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Article

SCHOOL-COMMUNITY COLLABORATION: DISASTER PREPAREDNESS TOWARDS BUILDING RESILIENT COMMUNITIES

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ABSTRACT: The impact of disasters could not be undermined as the occurrence of which threatens national and international security at a great height. Disasters do not only disrupt daily activities but also take toll on the livelihood of individuals causing bigger implications on social and societal conditions, economic activities and progress as well as emotional and psychological impact on individuals. Being ranked as the third country in the world with high exposure to hazards, the Philippines tries to maximize resources and agents that could help in creating disaster risk reduction approaches and practices that are proactive rather than reactive. The collaboration between schools -the source of relevant knowledge and behavior formation ground, and the communities- the source of identity of individuals and groups, is seen as an effective way of promoting resilience among people. This study looks into the roles of schools and communities in reducing the risks disasters as well as how their collaboration creates linkages between and among stakeholders.

Keywords: disaster, school-community collaboration, preparedness, resilient.

1. Introduction

During the last decades, countries around the world have faced different disasters which the frequency has increased rapidly causing great damages to properties and infrastructures,taking lives of millions of people and placing the environment suceptible to greater haz-ards (Seneviratre, Baldry, & Pathirage, 2010). Disaster Risk Reduction is a prevailing trend in disaster management as the vulnerability of the world to natural hazards has increased over the years. Resilience to and recovery from disasters have been studied by various groups and governments to reduce the tolls of disasters and increase their recovery capacity. There is no single standard apporach that could be implented in relation to disaster management, however with the same goals of reducing the effects of disasters and promoting a culture of preparedness, the integration of disaster risk reduction practices into different sectors havee been considred and implemented.

Every disaster results to different scenarios or circumstances bringing into multilevel effects. Based on studies, the occurrences of disasters have increased during the last century changing the perception of people on the nature of a disaster and the region it is most prone to. In addition, the world has seen how the occurrence of a disaster results to another disaster

(Seneviratre, Baldry, & Pathirage, 2010). The need for an effective disaster management program that will address the needs of an organization, community and individual is highlighted by different international disaster management frameworks. The complexities of disaster management may be seen as a hurdle in the achievement of an effective and efficient disaster management plan. Contrary though, those complexities can become a channel of opportunities for the possibility of collaboration of networks within a system (O'Sullivan, Kuziemsky, Toal-Sullivan, & Correil, 2013). The community and school are networks that have the potential to work together in preparing for disasters and promote resiliency.

In 2006, the Hyogo Framework for Action was created which aimed to reduce losses due to disaster, strengthen resiliency and promote a "culture of prevention" through innovation, education and knowledge (Oktari, Shiwaku, Munadi, Syamsidik, & Shaw, 2015). Wisner emphasized that education, knowledge and awareness have strong potential to prevent the high stakes of losses due to natural hazards and to carry out effective and efficient response to and recover from any natural hazards that affect people from all levels (Wisner, 2006). The role of education in providing knowledge and information should be most evident when one has the capacity to perform in events when information and knowledge are needed. The toll of disaster could be greatly mitigated if people's knowledge has taught them to embed a culture of disaster prevention making them more resilient (Benadusi, 2015) . Incorporating disaster risk management is one of the most doable practices that could mitigate the adverse effects of disaster not to mention the efficiency of education as a tool that could be used in dissemenating vital knowledge and information about how people from different levels could be more prepared and resilient in times of disaster (Apronti, Osamu, Otsuki, & Kranjac-Berisavljevic, 2015) and how they can turn their vulnerability to become victims to being actors who could help in recovery and rescue

In 2006, "Disaster Risk Reduction Begins at School" was launched by the UN-ISDR together with UNESCO to promote a "culture of disaster prevention" among children. This project aims to (i) raise awareness within school communities (ii) build a culture of prevention and (iii) make school buildings safer. (Kan, 2007). Schools are not the only entity responsible for disseminating disaster education, the knowledge that schools provide must not be contained in the walls of the schools but must also involve communities and families (Oktari, Shiwaku, Munadi, Syamsidik, & Shaw, 2015) since the impact of disasters does not only leave schools devasted but also communities surrounding it. (Matsuura & Shaw, 2015). Several literatures have proved that school-community collaboration aiming for reducing the impact of disasters and building resilient communities is an effective disaster management method.

Based on the study of SEAMEO-INNOTECH, From 2003-2013, the Philippines has the highest recorded frequency of disaster and considered to have the highest vulnerability level in Southeast Asian region (2014). Manila, the capital of the Philippines has 897 barangays and 232 basic education schools (DepEd). In 2015, the city was identified as one of the "hotspots" for natural disasters given its geophysical chracteristics. 8 out of 10 cities in the world with the highest exposure to natural disasters are found in the Philippines with Manila placing 4th (NHRA, 2015). Frequent flooding and cyclones are some of the hazards that the city experiences. In the last decade, the city was not spared from the brunt of diffrent cyclones such as *Ondoy*, *Pepeng*, *Milenyo* and *Yolanda*. NCR has the third highest porportion of barangays and population affected by Ondoy and has the second highest reported death toll becaue of the devastation caused by Ondoy and Pepeng.

Schools have long standing responsibility of ushering its primary stakeholders to development and growth. However, schools are not limited to academic and cultural pedagogical premises of learning. Schools also have the capacity to build communities that can reduce impacts of hazards, withstand the brunt of disaster and enable members to become "assets"

rather than "liabilities" through proper knowledge dissemination and committed engagement with the members of the community in fully utilizing the resources which could increase the capacity of a community to recover after a disaster and promote resilience. The involvement of communities in disaster risk reduction proves to be more effective in reducing the impacts of disasters on people as well as on their livelihood and economic activities.

Schools have the capability to initiate disaster risk reduction practices which encourage the involvement of communities thereby creating linkages among and between people and organizations (Masuura & Shaw, 2015) Furthernore, knowledge development which starts at schools allow the building of resilient communities in the context of disaster management (Oktari, Shiwaku, Munadi, Syamsidik, & Shaw, 2015).

Depsite wide campaigns on disaster preparedness, a lot of people still insufficient degree of disaster preparenedness knowledge which aggrevate the effects of disasters (Cavalo & Ireland, 2014). The school system and local communities provide information and knowledge relevant to disaster management, increasing the capacity of communities in the face of disasters. Though schools and communities espouse the principle of disaster preparedness, there is less evidence in the Philippines that shows strong collaboration between schools and communities for disater preparedness. In this light,this study aims to answer the following question: 1.) What are the sources of knowledge of school and communities related to disaster preparedness ? 2) How does the knowledge of school and community promote collaboration for disaster preparednes and promotion of community resilience?;and What are the factors that inhibit school-community collaboration?

This study aims to: (i) identify the sources of disaster knowledge of schools and communities? (ii) explore the school-community collaborative practices for disaster preparedness) and (iii) identify the factors that inhbit school-community collaboration for disaster preparedness.

2. Overview of Related Literature

2.1 Role of schools in disaster management

Schools provide social welfare to the community by means of education and by being utilized into different purposes. Schools are great venues for briefings, meetings and trainings which can be helpful and provide not just to its own stakeholders but the surrounding communities as well. By being channels of knowledge and information dissemination, they become centers of disaster risk reduction education, creating a strong connection among and between communities, people and other organizations (Matsuura & Shaw, 2015). Based on studies, school-based disaster preparedness programs can effectively reduce the degree of fear among its stakeholders during geophysical events and help in cultivating effective decision-making (Mutch, 2015) which spans across and outside the school creating a possible impact on the disaster preparedness of communities nearby (Oktari, Shiwaku, Munadi, Syamsidik, & Shaw, 2015).

Aside from the physical and structural capacity of schools to promote resilience, they also serve as a hub of learning and effective knowledge on disaster preparedness through disaster education which could greatly benefit communities through the transfer of knowledge based on the disaster risk reduction education they provide (Fernandez & Shaw, 2014). Disaster risk reduction education is delivered in two different modes, formal or non-formal which aims to promote disaster resilience and knowledge at multidimensional levels through different means. Such education is not limited to school-based activities but rather encourages the

collaboration of schools and communities in designing disaster risk reduction practices fit to the needs of the community, reducing the technicalities of its nature which inhibit people from understanding the importance of disaster risk reduction (Fernandez & Shaw, 2014).

2.2 Community Disaster Risk Reduction

Addressing disaster management issues does not only concern the national government but the local communities as well. As the world tries to get through the impacts of disasters, alternative strategies are necessary to prepare communities to unexpected events that may occur and apply relevant and accurate level of knowledge on disaster preparedness and promote resilience in the local level. Any community is a deeply-linked component of local, regional and national society, and while its well-being is of significance at all scales, its significance is nevertheless highest locally. Thus direct responsibility for planning for future disasters lies primarily in and around the community ((Davies, et al., 2015). In the Philippines, the legal bases of barangay level disaster preparedness is coherent to RA 10121 also known as the Philippine Disaster Risk Reduction and Management Act of 2010. In the joint memorandum developed by the NDRRMC, DILG,DBM and CSC, the creation of Barangay Risk Reduction Management Committees (BDRRMCs) alongside Local Disaster Risk Reduction Management Offices (LDRRMOs) emphasized the role of Barangays in "mainstreaming of DRRM in all processes which principally requires the institutionalization and organization of its structures, in all levels of government nationwide, where local DRRM plans and policies will be developed, and where implementation of actions and measures pertaining to all aspects of DRRM will be initiated." In the Barangay level, a BDRRM shall be created which will initiate the disaster risk reduction management through the development, implementation and coordination of disaster risk management programs within their jurisdiction. To fulfill this mandate, barangays must organize, train and directly supervise the local emergency response teams and the accredited community disaster volunteers (ACDVs).

2.3 Complexity Theory and Disaster Preparedness

UNISDR defined disaster as "a serious disruption of the function of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources." Disasters include the vulnerability of community and its stakeholders and the relationship between the capacity of people to address disruptions and their capacity to utilize their resources due to the hazards that they are exposed to. In the turnout of events in the century, the impact of disasters has greatly affected the functions not just of a community but of a country as well. In this light disaster management has come into a bigger and new perspective and one aspect of disaster management that has received emphasis is disaster preparedness.

Disaster preparedness plans and approaches are created to determine the most essential needs to be secured during and after disasters, (Gowan, Sloan, & Kirk, 2015) reduce the risks of disasters and help communities promote resilience since disaster preparedness, resilience and disaster management are strongly interconnected (Cavalo & Ireland, 2014). The management of disaster knowledge therefore must be strongly emphasized in all phases of disaster management (Seneviratre, Baldry, & Pathirage, 2010). Members of a community have integral knowledge, networks and adaptive skills that promote resilience and mitigate

the vulnerability of the community (Bolton, Kim, & Pat, 2014) hence the impact of natural hazards could be greatly reduced if an effective collaboration of the groups and members of a community is carried out (Nolasco, Beguia, Durante, & D.Tipones, 2015).

The school is one network in a community that has the capacity to build resilience by being a center for disaster risk management through its innate function to influence and guide people's behavior, skills and values central to their development (Mutsau & Billiat, 2015). The collaboration between schools and communities for disaster preparedness entails complexities that are considered important factors in promoting resilience. The "dynamic context" which is attributed to the diverse elements in the system spans outside the boundaries of the existing system, supports collaboration in times of disasters or preparation for which, gives way to the emergence of possible opportunities to address a disaster and alternation of behavior thereby increasing the awareness of the stakeholders and promotes adaptive response which encompasses sustaonable actions (O'Sullivan, Kuziemsky, Toal-Sullivan, & Correil, 2013). Figure 1 shows dynamic networks, knowledge, interconnectedness, collaboration, awareness and adaptive response as the core themes of complexity theory. Emergence and interconnectedness are the basic principles of complexity theory which allows the changes in the nature of knowledge of communities due to resrtucturing, political influence, emerging hazards, generation of information, changes in human need and capabilities and influence of increased situational awareness (O'Sullivan, Kuziemsky, Toal-Sullivan, & Correil, 2013)

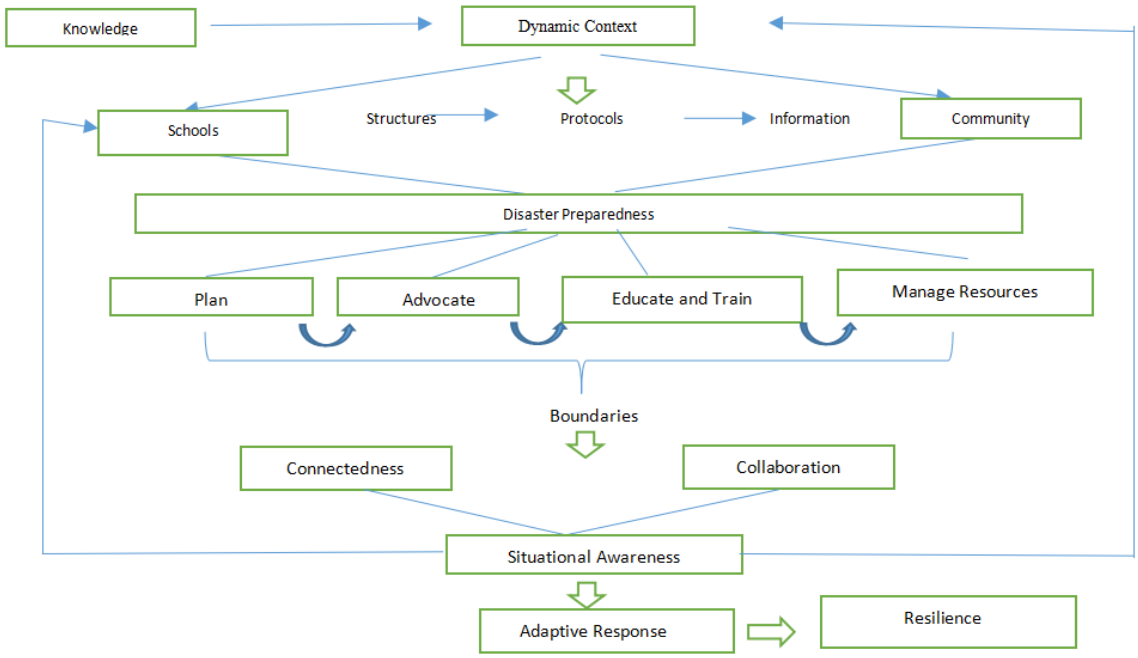


Fig.1 Conceptual Framework For School-Community Collaboration in Disaster Preparednes to Promote Resilience

2.4 Information Asymmetry: The Dynamic Context of Complexities

The phases of disaster management are highly influenced by the dynamic context present in a community hence multi-directional patterns could be observed which also affect culture and the availability of knowledge that could be transferred from one element to another or from one system to another. Specifically, the dynamic context involves expanding knowledge

and skills, social networks, emergent opportunities for collaboration, evolving relationships, lessons from previous disasters and changing attitudes with increased awareness (O'Sullivan, Kuziemsky, Toal-Sullivan, & Correil, 2013). Communities and schools are capable of self-organization but being elements of one system, they must both recognize their functions and undertake their role through a more collaborative strategy to promote resilient communities (Takeuchi, Mulyasari, & Shaw, 2011). The political priorities and structures present in both elements signify the factors that underscore the asymmetry of knowledge and information the schools and communities hold essential in preparing for disasters. Schools as main hubs of learning see disaster preparedness as a mechanism that could spare people from the brunt of disasters, reduce its risks and promote not just individual resilience but community resilience if implicit knowledge is delivered to them in the most effective way. Local communities however, see disaster preparedness as a way to mitigate the risks of disasters by adopting disaster management policies and making use of existing local knowledge that has changed over time due to the lessons learned from experiences. Thus to belie the information gap due to asymmetric knowledge, the development of strategies that promote situational awareness is crucial because it will serve as the link between institutions which identify the same goal but recognize different means to achieve it (Militello, Patterson, Bowman, & Wears, 2007)

2.5 Collaboration Opportunities through Situational Awareness

Situational awareness is defined as "the perception of the elements in the environment within a volume of time and space, comprehension of their meaning, and the projection of their status in the near future" (Endsley, 2003). In the context of disaster management, the development of situational awareness could be achieved by creating an information level framework underscoring information needs and linking relevant factors that will aid in the effective assessment of the needs of a community as well the necessary response equitable to those needs. Crucial to the development of situational awareness is the quality of information available and the method by which it is transferred to those who are affected (Seppänen & Virrantaus, 2015). Though the concept of situational awareness focuses mainly on disaster response, this tenet of complexity theory may be applied in disaster preparedness since it includes the perception of the future conditions entangled in the personal views and experiences of people and acquired knowledge pertinent to disaster management. As mentioned, the availability and forms of knowledge matter in the development of shared situational awareness of the important actors in a specific situation. Collaboration can be carried out in the development of situational awareness since tangible knowledge and clear picture of the situation guide actors in having a better understanding of the tasks that must be undertaken as well as the other appropriate planning strategies that can support in the fulfilment of a goal and provide appropriate response to an unprecedented event (Gergle, Kraut, & Fussell, 2013). In the context of disaster preparedness, having multiple sources of disaster knowledge may lead to varied and overlapping perception of what might actually happen during a disaster but this process could also cause actors to consider other options they have not thought of, once presented logically and join in the process of formulating feasible strategies.

2.6 Adaptive Response and Community Resilience

According to UNISDR, resilience is "the ability of a system or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely

and efficient manner including through the preservation and restoration of its essential basic structures and functions." Resilience has been defined in different studies and resilience indicators have been established to analyse the degree of resilience of communities. The resilience of communities is greatly affected by the social capital present since it is a factor that allows communities to carry out the phases of disaster management and to receive disaster-related policies by the government (Guarnacci, 2016). Resilience is highly related to adaptive response which encourages the utilization of all possible resources to address disaster-related problems. Though communities consist of people and groups living in the same geographical location, it should not be concluded that they always have an interaction in situations that concern their community. Before, during and after disasters, people act differently due to the difference in their adaptive response. The adaptive response of these actors is based on the different factors such as knowledge, income, livelihood and their proximity to social structures.

3. Methodology

Qualitative and quantitave methods were undertaken in this study. Supporting literature and interview were part of the qualitative method while a structured survey qustionaire was used to determine the sources of disaster knowledge of school participants, disaster preparedness knowledge provided to students and the community and presence of collaboration between the school and community in preparing for disasters and promoting resilience. The questionnaire was also used as the basis for analyzing the knowledge of the schools in their disaster preparedness activities.

Purposive sampling was carried out to ensure that the objectives of the study will be met. The school personnel and administrators were limited to those who teach Science, Social Studies and Health, have received disaster management trainings and school administrators. All participants were from Manila which is considered to be a hotspot of natural hazards. There were a total of 5 private and public schools that were chosen, most were in th 5th District of Manila where frequent flooding is prone and other disaster risks were prominent. The participants in the community were limited to barangay officials and commitee heads assigned to disaster management. A modified questionnaire adopted from Oktari *et.al* Teacher's resource mobilization capacity for disaster was used as an instrument to determine the teacher's sources of disaster knowledge, their collaboration with communities and identify the factors that inhibit school-community collaboration. Guided by the Complex Adapative Theory, the conceptual framework of this study focused on the basic tenets of the theory such as self-organization, emergence, adaptive system and connectedness emphasizing knowledge as the dynamic context that influences the behavior and perception of schools and communities in disaster preparedness. To describe the knowledge level of schools and communities, knowledge/information asymmetry was used to emphasize how knowledge difference in schools and communites still open opportunities for them collaborate towards the promotion of community resilience.

4. Results and Discussion

4.1 Knowledge in Dynamic Context

Knowledge is the acquisition of facts or understanding things through experience, association or contact as manifested by a person's degree of familiarity. Knowledge management is crucial in promoting community resilience since it allows the application of relevant information that would address specific needs. (Seneviratre, Baldry, & Pathirage, 2010). Knowledge asymmetry however is an element that could hinder efficient and immediate carrying out of emergency plans since the difference in the level of knowledge could attribute highly to the quality and subject of information an individual can provide. In line with the knowledge asymmetry, the sources of knowledge must also be taken into account. (Militello, Patterson, Bowman, & Wears, 2007). The following results show the source of teachers' disaster knowledge.

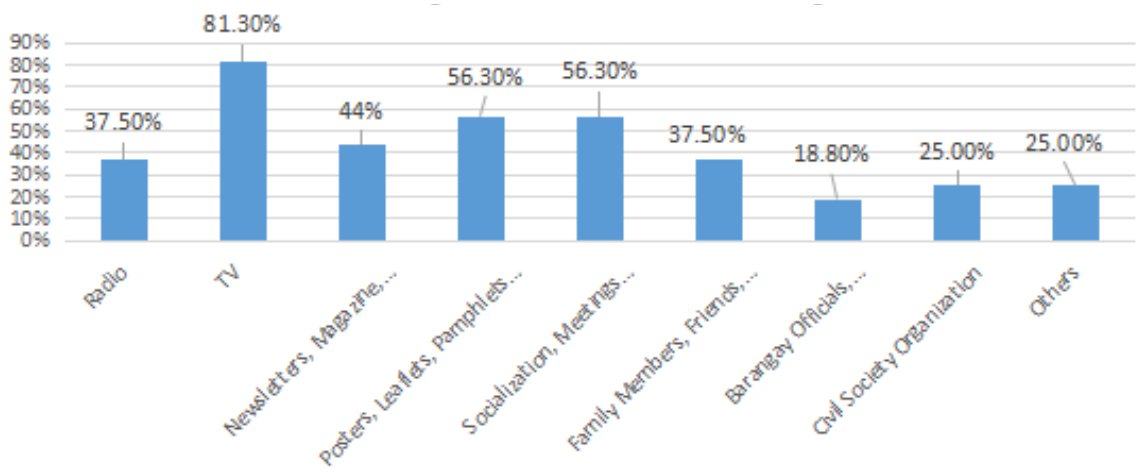


Fig. 2 Teacher's Source of Disaster Knowledge

The results show that most teachers (81.3%) rely on TV as their source of disaster knowledge while the second biggest source of knowledge are leaflets, newsletters and posters as well socialization, meetings briefings and seminars. Some teacher participants indicated church advertisements and announcements as their source of disaster knowledge. It can be noted though, that teachers do not receive much disaster knowledge from barangays and government officials with only 18.9% relying on them for disaster knowledge. The disparity in the application of disaster knowledge could be attributed to the modality by which it was transferred and how it has remained in the consciousness of an individual (Militello, Patterson, Bowman, & Wears, 2007).

Based on the interview conducted with community leaders, their knowledge on disaster preparedness is based on the seminars and trainings provided for them by the local government. Schools which are part of their communities distribute posters and other information materials. Another source of knowledge of community leaders is the feedback they receive after an emergency or disaster. In the case of one community along Sylvia Street in Manila, the street is flood prone due to its geographical characteristic which is aggravated by clogged sewage system. To address this concern, the community council decided to declog the sewage system and asked the local government to improve road system. Another community which faces the threat of flood decided to cover street canal to avert the accumulation of garbage and reduce the occurrence of flood. Based on the response of the barangay leaders, alongside

the disaster preparedness measures they receive from the local government unit, they utilize their local knowledge in preparing for disasters and reducing the risks of their communities to hazards and disasters. Based on studies, the use of local knowledge in disaster preparedness is recognized as an important system to promote resilience in a community through their available resources and their familiarity to their geographical location (Hiwasaki, Luna, Syamsidik, & Shaw, 2014).

Fig. 3 shows the disaster preparedness knowledge provided by school teachers to their students. Disaster warning is the disaster preparedness knowledge provided by the teachers. Among the subjects of disaster preparedness, disaster warning was the common subject most participants provide to students followed by firs aid with 63% and search and rescue with 62.5%/ Other participants indicated providing knowledge on preparing for the "Go bags" and the "3-Day Survival Kit.

Disaster warning systems are critical to ensuring disaster preparedness. People regard warnings to be part of a precautionary measure that could keep them from getting harmed or being in a bad situation. Though people understand its importance, warnings are often neglected unless people are personally affected by disasters or are closed to being affected. Warnings work better if they are delivered on a more personal level, taking into account the familiarity of people on disasters that might occur. Taking for instance the case of the affected people of super-typhoon *Haiyan,* a huge number of people miscalculated the possible impact of the typhoon since the warnings were provided en masse so people had difficulty relating to them in a more personal or local level (Jibiki, Kure, Kuri, & Ono, 2015).

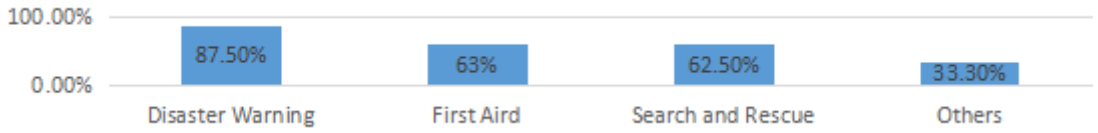


Fig. 3 Disaster Preparedness Knowledge Provided

4.2 Knowledge Asymmetry in Disaster Preparedness Phases: School-Based and Community Based

Planning

The basic aspects of disaster preparedness entail planning, knowledge generation through advocacy, education and training and resource management (Bolton, Kim, & Pat, 2014). A community is a system that consists of different elements that has the capacity to self-organize and adapt to changes in a non-linear pattern. Schools and socio-political units being elements of a system can have disaster management skills dependent on each other though this dependency could is not present at all times. Disaster planning entails mutual arrangement with other groups and institutions, creation of SOP and ICS, and disaster management plans. Based on the results of the study, Schools have more systematic way of organizing an Incident Command System (ICS) than the barangays near them. One school has created a school-based ICS which will be initiated when a disaster strikes. The ICS of the school involves all departments and personnel as well as their designation in the system. Since the school is a private institution, it has allocated 3 Million Pesos as a contingency fund to be released when a big disaster strikes on a school day or has caused huge damages to the school. Annual monitoring of school structures and equipment is also observed using their own checklist. An-

other plan of the school that concerns disaster management is the creation of an "elite team" which will serve as the main support group of the school during and after a disaster. Head members of the ICS meet at least once a year to discuss the latest updates on disaster management. The president of the school serves as the incident commander while the head of the Safety and Security Office will be the assistant Incident Commander. In addition evacuation maps are displayed in every office alongside disaster preparedness measures.

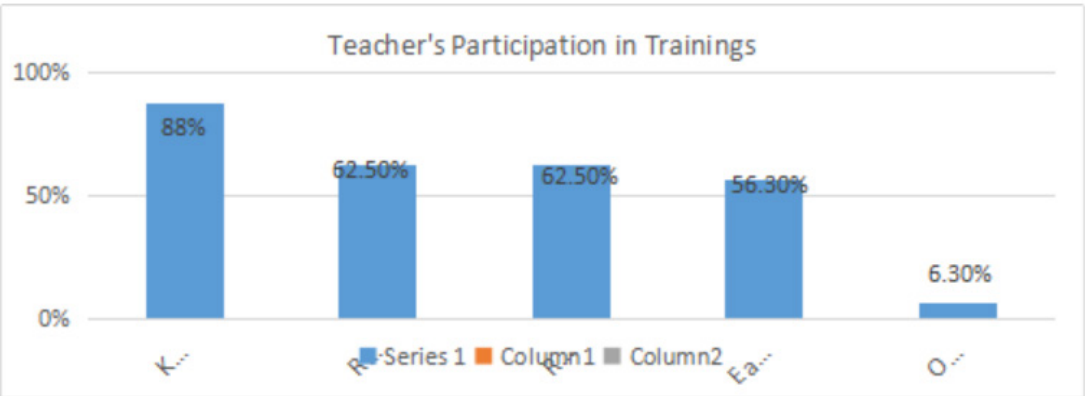
During the interview with Barangay leaders, most leaders agree on the importance of disaster preparedness in the community level. To address their concerns on disaster management one *Kagawad* (Barangay Councilor) heads the Disaster Management Committee. According to them, disaster planning is part of their bi-annual general assembly. An Incident Command System is also available however, the designation of roles is limited to active barangay officials only. Identification of high risk structures is also part of their disaster risk reduction strategy. Based on the responses of barangay leaders, they focus much on disaster response and recovery.

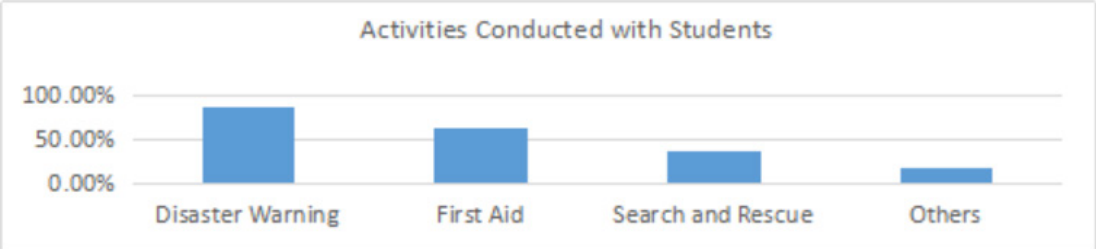
4.3 Advocacy and Information Dissemination

75% of the teachers answered that they have observed Disaster Consciousness Month while the remaining 25% said they have not. In the observance of the Disaster Consciousness Month, 91% has focused their activities on simulations and drills, followed by symposia and other related activities. Other respondents included the preparation for 72 hour kit and Go bags. Most schools have warnings signs placed in conspicuous areas. All school administrators support national activities on disaster preparedness such as the nationwide simultaneous earthquake drill organized by the National Disaster Risk Reduction Council (NDRRMC).

The Barangays that participated in the study all showed flood warning signs on posts which are color coded relative to the height of flood and the types of vehicles that could pass. Bi-annual meetings are also held that provide community members of the updates on the community's disaster risk reduction practices. Barangays also emphasize the importance of human capital as a source of disaster knowledge by allowing specific groups to assist in the community's disaster preparedness plans thus enhancing their resilience.

4.4 Education and Trainings





Based on the responses of the participants, knowledge on disaster management planning, rescue and evacuation, rescue management and early warning were the common themes of trainings and seminars they have attended. While others manage to provide disaster knowledge based on DRR toolkits provided for them by the school. Knowledge on disaster management was common among teachers thus in conducting activities central to disaster management, disaster management disaster warning activities had the highest participation of teachers and students.

4.5 Resource Management

Public schools rely much on the budget appropriation on disaster management through the division of city schools in Manila. Some NGOs also donate materials to them central to disaster preparedness. Private schools on the other hand, allocate at least P1-3 Million of their total fund to disaster related concerns.

The budgetary requirements for personal services, maintenance and other operating expenditures, and capital outlay of the LDRRMO or BDRRMC shall be sourced from the General Fund of the LGU, subject to Section 76 of RA 7160.

4.6 Emergence of Possibilities through Connectedness and Collaboration

56.3% of the respondents said they do not have direct collaboration with the communities near to their school while 43.7% said they t have collaboration with the communities. 75% of the respondents who had collaboration with communities recognized the Parent Teacher Association as the main group they collaborated with, while 50% collaborated with the Barangays and 48.3% collaborated with government agencies.

An interview with community leaders, school principals, school administrators was conducted in areas with high risk of naturals hazards in Manila. Part of the interview included the collaboration between the school and community as well as the disaster preparedness practices carried out by the community and school. Based on the interview, the risk that is most prevalent among the communities is flood, followed by fire. Most communities prepare for disasters using their knowledge on the geographical location of their area and the feedbacks they accumulated after a disaster. 68% of the participants claimed that they have conducted seminars, briefings and workshops in the barangay nearest to their school. Fig. 6 shows the resources that school teachers have used in conducting their seminar.

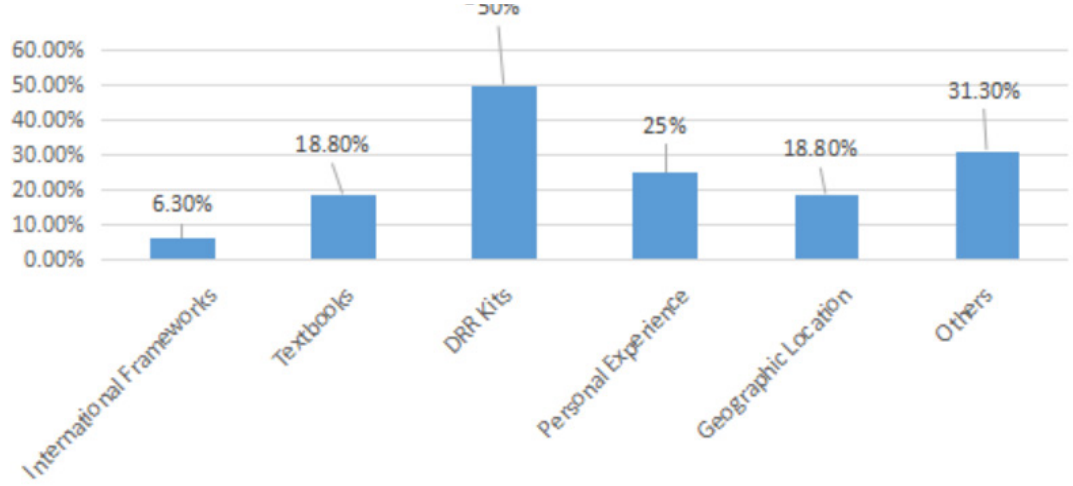


Fig. 6 Sources Used

DRR Kits provided by government agencies such as DepEd, NDRRMC, and DILG were utilized more compared to other sources. 31% of the respondents correspond to those who have not conducted any briefings or seminars to barangays near their school. Personal experience shows significance since most teachers show significant knowledge of the hazards they are prone to. Personal experiences in disasters allow people to develop an adaptive pattern which can be applied not just a response to a disaster but also a source of disaster knowledge (Daramola, Oni, Ogundele, & Adesanya, 2016). Such knowledge is considered tacit or the knowledge that is embedded in an individual's belief system and cultivated through experience and actions. This knowledge allows one to determine the course of action, resources to be utilized and possible solutions in the context of disaster preparedness (Oktari, Shiwaku, Munadi, Syamsidik, & Shaw, 2015). The participants stated that the school and community collaborate in most of the issues that concern their area but reiterated that disaster preparedness collaboration is not very strong due to several factors that keep them from strengthening their partnership in preparing for disasters. Both the school and community resort to utilizing the resources they have in order to raise disaster preparedness awareness within their community. Some of the collaborative practices they mentioned were the following: (i) Parent-Teacher Association (PTA) seminar on Disaster Risk Management which was held in July 2015. The said seminar was attended mostly of the PTA class officers and was conducted by officers from the Metropolitan Manila Development Authority though no barangay official within the nearby community was present. (ii) Some schools also provided leaflets and displayed a tarpaulin on disaster risk reduction and; (iii) an agreement between the school and barangay was drafted making the school an evacuation site shall the need of the barangay to evacuate arises.

Partnership with private organizations was also done by schools. The Ayala Taft Anti-Crime Consortium (ATCACC) was created in 2004 which promotes collaboration between barangays and schools to reduce crimes and create a support system network that can be activated when a disaster strikes the area they are part of.

The Department of Education (DepEd) also encouraged the collaboration of schools and communities through a series of orders released after the implementation of RA 10121 also known as the *Philippine Disaster Risk Reduction and Management (DRRM) Act of 2010.* The Department of Education released D.O. 27, s.2015, an order Promoting Family Earthquake Preparedness which instructed elementary and secondary school teachers to ask the students to accomplish a homework related to earthquake preparedness which must be answered by

students together with their families. D.O 23, s 2015 was also released which Student-Led School Watching and Hazard Mapping which aimed to allow learners to identify potential risks and hazards.

4.7 Factors that Inhibit School Community

A lot of studies have recognized the importance of school-community collaboration in the context of disaster risk reduction especially in disaster preparedness (Oktari, Shiwaku, Munadi, Syamsidik, & Shaw, 2015). School and community collaboration however is not as extensive in the country as it is in most countries even though its susceptibility to hazards is high. The result of the study shows that the availability of the resources to be utilized in disaster preparedness strategies is the main factor that hurdles school-community collaboration. Next is the willingness of stakeholders to participate or be part of the collaboration. The implementing policies and organizational structures seem to be factors that stir up confusion among participants. The implementing policies and organizational structure have an implication on the willingness of people to participate in strategies that involve multi-division policies and structures that are not highly similar. The cultural perspective of people on disaster on the other hand is could be influenced by the different level of disaster knowledge each member carries. Each member of a community employs "different interests, knowledge resources, and capacities", "motivation and awareness of particular risks (Parsizadeha, Ibrion, Mokhtari, Lein, & Nadim, 2015).

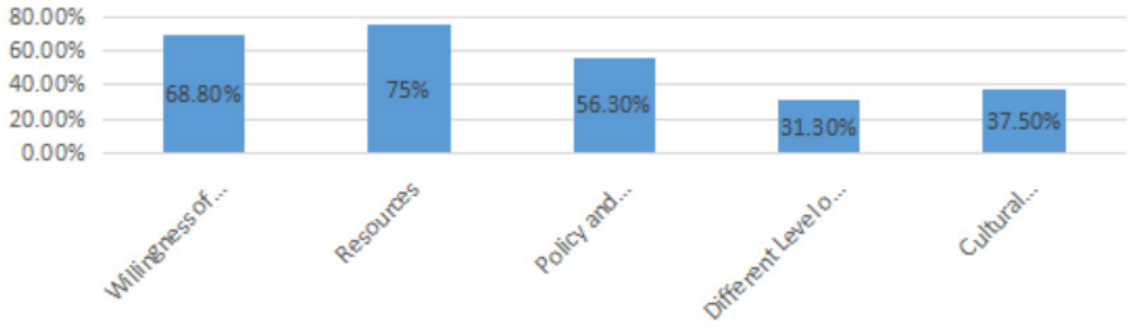


Fig. 7 Factors that Inhibit School-Community Collaboration on Disater Preparedess

5.Conclusion

The toll of disasters has taken the lives of many people, destroyed infrastructures and paralyzed economic activities which affect people from different sectors of the society, thus the strong collaboration between stakeholders for disaster preparedness must be seen as an important element of community resilience. Though the knowledge level of schools and communities create a dynamic context of a system which creates complexities, the complexities brought about by asymmetric information opens opportunities both for schools and communities to develop situational awareness and adaptive response fit to the needs of the community.

Part of the results, showed that some schools and local communities do not have direct and strong collaboration though stakeholders recognize the importance of both institutions in disaster preparedness and the dissemination of information relevant to the needs of the people in relation to disaster management.

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