



## AN ANALYSIS OF NARRATIVES ON NATURAL DISASTER: SOCIAL CONSTRUCTION OF EARTHQUAKE EXPERIENCE OF SELECTED RESPONDENTS IN AN ACADEMIC INSTITUTION IN THE PHILIPPINES

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**ABSTRACT –** In recent years, several earthquakes have been felt at an open university in the Philippines and its contiguous areas. While classes in this university are delivered online, its staff members remain vulnerable to earthquake attacks. To mitigate such natural hazards, the university has established Disaster Risk Reduction and Management Committee to plan and implement and monitor policies and activities related to DRRM. This paper aims to examine the employees' experiences of earthquakes, their views of it, the actions they have taken in its aftermath, and identify patterns of relationships between experience, views, and actions. Using qualitative research methods, the study has revealed that people's experiences of earthquakes are varied. Most participants in the study experienced fear and shock during the earthquake and saw earthquake as a reality to prepare for. In addition, some participants – who were mostly members of the DRRM Committee – had presence of mind and saw earthquake as a natural occurrence, indicating that prior knowledge on earthquakes can be a factor in disaster preparedness beliefs and behavior. A few saw earthquakes as a fleeting concern and have not taken any personal initiative towards preparedness. While there is a diverse types of action reported by the participants, on an individual basis, their actions are quite limited. Recommendations on how disaster preparedness can be improved in the university were raised.

*Keywords:* *earthquake, natural disaster preparedness, qualitative research*

### Introduction

One of the more overwhelming experiences for people are natural disasters (American Psychological Association 2016). These are episodes that need reflection on how the disaster took place, the effects of the disaster, why the effects occurred the way they happened, and what actions could have been done to avoid the effects of such devastating events. Based on the definition of the International Federation of Red Cross and Red Crescent Societies (IFRC), disaster preparedness refers to measures taken to prepare for and reduce the effects of disasters. That is, to predict and, where possible, prevent

disasters, mitigate their impact on vulnerable populations, and respond to and effectively cope with their consequences. The Philippines, according to the World Risk Index 2012, is the third among 173 countries most vulnerable to disaster risk and natural hazards that experience an average of 20 tropical cyclones each year. To mitigate the effects of climate change and to ensure the effective implementation of disaster risk reduction, the government has put in place interventions to reverse environmental degradation and to improve the resiliency of local communities. At the core of these interventions is the National Climate Change Action Plan and the National Disaster Risk Reduction and Management Plan, which were established to systematically integrate the various disaster risk management and climate change adaptation activities, coordination, and financing mechanisms of the government.

In the UP Open University, a Disaster and Risk Reduction Management (DRRM) Committee was established to formulate policies on emergency and disaster and risk reduction management in the university. UPOU's headquarters is situated in Los Banos, Laguna. Its 165 employees are based in its Los Banos headquarters, satellite office in Quezon City, and learning centers in Baguio, Manila, Quezon City, Cebu, Iloilo, and Davao. At the headquarters where most of its staff are based, the employees are stationed in five different buildings of varying sizes and heights. Classes are delivered online with the use of a learning management system. However, even when classes are done online, employees are still vulnerable to emergency and natural disasters such as floods, earthquakes and fire. Hence, it is imperative that all UPOU employees need to be aware and be educated on how to prepare for any emergency and disaster.

In the past few years, several earthquakes have been felt in the university and other areas contiguous to it. Understanding the experiences of members of the university and their responses towards earthquake can provide insights on people's perspectives on natural disasters and disaster preparedness. Studies on disaster preparedness have usually been directed on knowledge and attitudes (Sinha et al 2008, Corrigan and Samrasinghe 2012, Lim et al 2012); organizational issues (Bogner 2002, Ainuddin and Routray 2012); level of preparedness (Lindell and Whitney 2000, Yeager et al 2010, Baker and Cormier 2013, Al-rousan et al 2014); community participation and resilience (Said et al 2011, Chandra et al 2013, Wells et al 2013), just to name a few. Much of the studies on the psychosocial effects of natural disaster on individuals have focused on the relationship between the victim's backgrounds and their experience of post-traumatic disorder (PTSD), depression, or anxiety (Tunstall et al 2006, Mason et al, 2010, Paul et al 2015). On the other hand, people's responses to such disaster have been mostly about identifying the factors that determine the victims' ability to cope with the effects of such events: active and avoidant strategies (Cadamuro 2014, Hamama-Raz et al 2017); family support (Hackbart 2012, Smith et al 2014); positive framing and self-blaming strategies and physical resources (Hamama-Raz et al 2017), to cite some examples. On the other hand, Ronan and Johnston (2005) reported that despite years of information campaign on disaster preparedness, overall levels of preparations are universally low. Past studies showed that factors affecting earthquake preparedness can be attributed to individual perceptions, beliefs and attitudes; emotions and feelings; previous experience of earthquakes; demographics; resource constraints; and social influences (Becker et al 2012).

This study aims to identify insights on disaster preparedness that can be gleaned from UPOU employees' views and experiences of earthquakes specifically by answering the following questions:

1. How do the research participants characterize their experiences when they encountered an earthquake?
2. How did they view earthquake after the experience?
3. What actions have they taken after the experience?
4. What are the patterns of relationships between their experiences, views, and actions?

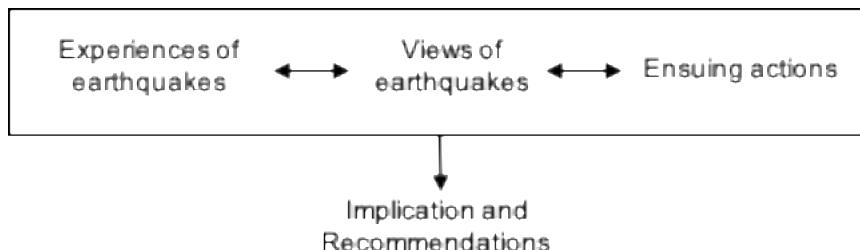
## METHODS

### Research framework

The study takes the perspective that social realities, like people's experiences and conceptions of earthquakes, including disaster preparedness, are socially constructed phenomena (Berger & Luckmann, 1966) and not as pre-existing realities that exist out there. People understand and act upon the world through the meanings they attach to it. People are situated in different contexts, hence, these meanings are not only multiple but also changing. While people interpret the world from their subjective experience, there exists certain concepts and categories or system of meanings (Crotty, 1998) that provides them a framework for understanding and structuring their experiences and their lives. These systems of meanings, through the process of habitualization, becomes routinized or attain "objective-like" status (Berger and Luckmann 1991). Through a series of social interactions, though, the same system of meanings can also be altered, leading to people changing their interpretations of the world and how they act upon it.

### Conceptual framework

In line with the research framework, the study focused on exploring the experiences of earthquakes of employees at the open university and the meanings they attach to it, specifically their view of earthquakes, and the actions they have taken as a consequence. Given the assumption that people's interactions can shape their perspectives, which in turn, can shape people's actions, the study aimed to look at the range of relationships between the participants' experiences, views, and ensuing actions. From the analysis of these patterns of relationships, implications on disaster preparedness were identified (Figure 1).



### Data gathering

To capture the multiple meanings that people attach to their earthquake experiences, the study adopted a qualitative research approach. The study focused on one organization and adopted a case study as a method to allow for deep and holistic understanding of a phenomenon (Stake, 2003; Yin, 2003). Since UPOU employees are spread in different parts of the country, online asynchronous, structured, interviews were done (Salmons 2011). Invitations were sent out and people were requested to respond in writing to open ended questions on their experiences and views of earthquake as well as their responses to it both at the personal and organizational levels. The target respondents were informed that the study is done solely for academic purposes and that the identities of the respondents or research participants will not be disclosed in the write up. Thirty-nine (39) faculty members, research, extension and professional staff (REPS), and administrative staff members participated in it. (Table 1). Participants were given the option to state their name or not. In a few cases where the responses require elaboration and the respondents have voluntarily identified themselves, follow-up questions were sent to the latter who also responded by email.

**Table 1. Profile of Participants**

Participants' location	Frequency N=39	Gender		Mean Age	Position			
		Male	Female		Faculty	REPS	Administrative Staff	Temporary Staff
Baguio	1		1	45			1	
Cebu	1		1	53		1		
Davao	1		1	53		1		
Laguna	33	2	31	41	10	11	8	4
Diliman/ Manila	3	1	2	41	3			

Majority (n=33; 85%) of the participants came from the headquarters office in Los Banos, Laguna and the rest came from the Diliman/Manila, Baguio, Cebu and Davao offices. Most of the participants were female (n=36; 92%) and the mean age ranged from 41 to 53 years. There were 14 (35%) REPS, 13 (32%) faculty members, 9 (23%) administrative staff, and 4 (10%) temporary staff who participated in the study.

### Data Analysis

The data were analyzed first by doing qualitative content analysis (Mayring 2000) of the participants' accounts guided by the research questions. This involved coding the data using either terms derived from the data or the literature. These codes were then compared across participants' accounts, noting down those codes that were recurrent and those which appear to be unique or idiosyncratic. Using inductive analysis, themes on the participants' experiences, views and actions on earthquakes were identified.

After identifying the themes, the patterns of relationships between the experience views and actions were identified by categorizing the individual participants' accounts according to the themes identified for experience, views, and actions. Re-examining the individual accounts allowed the authors to re-evaluate even the idiosyncratic themes, which eventually were included in the study to provide a more nuanced understanding of the range of patterns of relationships. Typical of qualitative research, the process of interpretation was iterative -- moving to and from data, context, and theory.

## **RESULTS AND DISCUSSION**

### **A. Experiencing the Tremors**

The following themes were identified from the participants' narration of their experiences of the tremors brought about by the earthquake: fear and shock, fear and hate, presence of mind, presence of mind and worry, and dizziness (Table2).

**Table 2. Emerging themes on experiencing tremors**

<b>Emerging themes</b>	<b>Significant statements</b>
Fear and shock	<p>“We were down on our knees and I was under the dining room table while my husband still one his knees held his uncle. I cried because i was really afraid.”</p> <p>“When we realized that there was an earthquake, we froze and we did not move from our seats...We were scared and shocked.”</p>
Fear and hate	<p>“I really hated our neighbors back then, they strongly believe in superstitions and I could hear them telling my mom not to go inside the house because she is pregnant...”</p>
Presence of mind	<p>“...We went out of our house immediately and looked for an open space as calmly as possible. “</p> <p>“...My immediate reaction was to sit quietly and think of the next things I would have to do in case the magnitude of the earthquake proved to be more serious.”</p> <p>“...Then I tried to recall the drills we learned from the office and how to apply them in real situation.”</p> <p>“..Surprisingly, I was not scared, but my mind was trying to recall what are the things one should do in case of an earthquake.”</p>
Presence of mind and worry	<p>“ ...My initial reaction was to move out of the building where an orientation was being held at that time. I felt worried about safety of myself, the participants who were with me, and my family members who were in our residence at that time.”</p> <p>“...After I have confirmed that it's an earthquake, I look for people around me and see what they do and then proceed to go outside or to a safe zone. I feel worried always because I think about my relatives left at home, what if they don't know what to do or where to go.”</p>
Dizziness	<p>“.. I think I can't remember, but mostly I was dizzy.”</p> <p>“We went out of the house. I felt dizzy that time.”</p>

The said themes are discussed below.

### **1. Fear and shock**

Most participants experienced “fear” and “shock” after encountering an earthquake, as mentioned by this participant who was filled with “terror”:

“I have experienced mini earthquakes in the past but none quite traumatic than the October 15, 2013 earthquake here in Cebu. It was around 8 AM and I was washing my hands as we were ready to have breakfast when my husband called out to inform me of an earthquake. I did not feel it right away but as started walking towards the dining room, I felt the ground moving. I had to hold on to a cabinet so i would not stumble. Then I saw my husband crawling towards the dining room so I followed as his 93-year-old uncle who was in a wheelchair was already in the dining room alone. We were down on our knees and i was under the dining room table while my husband still one his knees held his uncle. I cried because i was really afraid. It did not cross our mind to go out. The household help already went out but went back inside the house and joined us under the table. While I was on all fours on the floor, the ground trembled so hard , the ground shook. It took a while before the trembling stopped. That really terrified me.” (REPS).

The same fear was echoed by this participant:

“In 2015, when I was attending a workshop sponsored by the Department of Health in the 9th floor penthouse of a known hotel in Tagaytay City, I experienced an earthquake with a 5.4 magnitude. I felt the tremors and the swaying of the building, felt dizzy, dropped to the floor and covered my head with my hands while hiding under a coffee table. One of my colleagues started praying the rosary but she could not remember the whole prayer so I continued praying for everybody. Another colleague was calling her mother through her cellphone informing her of our situation. While praying the rosary I was thinking that I should have brought my cellphone with me under the coffee table. The shaking stopped after a few agonizing minutes and we started going out of the door and ran down the stairs. The stairs were slippery with water from the rain, so we ran slowly down to the ground floor where most of the guests do were also gathered. My body was literally shaking and I cannot believe what just happened. I felt like I am just observing everything that happened, yet I did nothing...”

This fear is also characterized by becoming immobile in a state of shock:

“When we realized that there was an earthquake, we froze and we did not move from our seats. After a few seconds/minutes, we hurriedly went to the ground floor. We were scared and shocked.”

In one case, the fear was so strong that the participant panicked and behaved in what she herself thought was unreasonable:

“I overreacted and panicked the last time I experienced a strong earthquake. I nearly injured myself and other people when I ran out of the mall. I realized that I should have remained calm because it is safer follow the emergency plan or the instructions of the person in charge than to lose my wits and panic.”

### **2. Fear and Hate**

In the case of one participant, her feelings while experiencing earthquake was characterized by fear but also hate for other people whose “superstitious” beliefs could have has endangered their lives back then:

“...In 1990. I was four years old back then, I was with my brother, 2 years old and my mom who was pregnant then. It was really an experience I can't forget because I really thought we will die back then. Me and my brother were inside our living room, me sitting on the floor and my brother sitting on the chair and mom was outside talking with a neighbor. Suddenly there was a big movement and saw the chair where my brother was sitting, moving back and forth the entire living room, I was shouting and crying at the same time while scared that my little brother would fall from the chair. I really hated our neighbors back then, they strongly believe in superstitions and I could hear them telling my mom not to go inside the house because she is pregnant and that pregnant women should not go inside the house when there is an earthquake and must take a quick shower or something like that. Imagine, my mom wanted to go inside to get us but the neighbors were blocking her and nobody really went inside to get us. I hated my neighbors as much as I hated the earthquake that time.”

### 3. Presence of mind

A few participants were not immobilized by fear or shock and instead had the presence of mind to think of the appropriate thing they should do to see themselves and others, as reflected in the following accounts:

“Last April or May 2017, in Batangas, we went out of our house immediately and looked for an open space as calmly as possible. “

“I've experienced it once while inside the office, maybe a couple of times while at home. I briefly froze and thought whether the earthquakes were life-threatening or not and whether I needed to go out of the house and office. More often, my immediate reaction was to sit quietly and think of the next things I would have to do in case the magnitude of the earthquake proved to be more serious.”

“Mild earthquake only. At home and in the office, few months ago. The first things that came to my mind are my kids, where were they and how could I contact them. Then I tried to recall the drills we learned from the office and how to apply them in real situation.”

“In July 1990, I was in Manila for a job interview. The building was made of bricks. The first few seconds, I thought there was someone dribbling a basketball behind me, then it gets stronger. Then I began looking for a table where my friend and I can hide. But the manager who interviewed me asked everyone to get out of the building while the earthquake is still ongoing. Surprisingly, I was not scared, but my mind was trying to recall what are the things one should do in case of an earthquake.”

### 4. Presence of mind and worry

A couple of participants, after having the presence of mind to move to a place of safety, felt worry not just for themselves but for the other people they are with and whom they love:

“I felt earthquake on 08 April 2017 in Pagsanjan, Laguna during the Organic Agriculture Class Field Visit. My initial reaction was to move out of the building where an orientation was being held at that time. I felt worried about safety of myself, the participants who were with me, and my family members who were in our residence at that time.”

“My initial reaction was always to stay still and confirm what's happening. After I have confirmed that it's an earthquake, I look for people around me and see what they do and then proceed to go outside or to a safe zone. I feel worried always because I think about my relatives left at home, what if they don't know what to do or where to go.”

## 5. Dizziness

For a few participants though, their recent experience of earthquake made them “dizzy,” as mentioned by this participant:

“Just last month, I experienced an earthquake and I think I can’t remember, but mostly I was dizzy.”

## B. Views on earthquake

The views of the participants on earthquakes were categorized into the following themes: Earthquake as a reality to be prepared for; Earthquake as a fleeting concern; Earthquake as a natural phenomenon; and Earthquake as less threatening than typhoons (Table 3).

**Table 3. Emerging themes on views on earthquakes**

Emerging themes	Significant statements
Earthquake as a reality to be prepared for	<p>“...Earthquakes...are not just stories but are real phenomenon that can affect everyone including me and my family.</p> <p>“...These things could happen anytime, thus, it is important to plan ahead and be prepared.”</p> <p>“Since we can’t stop natural calamities but being prepared and knowledgeable on what to do during the calamity would be of great help.”</p> <p>“Getting ready for natural disasters like this could make or break us so better be prepared.”</p> <p>“...Being prepared can lessen unnecessary deaths and prevent complicated situations.”</p>
Earthquake as a fleeting concern	<p>“With all the multiple responsibilities and burdens we have, sometimes we no longer think about it. Sad to say, we take action only when it’s already in front of us.”</p>
Earthquake as a natural phenomenon	<p>“It is just one of the natural disasters that come and go.”</p> <p>“Natural calamities like earthquake cannot be avoided.”</p> <p>“If disasters come, then I’ll just deal with it.”</p>
Earthquake as less threatening than typhoons	<p>“I guess we are more prone to experience typhoons, really strong typhoons, which really scare the hell out of me, than earthquake.”</p>

The said themes are explained in greater detail below.

### 1. Earthquake as a reality to be prepared for

After their experience, most of the participants forced them to see earthquakes as a “real phenomenon that can affect everyone” and that the “community should prepare for.” The need to “plan ahead and be prepared” for earthquakes arises from the view that it “could happen anytime.” The inevitability of this reality was echoed in these statements:

"It made me realize that these things could happen anytime, thus, it is important to plan ahead and be prepared."

"Because of the series of earthquakes we experienced this year, I realized that earthquakes can strike anytime and anywhere."

"Since we can't stop natural calamities but being prepared and knowledgeable on what to do during the calamity would be of great help."

For some participants, earthquake is such a devastating force of nature that can take away not only people's "belongings" and even "dignity" and that is why each individual ...has to be psychologically and emotionally prepared." The enormity of the earthquake was shared by another participant:

"Big natural disaster like an earthquake just goes to show that we are insignificant or small in this earth and that one big disaster could wipe away all our homes worst is that it could take away the lives of those important to us. Getting ready for natural disasters like this could make or break us so better be prepared."

More than wiping out homes, another respondent has personally seen the devastating effects of earthquake on people, especially the vulnerable ones, as part of her previous work:

"I've seen firsthand (as I visited muddy, dirty, insect-infested evacuation centers) how hard and debilitating it was to be in a situation where one feels "all" is lost: food, shelter, clothing, etc. Even if one had money, it was useless at the onset of a disaster because no food can be bought. Getting sick was widespread and too complicated because one feels helpless with nowhere to go to due to inaccessible roads and cut communication lines. The most vulnerable were the elderly and newborn babies and their moms."

For participants who are members of the university's DRRM Committee, earthquake and its effects can be mitigated through proper disaster risk reduction management initiatives:

"...The personal encounter with an earthquake disaster and the deficiencies I have found in our disaster preparedness made me feel unsafe and insecure, but these feelings also fueled strong courage and determination to transform the current situation of disaster preparedness of UPOU into a well-functioning, developed and effective disaster preparedness that will address the immediate needs of vulnerable people affected by any disaster."

Another participant who is not a member of the University's DRRM Committee but underwent more in depth training on disaster preparedness in the previous organization she worked at, also realized how the devastating effects can be prevented if disaster preparedness initiatives are undertaken:

"It made me realize how being prepared can lessen unnecessary deaths and prevent complicated situations. I was blessed to have participated in basic trainings for earthquake, fire, flood, jungle/high angle rescue, and made me not afraid to take initiative when smaller natural troubles occurred within my reach, like first aid in buses and public places."

## **2. Earthquake as a fleeting concern**

For one respondent, an earthquake is far from pleasant but the reality of daily grind makes it less and less important as the days go by, and is ultimately forgotten until another earthquake strikes, as shown below:

"But you know everybody is like that, if the topic is so popular and everybody talks about it, you just go with the flow but as days go by and the topic suddenly dies down, your interest dies. With all the multiple responsibilities and burdens we have, sometimes we no longer think about it. Sad to say, we take action only when it's already in front of us."

### **3. Earthquake as a natural phenomenon**

For a few respondents, their experience of earthquake has not really changed their perspective of it since as one respondent said, that in "living in a disaster-prone country" meant that one does not "have to experience disaster to prepare for it." It is part of our natural reality.

For a couple of participants, disasters just "come and go", and one "has to deal with it or help others deal with it" when it happens. There is a fatalistic tone to this view as expressed in this telling:

"At the end of the day though, I still believe that when it is time to die, you die... Earthquakes and other disasters are a good reminder of the reality of destruction and for me to confront everyday living and the idea of dying someday. It is a weird view which of course I do not share with teachers, school children nor my own kids. So I guess, it hasn't changed my views but has influenced me to act on certain measures in support of current initiatives largely driven by others/media."

### **5. Earthquake as less threatening than typhoons**

For one participant, earthquakes are less threatening compared to typhoons, which to him/her requires more preparation:

"... I guess we're more prone to experience typhoons, really strong typhoons, which really scare the hell out of me, than earthquake. It's harder to "deal" with combination of elements -- rain, wind, lightning, flood, and landslide. When there is incoming typhoon, I make sure that there is enough food, water, and medicines in the house. I have extra money in my pocket in case of emergencies."

## **C. Ensuing Actions**

Most participants have taken some steps to make themselves better "prepared because that is the only way to assure one's safety and that of one's family." An analysis of the participants' accounts showed that their earthquake preparedness responses can be classified into preventing fallouts, stocking up with supplies, planning for evacuations, and attending training (Table 4).

**Table 4. Emerging themes on ensuing actions**

Emerging themes	Significant statements
Preventing accidents	<p>“I cleared some possible obstructions that may hinder easier escape.”</p> <p>“I removed heavy things on top of cabinets.”</p> <p>“I secured wall decorations and cabinets.”</p>
Stocking up on supplies	<p>I stocked a bottle, a later, of water and some canned goods, just a little, bought tents and sleeping bag and also kept usable old clothes in a bag and blankets.”</p> <p>“We have whistles, flashlights, door keys beside our bed.”</p> <p>“I have all the necessary /basic needs in my bag like medicines.”</p>
Plan for evacuation	<p>“We have a family plan… [on] how we could reconnect with each other and where are we going to meet.”</p> <p>“I get to know the fire exit in case of disaster — an evacuation plan — of the building and the safest shelter to go…”</p>
Training and Drills	<p>“I got involved in earthquake and fire drills several times as a student and as an employee. For earthquake drills, we did duck, cover, and hold exercises.”</p> <p>“I joined the earthquake drill we conducted this year since it is required and I want to join also to know what to do in case an earthquake happens.”</p> <p>“I participated in disaster preparedness orientation, forum, seminar and drill.”</p>
Sharing Information	<p>“I told my mom, dad, and brother we should… also prepare emergency to-go bags and kits.”</p> <p>“Whenever we have a forum conducted at the office about earthquake preparedness, I re-echo what I’ve learned at home.”</p>
DRRM initiatives	<p>“…We started the plan by studying and making sense of hazard maps and other disaster-related data, and classified which plans are urgent.”</p> <p>“The committee as tasked to come up with DRRM guidelines and action plans specifically on how UPOU should respond to a disaster; to implement action plans.”</p>
Intentions	<p>“I have been planning to…prepare emergency bags/survival kits. but until now I have not started doing those things.”</p> <p>“I have been planning to prepare an “emergency kit” but not yet done.”</p>

### Preventing accidents

Preventing objects from falling down during an earthquake may involve “clearing some possible obstructions that may hinder easier escape”; “removing heavy things on top of cabinets,” or “making sure that the wall decorations and cabinets are secure”

#### 1. Stocking up on supplies

This precautionary act could range from preparing basic necessities like food to buying tents, as exemplified by the following statements.

"At home, I prepared a Go-To bag with at least one week supply of basic commodities. I stocked a bottle, a later, of water and some canned goods, just a little, bought tents and sleeping bag and also kept usable old clothes in a bag and blankets."

"We have whistles, flashlights, door keys beside our bed."

"I have all the necessary /basic needs in my bag like medicines."

"I have prepared a go bag with food, important documents and clothes."

One participant, even though she stocks up on supply, is also bothered by the perishability of the canned goods:

"In my house, I used to have the emergency box/pail full of medicines, canned goods, bottled water and survival tools like hand-charged flashlights. The only problem is that the canned goods have to be consumed before its expiry date so as not to waste money, but I don't always have the time to buy a new set of supplies again."

## 2. Plan for evacuation

This action involves planning for evacuation or removing themselves from the place of disaster to a safer one:

"We have a family plan in case of disaster i.e. if we are not in our home during the disaster, how we could reconnect with each other and where are we going to meet."

"My main concern is my mother and our dogs, so we tell her where to go in case of an earthquake and just let all the dogs out of the house."

"I get to know the fire exit in case of disaster — an evacuation plan — of the building and the safest shelter to go ...just be alert and never panic..."

"I always check for nearest/closest exit points and places to hide under."

## 3. Training and Drills

To some participants, attending seminars and training on earthquake preparedness is their way of preparing for it. Except for three participants, all respondents participated in the drills organized by the university. One respondent described the activity:

"I attended the earthquake drill/seminar prepared by the DRRM committee of UPOU. During the first day of the seminar, we were taught about the things to do before, during, and after an earthquake. We practiced the duck-cover-hold technique during the seminar. And we also identified areas in the office where we can hide during the event of an earthquake, like under sturdy tables, under a chair, or anywhere that is far from objects that might fall like air conditioning systems, heavy cabinets, etc... For the second day, we had an earthquake drill that served as a practical test of our learnings from the seminar. They rang a loud alarm which prompted us to fall in line outside our rooms. Our 3rd floor "head/leader" counted how many individuals were outside the rooms before we proceeded to go down to the open space at the front of the building. For me, the drill/seminar was very informative and interesting. And I also appreciated that the DRRM committee of UPOU invited speakers from the provincial DRRM office of Laguna to give a talk about earthquakes."

One participant experienced a similar but more in-depth training in her previous organization she used to work for:

“In my former organization in Quezon City, the department that I belonged to was also in charge of rescue and relief operations of national emergencies. I joined a group that went to Mt. Mayon as it erupted to distribute rice & noodles to the residents who have not evacuated. I was kind of afraid because as people were evacuating from Mayon, we were going to Mayon! I was also part of a team who joined in training regional disaster preparedness units in the province, where I witnessed “mock” disaster rescue operations involving heads of inter-agencies and barangays... I also experienced being “rescued” by my media organization’s rescue team in a landslide/flooded area.”

#### **4. Sharing Information**

For two participants, they have shared information on earthquake preparedness to family members, as shown below:

“I told my mom, dad, and brother that we should set a definite place where we should all meet up and wait for each other right after an earthquake. I told them that we should also prepare emergency to-go bags and kits.”

“Whenever we have a forum conducted at the office about earthquake preparedness, I re-echo what I’ve learned at home.”

#### **6. DRRM initiatives**

These participants, who are also members of the university’s DRRM Committee, have been involved in the drawing up of the DRRM plan for the university which started by “studying and making sense of hazard maps and other disaster-related data, and classified which plans are urgent.” One participant explained further the activities implemented after planning:

“...The committee has already invited the structural engineer of the municipality to assess its structural assets such as the building and other facilities. The committee has also initiated information dissemination through posters and forums on the preparation for earthquake disasters. Through the active participation of the committee members as well as the employees, emergency drills have been organized and implemented. In each drills, assessments and evaluations have been monitored to improve and develop a more secured and safe emergency plans. Teams have been established in all the buildings and learning centers of UPOU. Training for members of the first aid and search and rescue teams have been planned. The teams are not only UPOU regular employees but includes the contract service and outsourced workers. the committee members have also recommended that all employees would be assigned his/her own emergency go bag which consist of water, protein food, first aid kit, pen light, etc.”

As indicated by two participants though, “there still has a lot to do before it can become prepared for a disaster or any emergency situation.”

#### **7. Intentions**

In a couple of cases, the participants have not personally taken a concrete step but have just thought of plans or intentions on what action they can take:

“I have been planning to take efforts to prepare for an earthquake like preparing emergency bags/survival kits... but until now I have not started doing those things.”

"I have been planning to prepare an "emergency kit" but not yet done."

"I have not done yet, but it has come to my mind to make preparations like securing the cabinets and other heavy appliances, and preparing a bag that has all the important documents and necessities."

For a respondent, aside from participating in the drills which is an official activity in the office, she thinks she has not done any action by herself:

"Honestly and sadly, I think not but if attending or joining efforts and initiatives on explaining about it and what to do to prepare for it counts, then I guess that's the only effort I have exerted so far."

#### D. Patterns of Relationships between Experience, Views, and Ensuing Action

Based on our analysis of the data, the accounts of the participants can be categorized into 16 patterns of relationships between their experience of the earthquake, their views of it, and the ensuring actions they have taken or not.

As shown in Table 5, the most common pattern involves feeling of "fear and shock", seeing earthquake as a reality to prepare for" and taking a couple of actions to prepare for a future event. The ensuring actions they took are quite varied ranging from stocking up on supplies to sharing information. Most participants simply adopted two actions, usually one of the identified ensuring action and a drill practice in the university,

**Table 5. Relationship patterns between "Fear and Shock", "Earthquake as a reality to prepare for", and ensuring actions**

Pattern code	Experience of earthquake		Views of Earthquake		Ensuing actions
A	Fear and shock	↔	Earthquake as a reality to prepare for	↔	Stocking up on supplies
					Drills in office
B	Fear and shock	↔	Earthquake as a reality to prepare for	↔	Plan for evacuation
					Drills in Office
C	Fear and shock	↔	Earthquake as a reality to prepare for	↔	Preventing accidents
					Drills in Office
D	Fear and shock	↔	Earthquake as a reality to prepare for	↔	Training
					Drills in Office
E	Fear and shock	↔	Earthquake as a reality to prepare for	↔	Stocking up on supplies
					Training
					Drills on Office

Table 5 (continued)

F	Fear and shock	$\leftrightarrow$	Earthquake as a reality to prepare for	$\leftrightarrow$	Stocking up on supplies Plan for evacuation Drills in office
G	Fear and shock	$\leftrightarrow$	Earthquake as a reality to prepare for	$\leftrightarrow$	Preventing accidents
H	Fear and shock	$\leftrightarrow$	Earthquake as a reality to prepare for	$\leftrightarrow$	Stocking up on supplies

Not all those who experienced fear and shock saw earthquake as a reality to prepare for. There were some who saw it simply as a natural occurrence, a reality in nature that one has to contend with. The ensuing action were either sharing information, drills in office and taking a DRRM initiative in the university.

**Table 6. Relationship patterns between “Fear and Shock”, “Earthquake as a natural occurrence”, and ensuring actions**

Pattern code	Experience of earthquake		Views of Earthquake		Ensuing actions
I	Fear and shock	$\leftrightarrow$	Earthquake as natural occurrence	$\leftrightarrow$	Sharing of Information
					DRRM Initiative
					Drills in office
J	Fear and shock	$\leftrightarrow$	Earthquake as natural occurrence	$\leftrightarrow$	Intention DRRM Initiative Drills in office
K	Fear and shock	$\leftrightarrow$	Earthquake as natural occurrence	$\leftrightarrow$	Sharing of Information DRRM Initiative

The few participants who experienced earthquakes with “presence of mind” saw earthquake either as “a reality to prepare for or as a “natural occurrence.” The ensuing actions were limited to two to three types.

**Table 7. Relationship patterns between “Worry”, “Earthquake as a natural occurrence/reality to prepare for”, and ensuing actions**

Pattern code	Experience of earthquake		Views of Earthquake		Ensuing actions
L	Presence of mind	↔	Earthquake as a reality to prepare for	↔	Stocking up on supplies
					Plan for evacuation
					Intention
M	Presence of mind	↔	Earthquake as natural occurrence	↔	Drill at home
					Drill at office

Lastly, there were patterns which were found to be unique. One participant who felt a combination of fear and hate at that time saw earthquake as a fleeting concern and has not taken any preparatory action, aside from the drill conducted in the university. The same pattern was noted in another participant who felt fear and was concerned about earthquakes for a moment. For another, the experience can be described as a combination of worry and presence of mind and saw earthquake as a reality to prepare for, and gone out to stock supplies and participate in drills at the office. One participant, who had presence of mind during the earthquake, saw it as less threatening and had personally taken any action towards it. The last pattern is one of a feeling of dizziness, viewing earthquake as a reality to prepare for, and stocking up on supplies as a reaction.

**Table 8. Unique patterns of relationships**

Pattern code	Experience of earthquake		Views of Earthquake		Ensuing actions
N	Hate and fear	↔	Earthquake as a fleeting concern	↔	Drill in office
O	Fear and shock	↔	Earthquake as a fleeting concern	↔	Drill in office
P	Presence of mind and worry	↔	Earthquake as a reality to prepare for	↔	Stocking up on supplies
					Sharing of Information
					Drill at office

**Table 8 (continued)**

<b>Pattern code</b>	<b>Experience of earthquake</b>		<b>Views of Earthquake</b>		<b>Ensuing actions</b>
P	Presence of mind	↔	Earthquake as less threatening than typhoon	↔	None (for earthquake)
R	Dizziness	↔	Earthquake as a reality to prepare for	↔	Stocking up on supplies
					Training
					Drill at office

The previous findings have shown that the employees at the open university have experienced earthquake. Although most of them experienced fear and shock, there were also those who had a presence of mind, felt worry for others, dizziness, and a combination of these emotions or feelings. Understandably, their experience of earthquake's effects had led them to a greater appreciation of the need to prepare for it. These findings support previous research which has shown that people who have experienced fear and anxiety are more likely to engage in disaster preparedness compared to those who just felt concerned or uneasy (Dooley et al. 1992, Hanoch and Vitouch 2004, Becker et al 2012). However, while the ensuing actions taken by participants have been diverse, most participants just adopted around two types of actions for preparedness, indicating a low level of earthquake disaster preparedness among the participants. This can possibly be attributed to relatively low severity of the earthquakes experienced by the participants, low priority placed on disaster preparedness, or lack of knowledge or resources.

It must be noted though not all participants who experienced fear and shock began to see earthquake as something to mitigate or prepare for. As shown in Table 2, some saw it as a natural phenomenon and those who saw it that way have not really taken any action at the personal or household level. The actions reported under these patterns (I, J, and K) were DRRM initiatives, which goes to show those who told these accounts are actually members of the DRRM Committee. Most members of the committee have background in biological or environmental sciences and/or have undergone training in disaster preparedness themselves. It is possible that having the right information on earthquake preparedness allowed them to be more present-minded at that time and see earthquakes in a more neutral sense – a natural occurrence. Some studies had shown that it is actually information that makes people to get involved in disaster preparedness (Mileti 1999, Paton 2006, Wood et al. 2011). As one participant said, “I see myself as active member since DRRM is also related to my *discipline*” [emphasis authors’]. In other words, people who have more information about the phenomenon may be engaging in DRRM initiatives not so much because of the fear they have experienced but more of their knowledge about the nature of the phenomenon and the preparedness initiatives that one can take.

Participants, who saw earthquake as a fleeting concern or less threatening than typhoon, practically did not take any action to prepare themselves, aside from the required drill in the office. Though their actual experience of the earthquake may have been of fear, it is their lack of appreciation for earth-quake disaster preparedness or its urgency that makes them less likely to engage in the latter. As other previous studies have pointed out, lack of awareness about one’s vulnerability to disasters can dampen one’s motivation for preparedness (Janis and Mann 1977, Lindell and Perry 1993, Baytiyeh and Naja 2016). Even if one is aware or has the required information, competing demands from work and

other commitments meant that at some point, “we no longer think about it”, as one participant explained (Palm et al. 1990, Carter-Pokras et al. 2007, Lindell et al. 2009; Becket et al 2012). Fear, in this case, may not always be enough of a motivation for some people to engage in disaster preparedness, given the immediacy of everyday concerns. In another instance, the inaction can also be attributed to a fatalistic attitude towards earthquake. As one respondent said, she has not done any disaster preparedness because she believes that in spite of the drills being done, Filipinos cannot survive an earthquake given how “our cities are built.” This shows that in some instances, the lack of action towards preparedness lies not on one’s emotions but on the perceived futility of any action given the enormity of the problem at the societal level.

## CONCLUSIONS AND RECOMMENDATIONS

This study has shown that people’s experience of earthquakes – during and its aftermath – are varied and shaped by their personal encounters with the phenomenon, individual contexts, beliefs, and prior knowledge or education. Most participants in the study mostly experienced fear and shock during the earthquake and saw earthquake as a reality to prepare for. In addition, some participants – who were mostly members of the DRRM Committee – had presence of mind and saw earthquake as a natural occurrence, indicating that prior knowledge on earthquakes can be a factor in disaster preparedness beliefs and behavior. And there are those who same saw earthquakes as a fleeting concern and have not taken any personal initiative towards preparedness. These findings contribute to the body of work that used qualitative approach to get a more nuanced picture of the people’s experiences of earthquake and their actions toward it.

While there is a diverse types of action reported by the participants, on an individual basis, their actions are quite limited. This poses a challenge to the university and provides some basis for the DRRM Committee to step up its education initiatives. In planning its communication campaign, the Committee may use fear as a communication trope to disseminate its messages more effectively. However, not everyone is motivated by fear as the study’s findings suggest. Some take actions based on prior knowledge about disaster preparedness, which means that the Committee can take a more educational approach for this subset of employees. Since most of the operations in the university are undertaken online, the university can make use of multimedia formats (e.g., videos, infographics) and social media to disseminate information on the importance disaster preparedness and some basic preparedness strategies. It can also create an open online course on disaster preparedness that can be taken freely not only by its staff members by also by its students and the wider community. The DRRM Committee should continue the the conduct of forums on earthquake and other disaster preparation activities.

It is highly recommended that all employees, from the temporary staff to the administrators, be personally involved in the planning, designing and implementation of earthquake and other disaster preparation activities in the university. Earthquake drills need to be practiced regularly. The university can also tap their faculty members and staff who are nurses and experienced disaster volunteers while waiting for other employees to be trained in first aid and rescue operations. In addition, staff members who are not based in the headquarters reported that they have not been able to participate in the training and drills. The university can probably enlist those staff members in the drills done in other UP campuses.

Aside from information campaign, the university also need to find ways of helping their staff members increase their level of preparedness. As recommended by the DRRM Committee, there is a need to prioritize the provision of emergency kits to all employees. The university can link with other organizations to help staff members in the procurement of emergency supplies (e.g., solar flash lights; manual crank radio) that can spike their interest in disaster preparedness. The university should continue its other DRRM efforts like checking the structural worthiness of its buildings and do the necessary repairs and renovations. It needs to keep its databases on both cloud and on-premise servers to ensure the safety of its digital resources and sustainability of its operations even in the case of disasters. These recommendations can also offer some practical application to similar educational institutions.

While the study offers some insights, it also has several limitations. It did not cover the sustainability of the actions taken by participants. A longitudinal study can be done to analyze people's beliefs and behaviors over time. Second, the participants in the study have not experienced the worst effects of earthquakes, hence, a similar study on recent victims in earthquake-hit regions can be done in the future to get a deeper understanding of the realities of disaster preparedness or lack thereof. Third, a more structured and wider study can be done to cover more participants and settings and validate any correlation between participants' profiles, beliefs, and behaviors in disaster preparedness.

### **STATEMENT OF AUTHORSHIP**

The first author conceptualized and initiated the study and conferred with the second author. Based on the literature review that she did, the first author developed the research questions and the online survey instrument and collaborated with the second author on the conduct of data gathering. Both authors collaborated in data analysis and writing up.

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