.05	5.23
8. I use media for teaching students about natural disasters	15.18	64.40	6.28	1.05	13.09
9. I check the students' understanding on natural disasters they have learnt	13.09	60.73	4.19	1.05	20.94
10. My students have motivation to learn about natural disaster and prevention	8.38	87.43	2.62	1.57	0

Table 2: Distribution of Teachers' Responses

Majority of the teachers (**69.12%**) used textbooks and modules to teach the natural disaster content and 27.75% teachers admitted that they did not use textbooks and modules. The textbooks or modules commonly used by teachers were mainly distributed by the central government and some nongovernmental organizations like Muhammadiyah Disaster Mitigation Centre in Yogyakarta City.

Many teachers (57.59%) prefer teaching natural disaster content in an integrated manner together with the main teaching subject such as Science, Social Studies, Religion, and Sport. This decision was in line with the government policy that stated: "the introduction of natural disaster-related knowledge should be done by infusing it to the main teaching subjects effectively using the appropriate method". There were 36.13% teachers who taught natural disaster content separately from the main teaching subject.

Majority of the teachers (**89.53%**) had ever introduced issues dealing with earthquake and volcano eruptions to the students with the basic reason were that children in their schools had often experienced earthquakes and Merapi volcano eruptions. 5.76% of the teachers had not taught about those two issues. The recent natural disasters experienced by students,

according to the teachers, were 2006 earthquake, 2006 and 2010 Merapi volcano eruptions. The first natural disaster was centralized in Bantul District, Yogyakarta, but its effects were also felt by people in Merapi area. The 2010 Merapi eruption was the biggest eruption during the last five year that caused at least 449 deaths and serious damage of infrastructure. At that time, almost all people in Merapi Volcano area were evacuated. In addition, most of the teachers (82.19%) also had already taught the students about flood and landslides. Only 13.61% of the teachers had not ever taught about these two issues to the students.

In relation to teaching method, majority of the teachers (81.15%) admitted that they did not only use chalk and talk method when explaining learning materials about natural disasters. 14.14% of the teachers still used chalk and talk method due to lack of teaching media because schools did not provide sufficient teaching media related to natural disasters and teachers did not have plenty time to create their own teaching media.

Most popular teaching media among the teachers to introduce natural disasters-related materials were pictures, followed by maps, video/movie, and toys/puppets. The percentage of the teachers who choose the teaching media can be seen in the following figure:

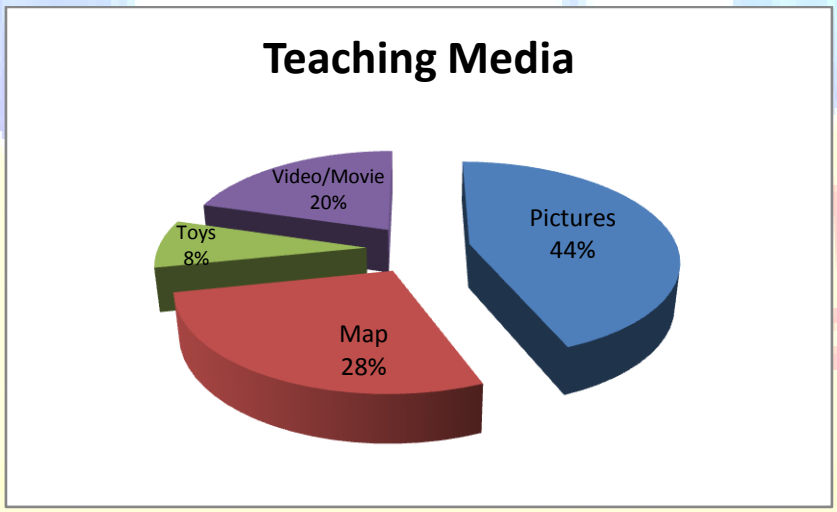

Figure 1: Popularity of teaching media among teachers

Majority of the teachers (83.25%) confessed that they still had limited knowledge about natural disasters due to limited professional development program offered by schools and regional education department office. This fact was highlighted with the evidence from the headmasters in which they mentioned that among the 24 primary schools, in most schools (37.50%) teachers seldom got training related to disaster prevention; while still in many

schools (33.33%), their teachers almost never got training and even 8.22% of the schools, their teachers never got training. It was only 29.83% of the schools, which had their teachers' often-got training on natural disaster prevention.

When rating their teaching ability, majority of the teachers (71.73%) could effectively integrate the natural disasters content to their main teaching subjects; while 6.28% of the teachers confessed that they still got difficulty in doing it. In relation to assessment, most of the teachers (73.82%) checked their students' understanding toward learning content on natural disasters; while 22.15% of the teachers admitted that they did not make any evaluation. When checking the students' understanding toward the materials they have learnt, the teachers used behavior test, attitude test, and written test.

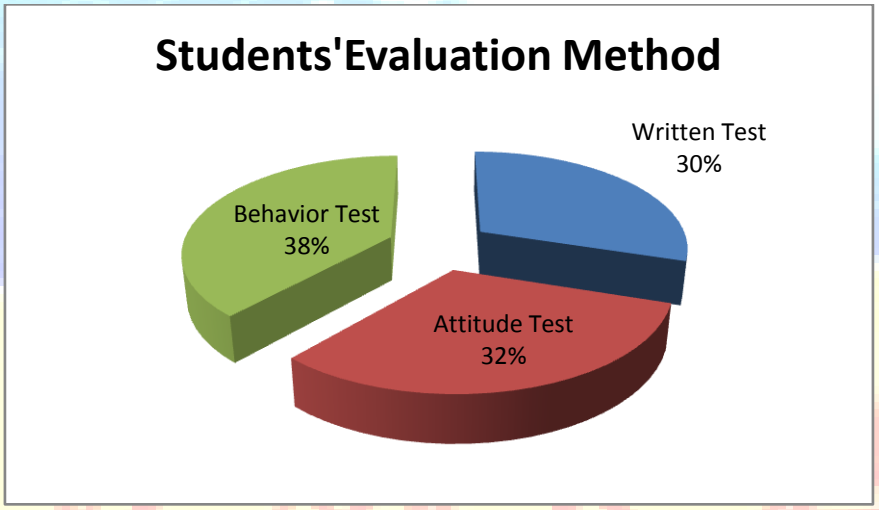

Figure 2: Teaching evaluation method used by teachers

Almost all the teachers (95.81%) stated that their students had motivation to learn about natural disaster and prevention. When rating their students' motivation level, 33 teachers said that their students' motivation was very strong; 83 teachers stated that their students' motivation was strong; 15 teachers stated that their students' motivation was fair and only 1 teacher admitted that their students' motivation was low.

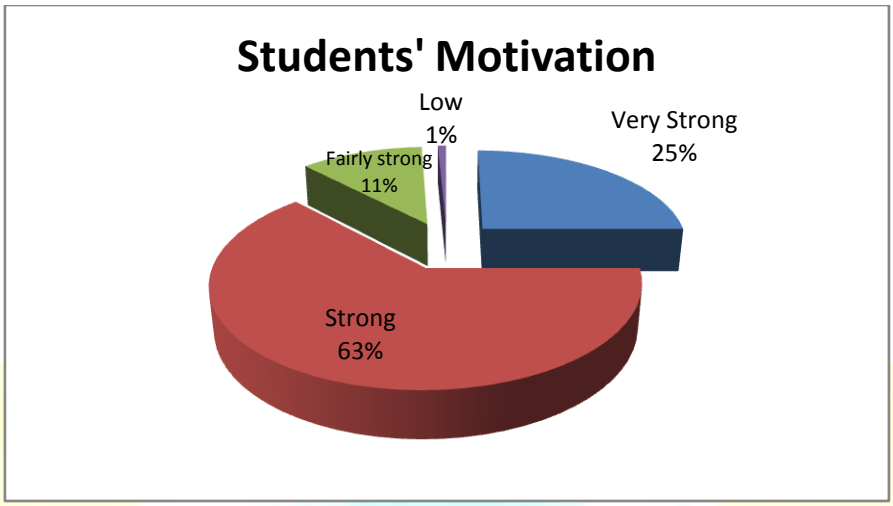

Figure 3: Students' motivation in learning natural disaster-related content

7. CONCLUSIONS

The study reported that most of the teachers in Merapi volcano area could effectively integrate the natural disasters content to their main teaching subjects by using textbooks and modules and various kind of teaching methods and they checked their students' understanding toward learning content on natural disasters using behavior, attitude and written tests. In addition, majority of the students, as assessed by their teachers, had strong motivation to learn natural disaster-related content materials.

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