Methodological Issues in Exploring the Experiences and Perceptions of Primary School Students around Merapi Volcano, Indonesia

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This paper explains the methodological issues of data collection activity which was conducted for a larger study on children's risk perception and experience of living around volcanic prone area. The data collection activity was carried out on July-August 2008 with the 5th and 6th grade students of three closest primary schools to the peak of Merapi volcano, Indonesia (n=94). It consists of several structured activities at school, including: (1) thematic drawing, (2) questionnaires, (3) mapping, (4) story telling, and (5) observation. The fieldwork process will be explained in detail in this paper, followed by examination of applicability and limitations of the methods. The lessons learned from this study are expected to be a valuable input for future research studies which involve children.

Key Words *: methodology, children, volcano, Indonesia*

1. Introduction

Since children are among the most of victims in disasters, they often considered as vulnerable. However, recently there are many studies which have shown that children also have their own potential capacity to cope with disasters. Thus, children should be more involved in the efforts of disaster reduction. This paper explains the methodological issues of data collection activity which was conducted for a larger study on children's risk perception and experience of living around volcanic prone area. In many aspects, children are different from adults. Therefore, a special approach to study about children needs to be carried out. This study aims to approach and listen to children in order to understand their world as an initial step to investigate their needs in the context of risk communication.

2. Fieldwork with Primary School Students

An over-reliance on one type of data collection method in research can lead to biases. Using mix methods (quantitative and qualitative approach) potentially provides new insights and understandings into children's worlds and the issues that affect them on a day-to-day basis (Hemming, 2008). This study employs mix methods to elicit children's perception and to collect information about their experiences, including: (1) thematic drawing, (2) questionnaires, (3) mapping, (4) story telling, and (5) observation. The first four activities were systematically arranged and termed as a set of workshop. It was designed to acquire reliable data, meet time & resource constraints, enabled two-way communications to increase trust and understanding, break the gaps between researcher and participants, interest and engage children actively in the whole workshop. The reasons of each method to be selected in this study, which determined by data requirement, are summarized in Table 1.

The field work was carried out in three closest schools to Merapi in Sleman District, Yogyakarta Province, based on information from the Yogyakarta Province Education Department. The last Merapi eruption occurred in 2006. When carrying out studies about children, it is critical to distinguish the groups of age considering their biological, cognitive and emotional development differences (Dashiff, 2000). In this study, students of the 5th and 6th grades were chosen as the participants. Before entering the field, the draft of workshop instruments were pre-tested to children with similar demographic characteristics as the real workshop participants, considering that the instruments have never been tested before, particularly in a set of workshop with children aged 10-14 years old.

No	Method	Data Requirement
1	Thematic drawing	a. Issues among children around Merapi b. Children's feelings about living in their village
2	Mapping	a. Children's spaces and daily activities b. Children's perception on the risks within their daily activities c. Social and cultural background
3	Interview following thematic drawing and mapping	a. Children's interpretation of their data b. Deeper explanation regarding to their data
4	Questionnaire	a. Quantitative data related to risk perception and disaster experience b. Other basic information about children as participants
5	Observation	a. GPS coordinate of children's houses b. Surrounding environment of children's spaces

Table 1. Data collection methods and data requirements

Finally a revision was completed through discussions with facilitators based on feedbacks from the workshop instrument pre-testing. The objectives of the instrument pre- testing are (1) to assess whether there are some parts of the instrument that should be enhanced, (2) to train the facilitators, and (3) to simulate the time required for the whole process.

a. Workshop setting

In this section, technical and operational aspects of workshop

are discussed to highlight the important strategies of communicating with children through workshop. There were seven facilitators in total who ran this workshop. It required approvals from school administration for conducting workshop at school, concerning the duration, schedule of classes, schedule of children after school, and available space. One school sometimes has different preferences or conditions from another. Several conditions of workshop setting and the implications are discussed as follows.

(i) Group setting

Participants were divided into small groups (4-7 children in one group) to enable a more intense communication between facilitators and participants. Each facilitator was responsible for one group from the beginning of the workshop until the end. Based on related literature and what has been learned from workshop instrument pre-testing, it is better to group children with the same or similar age (Dashiff, 2000), expecting the same speed and good interaction between participants. Since the participants' ages of this study vary although they all were enrolled in grade 5 and 6, each group was set to consist of homogenous participants in terms of age and gender. The number of participants in a group was not problematic, because intensive communication was able to be built, just when the larger the group (e.g. 7 children), the longer time was needed to accomplish all the tasks. From the subjective point of views of facilitators, the combination of gender between facilitator and participants can be an important issue to consider when conducting a workshop. Though not always generalizable, a male facilitator tends to have more difficulty to communicate with a group of female children, especially in the beginning of the workshop, because the female children turned to be shy and harder to express their views.

(ii) Teacher's existence

Before the workshop, the purpose of study and the form of workshop were explained to the headmasters and some teachers to build understanding and trust between teacher and researcher. The headmasters and teachers responded positively and gave full responsibilities to the researcher during the workshop. Most of the cases, facilitators were the only adults there and students had more privacy. When some teachers checked the ongoing workshop, which was a rare case, a little distraction happened to the facilitator and participants, due to some comments and conversation made by the facilitator and teacher. Some children became worried whether the drawing and questionnaire would be submitted to the teachers.

(iii) Time setting

There were two kinds of time setting in this workshop: school hour and after-school hour. One school administration preferred the workshop to be conducted after school, in order not to disturb school program. Students were encouraged by the headmaster to participate, but the decision was left up to the children. In this case, children seemed to act more freely with the facilitators and recognized that the workshop was not a part of school's assignment. However the time was more limited for more interaction after the workshop, since it started in the afternoon, and the researcher was time-pressured to consider the children's home's distance and safety matters. Another two school administrations preferred the workshop to be conducted during school time, as they considered this workshop as part of education. In this case children were given explanations to emphasize that the workshop's products will not be shown and assessed by teachers for their grades.

(iv) Room setting

As was learnt from workshop instrument pre-testing, the setting of room could impact the process of workshop. Two points are reviewed briefly as follows. The first point is that the groups should not be set in the same room, or at least some distant space should be given to avoid distraction between groups. In one school, where the workshop was conducted after-school hour, each group managed to have its own space in one classroom. In the other schools, some groups were joined together in one classroom or set outdoor. One of the merits of conducting a workshop at school is the availability of tables and chairs to set the space to distinguish one group from another. With an appropriate distance between groups, distractions could be minimized. The second point is the position of facilitator in a group. A child often needs his/her own space first to do the tasks, such as drawing, before he/she showed it to the facilitator and talked about the drawing.

b. Workshop process

In each school, the whole workshop with children took about almost five to six hours. Considering children's power of concentration and school's schedule, the activities were divided into two days. The whole workshop data and process were recorded on field notes by the facilitator. After workshop sessions ended in each day, the field notes were all reported and elaborated in a debriefing session for facilitators. The flow of the workshop process including the average time spent in each activity is shown in Table 2, and the images of the workshop with the students are illustrated in Figure 1.

First Day		**Duration**
1	Introduction of activities and purpose, ice breaking game	30 mins
2	Thematic drawing & interview about the drawing	55 mins
3	Filling in the Questionnaires	35 mins
4	Free time (break for participants and recheck data for facilitators, interaction between facilitators and participants)	20 mins
Total		**2 hours 20 mins**
Second Day		**Duration**
1	Explanation of activities and purpose, games	20 mins
2	Mapping & interview about the map	40 mins
3	Break, explanation about the next activity	10 mins
4	Story telling by children about experience of 2006 volcanic crisis	60 mins
5	Free time (recheck data, interaction between facilitators and participants)	20 mins
Total		**2 hours 30 mins**

Table 2. The flow of the whole workshop process

Figure 1. The workshop activity with primary school students

(i) Thematic Drawing

Drawing, as a means of gaining further insight into the ways participants interpret and understand their world or environment, has been employed by researchers from various fields, such as health studies (Darbyshire et al, 2005; Amsden & VanWynsberghe, 2005), anthropology (Mitchell, 2006), geography (Hemming, 2008; Esley, 2004), and disaster studies (Babugura, 2008). It is known as fun, child-friendly, enjoyable, and non-intimidating. It gives children a large ownership of the exercise, and minimizes power imbalances between researcher and children. Thematic drawing was set to be the first activity to start the data collection to trigger children to engage in the whole workshop. The objective of this thematic drawing activity is to investigate issues among children about the problems in the village and about what children enjoy from living in the village. The tasks given for this session were to draw things that make them happy and unhappy to live in their villages. Intentionally the instructions were kept in broad meaning. The word related to volcanic hazard, which is the key word of this research, was not mentioned before this session ended.

After all of them have finished the drawing, the facilitator interviewed them based on their drawings, including the reasons. It is found that not every child likes to express his/her mind through drawing, but instead, by writing or talking. In that case, the child was also allowed to write down his/her thoughts down or talk to the facilitator directly.

(ii) Mapping

The objective of this activity is to investigate the participant's daily activities spatially and their perception of volcanic risks within the area. At first, the facilitator explained the objective of the activity and further gave the task to make a map of the area where they spend their daily activities or some other important places where they used to go. Drawing the map of their daily activities seemed to be easier for children to do than the previous thematic drawing. This is probably because mapping activities only required their recalling ability about their activities and spatial cognition, while the thematic drawing required also their judgement or perception about things. Studies have shown that children as young as four years from various cultures have mapping abilities including the perceptual and scale interpretation abilities to read and understand simple maps (Blades et al., 1998; Blaut et al., 2003 cited at Darbyshire et al, 2005).

(iii) Questionnaire

The questionnaire sheets were distributed to all participants after the thematic drawing session finished. In each group, the facilitator guided them to fill in the questionnaires. Older children tend to prefer to fill in the questionnaire by themselves and to ask when they could not understand the instruction. Facilitators read out loud each question for younger children, and they answered together after the question. The role of the facilitator was important particularly in this session, to ensure participants understand the instructions correctly. The groups of variables included in the questionnaire and some references that supported the base of choosing the variables are shown in Table 3.

Group of Variables	References
Children's attributes/ demographic characteristics	Riley, 1951; Dashiff, 2000; Ronan et al., 2008; Peek, 2008
Disaster education participation	Ronan and Johnston, 2001; Gregg et al., 2004; Finnis et al., 2004; Ronan et al., 2008
Disaster experience	Gregg et al., 2004; Finnis et al., 2004; Lindell and Perry, 2004
Hazard awareness and risk perception	Ronan & Johnston, 2001; Gregg et al., 2004; Finnis et al., 2004; Lindell and Perry, 2004
Hazard knowledge	Gregg et al., 2004

Table 3. Group of variables in the questionnaire

(iv) Story telling

The purpose of this activity is to examine children's experience of 2006 volcanic crisis in detail to check the consistency with questionnaire data related to past volcanic crisis experience. It was also employed to investigate the vulnerability and capacity of children in the response and recovery of the disaster. The earlier plan of giving a task to students to write down freely about their experience was apparently not applicable to every students. Moreover, the time allocated for this session was too short for children to think about what to write. In the end, we made some adjustments to this method, where each facilitator should try to recognize the type of methods applicable for students of their group.

There were three methods applied in the end to explore the students' 2006 volcanic crisis experience: semi-structured interview, structured written story telling, and unstructured written story telling. In the structured written story telling, the facilitators controlled what students should write about their experiences, by asking several questions which were prepared beforehand. As for the unstructured written story telling, children had more freedom to write according to their own style. Therefore, all groups were treated differently in this session, which became the limitation of this methodology.

(v) Observation

Before the workshop, brief observation of school area's environment was conducted to have clear image of physical conditions of the area, and to check whether the workshop instruments were relevant with real condition. After the workshop in each school, observation to each participant's house was carried out to identify the locations of all houses of participants by using GIS and to observe the surrounding

environments. The challenge faced in this activity was that in the study area every house does not have any address (e.g. street names, house number, post-box). However, since during the workshop communication with participants was established well, they were willing to assist the facilitators to identify the location of their houses.

3. Value and Limitations of the Methodology

The fact that a set of structured activities formed as workshop which mainly consists of thematic drawing, questionnaire filling, mapping, and story telling has never carried out in other research studies made this study original. It was proven applicable to be carried out with children, particularly elementary school students of grade 5 to 6. The activities allowed children's voices to be heard and recorded in various forms, and at the same time valuable to researcher regarding the main objectives of this study. With limited time and resources, rich amount of information could be obtained from the workshop and observation, in the form of both qualitative and quantitative data. Data from one session with that from another session were cross-checked or analyzed complementary to each other. Images produced by participants were found to correspond well to and thus a good illustration of the real situation in the study area. Last but not least, the processes of the workshops and the media used in the workshop and observations have been examined and basically found to enable facilitators and participants to achieve two-way communication. It was also shown that children did so with fun and enjoyed such educative activities.

Overall methodology has managed to achieve the objectives of this study. However, there are some minor limitations with regards to data that would be used as additional information for this study: (1) in the questionnaire session, participants faced difficulties to recall when and who held disaster education program that they had participated in. (2) the limited time for workshop instrument pre-testing, thus the story telling activity was not tested to children. Otherwise, the method of story telling could have been improved. In the real workshop, there were some differences of technical methods of story telling from one group to another.

It is hard to generalize on the results due to the limited samples of participants. If we extend and carry our studies with more participants, we may obtain findings not necessarily consistent with the results of this study. The operation of this workshop should also be improved. For instance comments and interpretations by the participants on our findings and interpretations would also provide a basis for further interactive co-learning with children about disaster reduction. This type of communicative study should set such a goal and continue to accumulate knowledge and experience.

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