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Research Paper

Disaster education in elementary school curriculum: basis for framework designing

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ABSTRACT

This research aimed to develop a school curriculum framework for disaster education in elementary schools. This is a qualitative-phenomenological study that examines how elementary school teachers teach disaster education to their students. Data was gathered through the use of guided interview questions, and the conduct of in-depth interviews. Based on the result of the study, the researchers captured the key experiences of the teachers and the most common approaches being utilized to disaster education in elementary schools, which include the integration of disaster-related themes and topics into specific school subjects, particularly in Science, Health, Araling Panlipunan, and Edukasyon sa Pagpapakatao, disaster advocacy campaign through the use of various digital and online platforms, and social media, training and seminars to pupils on how to respond to disasters through the conduct of drills, utilization of safety equipment, evacuation and rescue procedure, first-aid training and the like, and instilling pro-active attitude and discipline of the learners in responding to disasters. Moreover, with reference to this study, a school curriculum framework on disaster education was developed, which will serve as the guiding tool for all disaster education efforts at the school level, congruent with DepEd's education targets in the context of elementary schools' safety and disaster resilience, as well as school disaster risk reduction and management (DRRM) programs, projects, and activities.

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1. INTRODUCTION

In over many years, disasters have continued which have resulted to detrimental societal effects. These range from damages in infrastructure, lives lost and disruptions to daily life. Regardless if the disaster was natural or artificial, it continues to be a significant concern all over the world. The inadequacy of the disaster response today is attributed to the need for knowledge in disaster preparedness [1].

Disaster education is recognized as an effective solution in mitigating the adverse effects of disasters to society. Technology can even be used to transform concepts in disaster education to tangible forms [2]. It was found in a study that disaster education help people understand that there are actions before, during, and after a disaster. Moreover, disaster education equips people with the necessary information in preparing and recovering from disasters in their society. Disaster awareness can even lead to reduced losses for society because the community can respond appropriately [3].

Furthermore, studies have shown that students learn disaster response through disaster education. Disaster education prepares students for disasters by providing information about disasters and equip them with crucial skills to protect themselves. As such, disaster education should be embedded in the curriculum for the future of society [4].

Academic institutions should be responsible in disseminating disaster education to foster disaster literacy among all its constituents: personnel, teachers, and students [5]. In line with this, disaster education should be offered in basic education particularly on elementary students. The delivery of instruction must cater to students' abilities. their abilities. This study was conducted in the hopes of designing a framework that will be recommended to elementary schools on how disaster education should be taught in elementary grades [4].

The following are the research objectives of this study

- Objective 1. Discover the subjects in elementary curriculum that integrates disaster education.
- Objective 2. Reveal the strategies on how elementary teachers teaches disaster education.
- Objective 3. Design a framework of disaster education to be recommended in elementary schools.

2. RELATED WORK

2.1. Relevance of Disaster Education in Basic Education

Academic institutions should be responsible in disseminating disaster education to foster disaster literacy among all its constituents: personnel, teachers, and students [5]. In line with this, disaster education should be offered in basic education particularly on elementary students. The delivery of instruction must cater to students' abilities. their abilities. This study was conducted in the hopes of designing a framework that will be recommended to elementary schools on how disaster education should be taught in elementary grades [4].

Based on a recent study, disaster education in schools can effectively mitigate adverse effects of disasters. A school cannot operate soundly without teachers, this magnifies the pivotal role of teachers and their significance towards nation building. Teachers are responsible for planning and developing the curriculum implementation in class. Disaster education should be included in the curriculum since efforts made toward disaster education equips students with disaster response [6].

2.2. Benefits of Disaster Education Integration

As evidence in the Hyundai document of 2005 to 2015, several studies all over the world posit the benefits in integrating disaster education in the curriculum. It is observed that students will be prepared if they are educated about disasters. The evidence is well-documented in the Hyundai document during 2005–2015. [7] Other studies even show that adults will not forget what they learn at an early age. As such, it is beneficial for people to learn disaster education whenever young [8], [9]. Therefore, it is very useful for people to learn disaster prevention and risk reduction methods from childhood [8], [9].

Relative to the benefit of disaster education, a critical component of training students is the preparation stage for disasters. This suggests that other stakeholders (family members, school staff and

hospital staff) should be acquittanced with the disaster preparation [10]. In this regard, the training of students will rely on the knowledge of other stakeholders.

3. METHODOLOGY

This study was qualitative by nature since the researchers' analysed data that is non-numerical. This meant a survey questionnaire was not used as the research instrument. Instead, an interview guide was designed as the research instrument. Moreover, the method used was phenomenology because the researchers explored a phenomenon. In the context of this study, it was about elementary teachers teaching disaster education. The researchers also ensured to get consent from the informants as well as their school administrator prior to the conduct of the interview. The researchers then conducted the interview to each informant which elapsed for about 60-90 minutes. The responses of all informants were then analysed which led to the results of this study. This study was qualitative by nature since the researchers analysed data that is non-numerical. This meant a survey questionnaire was not used as the research instrument. Instead, an interview guide was designed as the research instrument. Moreover, the method used was phenomenology because the researchers explored a phenomenon. In the context of this study, it was about elementary teachers teaching disaster education. The researchers also ensured to get consent from the informants as well as their school administrator prior to the conduct of the interview. The researchers then conducted the interview to each informant which elapsed for about 60-90 minutes. The responses of all informants were then analysed which led to the results of this study.

4. RESULTS AND DISCUSSION

The results of the data gathered have been done by analyzing the k-12 curriculum guide that determines on what subjects' disaster education was integrated. After analyzing the learning competencies in each subject's areas, it was revealed that disaster education was integrated in the following subjects: Araling Panlipunan, Science, Edukasyon sa Pagpapakatao, and Health subjects. In addition, the researchers categorized five themes in accordance with the answers of the participants. A framework was then designed using the results generated from this study.

4.1. Elementary Teachers Teaching Disaster Education

4.1.1. Subject Integration

The first theme generated is Subject Integration. Based on the findings from the data obtained, elementary teachers integrate disaster education in some subject areas. The basic education curriculum in the Philippines does not have a stand-alone subject devoted to disaster education. Given the timely importance of disaster education, disaster education can be incorporated into selected subjects.

- Integrating disaster education into identified topics. (IDI_2)
- Disaster education can be integrated to Edukasyon sa Pagpapakatao. It can be integrated in Science or English depending on the lesson. There is a theory in science, but more than the theory is needed. (IDI_4)

Teachers can impart lessons in disaster education through subject integration, which means that disaster education is incorporated to identified subjects. Another means of incorporating disaster education is by means of conducting extracurricular activities in school. Such activities can provide opportunities for students to learn disaster education outside the subject curriculum. By integrating disaster education into the curriculum students will be prepared to respond to times of calamity [11].

4.1.2. Utilizing Digital Platforms

The second theme generated is Utilizing Digital Platforms in teaching students disaster education. It is evident that teachers in this era are acquainted with the use of digital platforms [12]. As such, it is to no surprise that teachers in elementary schools use digital platforms to teach disaster education. These teachers taught their students disaster preparedness using various technology such as smart television

and computers. Technology can be used for student learning because students are fascinated with technology. Thus, this can be a practical approach to get student attention. It increases students' interest in learning disaster education.

- I Used Powerpoint Presentation to Present the Lesson About the Disaster to My Students (IDI_2)
- I Used the Television Available in Our Classroom to Show A Video Presentation or Films That Show Different Kinds of Disaster or Real Sample Scenario of A Disaster (IDI_3)

ICT plays a pivotal role in the teaching and learning process, which provides a dynamic learning experience for students. In addition, digital platforms are very important in disaster education because it makes the learning material practical and understandable. Studies in the past have shown that using ICT facilitates differentiated teaching, stimulates students' participation and interest, and ensures learning effectiveness [13], [14], [15], [16]. The integration of ICT in lessons allows students to have a positive attitude towards learning disaster education since the experience provided becomes dynamic [17].

4.2. Safety Preparedness Classroom Activities

The third theme generated is safety preparedness classroom activities. By giving pupils activities connected to safety preparedness, they will learn to respond during times of disaster. Elementary teachers must design interactive exercises that engage the students.

- I Made Sure to Perform a Drill Like in the Earthquake Phenomenon. So, We Get to Show the Actual Setting and Ways How to Cope with Such Incidents (IDI_4)
- I Demonstrate the Usage of the Hard Hat and Do the Duck Cover and Hold, Then Hide Under the Table. it is Important to Execute the Drill So That They Will Know Their First Steps to Lessen Students' Panic in the Actual Scenario of a Disaster (IDI_2)

These results are the same in a study that explained that practice drills are essential component in the developing the students' competence in emergency response. Teachers should include activities in class to raise students' disaster awareness. The conduct of regular drills and exercises enable students to gain more skills and information. These activities in school will prepare students for any crisis in the future. Furthermore, practice drills not only benefit students but also teachers, and school personnel. It will prepare them by having control of fear in times of Disaster because they will know the appropriate response to emergencies.

4.3. Conducting Seminars for Disaster Education

One of the initiatives to increase students' awareness about disaster response is by:

4.3.1. Conducting Seminars for Disaster Education.

This also prepares students by equipping them with abilities needed for disaster response. Conducting seminars can also be an excellent way to teach students about disaster education. They will learn from experts and apply their learnings when the need arises.

- We Have A Seminar for the Students. Students Need to Attend Training and Seminars to Learn to Handle Cases Like These Unpredicted Disasters (IDI_2).
- In Higher Grade Level 4, 5, and 6, They Conduct Symposiums or Seminar and Invites A Delegates Speaker Expert in His/Her Specialization in Disaster to Answer Student Queries and Question and What Are the Dos and Don'ts and What to Be Avoided During the Disaster, Especially in First Aid and Fire Protections (IDI_6).

Teaching students disaster education involves various facets. This will include the cause and effect, prevention and preparedness practices, and even dos and don'ts of the disaster in the school. These will be the excepted topics that will be covered in conducting disaster education seminars. The seminars will also include various activities like demonstrations and mock drills. All of which seek to enhance the ability of the beneficiaries of the school (parents teachers and students). Seminars are vital in disaster education because they offer a space for experts to share their experiences which will foster a network of collaboration among various stakeholders. This can even raise awareness of the risks associated with disaster and the necessity for disaster preparedness [18], [19], [20], [21].

5. CONCLUSION

Disaster education can also help students develop critical thinking, problem-solving skills, empathy, and sympathy for disaster victims. Moreover, disaster education promotes positive student attitudes by encouraging awareness, preparedness, responsibility, empathy, and critical thinking. It empowers students to become active agents of change, capable of making a positive difference in their communities and the world in the face of calamities by providing them with the necessary knowledge and skills. Therefore, designing a framework for disaster education in elementary schools is crucial to ensuring that pupils are appropriately educated about disaster preparedness. The framework developed by this research is being advocated for inclusion in elementary school curricula to establish and strengthen disaster education in all schools. The framework includes four key approaches which will further elaborated in the section below.

5.1. Disaster Education Framework to Be Recommended on Elementary School Curriculum Key Approaches

5.1.1. Subject Integration

Disaster education can be integrated into identified subjects in the current basic education curriculum. For example, disaster education can be woven into the following subjects:

5.1.1.1. Science, Health, Araling Panlipunan, and Edukasyon sa Pagpapakatao

The approach in teaching disaster education can emphasize that while education systems are significantly affected by disaster, the academic system also plays a significant role in reducing risks and strengthening disaster resilience. The introduction of disaster awareness and risk reduction education in the school curriculum will foster a better understanding of disasters among students and teachers.

5.1.1.2. Preparedness and Risk Reduction

The media have a significant role in managing disasters. Through educating the public about key concepts in disasters, people will be prepared when a disaster occurs. There is also a potential for reduced risks because people can respond appropriately depending on the severity of a disaster.

5.1.1.3. Provision of Safe Learning Facilities and Equipment

This pertains to the physical and other related structures that are available within the campus. Such materials and equipment should be readily available. This also means that there should be a temporary learning spaces that can be used during possible displacement brought about by disasters and emergencies. As part of the provisions, the school should post evacuation plans in strategic locations suitable for usage by all beneficiaries. These may be placed inside the classroom and bulletin boards.

5.1.1.4. Conduct of Training and Seminars

Conducting trainings and seminars in disaster education is beneficial to students because it allows a better understanding of the topic. This can even be specifically elaborated to potential disasters that occur in the region as well as the risks associated. It is expected that the focal purpose of these trainings and seminars is to spread a fundamental awareness of disasters which may result to fostering a culture of preparedness. By becoming knowledgeable about the concepts in disaster, students will be able to take proactive measures to mitigate the risks associated with disaster.

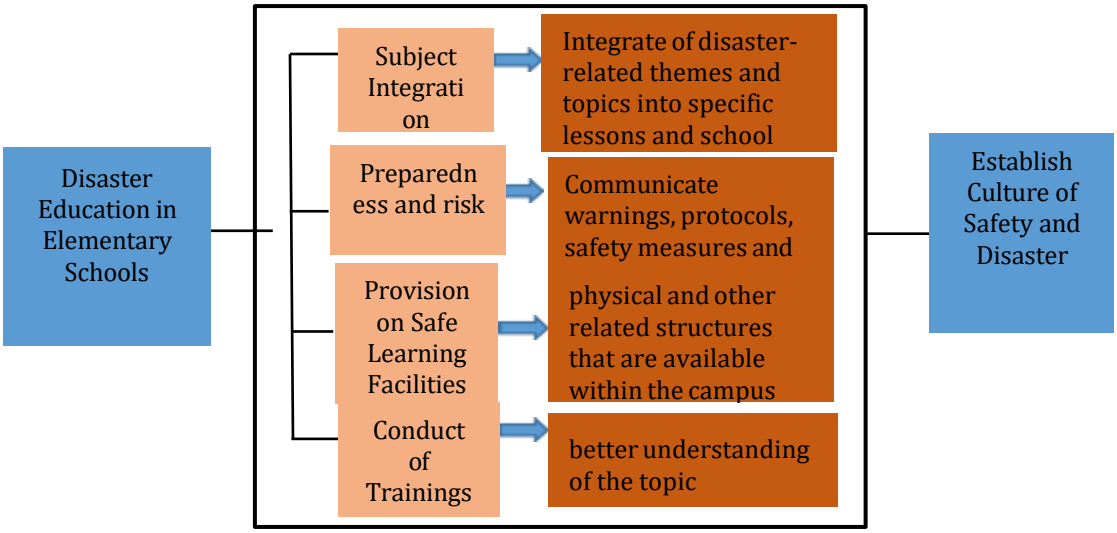

Figure 1. School Curriculum Framework on Disaster Education

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Author Contributions Statement

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Jean L. Allosada		✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓
Jeanilyn E. Tacadena	✓		✓		✓	✓	✓	✓	✓		✓	✓	✓	✓

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Informed Consent

All participants were informed about the purpose of the study, and their voluntary consent was obtained prior to data collection.

Ethical Approval

Not Applicable.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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BIOGRAPHIES OF AUTHORS

	**Honey Grace C. Libayao,** is affiliated with the Department of Teachers Education at UM Panabo College, Panabo City, Philippines, and she also helps co-author a work titled "Disaster Education in Elementary School Curriculum: Basis for Framework Designing" (2024). It's a qualitative-phenomenological study that talks about how elementary teachers actually approach disaster education, sort of looking at lived experiences, and what happens in their classroom thinking. The results also highlight how disaster education can be merged or stitched into the curriculum across subjects, like Science and Araling Panlipunan, so the framework designing its basis there.
	**Celso A. Navaluna Jr,** is one faculty member in the Department of Teachers Education at UM Panabo College, Philippines. He co-authored that 2024 disaster education curriculum study again, so he helped with research on how elementary educators bring disaster preparedness themes into everyday classroom subjects.
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