

Enhancing Disaster Preparedness through Participatory Activities in a School in Malaysia

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Abstract

Children are particularly vulnerable to the effects of natural disasters. The purpose of this study was to assess the effect of flood slide presentation and a child-friendly participatory approach using the HVCA (Hazard, Vulnerability and Capacity) Assessment adapted from Plan International Child-Centred Disaster Risk Reduction on students' preparedness for flood. This study used instruction on flood knowledge and preparedness coupled with participatory teaching sessions on DRR. Qualitative information was gathered using classroom observations and interviews. The findings indicated that school curriculum did not cover disaster awareness and these students in this study felt more prepared for flood after an intervention that consisted of flood knowledge and preparedness slide presentation and HVCA participatory sessions.

Background

Over the last 5 years in Malaysia, various natural disasters have occurred in our country such as floods, landslides and even the more recent earthquake. From 15 December 2014 to 3 January 2015, Malaysia has experienced from what is said to be the 'worst flood in decades'. The flood occurred mostly in the East Coast and northern region of Peninsular Malaysia such Kedah, Johor, Kelantan, Negeri Sembilan, Perlis, Perak, Pahang, Sabah and Sarawak. Over 200,000 of people has been evacuated from their homes, 21 killed and repair to damages is expected to sum up to RM560 million (Agence et al., 2014). Going back a few months ago, on 5 June 2015, a 6.0 moment magnitude earthquake had struck Ranau, Sabah, which is the strongest earthquake Malaysia has ever faced since 1976. The earthquake has resulted in damages to buildings and infrastructure along with geological changes and landslides. About 137 climbers were left stranded with 18 deaths. Hence, it is imperative that youths of today should be empowered through education with the knowledge to be able to cope with these adverse effects of natural disasters. This is necessary in order to lower the youth's vulnerability and improve their resiliency during these events. Education has an important role to play to brace a community for incoming disasters. Through education, people will be well-versed in what to expect when a disaster strikes, how to prepare, what to do and how to cope in such situations (De Lavega, 2004).

In Malaysia, we tend to have mindset of ‘taking action only after something bad has happened’. Other than that, most of us have been living under the assumption that disaster will never occur around the area that we live. Disaster reduction risk (DRR) knowledge is not integrated in Earth Sciences, Environmental Sciences or Geography syllabuses in Malaysian schools although there are many initiatives by the government, research institutes and non-governmental agencies such as Mercy Malaysia to promote DRR through education. DRR and emergency-related drills are conducted as extra-curricular activities that involve the participation of the Boy Scouts, police, fire brigade and school officials. In 2008, the Ministry of Education formally developed policies on School Emergency Preparedness and Response Programs. In 2010, The Emergency Preparedness Handbook was distributed to 5.4 million school children. In the same year, the Smart Support Team (SST) was deployed. The SST is a formal support group who seek to meet the educational and psychological needs of children who were traumatized by disasters. The mandate to expand these programs to respond to disasters was given to the National Security Council, Department of Social Welfare, Malaysian Red Crescent and the Malaysian Medical Relief Society (MERCY Malaysia). In the same year, SST leaders from the districts were trained together with 400 volunteers on Basic Mission Training (BMT) by MERCY Malaysia to prepare them for humanitarian relief missions (Wan, 2007).

Low risk perception and low level of disaster awareness and preparedness knowledge increase communities’ vulnerability to natural hazards especially for communities living in remote areas who do not have easy access to transportation and communication. Habibah (2012) used videos on landslides to educate teachers in one of the indigenous (*orang asli*) public schools in Perak, Malaysia. The findings revealed videos and televisions are good

DRR educational tools and reported that the teachers has little knowledge on how landslide occurs and recommended that teachers find most effective ways to educate their students on landslides and safety. However, this study was limited to only one *orang asli* public school therefore further research on better approach to reach more participants in educating communities and school children in remote areas is needed. While research indicates that DRR education is important for students and teachers but there is little research carried out about what type of educational materials and tools would be most effective for various demographic groups (Duong, 2009).

Children are considered one of the most treasured classes during a disaster (Twigg, 2004). Factor such as their age affects their overall vulnerability and shapes their ability and capability to cope and survive in a disastrous environment. School children are an important part of the overall community disaster awareness and preparedness process. These students are future decision makers, who may encounter a significant disaster event in their lifetime, and they need be educated on how to prepare for disaster. Educational intervention among school children may help increase awareness and preparedness of parents and subsequently the local community (Gulay, 2010).

In the Camotes Islands of Indonesia, the children cooperated to recover degraded mangrove ecosystems by bringing together teams to assemble and replant tree saplings in sanctuaries through the installation of

protective barriers. The participation of these children has captivated community members and thrived in marshalling constituencies to provide the greater protection of their ecosystem.

DRR educational lessons seem to be most effective when children engage in hands-on, experiential learning. For example, school children in Andhra Pradesh, India, which is periodically affected by severe cyclones, learn how to treat injuries by bandaging fake wounds and rescue their friends from the beach in disaster drills. Some children in Sri Lanka participate in a school mapping exercise to identify safe evacuation routes. (Nikku et al. 2008). After several hurricanes and earthquakes struck El Salvador, Plan International encouraged the establishment of children's DRR clubs to learn about DRR risks and to protect their friends when disaster strikes. In Jamaica, schools children participated in cooking competition that used only food that would be available after a disaster (Peek, 2008).

Purpose of the study

Findings from previous study (Mitchel et. al, 2008) demonstrate a need for children participation in disaster risk reduction. Research on children in emergencies is lacking in Malaysia and their potential value on working with children in reducing disaster risk and helping to shape DRR planning has been overlooked by researchers and policy makers in Malaysia. This paper aimed to examine the level of disaster preparedness to assess the effect of flood slide presentation and a child-friendly participatory approach using the HVCA (Hazard, Vulnerability and Capacity) Assessment adapted from Plan International Child-Centred Disaster Risk Reduction on students' preparedness for flood.

Methodology

The instructional sessions of the intervention started with flood content slide presentation contained animations, illustrations, images and maps to teach basic flood knowledge, to explain the flood phenomenon occurring globally and in Malaysia, why it is important to prepare for flood and how to prepare for flood disaster. A hydrology researcher who is also a lecturer from the Department of Civil Engineering at UTAR visited the students to conduct the slide presentation. The presentation lasted for 40 minutes. Qualitative data that were collected as part of the study were open-ended question responses, classroom observation notes and interviews.

In addition to slide presentation of flood content knowledge, a child-friendly participatory approach using the HVCA (Hazard, Vulnerability and Capacity) Assessment adapted from Plan International Child-Centred Disaster Risk Reduction was adopted. HVCA is an analysis that uses various participatory tools in an effort to better understand the level of people's vulnerability along with capacity to combat natural hazards at the grass-roots level. Thus, it is an essential part of disaster preparedness and can add to the creation of community-based disaster preparedness programmes at the rural and urban areas. Children were guided by a set of questions for discussion to introduce student the concept of hazard, identify vulnerability, capacity, and risk in their communities as part of the implementation of this child-led DRR project. The

research was conducted through risk mapping, small group scenario discussion and brainstorming sessions with participants of 30 school students from Sekolah Agama Darun Naim, Kuala Krau. Each student group representatives were appointed to share their experiences, insights and recommendations. Sessions were recorded through notes.

The Malaysia Civil Defence Department, or also known as Jabatan Pertahanan Awam Malaysia (JPAM) has provided an excellent user-friendly disaster preparedness pamphlet which outlined household stockpile checklist, emergency contact numbers, disaster response actions and survival tips were distributed to the students as educational materials



Figure 2: The school we visited



Figure 3: A chair on the roof of a classroom which served indicator of the flood level during the recent flood



Figure 4: Ceiling fans that were damaged during the flood

Results and Discussion

Slide presentation of flood knowledge

The students that were interviewed said that no disaster preparedness awareness programme/activities have been carried out after the 2014 flood that hit that area during and outside school time. Disaster education is not included in any subjects in the Malaysian school syllabus. Students demonstrated a great enthusiasm in learning new facts and information about flood and were eager to be intellectually engaged on the subject during the slide presentation. From interview and classroom observations, the presentation

increased flood preparedness and help them strengthen flood knowledge. During the interview, students expressed their gratitude for learning new knowledge about flood and dangers related to it from the slide presentation and a heightened sense of anxieties in students as they are now more informed about the dangers of floods and better prepared for them.



Figure 5: Part of the contents of slide presentation



Figure 6: Students who participated in the intervention



Figure 8: Lecturers with student helpers and members from Tzu Chi Association who helped us



HVCA child-led activities

3.1 Body Map

This activity was the first activity conducted in the school. The purpose of this activity is to help the students to process their feelings after disaster. At the start of this activity, the students were divided to male and female groups specifically. The groups were given large flip chart papers and marker pens for the activity. A silhouette of a student were drawn on the single piece of paper. From there, the body map and body parts drawn were used to analyze and document the students' perspectives based on their own individual experience during the flood. Main questions related to the activity included:

- Head: How has the disaster influenced the way they think?
- Eyes: What have they observed or seen throughout the disaster period?
- Ears: What have heard during the disaster period? How has it affected the way people their age listen to adults?
- Mouth: How has the disaster affected the communication among people? Or the way adult communicate with younger ones and vice versa?
- Main body: How has the disaster affected their health?
- Heart: What emotions have they experienced during the disaster? Has it affected their feelings toward other people?
- Arms and hands: What activity have they been involved in during the disaster?
- Legs and feet: What changes are there in places where people in general can or cannot go?

The students were encouraged to write or draw out their answers on the flip-chart papers given. From discussions with the students during body map activity, there were no signs of distressed in the students 2 years after disaster. Further studies are recommended for comprehensive assessment of emotional problems as well as the identification of risk and related coping mechanism of children and their families immediately after disaster. With more research data available about the effects of natural disasters on children, whether girls experienced more emotional distress than boys and how friends and family help children cope after disaster, there is greater hope that children’s level of preparedness can be improved and their voice be heard in DRR planning (Masten et al., 2012).



Figure 9: Instructions given to a group for body map



Figure 10: Student groups discussing about body map

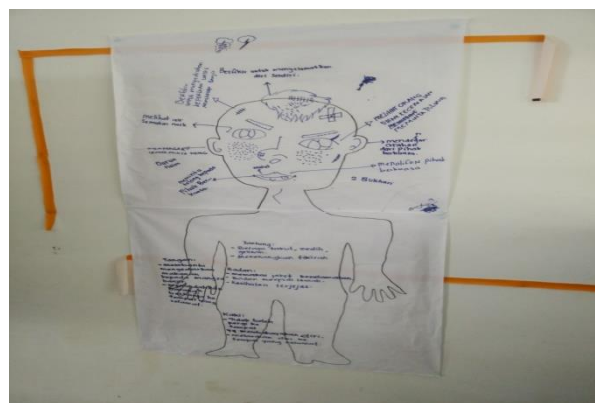


Figure 11: End result of one of the body maps

3.2 Community Map

In this group activity students were required to draw out a map of their community based on their own perspectives. Important landmarks and locations such as residential areas, hospitals, schools and government buildings etc were identified. Through this community map, the students were taught on defining and identifying vulnerability, capacity, risk and risk reduction.

Each group of students were given large flip-chart papers and markers. One student in the group was tasked to draw the map on the flip-chart paper with the indication of the north direction. Another student was asked to identify and draw roads, landmarks, buildings, etc. The third student from the group identified and drew out the government buildings within the community and schools. The fourth student were given task to add more contexts to the community map such as rivers, roads, crop fields, public facilities, etc.

After the community map has been drawn, each group were assigned to identify and list out the vulnerability and risk that can be found within the map. From there, the students discussed and brainstorm on how they can minimize and/or mitigate the risk along with how they can convert the vulnerabilities identified into capacities.

Majority of the participants did not know the main hazards and vulnerabilities that their community and

family members face and do not have a DRR plan. This suggests that DRR preparedness among the students is very low.

The child-led programme activities seemed to generate higher level of engagement among the students compared to slide presentation on flood and preparedness knowledge. DRR educational lessons seem to be most effective when children engage in hands-on, experiential learning. (Plan-UK, 2002). The observations from this study further highlight that active participation on DRR is more effective for understanding risk and capacity to undertake preparedness actions. The children participated in these activities gave encouraging feedback about the activities. They felt they are less fearful of flooding because they were aware flood risk and knew how to better protect themselves better after the interventions.



Figure 12: Another lecturer explaining to students about vulnerabilities.

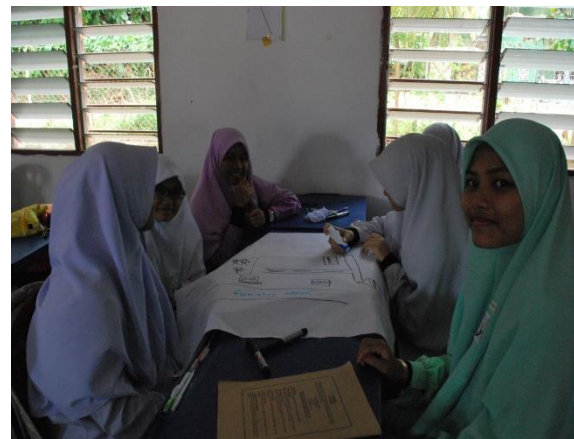


Figure 13: One of the group's illustration of what flood looked like in their community.

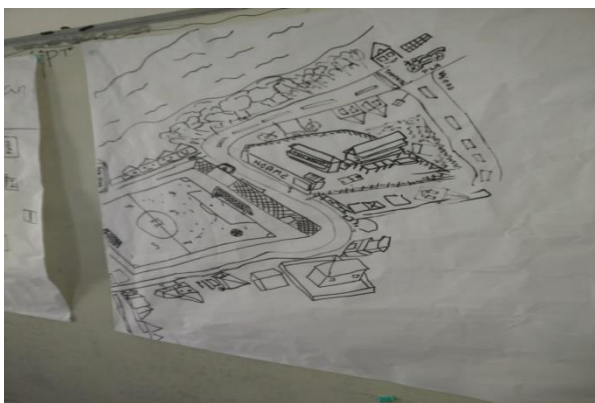


Figure 14: Students drew a community map and identified vulnerabilities and capacities in their map



Figure 15: Community map drawn by one of groups

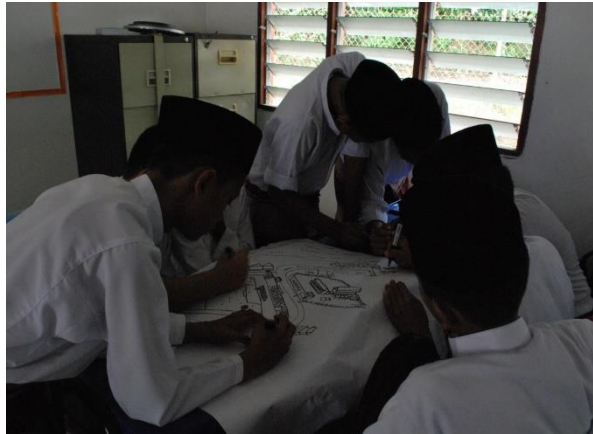


Figure 16: Groups of students constructing their community map

Conclusion

The project conducted in a school in Kuala Krai, Pahang proved that instructional intervention such as slide presentation and child-led HVCA can serve as a tool for students to appraise disaster risk in their local environment because it provides a tangible view of vulnerabilities and capacities in the facing flood hazard. Students gave positive remarks stating it increased their knowledge about flood disaster and risk reduction. Community mapping facilitates dialogue between children and adults and children who are usually excluded in from policy planning yet possess the capacity to assist in the construction of DRR planning.

Qualitative findings of the study in general demonstrate an increase in awareness of flood knowledge among the students after the interventions. In addition, the findings also indicate that the students generally feel better prepared for flood after exposure to safe behavior through the presentations and HVCA activities. The findings showed that after the interventions students were equipped with basic knowledge about the causes of flood, what happens when flood occurs, and how to be prepared for and respond during flood. By increasing the awareness and preparedness, the interventions can be said to reduce the vulnerability of the students.

Reference

DE LAVEGA, E. L. (2004). *Awareness, knowledge, and attitude about environmental education: responses from environmental specialists, high school instructors, students, and parents* (Doctoral dissertation, University of Central Florida Orlando, Florida).

Duong, K. (2009). Disaster education and training of emergency nurses in South Australia. *Australasian Emergency Nursing Journal*, 12(3), 86-92.

Gulay, H. (2010). An earthquake education program with parent participation for preschool children. *Educational Research and Reviews*, 5(10), 624.

- Habibah, L., & Jamilah, A. (2011). Landslide issues in Penang, Malaysia: Students' environmental knowledge, attitude and practice. *GEOGRAFIA OnlineTM Malaysian Journal of Society and Space*, 7, 65-72.
- Mitchell, T., Haynes, K., Hall, N., Choong, W., & Oven, K. (2008). The roles of children and youth in communicating disaster risk. *Children Youth and Environments*, 18(1), 254-279.
- Masten, A. S., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience. *Annual review of psychology*, 63, 227-257.
- Nikku, B. (2008, February). Children as actors in disaster management: Insights from a South Asia regional research study. In *International conference on building education and research, February 11-15, in Salford, UK*.
- Plan-UK (2002) Children and Disaster Risk Reduction. Plan-UK Briefing Note, <http://www.plan-uk.org/newsroom/publications/> (accessed 30 April 2017)
- Peek, L. (2008). Children and disasters: understanding vulnerability, developing capacities, and promoting resilience—an introduction. *Children Youth and Environments*, 18(1), 1-29.
- Twigg, J. (2004). *Disaster risk reduction: mitigation and preparedness in development and emergency programming*. Humanitarian Practice Network, Overseas Development Institute.
- Wan, Z. N. (2007). Age and Motives for Volunteering: From Socioemotional Selectivity Theory Perspective.