

A Feasibility Study on Disasters and Disaster Risk Reduction Factors Awareness of LSPU Students

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ABSTRACT

This study determined the students' degree of awareness at Laguna State Polytechnic University (LSPU) Sta. Cruz, Laguna in terms of disaster risk reduction and its significance, which was the basis of the LSPU DRRM Center construct. This employed a descriptive- correlational study and used a purposive sampling technique. The results revealed that the respondents had experienced various types of disasters. They are slightly aware, at least, of risk reduction factors anchoring on political commitment, while they are no less than slightly aware of the particulars related to risk reduction measures. Moreover, the results of χ^2 Tests of Independence revealed that the awareness of Disaster Risk Reduction Factors depends on the individual's exposure to a single or a combination of natural disasters. On the contrary, the extent of awareness of those factors does not depend on the respondent's exposure or experience with global viral diseases and man-made disasters.

Keywords:

Natural Disaster; Man-Made Disaster; Global Viral Disease; Risk Reduction.

ABSTRAK

Penelitian ini untuk mengetahui tingkat kesadaran mahasiswa di Laguna State Polytechnic University (LSPU) Sta. Cruz, Laguna dalam hal pengurangan risiko bencana dan signifikansinya yang menjadi dasar dibangunnya LSPU DRRM Center. Penelitian ini menggunakan penelitian deskriptif-korelasi dan menggunakan teknik purposive sampling. Hasil penelitian mengungkapkan bahwa responden pernah mengalami berbagai jenis bencana. Mereka sedikit menyadari, setidaknya, faktor pengurangan risiko yang berlabuh pada komitmen politik sementara mereka tidak kurang dari sedikit menyadari hal-hal khusus yang terkait dengan langkah-langkah pengurangan risiko. Selain itu, hasil Tests of Independence mengungkapkan

bahwa tingkat kesadaran Faktor Pengurangan Risiko Bencana tergantung pada paparan individu terhadap satu atau kombinasi bencana alam. Sebaliknya, tingkat kesadaran dari faktor-faktor tersebut tidak tergantung pada paparan atau pengalaman responden dengan penyakit virus global dan bencana buatan manusia.

Kata Kunci:

Bencana alam; Bencana Buatan Manusia; Penyakit Virus Global; Pengurangan Risiko.

1. Introduction

Disasters are a big problem in today's world, posing a substantial threat to long-term development (Twigg, 2015), and the Philippines is known to be an avenue for visiting typhoons and earthquakes. Being on the premises of the Pacific Ocean (of which storms and tropical depressions are formed) and in the Pacific Ring of Fire (of which earthquake fault lines lie), calamities such as typhoons, earthquakes, and volcanic eruptions, floods, epidemic diseases are very evident. In the realm of disaster management, there is indeed a persistent divide between both principles and application, particularly among academics as well as active practitioners. As a consequence of this gap, key lessons are not imparted, and people die or suffer as a result (López-Carresi et al., 2014).

The Philippine government created an agency and law to respond to emergent disasters and situations. Universities, schools, and other academic institutions were active in training their students in times of disaster and how they will respond properly to lessen the risks and hazards brought by these disasters. One of the strategic programs that the LSPU community would like to have was a DRRM Center for LSPU campuses as a way of university response to the community and help in times of disasters. It promotes health during disasters characterized as catastrophic events that necessitate a huge spectrum of urgent services to aid and protect the lives of the affected people (Geale, 2012).

The enactment of Republic Act 10121, the Philippine Disaster Risk Reduction and Management Act of 2010, has laid the basis for a paradigm shift from disaster preparedness and response to disaster risk reduction and management (DRRM). The National DRRM Plan serves as a guide to achieving sustainable development through inclusive growth, growing the resilience of vulnerable sectors, and maximizing disaster mitigation opportunities to promote people's welfare and security toward gender-responsive and constitutional protections sustainable development (Jha & Stanton-Geddes, 2013).

The Philippine government has developed designs to counterbalance the effects of both natural and man-made disasters. The main intent of formulated laws and policies is to increase the resilience of vulnerable communities and the country against natural disasters and reduce damage and property loss. In addition, R.A. 10121, the Philippine Disaster Risk Reduction and Management Act paved the way for new plans and policies to execute different measures and actions in all phases of DRRM. This provided a paradigm shift from reactive to pro-active, from top-down and centralized management to bottom-up and participatory disaster risk reduction process (RA 10121, 2017). The

National DRRM Framework (NDRRMF) and National DRRM Plan (NDRRMP) were developed through this Act. The NDRRMF and NDRRMP foresee a country with "safer, adaptive and disaster-resilient Filipino communities toward sustainable development." Together with the paradigm shift is the creation of the four thematic areas, namely; a) Prevention and Mitigation, b) Preparedness, c) Response, and d) Rehabilitation and Recovery. Each area has long-term goals and activities which will lead to the attainment of the overall vision in DRRM.

While the DRRM act provides a legal basis for its disaster risk reduction directives, the Department of Education (DepEd) issued DepEd No. 37, s. 2017 as the basis of the Basic Education Framework with a more comprehensive Disaster Risk Reduction Management. In this framework, the offices and schools of DepEd shall have institutionalized DRRM structures, systems, protocols, and practices. Moreover, the impact of disasters always finds its way into schools through strong typhoons and massive flooding that ruins school properties. Thus, the Philippines being prone to disaster warrants a closer look at its disaster-related policies that are currently in place (Tizon & Comighud, 2020).

Disasters have always resulted from human interaction with nature, technology, and other living entities (Pelling & Wisner, 2013). Sometimes unpredictable and sudden, sometimes slow and lingering, various types of disasters continually affect how we live our daily lives. Humans, as creative animals, have explored novel ways to mitigate the devastation caused by natural calamities. However, human behavior in catastrophes has been reactive for the past year. Communities, sometimes cognizant of their dangers, would prepare for a disaster and then activate plans and processes (Smith, 2013). Human social and economic growth has also led to increased vulnerability, reducing people's ability to cope with calamities and consequences.

Disaster risk reduction (also referred to as just disaster reduction) is defined as the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards (Alexander, 2013), lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse effects. Disaster reduction strategies include vulnerability and risk assessment, as well as a number of institutional capacities and operational abilities (Wisner, Gaillard, & Kelman, 2012). The assessment of the vulnerability of critical facilities and social and economic infrastructure, the use of effective early warning systems, and the application of many different types of scientific, technical, and other skilled abilities are essential features of disaster risk reduction (Alexander, 2013; U.S. Agency for International Development, 2011).

Based on Cabigan and Ampo (2020) study, it was concluded that students from the College of Arts and Sciences (CAS) LSPU Sta. Cruz, Laguna has the ability and knowledge on DRR awareness regarding natural hazards, global viral diseases, and man-made hazards. Awareness of every individual in the disasters may establish disaster management. And it was found that there was a significant effect on the readiness of the students (Seppänen & Virrantaus, 2015; Tomaszewski, 2011). The university may further enhance its commitment as a social institution by considering a combination of various inputs, such as specific DRR training, first aid courses, and hazard mapping of the university. The university may consider including Disaster Risk Management as a mandated

institutional course and be part of the Syllabi content, specifically in Social Science classes. That DRR Training and Workshops be a requirement for approval of all university clubs, organizations, societies, and associations.

The present study determined the students' level of awareness of LSPU Sta. Cruz, Laguna in terms of disaster risk reduction and its significant relationship. The results of this study will be a basis for the construction of the LSPU DRRM Center, not only for the benefit of the students and the institution itself but, most importantly, to be of help great help to the community, especially in times of emergent disaster and crisis.

1.1. Conceptual Framework

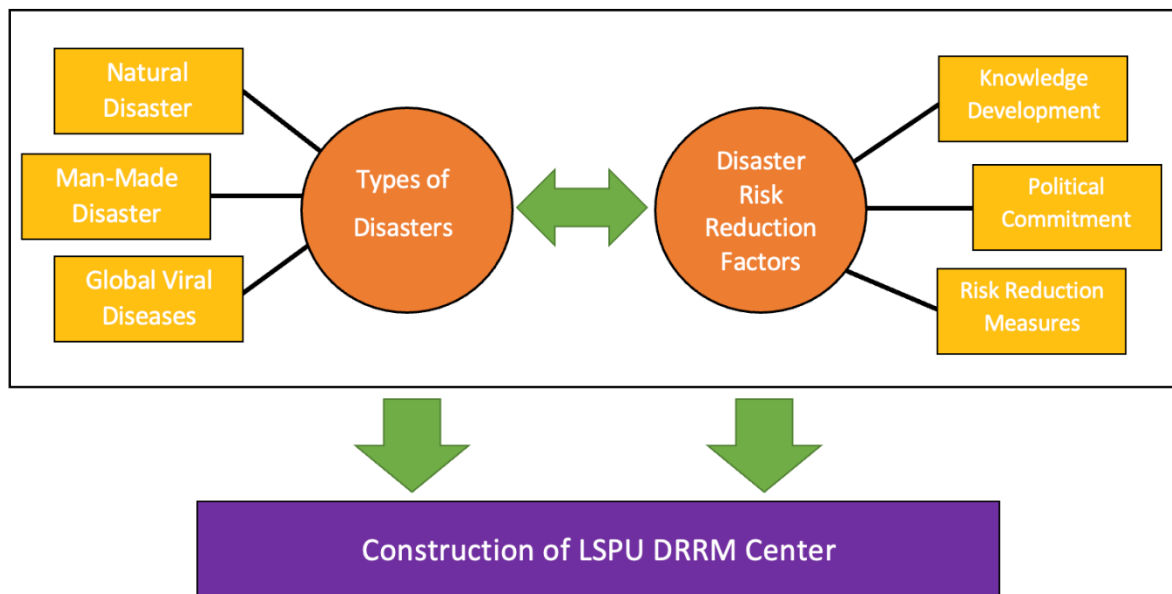


Figure 2. Conceptual Framework

This shows the relationship of types of disasters focusing on the natural disaster, man-made disasters and global viral diseases, and disaster risk reduction factors which look at knowledge development, political commitment, and risk reduction. The findings will be the basis of needs in constructing the LSPU DRRM Center.

1.2. Objectives of the Study

The researchers want to design and construct the LSPU-Disaster Risk Reduction Management Center based on the findings and results of the study. Specifically, it sought answers to the following:

1. Identify the extent of manifestations in the context of types of disaster and disaster risk reduction factors:
 - a) Types of disaster in terms of:
 - 1) natural disaster

- 2) man-made disaster
- 3) global viral diseases
- b) Disaster risk reduction factors in terms of:
 - 1) knowledge development
 - 2) political commitment
 - 3) risk reduction measures
2. Know the level of awareness in the context of types of disaster and disaster risk reduction factors:
 - a) Types of disaster in terms of:
 - 1) natural disaster
 - 2) man-made disaster
 - 3) global viral diseases
 - b) Disaster risk reduction factors in terms of:
 - 1) knowledge development
 - 2) political commitment
 - 3) risk reduction measures
3. Determine the significant relationship between types of disaster and disaster risk reduction factors.
4. Design and construct LSPU DRRM Center.

2. Methods

This specific study is a descriptive- correlational study. Descriptive research provides a snapshot of the current state of affairs, and correlational research is designed to discover relationships among variables and predict future events from present knowledge (Chavez Jr., 2019; Marpa, Juele, & Hiyas, 2016). This portion of the study provides the descriptive method incorporating the discussion about the population, data gathering tools, preparation of the questionnaire validation, and administration of the questionnaire through an online survey.

This study employed a purposive sampling technique due to the present situation that we are facing brought by the Covid-19 pandemic. This is to ensure the safety of our chosen respondents conducted by Laguna State Polytechnic University Sta students. Cruz Campus in different colleges

with a total of 967 students. Male consists of 404, and 563 females respond to the questionnaire. A total of 93 students were 18 years old, 285 were 19 years old, 240 were 20 years old, 176 were 21, and 173 were aged 22 and above. Purposive sampling is a non-probability sampling approach in which items for the sample are chosen based on the researcher's judgment. Researchers frequently feel that using excellent judgment may acquire a representative sample, saving a lot of time (Saunders, 2014).

The questionnaire checklist was based on the readings in books, magazines, journals, theses, and internet resources. These materials were used in the preparation and drafting of the questionnaire. The researchers established the comprehensibility and reliability of the questionnaire, which was validated by some faculty and statistician of the college. The questionnaires were shared with the respondents using Google Forms and then retrieved. It was tabulated, analyzed, and interpreted verbally with corresponding tables using a spreadsheet to show the mathematical explanation of the data.

Papers relative to the college's objectives, mission, goals, and academic programs were all subjected to documentary analysis. In addition, SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis was used to identify and analyze internal strengths and weaknesses and external opportunities and threats that shape current and future operations and help develop the university's strategic goals. The strengths revealed that the university had overcome weaknesses during the years of operation. It is now gearing towards becoming an international standard organization certified by TUV (Technical Inspection Association) Rhineland Certified. The development of facilities and renovations were done and is currently undergoing to further provide better services to the students to promote comfortable and safe place to stay and study which requires careful planning in terms of site and locations accessible to all students.

Meanwhile, the weaknesses were based on the data gathered. Some students mentioned that the university is not a safe place to stay in case disasters arise. Still, through the construction of the Disaster Risk Reduction Management Center of LSPU, where it would be a venue for all orientations and training intended for the students as well as for the personnel and faculty, the issues and concerns will be given proper solutions and definitely will lessen the damages on lives and property. It provides opportunities in the university that will be the center of different training on Disaster Risk Reduction Management and it will be the first educational institution in the country that would provide a good chance for advancement and progress in addressing the matters concerning DRRM in the locality. Hence, due to the COVID 19 Pandemic, wherein everything is stopped, the possible construction of the LSPU Disaster Risk Reduction Management Center may not be materialized because of the budget constraint, and the construction of the new building is with temporarily suspended.

3. Results and Discussion

Based on the data gathered, different results are presented and discussed. Disaster risk reduction is a form and practice of lowering disaster risks through finding a comprehensive system that will analyze and manage disaster causal factors, such as reducing various risks. It greatly reduced the weakness of the loss of life and damage, sensible land and environmental management, and

improved readiness for adverse effects. Disaster mitigation solutions essentially incorporate sensitivity and risk evaluation, as well as a variety of institutional competencies and operational capabilities. The findings of this study indicated that the students of LSPU have been victims of numerous calamities. They are at least vaguely aware of risk reduction elements based on political commitment but only vaguely aware of the specifics of risk reduction methods.

Furthermore, the findings of two tests of independence demonstrated that an individual's level of knowledge of DRRM Factors was reliant on their experience with any kind of natural disaster. On the other hand, the level of knowledge of such issues is unrelated to the respondent's contact or involvement with worldwide viral illnesses and man-made disasters. The further discussion will analyze and answer the objectives of the current study.

3.1. Types of Disaster and Disaster risk reduction factors

3.1.1 Frequencies of Natural Disasters

Based on the data gathered, the distribution of natural disasters that the respondents have experienced shows that about 34% of the respondents have experienced both earthquakes and floods, about 21% have experienced earthquakes alone, 11% of them have experienced floods alone, but 6.3% of the respondents have experienced hurricanes, earthquakes, and floods.

3.1.2 Frequencies of Global Viral Diseases

In terms of global viral disease/s that about 65% of the respondents have experienced the effects of COVID 19, while 128, or about 13%, did not experience any of the global viral diseases.

3.1.3 Frequencies of Man-made Disasters

The data also showed that about 17%, 16%, and 11% have experienced or were exposed to the effects of stampedes, terror attacks, and race riots. On the other hand, about 24% of the respondents did not experience or were not exposed to the effect of any of the mentioned man-made disasters. In comparison, almost 10% of these respondents believe the statement does not apply to them.

Table 1. Expectations of Disasters or Hazards

Levels	Counts	% of Total	Cumulative %
Yes	869	89.9 %	89.9 %
No	98	10.1 %	100.0 %

Based on the results, almost 90% of the respondents expect a disaster or hazard to happen in the province or their respective places.

3.1.4 Distribution of Disasters

The results also reflected the distribution of man-made and natural disasters that affected the respondents' respective communities and schools. It appears that about 38% of the respondents are

affected by natural disasters, and a little over 31% are affected by natural disasters and global viral diseases.

Table 2. Perception of Safety and Security

Levels	Counts	% of Total	Cumulative %
No	264	27.3 %	27.3 %
Yes	703	72.7 %	100.0 %

The perception of the respondents on safety and security that the university provides, almost 73% of the respondents think that they are safe and secure in the university in the event of disasters.

3.1.5 Level of Awareness of Knowledge Development

The level of Knowledge Development shows that more than 92% of the respondents are at least slightly aware of Knowledge Development of Risk Reduction Factors. It appears that this percentage of respondents are slightly aware, at least, of "knowledge about civil defense phone official's numbers of the disaster management office.", "knowledge about the locations and number of fire alarms.", "knowledge about the usage of example, fire extinguishers, harness, first aid kit etc.", "knowledge about dealing with a disaster like fire, floods, earthquakes, epidemics, etc.", and "knowledge about responding to explosion accident, falling debris in case of natural disasters wrath."

3.1.6 Level of Awareness of Political Commitment

Concerning the awareness of Risk Reduction Factors based on Political Commitment, more than 98% of the respondents are slightly aware, at least, of Risk Reduction Factors anchoring on Political Commitment. These respondents are no less than slightly aware of all the aspects related to Political Commitment, such as "elevating disaster risk management as a policy priority.", "generating political commitment which translates into promoting disaster risk management as a community responsibility.", "Establishing a permanent institution/ Center which can provide technical support on DRR emergency response to the community.", "Enforcing the implementation of disaster risk management and reduction., and "multi-stakeholder involvement, increasing gender sensitivity, and facilitating participation by the university initiative with a collaborative effort from local/ provincial disaster risk reduction management office."

3.1.7 Level of Awareness of Risk Reduction Measures

It is also shown in gathered results that a minimum of 97% of the respondents are slightly aware of Risk Reduction Measures. This proportion of respondents are no less than slightly aware of the particulars related to Risk Reduction Measures like "Disaster alarm systems are installed in strategic locations.", "There are enough fire extinguishers installed at sensitive places like the library, laboratories, canteen, etc.", "Poster/signage on how to apply first aid in case of emergency.", "Sufficient first aid kit and equipment in response to emergencies." and "Proper orientation and practical application of DRR emergency response."

It appears that at least 92% of the respondents are slightly aware, at the very least, of Risk Reduction Factors in terms of knowledge development, political commitment, and risk reduction measures.

Table 3. χ^2 Tests of Independence of Disaster Risk Reduction Factors

Disaster Risk Reduction Factors	χ^2 Value	df	p
Natural Disasters			
Knowledge Development	149	112	0.012
Political Commitment	183	112	< .001
Risk Reduction Measures	220	112	< .001
Global Viral Diseases			
Knowledge Development	67.7	72	0.623
Political Commitment	45	72	0.995
Risk Reduction Measures	66.4	72	0.663
Man-made Disasters			
Knowledge Development	95.3	76	0.066
Political Commitment	72.5	76	0.592
Risk Reduction Measures	77	76	0.447

The results of χ^2 Tests of Independence of types of disasters and Disaster Risk Reduction Factors are shown in Table 1. It shows that the awareness of Disaster Risk Reduction Factors depends on the individual's exposure to a single or a combination of natural disasters such as hurricanes, tornadoes, earthquakes, floods, and forest fires since all the probability values are less than the level of significance of 0.05. On the contrary, the extent of awareness of those factors does not depend on the respondent's exposure or experience with global viral diseases and man-made disasters. Disasters may be predictable and unpredictable, sometimes slow and lingering, and various types of disasters continually affect how we live our daily lives.

Natural hazards in the country include geophysical disturbances like earthquakes and volcanic eruptions, climatic and hydrological phenomena like typhoons and floods, and slow-onset calamities like droughts. Large-scale natural events, combined with fast expanding population expansion and urbanization, have led to unprecedented levels of damage (Luchi et al., 2019). Recurrent natural disasters have driven the Philippine government to adopt DRRM policies to better plan, respond to, and recover from natural disasters and be more resilient in the face of natural catastrophes (Abayao, 2020). In addition, this will also drive the university to construct the DRRM Center for all internal and external stakeholders. Conversely, social learning techniques must have wider knowledge management and absorptive capabilities, especially in protocols that preclude Covid-19 transfer or other viral diseases (Savitri & Naili, 2020). Hence, the amount to which such characteristics are known doesn't depend on the respondent's connection to or involvement with global viral illnesses and man-made disasters. Disasters can be foreseeable and surprising, sometimes gradual and persistent, but they all impact how we live our everyday lives.

4. Conclusion

The sociological components of abrupt onset collective stress are addressed in disaster studies. Circumstances are commonly known as mass crises or disasters. These circumstances can be natural disasters, technical mishaps, violent intergroup conflicts, resource shortages of essential resources, and other severe threats to the existence, safety, wealth, well-being, and daily life routines. Disaster studies look at the effects of catastrophic disasters on all social entities spanning individuals and families to countries (Lindell, 2013). Most of the respondents have experienced earthquakes and floods, based on the results. In addition, they have also experienced earthquakes, floods, hurricanes, earthquakes, and floods. The respondents are slightly aware, at least, of risk reduction factors anchoring political commitment. These respondents are slightly aware of all the aspects related to political commitment, such as elevating disaster risk management as a policy priority and generating political commitment, which translates into promoting disaster risk management as a community responsibility. The respondents are no less than slightly aware of the particulars related to risk reduction measures like disaster alarm systems installed in strategic locations. There are enough fire extinguishers installed at sensitive places like the library, laboratories, canteen, etc., and posters/signage on how to apply first aid in an emergency. In addition, there is sufficient first aid kit and equipment to respond to emergency situations, and proper orientation and practical application of DRRM emergency response."

The test of independence of treated data showed that the extent of awareness of Disaster Risk Reduction Factors is dependent on the individual's exposure to a single or a combination of natural disasters such as hurricanes, tornadoes, earthquakes, floods, and forest fires since all the probability values are less than the level of significance of 0.05. On the contrary, the extent of awareness of those factors does not depend on the respondent's exposure or experience with global viral diseases and man-made disasters.

4.1. Recommendations

It is recommended to implement institutionalized disaster risk reduction and preparedness through enacting the Philippine Disaster Risk Reduction and Management Law, the Safe Schools Framework, and quarterly National Simultaneous Earthquake Drills in the university's departments and offices.

The training was planned to update existing evacuation preparations to equip instructors for leading pupils during crises. Each school also constructed evacuation routes, created directional signage, and tested the functionality of early warning equipment. It is also suggested to build infrastructure and soft elements like resilient systems and guidelines. Hazard-specific resilient construction and standards must be improved to reflect the topographical circumstances of school locations. The organization of a DRRM team, emergency plans, frequent exercises, the supply of protective equipment, and the creation of DRRM Information systems.

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