

***BANDILYO*, Face-to-Face Interaction, and Vulnerability Awareness as Conduits of an Effective Disaster Risk COMMUNICATION**

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ABSTRACT

This paper provides empirical evidence that face-to-face interactions and people's vulnerability awareness are conduits to the information-seeking behavior of people living in hard-to-reach locations. This argument is substantiated by presenting a barangay (village) case in the northeastern area of Mindanao, Philippines. This village is a frontrunner in Disaster Risk Reduction and Management (DRRM) implementation, having won local and national DRRM competitions. This investigation was conducted through an assessment survey of residents in the area based on disaster communication ecology (DCE). Results show a solid micro-level DCE and a misalignment between meso and micro levels. Majority of the respondents believe that they are vulnerable to disasters, are aware of and have attended disaster risk and reduction programs; find bandilyo, an announcement in the local dialect delivered by a member of the village DRRM council using a megaphone, as the most common and essential tool in communicating disaster information; and have a positive assessment of the village's disaster risk reduction and management plan. Given these, strengthening disaster preparedness requires a solid foundation of community-level human interaction. The results of this study will also provide significant data to establish the existing disaster communication ecologies and help formulate messages relevant to their context.

KEYWORDS: *Risk Communication Strategies, Information Transfer*

INTRODUCTION

The EM-DAT: CRED International Disaster Database has documented 3,241 natural hazards in Asia alone from 2001 to 2021. The alarming number of cases calls for a more proactive disaster risk reduction and management program that aims to build resilient communities. A strong pre-disaster information

campaign should be set in place. However, spatial concerns are detrimental to poorly planned pre-disaster communication efforts. Places and communities are experiencing unequal access to information solely because of their location (Sujarwoto & Tampubolon, 2016; Sumaylo and Sison, 2022; Sumaylo, 2023). This paper aims to document the disaster and risk communication experiences of people living in an island context separate from the mainland. We agree with extant literature (Sim, Han, Guo, Lau, Yu, and Su, 2021; Sumaylo and Sison, 2022) that mapping the DCE of an island area can provide significant data to establish the existing disaster communication ecologies in certain geographic contexts and help formulate messages relevant to the community. If communities are informed, they can prepare ahead. Cayamanda (2020) argues that communities must build their resiliency to respond to natural hazards and mitigate their negative impacts since the country cannot avoid, for instance, typhoons and their associated risks. Minimizing the cost and damage through preparation and coordination is a strategy. At the same time, policymakers and leaders must regularly review and update existing policies to address gaps and promote effective risk communication as an integral element of risk reduction. Moreover, to encourage a community-based approach through an organized collaboration of individuals, communities, and organizations, this study also focuses on a community-based or localized approach to risk reduction (Cayamanda, 2020).

Mindanao, the second-largest island in the Philippines, is considered the country's food basket (Food and Agriculture Organization of the United Nations (FAO), 2017) because its location is not prone to typhoons (Montalvan, 2014). However, the National Disaster Risk Reduction and Management Council (NDRRMC) records show that the typhoon path has changed in recent years, mainly affecting the northeastern part of the island (NDRRMC, 2018). Because of this, people living in areas not historically prone to such natural disasters were unprepared for the devastating aftermath. These natural calamities are occurring at an alarming frequency and magnitude, resulting in damage to property, loss of livelihood, and even deaths.

This lack of familiarity and experience developed a false sense of security among residents in Mindanao (Rasquinho, Liu, & Leong, 2013). This resulted in underdeveloped disaster preparedness skills and a lack of interest in learning to be resilient. This underdevelopment is also linked to people's skills with a specific medium and their medium preferences (Shklovski, Burke, Kiesler, & Kraut, 2010). Information forms and sources are crucial in

communicating disaster information (Liu, Fraustino, & Jin, 2016). Thus, without enough disaster preparedness knowledge, lives will remain at risk. This builds on the argument that access to information is a crucial part of disaster risk communication, from both the local community's and emergency responders' perspectives.

To address the growing need for communities to be better prepared for natural hazards, the National Disaster Risk Reduction and Management Plan (NDRRMP) for 2011-2028 was formulated in 2011 as a by-product of the establishment of the NDRRMC. The plan highlights the importance of community-based DRRM, enabling barangays (villages) to develop their own plans. Given this, disaster risk communication at the village level in the Philippines should be investigated. Hence, it is crucial to analyze the various adaptive practices and communication methods utilized by local government units at the village level – the smallest governing body in the Philippines (Zamora, 1967; Romani, 1956).

Purpose of the Study

This paper unpacks the multiplatform pre-DCE of an isolated community in the Philippines. We also present people's knowledge and perceived reasons for vulnerability. Finally, we discuss how knowledge, perception, and communication ecology may help build community resilience.

Focusing on the community's need to build its resiliency to respond to and mitigate the negative impacts of natural hazards is significant in disaster risk reduction and management. This paper argues that a localized approach to communicating disaster risk information should be developed rather than relying on those produced by government and non-governmental organizations. Localization means knowing what mode of communication the people use, have access to, and find effective. The involvement of local communities in the communication process is argued to help people build resilience during disasters (Baybay & Hindmarsh, 2019; McLennan, Reid, & Beilin, 2019; Lansakara, Le De, Petterson, and Wickramasinghe, 2023).

Thus, this paper aims to assess local communities' knowledge of disaster vulnerability, the communication tools used to disseminate information, and their awareness of disaster and risk prevention programs in a calamity-prone community. Doing so would help identify various factors that aid in identifying relevant components that benefit disaster risk communication for communities in

hard-to-reach places experiencing socio-economic inequalities.

METHODS

The study used a quantitative research design and an empirical survey (Rao, 2002) to collect data. Descriptive statistics were used for the analyses. The study was conducted in a village in Northeastern Mindanao, Philippines. This province was selected based on the frequency of typhoons it faces annually (NDRRMC, 2018). The field site identification was based on the Provincial Disaster Risk Reduction Management Office (PDRRMO) recommendation. This village is considered a disaster-prone community. Despite this, the village was considered the most improved regarding DRRM implementation in 2015. It is also a recipient of the Provincial Gawad KALASAG Search for Excellence in DRRM and Humanitarian Assistance, Barangay Disaster Risk Reduction and Management Council (BDRRMC) category.

Data Collection and Survey Tool

Data collection in this study was facilitated through a survey conducted by the proponents in coordination with local officials in the village. It was administered as part of the barangay (village) council's monthly seminars on social services projects, the lowest level of governance in the Philippines. These monthly seminars are voluntary and attended by representatives from each household in the village. A bandilyo was released to disseminate information on the monthly seminar and survey. The announcement also highlighted that the invitees are adult representatives per household who are at least 18 years old. Among the 277 households in the village, 184 households (66%) sent a representative.

During the survey proper, an orientation on the nature of the study and the specific instructions in the questionnaire was discussed. This was followed by the distribution of an informed consent form and a survey questionnaire. The respondents answered the survey simultaneously, with the researchers and research assistants available for further clarification. Each returned questionnaire was checked and evaluated before the respondent left the venue.

This study's survey questionnaire has five sections: demographics, knowledge of disaster vulnerability, communication tools, disaster risk reduction program awareness, and personal assessment of the village's disaster risk reduction plan. Each of these sections is briefly described in Table 1. The questions in this tool are all closed-ended and align with DCE's general

objectives. The framework, which is grounded on communication ecology (Altheide, 1994), was synthesized with evidence from the literature on knowledge, awareness, and information and communication in disasters (Xuerui, 2008; Broad et al., 2013; Shklovski et al., 2010; Liu, Fraustino, & Jin, 2016; Spialek, Czapinski, & Houston, 2016; Perreault, Houston, & Wilkins, 2014; Spialek & Houston, 2018). The tool included an assessment section that used the same questions as the assessment tool used by the Local Disaster Risk Reduction & Management Council (LDRRMC) in villages. We did not use the Citizen Disaster Communication Assessment (Spialek & Houston, 2018) tool because this study is focused on pre-disaster communication. However, we share the same objective: to document the communication ecology of a particular phase in DRRM.

Before actual implementation, the survey tool in this study was pre-tested in a village similar to the study area – geographically isolated, with limited access to technology, and with a demographic profile of 20 respondents. We assessed the pre-test results through an expert review to identify issues with question wording and administration. Once the problems were resolved, the final questionnaire was developed and translated into the local dialect of the study site.

Table 1

Description of Survey Questionnaire.

Sections	Description
I. Demographics	Profiles the demographics of the respondents by inquiring about their age, sex, civil status, <i>barangay</i> (village) cluster and years of stay, years of formal schooling, occupation, employment status, estimated gross monthly income, estimated monthly expense, and property ownership.
II. Knowledge of Disaster Vulnerability	Considers four common disaster risks: flood, landslide, tsunami, and typhoon. This section asks about the respondents' vulnerability in terms of their experience and factors of exposure to each disaster.
III. Communication Tools for	This section answers the question of what communication tools about DRRM are used in

Information Dissemination	the <i>barangay</i> (village), the importance of the tools, and respondent perception of the tools' effectiveness and their underlying factors.
IV. Awareness of the village's Disaster and Risk Prevention Program	A list of the field site's program for disaster preparedness is assessed in terms of awareness/existence and attendance at the activity.
V. Personal assessment of the village's Disaster and Risk Reduction Plan	Disaster risk reduction activities of four common disasters are assessed based on the criteria of assessment rated on a Likert scale from 1-4, where 1 means "Strongly Disagree" and 4 "Strongly Agree".

Data Processing and Analysis

The completed survey questionnaires were entered into Microsoft Excel. The answers were coded the same way they are reflected in the questionnaire. However, in most cases, it is coded as 1 (presence) and 0 (absence), and left blank if the respondent left the question unanswered. Note that in the analysis, blank answers were not included in the totals.

After consolidating the data, descriptive statistics were used for data analysis. The methods used summary statistics, and the abstract relations among variables were examined by displaying the data in tables and bar graphs. All of these were done in Microsoft Excel by utilizing its built-in functions.

Ethical Statement

This study was approved by the University of Immaculate Conception Research Ethics Committee (UIC-REC). An entry protocol was observed before conducting the study, as one of the objectives was for the PDRRMO to help identify an area prone to disasters where the study would be conducted. Letters were sent, and personal appearances were made to the Provincial Governor of the field site. Aside from that, a letter was also sent to the PDRRM Officer. After the area was identified, a letter was sent to both the Mayor of the Municipality and the field site's village Captain. Moreover, ethical considerations were observed during the survey, as all respondents' information was kept confidential. Personal information that might track their identities was not

collected as well. Hence, checking the questionnaires before leaving the gymnasium was necessary. Furthermore, respondents completed a consent form allowing us to conduct the study and use their information for this research.

RESULTS

Respondents Profile

The respondents who participated in the survey are between 18 and 76 years old. But on average, respondents' ages are approximately 42. The majority are female (66%) and married (67%), with a median of 8 years of formal schooling and a median gross monthly household income of about PHP 4,167. The median average years of residence in the area represented by the representatives was approximately 23 years. Regarding occupation, several respondents reported multiple occupations. Given this, most were farmers (36%). This is followed by fisherfolk (22%) and "other" occupations (21%) in the area (i.e., housewife, housekeeper, BHW, BNS, *Konsehal*, etc.). The rest either worked in mining industries (13%), were self-employed (7%), owned sari-sari stores and other small enterprises, or worked for the government (2%). Seven of those with formal employment had permanent status, while 49 were under contract or on a job order.

As with occupation, respondents also reported owning more than one property. The survey results showed that 59% owned houses, 45% rented farmland, 1 person had a rent-to-own fishing boat, and 57% owned houses but were mortgaged. In general, the respondents' profiles are shown in Table 2.

Table 2

Summary table of respondents' profile.

Demo-graphics	Count	Mean Average	Median Average	Minimum	Maximum
Age	173	42.68	42	18	76
Years in Barangay	178	26.56	23	1	75
Years in School	154	7.99	8	1	16
Monthly Income	167	PHP 4,166.99	PHP 4,000	PHP 300	PHP 13,000

Monthly Expense	158	PHP 3,785.76	PHP 3,000	PHP 300	PHP 12,000
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Demographics	Count	Percent
Sex	176	100%
Male	60	34%
Female	116	66%
Civil Status	176	100%
Single	4	2%
Married	118	67%
Widow/er	30	17%
Separated	3	2%
Live-in	21	12%
Occupation	199	100%
Farming	71	36%
Government Employee	4	2%
Fishing	43	22%
Mining	26	13%
Self-Employed	13	7%
Others	42	21%
Employment Status	56	100%
Permanent	7	13%
Contractual	49	88%

Note: Percentages might be off by a few decimal places due to rounding.

Property Ownership	Owned		Rented		Rent-to-Own		Owned but with Mortgage	
	Count	%	Count	%	Count	%	Count	%
House	154	59%	12	30%	0	0%	4	57%
Farmland	72	27%	18	45%	0	0%	2	29%
Fishing Boat	36	14%	10	25%	1	100%	1	14%
Total	262	100%	40	100%	1	100%	7	100%

Knowledge of Disaster Vulnerability

Overall, the survey found that the majority of respondents (64%) experience frequent disasters and consider their village vulnerable to disaster risks (73%) (see Table 3). This experience presents four common disaster risks: floods, landslides, tsunamis, and typhoons. Considering this, several respondents said they do not experience frequent disasters but still consider their area prone to disasters (46%).

Table 3

Cross-tabulation of respondent experience and consideration to their area as flood, landslide, typhoon, and tsunami-prone.

Do you experience frequent disaster?	Do you consider your area as disaster-prone?		Total
	No	Yes	
No	90	77	167
Yes	37	262	299
Total	127	339	466

Figure 1 also summarises the respondents' disaster experience regarding the four risk vulnerabilities presented. Of the four disaster risks, tsunamis have the fewest respondents with frequent experience (22%). Typhoons (99%) and floods (92%) are the most prominent, and these disasters are considered prevalent in the area.

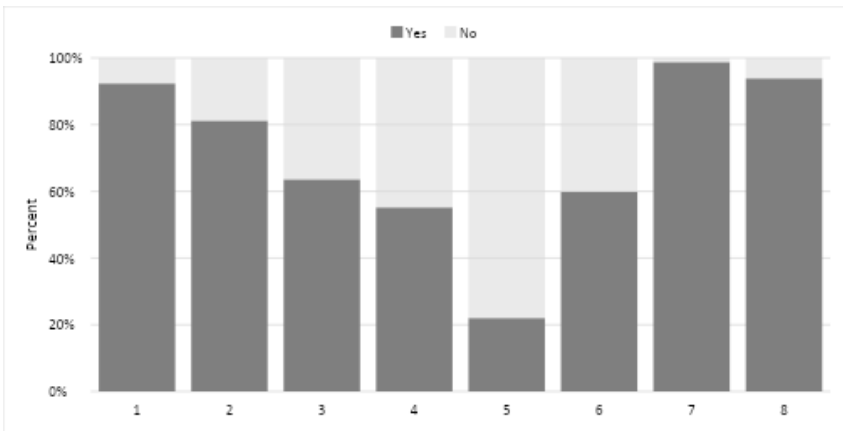


Figure 1. Respondent experience of disaster and consideration of their area as disaster-prone by disaster risk.

Perceived Reasons for Disaster Vulnerability

Three areas were considered in assessing the local community's perception of the possible reasons for disaster vulnerability. These are (1) Physical Material Factors, (2) Organization of the Community, and (3) Attitude and Motivation. Table 4 summarises the respondents' perceived reasons for each factor and disaster risk.

Table 4 shows that regardless of disaster risk, more than 50% of respondents indicated that the listed perceived reasons are factors for disaster vulnerability. However, perceived reasons are more prominent for each disaster risk. Under Physical Material Factors, livelihood (Flood – 94%, typhoon – 88%, landslide – 85%, and tsunami – 92%) is the most notable reason across disaster risk. However, other reasons, such as the location and materials of the house/building (88%), were also observed to be associated with typhoons. For the Organization of the Community, the primary reason, regardless of disaster risk, is the enforcement of laws and ordinances (Flood – 86%, typhoon – 87%, landslide – 88%, and tsunami – 85%). Meanwhile, for Attitude and Motivation, the primary reason is Unity and Cooperation for both floods (94%) and typhoons (92%).

Table 4

Respondents' reasons for vulnerability are based on physical and material factors, political arrangement/structure and laws and ordinances enforced per disaster risk.

Perceived Reasons	Flood		Typhoon		Landslide		Tsunami	
	Ct.	% Yes	Ct.	% Yes	Ct.	% Yes	Ct.	% Yes
Physical Material Factors								
Location	87	79%	92	88%	67	78%	81	85%
Materials of the house/building	80	85%	81	88%	59	80%	67	84%
Livelihood	85	94%	81	88%	72	85%	60	92%
Land access and control	70	80%	65	72%	57	79%	50	78%

Infrastructure and facilities	56	84%	54	81%	45	73%	44	84%
Organisation of the Community								
Political arrangement/structure	56	66%	52	71%	44	68%	43	70%
Laws and ordinances enforced	76	86%	61	87%	65	88%	47	85%
Attitude and Motivation								
Individual beliefs	72	89%	71	85%				
Unity and cooperation	93	94%	60	92%				
Others	7	57%	7	57%				

Communication Tools for Information Dissemination

Information seeking is closely tied to people's media preferences. In the survey, the top five communication tools that respondents rank as most important/relevant for communicating disaster risk information are, in order: *Bandilyo*, Community Meetings/Barangay Assembly, Seminars/Disaster Drills, Text Blast, and Face-to-Face Communication. From this, it can be said that these are interpersonal. For the overall ranking, see Figure 2.

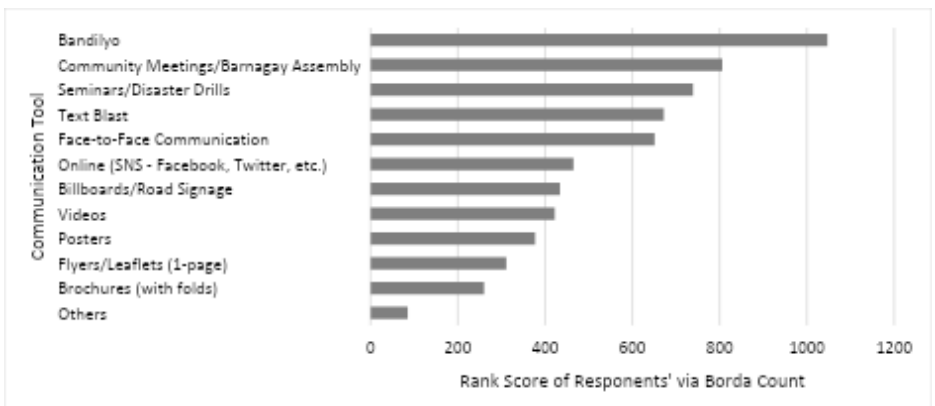


Fig. 2. Respondents' ranking of communication tools based on importance/relevance in disseminating disaster risk-reduction information

The communication tools were also assessed on their perceived effectiveness, as shown in Figure 3. Results show that at least 55% of the tools are perceived as effective, without consideration of "others". The top five communication tools perceived as most effective are, in order, *Bandilyo*, Community Meetings/Barangay Assembly, Seminars/Disaster Drills, Face-to-Face Communication, and Text Blast. Notably, the tools perceived as essential and effective follow a similar order.

Moreover, the community also considered a tool effective if it is easy to understand (72%), accessible (46%), relatable (42%), available (29%), with pictures (27%), full color (11%), and for other reasons (2%) (see Figure 4).

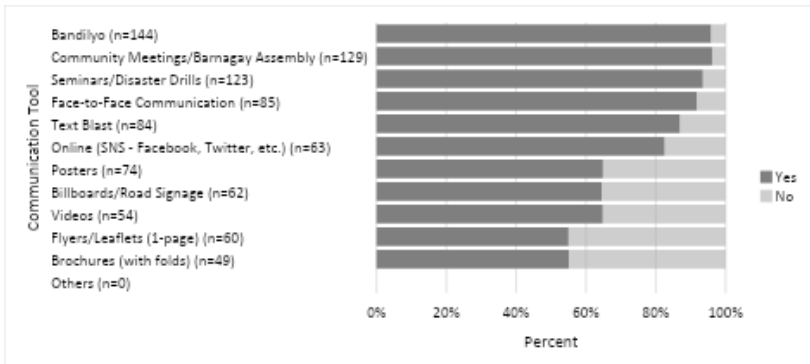


Figure 3. Perceived effectiveness of communication tools

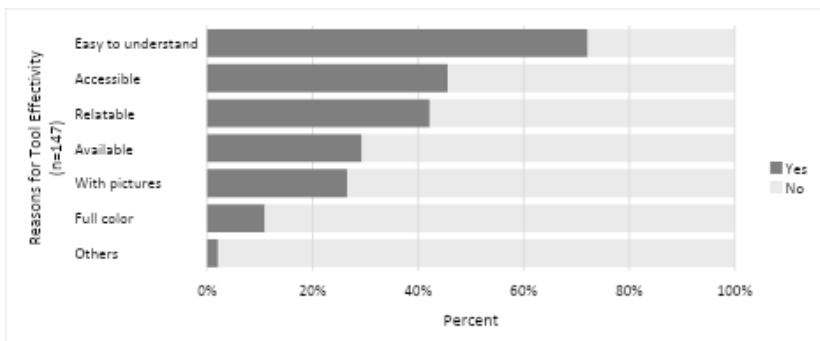


Fig. 4. Respondents' reasons for tool effectivity

Awareness of Disaster and Risk Prevention Programs

Table 5 summarises the level of awareness of disaster risk prevention programs in the village. This table shows that at least 62% are aware of the village's various disaster risk prevention programs, and at least 54% have attended one of the listed programs – the Early Warning System. However, the program the respondents are most aware of is Community Meetings/ Barangay Assembly (78%), while the program the most respondents attended is Flood Preparedness (73%). Regardless of the program, the attendance times are not particularly unique.

Table 5

Summary of the respondents' level of awareness of disaster risk prevention programs in the village

Program	Respondents Aware (n=184)		Respondents Attended (n=184)		Times attended		
	Ct.	%	Ct.	%	Ct.	Median	Range
Flood Preparedness	146	79%	135	73%	61	2	[1,5]
Landslide Preparedness	114	62%	102	55%	39	2	[1,5]
Tsunami Preparedness	121	66%	112	61%	61	2	[1,5]
Typhoon Preparedness	137	74%	115	63%	61	2	[1,5]
Evacuation and Rescue Drills	133	72%	116	63%	61	2	[1,5]
Early Warning System	113	61%	99	54%	61	1	[1,5]
Community Meetings/ Barangay Assembly	143	78%	124	67%	61	2	[1,10]

However, it should be noted that the difference between those who knew about the seminars and drills and the attendance turnout is not that large. This only shows that the residents of the field site are proactive in disaster risk reduction and management.

Personal Assessment of the BDRRM Plan

In the assessment of the BDRRM Plan, respondents were asked to rate statements corresponding to the plan mentioned above by indicating the appropriate number with 1- Strongly Disagree, 2- Disagree, 3- Agree, and 4- Strongly Agree. Table 6 summarises the mean of all answers provided.

In general, the majority of the respondents "Agree" with the statements in the self-evaluation tool (see Table 6). Notable are those with almost perfect scores (3.5 and above), which suggest respondents' proactive support for the Barangay Local Government Unit's efforts in disaster risk management. These notable criteria for assessment are as follows:

Overall Assessment

- Topics were comprehensively discussed (except for Flood Preparedness).
- The activities were encouraging the respondents to prepare for a calamity.
- The activities were helpful to the respondents, and
- The respondents are interested in attending symposiums discussing disaster preparedness.

Evacuation and Rescue Drills

- Identification of the evacuation center in case of disaster for both facilitators and participants;
- The program encourages the respondents to be prepared to deal with disasters.
- The activities are helpful, and
- Respondents are willing to participate in evacuation drills regardless of disaster risk.

Early Warning System

- Provides enough warning time to respond during disasters.
- Respondents answer accordingly during alarms.
- Effective implementation of the early warning system (for Flood and Typhoon Preparedness only);
- Credible village officials to facilitate the system; And
- Useful early warning system.

Table 6

Scores of respondents' assessment of the BDRRM Plan.

Criteria for Assessment	Disaster Risk Reduction Activities			
	Flood Preparedness	Landslide Preparedness	Tsunami Preparedness	Typhoon Preparedness
The topics were comprehensively discussed	3.42	3.50	3.62	3.59

Criteria for Assessment	Disaster Risk Reduction Activities			
	Flood Preparedness	Landslide Preparedness	Tsunami Preparedness	Typhoon Preparedness
The topics interest me to listen attentively	3.43	3.45	3.47	3.55
The time allocated was enough to process the information given	3.43	3.39	3.41	3.45
The resource speaker/s was/were knowledgeable in the topics	3.28	3.31	3.24	3.41
The resource speaker/s was/were credible	3.32	3.23	3.27	3.32
The language used by the resource speaker/s can be easily understood	3.21	3.21	3.24	3.31
The resource speaker/s encouraged participation	3.22	3.19	3.26	3.29
The venue was suitable for the program	3.44	3.34	3.29	3.45
The questions raised during the symposium were satisfactorily answered	3.21	3.23	3.18	3.29

Criteria for Assessment	Disaster Risk Reduction Activities			
	Flood Preparedness	Landslide Preparedness	Tsunami Preparedness	Typhoon Preparedness
The program encouraged me to be prepared to deal with disasters, especially flood	3.63	3.56	3.57	3.63
I find that this program is useful to us	3.62	3.54	3.60	3.62
I am interested in attending more symposiums discussing disaster preparedness	3.64	3.68	3.61	3.65
Evacuation and Rescue Drills				
The venue was suitable for doing the drills	3.32	3.38	3.36	3.40
The facilitator/s together with the participants was able to identify an evacuation centre in cases of disaster	3.65	3.61	3.62	3.66
The facilitator/s was/were knowledgeable enough	3.24	3.22	3.15	3.28
The steps/instructions were comprehensive	3.15	3.10	3.14	3.24

Criteria for Assessment	Disaster Risk Reduction Activities			
	Flood Preparedness	Landslide Preparedness	Tsunami Preparedness	Typhoon Preparedness
The language used by the facilitator/s can be understood easily	3.28	3.27	3.27	3.30
The questions raised during the drills were satisfactorily answered	3.25	3.32	3.19	3.27
The time allotted for the program was enough to process the information given	3.20	3.26	3.29	3.26
The program encouraged me to be prepared to deal with disasters	3.71	3.67	3.68	3.73
I find these programs useful to us	3.58	3.54	3.56	3.65
I am willing to participate in drills such as these	3.60	3.52	3.56	3.56
Early Warning System				
The warning is given early enough for us to respond accordingly	3.56	3.61	3.61	3.50

Criteria for Assessment	Disaster Risk Reduction Activities			
	Flood Preparedness	Landslide Preparedness	Tsunami Preparedness	Typhoon Preparedness
The message is immediately understood when the warning is given	3.39	3.47	3.44	3.42
When it alarms, I respond accordingly	3.61	3.65	3.66	3.65
The method of giving warning signs is effective for the community	3.50	3.44	3.42	3.54
Barangay officials who facilitate this system are credible	3.64	3.65	3.63	3.65
I find this warning system useful	3.68	3.79	3.78	3.69

This study provides empirical evidence on the essential components of disaster risk communication, particularly in addressing hard-to-reach and socio-economically disadvantaged communities. We identified that face-to-face or interpersonal communication techniques work best for communities that have difficulty accessing understandable, relatable disaster risk communication pathways. There is also a need to explore lived experiences as conduits for increasing people's awareness of their vulnerability, shaped by physical and material infrastructure, political infrastructure, and shared experiences.

Using DCE as a lens, it can be deduced that the current pre-disaster communication strategy implemented in geographically isolated locations is "platform-centric". It failed to utilize the micro-level of DCE, focusing instead on community storytellers, community culture and traditions, and overall

communication dynamics, all of which are impacted by individual social capital and power.

Moreover, knowing the level of vulnerability knowledge and their attendance at training is essential to determine whether meso-level efforts reach the community. Data shows a high level of awareness of DRRM-related programs in the village. Yet, it is unclear how people at the micro-level can use information on evacuation drills and early warning systems that respondents rated positively. It is also unclear how micro-level factors assist in pre-disaster communication to build community resilience.

Community engagement, a program pushed by the National DRRM Council of the Philippines, is appropriate for establishing community resiliency, yet it is underutilized or misused in its grassroots roll-out. Given the data from the case presented in this paper, it is clear that involving the micro-level of the current communication ecology augments the meso-level supervised by the government.

The case we present in this paper provides empirical evidence on the significance of micro-level DCE in two aspects: interpersonal/face-to-face communication and the community's shared experiences. We discuss these two aspects of micro-level DCE to shed light on the significance of demographic profile, culture, tradition, and value systems in planning, designing, and implementing pre-disaster communication strategies.

Interpersonal / Face-to-Face Communication

Based on the communication tools documented at the field site, there is a clear divide between what is readily available and what the community considers valuable and relevant. The availability of information is considered one of the criteria for an effective disaster communication practice, alongside accuracy and reliability (Rodríguez, Diaz, Santos, & Aguirre, 2007). A quick field observation at the municipal and village level also suggests that the national DRRM council members provided several print materials. However, these are often written in English or in Filipino, the national language. This language choice required residents of the field site to translate this information into something understandable and relatable. Face-to-face communication became the preferred channel because respondents found the information communicated through this channel more relatable and understandable than print. When information is understandable and relatable, people are more likely

to go through hearing, understanding, believing, confirming, and responding without any problem (Rodríguez, Diaz, Santos, & Aguirre, 2007). This observed scenario created a divide between the literacy level required to understand these communication tools and the respondents' educational levels, most of whom had some education or had graduated from high school.

It should be noted that communication plays a vital role in pre-disaster communication. The act of communicating, however, does not focus solely on what is communicated but also on how it is transmitted to the public (Quarantelli, 1986, p. 2-5). Unsurprisingly, the communication tools respondents considered most important were *bandilyo*, community meetings or barangay assemblies, seminars, disaster drills, and billboards or road signage. This suggests an interpersonal mode of communication between the village DRRM council and the community. In this manner, content from print materials available in the area is localized into something understandable. *Bandilyo*, considered most preferred by respondents, is a tool emanating from the village DRRM council. There is a sense of control over the tool because no agency dictates to the local council to use it. For respondents, the most helpful information tools were easy to understand, accessible, or relatable.

A sense of control is also reflected in respondents' assessments of their village's disaster risk reduction and management practices and plans. Although most answers are in the mid-range (see Table 6), it can be inferred that respondents gave higher assessments to matters or topics they believed they could control afterward. In terms of messages, people are more concerned with coping with the negative impacts of natural hazards than with identifying the hazards themselves. This can be attributed to people's past experiences and level of vulnerability awareness.

Shared Experiences vis-à-vis Vulnerability Awareness

From these results, it can be deduced that women who have lived longer in the area are eager to learn more about managing the impacts of natural hazards. The number of years spent living in the area provided firsthand experience of the risks they face. This aligns with the extant literature, which suggests that experience is the best teacher in managing disasters (Paton & Buergelt, 2019; Becker et al., 2017; Ruin, Gaillard, & Lutoff, 2007). Lechner and Rouleau (2019) emphasized that prior exposure to hazards and evacuation aids influences an individual's decision-making in responding to evacuation calls. Without prior experience, people tend not to act on disaster risk reduction

messages. Those with the least experience also tend to underestimate the impact of a natural hazard. This paper, therefore, suggests further investigation of the effects of prior experience in communicating disaster risk information. As David Kolb (1984, p.31) posits, learning through experience "involves the integrated functioning of the total organism – thinking, feeling, perceiving, and behaving."

People's past experiences also heightened their awareness of vulnerability stemming from their geographic location. They believed they were vulnerable for three reasons: the physical/material used for infrastructures, the way the community is organized, and their attitude and motivation to act on pre-disaster messages.

The first reason is their geographic location. This is beyond people's control. However, there is a choice to move to another village, the least prone to natural hazards; the decision to relocate requires socio-economic factors that would enable them to do so. Sujarwoto and Tampubolon (2016) refer to this as spatial inequality. People's geographic location already puts them at risk (Sumaylo, 2023; Sumaylo and Sison, 2022). Coupled with socio-economic inequalities, they use light materials to build their houses and other infrastructures in the village that cannot withstand substantial floods, wind, and rain. The field site is located in one of the wettest areas in the Philippines, with a total of 242 rainy days in 2001 (BDP, n.d.). Aside from that, a person's line of work, land access, and control are also considered when determining whether an area is prone to disasters.

The second reason is grounded in training local responders and equipping community sectors, such as the church, to respond during disasters, which can be viewed positively or negatively. Many believed that the political arrangement, the structure of government, and the enforcement of laws and ordinances could increase an area's vulnerability to flooding. Local politics can dictate the current administration's agenda. This means prioritizing government projects that affect people's disaster vulnerability (Vincent, 2016; Basolo, Steinberg, & Gant, 2017). If disaster risk reduction and management are given lower priority, implementing laws and crafting local ordinances for DRRM will not be prioritized. People are less vulnerable if they know their community is ready for a disaster. However, we argue that readiness is also personal. If a person feels unequipped because she/he was excluded from training, this will create another layer of inequality.

The third reason is rooted in their lived experiences. It helped them develop their preparation methods due to the frequent typhoons in their area. Past experiences served as indirect predictors of whether people would prepare (Bamberg, Masson, Brewitt, & Nemetschek, 2017). However, experience has a dual reputation as a positive indicator of people's action or inaction (Onuma, Shin, & Managi, 2017). Lived experiences can also be the people's shared socio-economic inequalities. The province is a fourth-class province in terms of income and comprises seven municipalities (Philippine Statistics Authority, 2019). The field site is one of the most impoverished areas in the Philippines based on its average annual income (Business World Research, 2018).

Overall, the inequalities in literacy and education by respondents' level of education indicate that inaccessible education services remain widespread, especially in Southeast Asian countries (Sujarwoto & Tampubolon, 2016; Madianou, 2015). Geographic location is also problematic, as it highlights communication infrastructure issues in the area. Telecommunication infrastructure is crucial in disaster communication (Bolin & Kurtz, 2018). Disparities in income are also a conduit for exacerbating socio-economic inequalities in the area (Mansell, 2017), affecting disaster risk communication.

CONCLUSION

In conclusion, we believe that strengthening disaster preparedness through disaster risk communication efforts relies on a solid foundation of human interaction at the community level (micro-level DCE) for the meso-level DCE to blend seamlessly with the local social and communication environment. It is also assumed that mainstreaming disaster preparedness methodologies currently practiced at the local level into policies (meso-level DCE) will institutionalize residents' involvement in developing a disaster-resilient community. Overall, the case articulated in this paper points to the political mainstreaming of pre-disaster communication and personal mainstreaming. If disaster preparedness efforts are to emanate from the household, they can be informed by local communities' personal experiences. We continue to argue that engaging local communities means making them part of the process of becoming resilient, as evidenced by their efforts to develop their trusted communication tool (*bandilyo*). We also acknowledge that this paper does not cover aspects of the community's DCE. This includes community dynamics that impact the micro-level communication environment, as well as the relationship between organizational or governmental communications policies and practices that either support or hinder a micro-level DCE's natural growth. This study,

however, began mapping the DCE of geographically isolated communities, detached from the convenience of access to multiplatform DCE.

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