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The Integration of Disaster Risk Reduction Education in the ASEAN Region: The Case of Butuan City, Philippines

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ABSTRACT

The study sought to determine the integration of disaster risk reduction education and the extent of disaster preparedness in the ASEAN region and the public secondary schools in the Division of Butuan City, Caraga Region, Philippines. A mixed method of research design was used in the study with a questionnaire to measure the integration of DRR education and disaster preparedness. The findings revealed that all the extent of disaster preparedness indicators in terms of structural resilience, early warning system, plan implementation, and risk information and monitoring were perceived as "satisfactory." Plan Implementation, which focused on trainings, drills, and programs revealed to be significant and contributory to the disaster preparedness of schools that showed the highest mean in all indicators as perceived by teachers. Structural resilience of school buildings proved to be compliant with the structural code about disaster preparedness as perceived by students. However, risk information and monitoring were revealed to have the lowest mean scores in all indicators perceived by teachers and students. This clearly shows a weak implementation of the risk assessments, monitoring, and evaluation in schools. On the other hand, the extent of integration of disaster risk reduction education in the curriculum, school policies, programs and

activities, and organizational structure was perceived as "satisfactory." School policies showed the highest means in all indicators while the organizational structure got eh lowest mean as perceived teachers and students. The results revealed that school policies have a greater impact on the integration of disaster risk reduction education while the organizational structure is less significant in integrating DRR education. On the other note, the relationship between the extent of integration on DRR education and disaster preparedness was highly significant. Among the facilitating factors pointed out was the support of the different stakeholders such as the community, benefactors and sponsors, and the whole school community. However, the hindering factors were a lack of financial support, the drills and symposium were not taken seriously by the students and teachers, and the schools lacked qualified responders, facilities, and equipment in a disaster.

KEYWORDS

Disaster Risk Reduction, Disaster Preparedness, Integration,
ASEAN Region, Butuan City, Philippines

INTRODUCTION

Disaster is a natural or human-induced hazard that causes a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its resources (UNISDR, 2011). During the last two decades, this concern has brought every nation and government to carry on its shoulders the responsibilities and obligations due to heavy losses of life, property, and resources. Disasters like typhoons, fires, floods, earthquakes, etc., pose a serious threat to people and economic development. That is why it is imperative, and an obligation of the government and everyone around to spread awareness and enlighten every citizen on the adverse effects a disaster could bring.

The Philippine Institute of Volcanology and Seismology (PHIVOLCS) have marked the Philippine geographical location and its archipelagic features as a high-risk vulnerability because of its major tectonic feature transects the whole archipelago from Northwest of Luzon to the Southeast part of Mindanao. Moreover, the Philippines' geographical location is found in the Pacific Ring of Fire, making the country very vulnerable to earthquakes and volcanic eruptions. On the other side, the country faces a serious threat to typhoons and weather disturbances due to its location facing the Pacific Ocean, where almost all tropical depressions occur. All the natural hazards mentioned left a very remarkable experience in the lives of many Filipino people.

On October 15, 2013, a 7.2 magnitude earthquake struck the island of Bohol, which wrecked many establishments, schools, churches, and houses (PHIVOLCS, 2013). The

earthquake resulted in 222 deaths with numerous casualties injured, with pivotal damage to infrastructure estimated at US52.06 million. After which, widespread landslides and sinkholes, which remained a significant threat to communities as destabilized hillside slopes, landslide-dammed rivers, and incipient sinkholes are still vulnerable to collapse, triggered possibly by aftershocks and heavy rains in the upcoming months after the earthquake occurred (Lagmay & Eco, 2014). Meanwhile, an average of 10,000 people die each year due to unprecedented earthquakes, while excessive economic losses in the billions of dollars often constitute a large percentage of the gross national income of the country affected. Additionally, the damage caused by earthquakes is almost entirely associated with manmade structures (Hosseini et al., 2017).

On the other side, another depressing natural hazard took place in the Philippines, particularly in the eastern Visayas region in the islands of Leyte and Samar. As described by local and international news, it was the most devastating typhoon in 2013 and most probably in the history of the world as per record. Tropical Storm Yolanda triggered storm surges as high as five meters over the Eastern and Central Visayas coasts. Although storm surge heights forecasted by DOST Project NOAH researchers, two days before landfall, were broadcast on national television, it still caused a total of 6,201 deaths, 1,785 missing, and 28,626 injured (Lagmay, 2014).

The extensive magnitude of destruction and the high death toll was due to multiple factors such as an extremely powerful typhoon over a high-density populace in Tacloban City, hazard maps that did not reflect the actual storm surge extent, and the people who refused to evacuate because they had to protect their houses, and properties, and primarily, the communities around as well as the national authorities' did have a lack of understanding of what a storm surge is (Lagmay & Eco, 2014). Moreover, Super typhoon Haiyan (Yolanda) struck and wrecked many places in Samar, Leyte, and some parts of Eastern Visayas. Even well-built schools, buildings, and residences suffered devastating damage (Esteban et al., 2015).

Despite the damage left by Super typhoon Haiyan, still, the Philippines has been true to itself, carrying all plans and programs in combating disasters and raising awareness on disaster risk reduction in all areas of concern. Meanwhile, the Philippine government has brought disaster risk reduction issues into its highest considerable concern for its people after the earthquake in Bohol and Super Typhoon Yolanda. The children in schools and school personnel have been facing a serious threat with environmental and non-environmental hazards. That is why school communities, most especially teachers, are required to undergo training and seminars on how to combat disasters.

According to UNISDR (2011), developing the skills of teachers for effective delivery of disaster risk reduction curriculum involves a combination of training in hazard- and disaster-related content and training in facilitating the active forms of learning. This is happening in some cases. However, such training happens as a one-time event with less or no follow-up for teachers' development or even monitoring sustainability.

At the pilot or pre-scale level, teacher training has taken place in Armenia,

Cambodia, Fiji, Lao PDR, the Philippines, Japan, and Costa Rica.

At-scale cascade training is taking place in Kazakhstan, Turkey, Indonesia and Madagascar. In the case of France, at-scale training takes place with the agreement of the Ministry of Education through trainers of a national institute who are spread throughout all school districts. Meanwhile, in Georgia, at-scale training occurs through experts in education and emergency management offices attached to national bodies (UNISDR, 2011).

At present, risk reduction is recognized as vital for building a more equitable future and for reducing the severity of losses during disasters and being able to cope with the adverse effects of disasters. Effective risk reduction occurs when there is a cooperation between different sectors while implementing an existing disaster prevention and preparedness program. Disaster education is important that includes education on disaster risks, mitigation, and preparedness strategies to reduce the negative consequences of disasters.

The existence of the disaster impacts due to natural and human-induced hazards led many nations to prioritize focusing on the disaster risk reduction approach. In 2005, many nations participated in the World Conference on Disaster Reduction held at Kobe, Hyogo Prefecture Japan. As a result, 168 nations have adopted the Hyogo Framework for Action (HFA), which adheres to its goals to integrate and immerse the areas of disaster prevention and mitigation, preparedness, response, rehabilitation, and recovery effectively, as well as looking into the vulnerability of projects, plans, programs, and policies on sustainable development. The need to implement disaster risk reduction (DRR) among the countries that participated should rest on reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters that the Philippine government has embraced (Mamon et al., 2018).

With its plans and hopes, the Philippine government has become strongly committed to implementing measures and guidelines for Disaster Risk Reduction. To comply with these international standards for Disaster Prevention and Risk Reduction, the Fourteenth Philippine Congress passed the Republic Act 10121 or the Philippine DRRM Act of 2010. Republic Act 10121, otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010, mandated all government agencies to institutionalize policies, structures, and coordination mechanisms and programs with continuing budget appropriation on DRRM from national to local levels.

In the Philippines, the passing of the RA 10121, otherwise known as "PDRRM act of 2010," created institutions and councils such as the National Disaster Risk Reduction and Management Council (NDRRMC), Provincial Disaster Risk Reduction and Management Council (PDRRMC), City Disaster Risk Reduction and Management Council (CDRRMC), Municipal Disaster Risk Reduction and Management Council (MDRRMC), and the Barangay Development Council and deputizes the Office of the Civil Defense (OCD) under the Department of National Defense (DND) to become the executive arm which provides leadership in the continuous development of strategic

and systematic approaches to reduce vulnerabilities and risk hazards in every region, city, and barangay in the entire country.

Cognizant to the disaster management plans of the Philippine government, RA 9155, otherwise known as the Governance of Basic Education Act of 2001, has vested the Department of Education with authority, accountability, and responsibility to ensure access to basic education which is often disrupted by emergencies and disasters. This resulted in the department's initiative and spearheads the establishment of mechanisms that prepare, guarantee protection, and increase the resiliency of DepEd personnel and learners in the face of disasters through institutionalizing its office. Hence, this move creates a safety culture at all levels, systematizing education investment protection and ensuring the continued delivery of quality education services.

The Philippine government, through the Department of Education, has made its role in supporting the implementation of one of the provisions of the Philippine Disaster Risk Reduction and Management Act of 2010 (PDRRM Act), which is to integrate DRRM in the school curriculum and other educational programs and to heighten the level of resiliency of students toward natural disasters. This effort created many DepEd Orders such as DepEd Order 50, s. 2011 "Creation of Disaster Risk Reduction and Management Office"; DepEd Order 21, s. 2015 "Disaster Risk Reduction and Management Coordination and Information Management Protoco"l; DepEd Order 27, s. 2015 "Promoting Family Earthquake Preparedness"; DepEd Order 37, s. 2015 "The Comprehensive Disaster Risk Reduction and Management in Education Framework Prioritizing the Mainstreaming of Disaster Risk Reduction management in the school system and implementation of programs and projects relative therefor"; and DepEd Order 39, s. 2016 "Adoption of the Basic Education Research Agenda," in which the DepEd research agenda strongly suggest part of this research paper.

Furthermore, DepEd and its partners have been implementing DRRM programs, projects, and activities with its comprehensive framework covering education targets in resilience building. In consonance with the DepEd's mandates and the national framework for DRRM, the establishment of a Comprehensive DRRM Basic Education Framework sets the agency for a specific direction and priorities for the guidance of the education sector, partner agencies, and organizations, and other groups or individuals interested in providing or assisting in DRRM interventions for basic education. Moreover, section 14 of the Republic Act 10121 provides the integration of Disaster Risk Reduction Education into the school curricula.

In the case of Caraga Region XIII and Butuan City Division, the implementation and integration of disaster risk reduction education have been carried and delivered with all its efforts through the integrated civil defense and DRRM program in all agencies that gears towards a safer and more resilient community.

However, key officials attended most trainings and seminar workshops and few individuals whose inputs in many of these activities were not cascaded to the clients and stakeholders at the community and school level. Advocacies in disaster risk reduction

were not met and prioritized because of financial constraints and resource insufficiencies. At present, disaster risk reduction education is still not fully saturated and implemented extensively in all schools in DepEd Butuan City Division which may also neither have been adequately assessed nor studied. Thus, this study is necessary because this will generate institution and local knowledge that will improve and enhance the existing body of knowledge and provide new knowledge about disaster risk reduction.

FRAMEWORK

This research study is anchored in the theory of Sustainable Development Theory and the Emergency Management Theory. Based on Sustainable Development Theory, it is a theory on development that meets the needs of the present without compromising the ability of the future generations to meet their own needs. On the other hand, Emergency Management Theory is a theory that emphasizes the perception, preparation, improvisation, and communication on the risks, vulnerability, and preservation of property and lives of people in society. Sustainable development theory and emergency management theory have been the basis of this study as a framework because of their highly significant contribution in understanding socio-economic and political development without undermining the risk factors that adversely affect every aspect of people's lives.

In the light of the sustainable development theory, many researchers and practitioners connote the concept into something that is improving and sustaining a healthy economic, socio-political, and cultural system for human development (Gray & Milne, 2013: Tjarve & Zemite, 2016: Mensah & Enu-Kwesi, 2018; Thomas, 2015).

On the other hand, Ben-Eli (2015) defined sustainability as a dynamic and volatile equilibrium because of the interaction between the population and the environment. The people help develop to express their full potential without producing irreversible adverse effects on the environment's carrying capacity. Cognizant of this, Thomas (2015) supported that sustainability focuses on human activities to satisfy human needs and wants without depleting and exhausting the resources. Therefore, sustainability should uphold the protection of the environment to redress hazards that might arise when resources are exhausted and undermined.

In the case of emergency management theory, this theory implies principles in promoting ethical standards and reliable measures in facing emergencies and vulnerable situations in the community and the entire nation. Emergency management principles were categorized into four fundamental phases: mitigation, preparedness, response, and recovery. During the mitigation phase, a hazard mitigation risk assessment is conducted to identify the most critical and destructive hazards. Building and maintaining incident command and crisis action teams is its focus in the preparedness phase. Training staff members in emergency management procedures, developing emergency response and continuity of operations plans, and participating in different programs are vital in

disaster preparedness. The response phase is comprised of Management and Planning, Environmental, Health and Safety, and Public Safety Departments. There is a well-coordinated working team relationship with public emergency response organizations in disaster. Finally, the objective of the recovery phase is to normalize the situation the way things were before the emergency, as soon as possible.

The increasing concern of nations for globalization has brought positive and negative results for developing and more developed countries concerning economics, environmental ecology, labor, culture, traditions, and governance. The concept of sustainable development and emergency management has received much attention internationally. This movement has brought nations from all over the world to work interdependently for the cause of preserving the environment, property, and lives of the people.

In the Philippines, the Republic Act 101211, otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010, has stressed in section 14 of the said law that there should be an integration of disaster risk reduction education into the school curricula and Sangguniang Kabataan (SK) program and mandatory training for the public sector employees. The passing of this law created a framework of collaboration between and among government agencies such as the DOST, DILG, DOH, NEDA, etc.

In the Department of Education (DepEd), the support has been ushered through the issuance of Department Orders such as D.O 50, s.2011, "Creation of DRRMO, the D.O 21,s.2015, " DRRM Coordination and Information Protocol, and the D.O 37,s.2015, "The Comprehensive DRRM In Education Framework."

The conceptual framework of this study begins in the guiding principles and the policy of the State that it should uphold the people's constitutional rights to life and property by addressing the root causes of vulnerabilities to disasters, strengthening the nation's institutional capacity for disaster risk reduction and management, and building the resilience of local communities to disasters including climate change impacts. This research study indicates the extent of integration of the DRR Education in schools and the extent of disaster preparedness among secondary schools toward hazards that necessitate disaster awareness, prevention, and mitigation and preparedness.

This research study's process involves wide and various responsibilities such as administrative concerns on the extent of integration of the DRR education in terms of curriculum, school policies, programs and activities, and organizational structure as part of the independent variable. The curriculum is essential as a guide or manual in the educative process, which serves as a springboard for all contents and lessons; it is embodied in the curriculum on how ideas and concepts are being taught to students.

On the other hand, school policies are set as an agreed action or method selected from all alternatives, which embodies conditions and sanctions to guide and direct future decisions that everyone inside the school premise must abide by and follow. Meanwhile, school programs and activities are upheld to increase the learning process;

however, it must embrace preventive measures on risk and hazards to harmonize safety protocols and achieve high regard for what is expected from them. On the other side, organizational structures in school premises must transpire to establish a hierarchical arrangement in lines of authority, communication, rights, and duties, determining how roles and responsibilities are controlled, coordinated, and carried out.

On the extent of disaster preparedness, its concerns are manifested on the school's physical features and provision of resources towards disaster awareness and preparedness besides dissemination of information and modification of school facilities in the face of disaster. Akumu (2011) suggests that administrative strategies must be administered in schools to promote disaster awareness and preparedness and cope with the challenges regarding disaster management.

The extent of disaster preparedness is this study's independent variable, which embodies structural resilience, early warning system, plan implementation, and risk information and monitoring. Structural resilience refers to the physical blueprint and integrity of the structure or building that establishes resilience against seismic waves and other hazards. Meanwhile, early warning systems are sets of capacities needed to generate timely and meaningful warning information for everyone to prepare and act appropriately to reduce harm or loss.

On the other side, plan implementation as a variable in this study is entirely focused on the DRR approaches that embraced the target plans in the implementation of disaster drills, trainings, inspections and evaluations, and the like. Lastly, risk Information and monitoring are heavily focused on the methodology to determine the nature and extent of risks by analyzing potential hazards and evaluating existing conditions. This approach will help in creating reliable measures on how to address risks and hazards inside the school premises.

OBJECTIVE OF THE STUDY

The study sought to determine the integration of disaster risk reduction education and the extent of disaster preparedness in the ASEAN region and the public secondary schools in the Division of Butuan City, Caraga Region, Philippines.

METHODOLOGY

Research Design

This research used a mixed method of quantitative and qualitative designs. A quantitative research design was used to determine the extent of integration on the disaster risk reduction education and disaster preparedness among secondary schools in Butuan City. Moreover, it is also used to determine the relationship between the extent of integration of the disaster risk reduction education and disaster preparedness of secondary schools.

On the other hand, a qualitative research design was used in which the researcher conducted a focus group discussion (FGD) to know the experiences of the teachers on what topic or methodology is DRR being integrated, as well as to know the facilitating and the hindering factors in the integration of the disaster risk reduction education in secondary schools in Butuan City. Meanwhile**,** a comprehensive literature review was used to determine the best practices of secondary schools in the integration of disaster risk reduction education in the ASEAN region.

Research Locale

The study was conducted in Butuan City, the business capital of Caraga Region XIII. The city lies strategically in the northeastern part of the Agusan Valley, and Butuan City Division is considered one of the largest divisions in DepEd Caraga Region, Philippines. The Division of Butuan City, specifically the empowered public schools, was the study's scope. The school's division has a superintendent, assistant superintendent, division supervisors, and district supervisors who monitor and evaluate the schools' performance and ensure the implementation of the programs and projects of the Department of Education.

The school's division is composed of National and Integrated Secondary High Schools and Elementary schools, both empowered and non-empowered schools.

The twelve (12) empowered secondary high schools in the Division of Butuan City were the subject of the study, mainly: Agusan National High School (ANHS) in A.D. Curato St. Butuan City; Agusan Pequeño National High School (APNHS) in Brgy. Agusan Pequeno, Butuan City; Amparo National High School (ANHS) in Brgy. Amparo, Butuan City; Banza National High School (BNHS) in Brgy. Banza, Butuan City; Butuan City Comprehensive National High School (BCCNHS) in Brgy. Dulag, Butuan City; Butuan City School of Arts and Trades (BCSAT) in J. Rosales Avenue, Butuan City; Libertad National High School (LNHS) in Brgy. Liberatd, Butuan City; Lumbocan National High School (LNHS) in Brgy. Lumbocan, Butuan City; San Vicente National High School (SVNHS) in Brgy. San Vicente, Butuan City; Taligaman National High School (TNHS) in Brgy. Taligaman, Butuan City; and Tungao National High School (TNHS) in Brgy. Tungao, Butuan City.

The schools that were selected are all found in Butuan City Division. Many of the empowered schools can be found in the city proper. However, some schools are located far from the city proper. The schools which are found in the city proper are the following: Agusan National High School (ANHS), Butuan City School of Arts and Trades (BCSAT), Libertad National High School (LNHS). Schools that are found in the south part of the city are San Vicente National High School (SVNHS), Amparo National High School (ANHS), Tungao National High School (TNHS), and Butuan City Comprehensive High School (BCCHS). On the north part, the schools found are the following: Lumbocan National High School (LNHS), near the shore of Brgy. Masao,

Agusan Pequeno National High School (APNHS), which is located near the river area, Banza National High School (BNHS), and Los Angeles National High School (LNHS) are located in the eastern part of the city. Agusan National High School (ANHS), Butuan City School of Arts and Trades (BCSAT), and Libertad National High School (LNHS) are the three biggest high schools in Butuan City, which roughly reached a total population of eighteen thousand students. However, some schools categorized as large or medium schools could only have students, not more than two thousand. Thus, this large and medium-high school has a tolerable number of incidents as to student-related hazards. However, it does not guarantee them being away from a natural hazard present in every society**.**

Research Respondents

The respondents of this study are the teachers and grade 10 students from the empowered Junior High Schools of Butuan City Division. The empowered schools were

considered in this research because they comprise the biggest population in the secondary schools and the location lies strategically where each school differs from one another.

The teachers are chosen as respondents because they know better about implementing the program. The Grade 10 students from Junior High School were also chosen because they have a higher understanding and have the longest experience. Moreover, Grade 10 students are the ones who have direct knowledge about disaster risk reduction implementation because it is part of the competencies in their subject areas. The researcher used a simple random sampling in determining the number of sizes with a marginal error of 0.05.

Due to a large number of respondents of teachers and students, the researcher used simple random sampling. In simple random sampling, each group member has an equal and independent chance of being selected. To arrive at the sample size for teachers and students, the researcher used Slovin's formula with a marginal error of 0.05. The result showed a sample size of 250 from the 663 total number of teachers and 400 from the 4343 total number of students.

Table 1. Distribution of Respondents

Name of Schools	TEACHERS		STUDENTS	
	N	n	N	n
Agusan National High School (ANHS)	255	95	2044	184
Agusan Pequeño National High School (APNHS)	36	12	110	11
Amparo National High School (ANHS)	17	6	93	9
Banza National High School (BNHS)	23	8	120	11
Butuan City Comprehensive High School (BCCHS)	12	4	90	9
Butuan City School of Arts and Trades (BCSAT)	85	31	495	46
Libertad National High School (LNHS)	80	30	450	41
Los Angeles National High School (LNHS)	22	8	105	10
Lumbocan National High School (LNHS)	23	9	110	10
San Vicente National High School (SVNHS)	48	17	262	24
Taligaman National High School (TNHS)	55	20	281	26
Tungao National High School (TNHS)	26	10	205	19
Total	663	**250**	4343	**400**

Research Instrument

The researcher designed two sets of questionnaires for the respondents. The first set of questionnaires is on the extent of integration of the DRR education. The second set of questionnaires is for disaster preparedness in the secondary schools in Butuan City Division. The questionnaire was adapted from the previous studies and the guidelines of the DRRM policies and research agenda of the Department of Education. It was modified into reconstructed simple sentences for better understanding. It was submitted to experts for content validation and was tried out to 30 teachers and 30 students who were not part of the study.

The reliability of the questionnaire was tested using Cronbach's Alpha. The result showed a rating of 0.925, which was translated as remarkably very high, making the instrument valid and reliable. To quantify the responses of the teachers and students, the scale below was utilized with its verbal interpretations indicated accordingly.

Ethical Considerations

The researcher made sure that the right to privacy is being upheld, giving protection to any untoward circumstance that may result in physical, emotional, and psychological negative effects on the respondents who participated in this study. The researcher substantively delivered briefing and orientation to all respondents to understand the course of this research study and establish respect and trust for both the researcher and the respondents. The information gathered in this study is accorded with the highest impartiality and confidentiality.

Data Gathering Procedure

The researcher sent a letter to the Schools Division Superintendent asking for a permit to conduct the study. The approved letter was then attached to the letter for Public Schools District Supervisors of the concerned districts and the School Heads of different high schools. The questionnaire's distribution was followed with the school head's assistance upon approval. The researcher gathered all respondents of the study in one area, and the researcher made a brief orientation first to the respondents on the nature and confidentiality of the study. The respondents were asked to read and understand the directions before answering. The researcher has also explained the confidentiality of their answers and the documents they represent to the respondents.

Meanwhile, the teachers and students involved in the focus group discussion (FGD) were given ample time to prepare for the session. The researcher has proceeded to ask the respondents using the guide questions prepared and using video and audio recording as a mode of verification. After which, those questionnaires answered by the respondents were retrieved, and the responses given were tallied for analysis and interpretations.

Statistical Treatment

Mean was used to establish the quantitative analysis in the extent of the integration of disaster risk reduction and the level of disaster preparedness among secondary schools in Butuan City. Frequency was also utilized in identifying the facilitating and hindering factors in the extent of integration on disaster risk reduction education and level of disaster preparedness among the secondary schools in Butuan City. Moreover, Pearson-r was used to determine the significant relationship between the extent of integration on disaster risk reduction education and the level of disaster preparedness among secondary schools in Butuan City.

RESULTS AND DISCUSSION

Table 2. Summary of Practices of the Secondary Schools in the integration of Disaster Risk Reduction Education in the ASEAN Region

Country	Practices of Secondary Schools in the Integration of Disaster Risk Reduction Education in ASEAN Region	
Brunei Darussalam	---------	-provide emergency plans for fire and flood -provide demonstration and symposia -create effective coordination mechanisms
Indonesia	---------	-develop local content curriculum, -provide modules as materials -develop training manuals & guides
Lao PDR	---------	-initiate advocacy related activities -create teaching materials for reference -develop modules, guides and aids
Malaysia	---------	-incorporate emergency-related drills -implement safe school initiative approach -initiate disaster related co-curricular activities
Myanmar	---------	-develop subject-based approach to DRR -create books titled "Let's Be Prepared for Disasters" "Ready-Set-Prepared Manual of Students
Philippines	---------	-create comprehensive DRRM framework -develop lesson exemplars and modules -initiate information management protocol
Thailand	---------	-develop Mr Disaster Warning Project -use early warning tools and equipment -provide developmental co-curricular activity
Vietnam	---------	-develop 5 year disaster prevention program -infuse of DRR concepts to lessons -conduct disaster-related trainings

Table 2 shows the practices of the secondary schools in the integration of DRR education in the ASEAN region. It is observed that most of the ASEAN countries focused into its curriculum implementation and the use of modules, manuals, guides, and teaching materials. Some countries have promoted disaster-related co-curricular activities to address the needs of the school, however, other countries have enhanced the implementation through pilot project initiatives.

Table 3. Summary of Mean on the Extent of Integration on Disaster Risk Reduction Education among Secondary Schools

INDICATORS	Teachers		Students		Average	
	Mean	QD	Mean	QD	Mean	QD
A. Curriculum	4.29	Satisfactory	4.01	Satisfactory	4.15	Satisfactory
B. School Policies	4.30	Satisfactory	4.08	Satisfactory	4.19	Satisfactory
C. Programs and Activities	4.18	Satisfactory	3.87	Satisfactory	4.02	Satisfactory
D. Organizational Structure	4.09	Satisfactory	3.78	Satisfactory	3.93	Satisfactory
Gen. Weighted Mean	4.21	Satisfactory	3.93	Satisfactory	**4.07**	**Satisfactory**

Legend: Mean score falling within1.00-1.50 Strongly Disagree (Poor); 1.51-2.50 Disagree (Unsatisfactory); 2.51-3.50 Undecided (Neutral); 3.51-4.50 Agree (Satisfactory); 4.51-5.00 Strongly Agree (Very Satisfactory).

Table 3 shows the mean in each indicator on the extent of integration on disaster risk reduction education shows that all the responses given by teachers and students were positively interpreted as "satisfactory". Teachers rated the school policies with the highest mean of 4.30 while students rated school policies with the highest mean of 4.08. This shows that school policies have given much impact on the respondents as regards the extent of integration of DRR education. Moreover, it implies that school policies are effective tool to integrate DRR education hence it strictly implements the policy and punishes those who violate the policy.

On the other note, the data reveal that the low mean score given by teachers and students regarding organization structure shows that there is a problem as to the integration of DRR education in terms of organizational structure.

Moreover, only few organizations have embraced the approach of DRR structure and are not efficient as to its implementation. However, the high over-all rating of 4.07 denotes a satisfactory implementation in schools.

A study of Kapucu et al. (2010) suggests that, "it is needed to emphasize that high expectations of stakeholders in disaster management require effective use of resources and collaborative efforts through organization. Furthermore, emergency managers in every organization should be able to adopt their culture, structure, and processes to the collaborative nature of emergency management to effectively deliver the expected outcomes of the organizations.

Table 4. Summary of Mean on the Extent of Disaster Preparedness among Secondary Schools

INDICATORS	Teachers		Students		Average	
	Mean	QD	Mean	QD	Mean	QD
A. Structural Resilience	4.17	Satisfactory	4.16	Satisfactory	4.16	Satisfactory
B. Early Warning System	4.15	Satisfactory	4.11	Satisfactory	4.13	Satisfactory
C. Plan Implementation	4.22	Satisfactory	4.13	Satisfactory	4.17	Satisfactory
D. Risk Information and Monitoring	4.02	Satisfactory	3.97	Satisfactory	3.99	Satisfactory
Gen. Weighted Mean	4.14	Satisfactory	4.09	Satisfactory	**4.11**	**Satisfactory**

Legend: Mean score falling within1.00-1.50 Strongly Disagree (Poor); 1.51-2.50 Disagree (Unsatisfactory); 2.51-3.50 Undecided (Neutral); 3.51-4.50 Agree (Satisfactory); 4.51-5.00 Strongly Agree (Very Satisfactory).

On the summary of mean from the indicators on the extent of disaster preparedness among secondary schools, all responses from the respondents showed a satisfactory rate in its qualitative description. The highest mean of 4.22 given by teachers' points out to the plan implementation which implies that schools have been practicing internal management as to disaster risk reduction. Moreover, it implies that schools have been in compliance as regards with disaster drills, seminars and trainings, disaster management planning, etc.

On the other hand, teacher respondents rated risk information and monitoring with the least mean of 4.02, which implies that only few of the teachers were concerned with disaster risk monitoring and updates. They considered it as an additional burden aside from their teaching activities. Meanwhile, the highest mean score of 4.16 as rated by students is the structural resilience. This implies that students had been aware of the structural integrity of the building and is seemingly focus on the tangible results rather than the intangible ones. It means that students were amenable if results can be seen or touched rather than figuring out of results.

On the other note, students have rated risk information and monitoring with the least mean score of 3.97. This data shows that both teachers and students have agreed that risk information and monitoring are entirely not their concerns. It implies that teachers and students do little effort on the tracking, assessment, risk mapping because of the risk factors and the work burden it carries as well as the responsibility it holds. The over-all mean of 4.11 reveals that the teachers and students have both agreed that the extent of disaster preparedness among secondary schools have been carried to be satisfactory in general. A study of Mutch (2014), stated that "there is a wider role of schools in disaster preparedness, response and recovery. It argues that schools are hubs

of their communities, thus, it is important to understand the literature on communities in disaster contexts.

Table 5. Pearson Correlation Analysis results between the extent of integration of the disaster risk reduction education and the extent of disaster preparedness

Independent Variable	Dependent Variable	Computed r	Critical r	Decision on Ho
Extent of Integration on DRR Education	Extent of Disaster Preparedness	0.5994	0.340	Reject Ho

Table 5 shows the correlation analysis results between the extent of integration of the disaster risk reduction education and extent of disaster preparedness. It revealed that the computed r value is 0.5994 and the critical-r value is 0.340 with degree of freedom of 38 and alpha equal to 5%. Comparing the computed r and the critical r, it can be deduced that the critical r value is lower than the computed r value. Hence, the computed r is located beyond the region of acceptance. Therefore, the null hypothesis is rejected. This means that there is a significant relationship between the extent of integration on disaster risk reduction education and extent of disaster preparedness in the secondary schools in Butuan City

The results of Pearson r showing significant relationship between the variables is supported from the responses of the respondents during focus group discussion. The responses showed that teachers and students are actively engaged on disaster preparedness especially on disaster-related drills which is a result of a satisfactory integration of DRR education in schools. In a study of Valenzuela (2018), it suggested that integrating DRR concepts in the core curriculum has something to do with the active participation of students during disaster risk reduction and emergency related drills which serve as extra-curricular activity of the students.

CONCLUSIONS

Based on the findings of the study, the following conclusions are drawn.

1. The empowered secondary schools in Butuan City have satisfactorily implemented the elements and guidelines on disaster preparedness as perceived by the teachers and students. The high rating on-disaster preparedness can be attributed to the collaboration and cooperation of students, teachers, administration, and schools organization in the implementation.

2. Disaster preparedness satisfactory rating can be attributed to the seminars and trainings conducted to teachers and students with the help of stakeholders and non-government organizations. This is evidently experienced by the teachers and students

that resulted to the increase in knowledge and skills in facing adverse effects of disasters in the community.

3. The students' high rating on structural resilience with regard to disaster preparedness can be attributed to the continuous construction of new buildings that are disaster resilient as prescribed by the National Structural Code of the Philippines (NSCP) under the management of Department of Public Works and Highways (DPWH).

4. The low mean scores of risk information and monitoring as perceived by teachers and students about disaster preparedness could be attributed to the weak and poor implementation of risks assessment, monitoring, and evaluation n schools.

5. The empowered secondary schools in Butuan City manifested a satisfactory integration of the disaster risk reduction education. The schools applied the principles and approaches to integrate DRR education not only in the curriculum but also in the policies, programs, and structure.

6. The high-rating in-school policies as rated by teachers and students has greatly contributed in the integration of DRR education in the secondary schools. This can be attributed in strict implementation of schools that significantly increased the participation and compliance by both teachers and students.

7. The low rating in organizational structure as rated by teachers and students in the integration of DRR education can be attributed to poor implementation and integration in every organization in the school. In addition, the lack of knowledge on the part of the students as to the schools' DRRM focal persons and the lack of observable DRRM office inside the school is contributory to the low rating as perceived by teachers and students.

8. The facilitating factors such as the support given by stakeholders through partnership building, well equipped teachers, and good teaching tools in the integration of disaster risk reduction education and disaster preparedness signifies a positive effect which gave better contributions to the increase of better outcomes of the program implementation. Meanwhile, the negative factors such as lack of allotted time schedule in teaching, drills that are not taken seriously, and financial needs affecting the integration of disaster risk reduction education and disaster preparedness imply a need to improve the implementation, revisit the targets and reinforce the best practices.

RECOMMENDATIONS

Based on the conclusions drawn, the following recommendations are advised.

It is highly recommended that the researcher disaster preparedness proposed policy action and plan be used in Learning Action Cell (LAC) sessions in schools. It could also be utilized during trainings and seminars for effective information dissemination. The Department of Education must increase the compliance on risk information and monitoring in schools to keep updated on the risks and hazards present in every school. This can be addressed through conducting school activities related to disaster

preparedness and risk monitoring to raise awareness to all students and teachers, as well. Moreover, seminars and trainings will also be helpful in increasing the knowledge and skills on evaluating and monitoring risks present in schools.

As regards the integration of disaster risk reduction education, it is suggested that teachers may plan out any activity that is interactive for both teachers and students that will increase the student's participation most especially in programs and other school activities. School policies have already showed a significant contribution in the integration which can be reinforced through a proposal from the teachers. Teachers must submit their general plan of action to incorporate the said plans in the school improvement plan (SIP) with budgetary support from the school.

The Department of Education may collaborate with private partners to increase the impact of the curriculum and instruction in the schools in the integration of DRR education. Teachers may also create a DRR education module or localized DRR module to cater the needs of the students in increasing their knowledge and skills on disaster mitigation and preparedness. The principal as the head of the school may conduct an evaluation on the risk information and monitoring of the school if it is really carried properly with up-to-date bulletin of information. It is suggested that there should be more engaging and enriching activities for teachers and students to increase the awareness and skills on disaster preparedness in schools. It is highly encouraged that schools install bulletin of information on the DRR education, Facebook page for DRR updates, creation of YouTube channel for educative purposes, and creating a search for best school implementer for DRR education integration. Students and teachers must be aware of the facilitating and hindering factors brought about by the integration of DRR education and disaster preparedness. They must be continually given seminars and trainings on disaster management so that they can help others who are not involved and be able to create a culture of preparedness and sustainability.

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