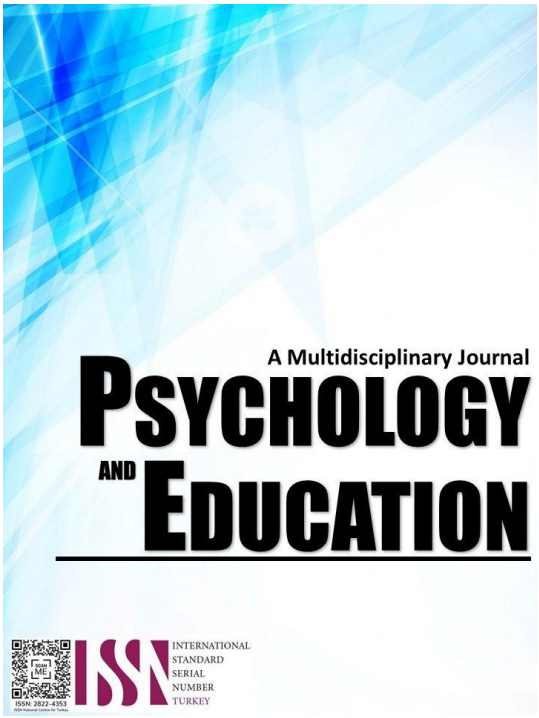
TEACHERS' KNOWLEDGE AND PREPAREDNESS ON DISASTER RISK REDUCTION MANAGEMENT (DRRM) IMPLEMENTATION



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Research Article

Teachers' Knowledge and Preparedness on Disaster Risk Reduction Management (DRRM) Implementation

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Abstract

This study assessed the knowledge and preparedness of Araling Panlipunan teachers at Valencia City Central School (VCCS) in implementing Disaster Risk Reduction Management (DRRM) strategies. The research evaluated three aspects of DRRM knowledge: disaster risk concepts, emergency response procedures, and teaching strategies. Utilizing a quantitative approach, data were collected via surveys and analyzed through descriptive statistics and Pearson correlation. Results revealed that teachers considered themselves to be very highly knowledgeable across all aspects. They were highly prepared to implement DRRM strategies in the classroom. Significant positive correlations were found between knowledge and preparedness, underscoring that enhanced understanding directly strengthens classroom implementation. Despite high overall competency, areas requiring attention included risk assessment processes and community-based DRRM approaches, suggesting opportunities for targeted training. Teachers' proficiency in evacuation protocols and student-centered strategies highlights their capacity to integrate DRRM into Araling Panlipunan's socio-cultural context, reinforcing Durkheim's Functionalist Theory and Kolb's Experiential Learning principles. The findings advocate for sustained professional development, resource allocation, and community collaboration to address gaps in practical application. By bridging theoretical knowledge with hands-on training, VCCS can enhance its DRRM programs, ensuring safer learning environments and empowering students as proactive agents in disaster resilience. This study contributes to policy discussions on teacher preparedness and curriculum integration, which are vital for mitigating the impacts of disasters in vulnerable regions.

Keywords: *DRRM, araling panlipunan, knowledge, preparedness*

Introduction

The Philippines is one of the countries at high risk for experiencing natural disasters, including typhoons, earthquakes, and volcanic eruptions. According to the records of the National Disaster Risk Reduction and Management Council (NDRRMC), our country is visited by an average of 20 typhoons every year, resulting in severe impacts on people's lives and learning institutions. In this regard, the teaching of disaster risk reduction and management (DRRM) is not only advantageous but also compulsory in recreating the student's safety-conscious perspective.

The information encompassed under the Araling Panlipunan learning area, which seeks to teach different aspects of Philippine history, arts, and society, lends itself easily to the integration of DRRM ideas in a classroom. This research will seek to determine the understanding of Araling Panlipunan teachers in handling their subject in terms of DRRM and the preparation being made for the calamities. Responsive to the call is the Department of Education (DepEd), continuing to integrate DRRM in schools, more particularly in DepED Order No. 37, which preserves the DRRM framework for basic education (DepED, 2015. Current literature indicates that a significant number of teachers express concern about their lack of preparedness to teach DRRM issues, primarily attributing this to a lack of training and limited resources (Chisty et al., 2023; Isidiho & Sabran, 2016).

Similarly, Santos and Marce conducted a survey in 2021, and 70% of the teachers reported lacking confidence in teaching disaster preparedness effectively. This lack of confidence is not only detrimental to instructional quality but also to the learner's perception of important safety considerations during disastrous events, due to a poor comprehension of related concepts. In view of these factors, this study will assess the Araling Panlipunan teachers' knowledge of how to teach DRRM concepts, emergency response measures, and their understanding of concepts under DRRM. It will also examine the extent of the relationship between teachers' knowledge of DRRM and their preparedness to apply these strategies in their classroom settings. Familiarity with this association is essential for designing effective strategies to help achieve these improvements in both teachers' skills and students' awareness.

As observed by the researcher, a concerning trend is evident, with a large number of teachers reporting a lack of self-efficacy when attempting to teach DRRM, as they often struggle to find time to attend training courses and study educational literature. This is something that not only reduces their effectiveness in delivering teaching lessons but also fails to prepare students for the best practices to consider whenever a disaster strikes. According to Shaw (2012), community involvement and awareness are essential aspects of Disaster Risk Reduction; therefore, enhancing professional continuing teacher education will enhance disaster risk reduction by transferring concepts to learning institutions.

Moreover, studies from other countries support the idea that teacher training is related to student performance in disaster instruction. For instance, Scolobig et al. (2015) revealed that the presence of prepared educators enhanced public awareness of disaster risk. Such a link implies that enhanced information about the teachers could lead to enlightened students who are better equipped to respond to emergencies.

The objectives of this research are fourfold: first, to identify the existing level of understanding of Araling Panlipunan teachers regarding DRRM; second, to survey their readiness in applying DRRM principles; third, to establish a correlation between the results of Valencia City Central School teachers handling the Araling Panlipunan subject; and fourth, to identify the existing level of understanding of Araling Panlipunan teachers regarding DRRM. As such, this study aims to fill that gap by identifying these areas of concern, so that pertinent findings, mostly influencing policy-making and educational practices on disaster risk reduction in schools, can be extended to the proper authorities.

Research Questions

This study assessed the Araling Panlipunan teachers' knowledge and preparedness in disaster risk reduction management at Valencia City Central School. Specifically, it sought to answer the following questions:

1. What is the level of knowledge on DRRM among Araling Panlipunan teachers in terms of disaster risk reduction concepts; emergency preparedness procedure; and teaching strategies for DRRM classes?
2. What is the level preparedness among Araling Panlipunan teachers in implementing DRRM strategies in their classrooms?
3. Is there any significant relationship between the level of teachers' knowledge on DRRM and their preparedness in implementing DRRM strategies in the classrooms?

Methodology

Research Design

This research utilized a correlational research design to determine the level of teachers' knowledge on DRRM and its relationship to their preparedness in integrating DRRM in their classes. The study employed a quantitative approach, which allows for the systematic collection and analysis of numerical data. The correlational design enabled the researcher to analyze the relationship between teachers' perceptions and their performance quantitatively. Statistical methods, such as the Pearson correlation coefficient, were used to determine the strength and direction of the relationship between these two variables.

Respondents

The respondents in this study were the 200 teachers at Valencia City Central School (VCCS) who currently handle the Araling Panlipunan subject. The sample size was determined using purposive sampling, ensuring that only teachers directly involved in teaching Araling Panlipunan are included.

Participants were selected based on this study's and work-related criteria, as they actively teach disaster risk reduction concepts, emergency preparedness procedures, and DRRM-related teaching strategies within the Araling Panlipunan subject. In addition, they were chosen because they play an active part in implementing DRRM strategies in classroom environments and in sharing their preparedness knowledge.

Instrument

The research instrument used in this study is a researcher-designed survey questionnaire. It is composed of two parts. The first focuses on determining the level of knowledge of Araling Panlipunan teachers on DRRM. It is divided into 3 sub-variables with 15 indicators each, totaling 45 indicators. The second set of instruments focuses on determining the level of teachers' preparedness in integrating DRRM in classes, consisting of 10 indicators. To ensure content validity, the instrument was validated by a panel of experts. After which, a pilot test was conducted with 30 teachers who had similar characteristics based on the set criteria of the respondents. The pilot testing was conducted at a separate school, resulting in an overwhelming reliability test result of 0.956 on Cronbach's Alpha.

Procedure

The data gathering process in this study also followed a systematic method to obtain accurate and credible responses to the questions about teachers' knowledge of DRRM and their readiness to integrate it into classes. First, the researcher of the study created an objective questionnaire with validated questions in order to assess both the teachers' knowledge and preparedness in DRRM. This questionnaire was reviewed by the panel of experts in the field to check its validity. The pilot testing was conducted to check its reliability. A real data collection process preceded a pre-data collection phase. During this phase, necessary clearances from school authorities were obtained, and the participants were briefed about the nature and importance of the study, as well as the rights of the respondents. In return, participants had guaranteed anonymity, along with the fact that their participation was not mandatory. During data collection, the researcher distributed the survey questionnaire to the target group of elementary school teachers who teach Araling Panlipunan. Teachers were given sufficient time to fill out the questionnaire in a comfortable environment, allowing them to provide more thoughtful and detailed answers to the questions.

Data Analysis

Numerous statistical tools were used to analyze the data collected from the teachers at Valencia City Central School. To provide a thorough grasp of the variables and to describe the data, descriptive statistics were employed. In particular, determining the level of

teachers' knowledge on DRRM concepts and the level of teachers' preparedness in implementing DRRM strategies in the classroom, the average score and standard deviation were calculated, providing the researcher with a value that is representative of the population.

Correlation analysis was used to determine the relationship between these variables, and any patterns or correlations were identified using the Pearson Product Moment Correlation. This will clarify the complex relationship between teachers' knowledge of DRRM concepts and their level of preparedness in implementing DRRM strategies in the classroom.

Ethical Considerations

The present study minimized the consideration of ethical factors, including the rights and welfare of the participants, in the administration of the research study. Before data collection, the research proposal was presented, ensuring that all procedures met the necessary ethical considerations. Individual participation in the study was voluntary, and all participants had the freedom to withdraw from the study at any time. All participants signed a consent form to participate in the study and were informed about its purpose, how it would be conducted, potential risks involved, and the benefits of the study. The anonymity of participants was ensured through data anonymization, and all collected information was stored securely to prevent respondents from being identified. In addition, all measures were taken to reduce the risks of hostility—physical, psychological, or social — that might be incurred by participating in the study. Participants were informed about the preventive measures in case any adverse effects arose. The researcher shall ensure and uphold the principles of bravery, honesty, and integrity as far as reporting the data and findings are concerned, so that the outcome of the research is reported fully and truthfully. Implementing these ethical considerations, the current study is committed to adhering to the demonstrated standards of scholarly methodological research and openness to contribute effectively to the existing body of knowledge regarding teachers' attitudes and performance in preparing students to fulfill responsible citizenship within the framework of Araling Panlipunan education.

Results and Discussion

This section presents the data analysis and interpretation of the findings. The interpretation of the findings follows each table that is presented.

Table 1 shows the level of knowledge on DRRM among Araling Panlipunan teachers in terms of disaster risk reduction concepts. The data have been presented carefully based on the completed statistical treatment.

Table 1. *Level of Knowledge on DRRM among Araling Panlipunan Teachers in Terms of Disaster Risk Reduction Concepts*

Statement	*Mean*	*SD*	*Qualitative Interpretation*
1. I am aware of the psychological impacts of disasters on affected communities.	4.59	0.54	Very Highly Knowledgeable
2. I understand the basic concepts of disaster risk reduction.	4.57	0.60	Very Highly Knowledgeable
3. I am familiar with the different types of hazards that can affect my community.	4.46	0.62	Very Highly Knowledgeable
4. I understand the roles and responsibilities of various agencies in disaster management.	4.44	0.65	Very Highly Knowledgeable
5. I can explain how public participation enhances disaster risk reduction efforts.	4.44	0.63	Very Highly Knowledgeable
6. I know the importance of hazard mapping in disaster preparedness.	4.42	0.65	Very Highly Knowledgeable
7. I understand how climate change impacts disaster risk.	4.42	0.62	Very Highly Knowledgeable
8. I can identify the vulnerability factors that increase disaster risks.	4.35	0.66	Very Highly Knowledgeable
9. I can articulate the significance of early warning systems in disaster risk reduction.	4.34	0.69	Very Highly Knowledgeable
10. I am aware of the legal frameworks governing disaster risk reduction in the Philippines.	4.32	0.68	Very Highly Knowledgeable
11. I understand the relationship between development planning and disaster risk management.	4.29	0.65	Very Highly Knowledgeable
12. I can explain the concept of community resilience in relation to DRRM.	4.27	0.68	Very Highly Knowledgeable
13. I can describe community-based approaches to disaster risk reduction.	4.25	0.68	Very Highly Knowledgeable
14. I know how to access resources and information related to DRR.	4.24	0.70	Very Highly Knowledgeable
15. I am knowledgeable about the processes involved in risk assessment.	4.21	0.68	Very Highly Knowledgeable
Overall	4.37	0.65	Very Highly Knowledgeable

Legend: *5 (4.21–5.00) Very Highly Knowledgeable; 4 (3.41–4.20) Highly Knowledgeable; 3 (2.61–3.40) Knowledgeable; 2 (1.81–2.60) Less Knowledgeable; 1 (1.00–1.80) Not Knowledgeable*

As shown in the table, it yielded an overall mean of 4.37 and a standard deviation of 0.65. This implies that Araling Panlipunan teachers in Valencia City Central School (VCCS) are highly knowledgeable about disaster risk reduction concepts. The teachers demonstrate an extensive understanding of fundamental disaster safety principles, which include hazard awareness, disaster psychology, and readiness education.

VCCS teachers demonstrate a strong foundation in DRRM concepts, as they possess proficient knowledge levels, thereby enabling them to teach disaster preparedness to their students. The country's high risk of natural disasters warrants this knowledge, as it provides students with important tools for emergency response preparedness. The study confirms that teachers have solid knowledge, but additional training and resource assistance should help them apply their understanding in active classroom practice. The approach follows DepEd's DRRM framework because it focuses on preparing teachers to develop resilient communities within educational

facilities.

The educational curriculum requires DRRM integration through Republic Act No. 10121(2010), which ensures faculty members receive training regarding disaster risks and emergency preparedness (2010). Multiple studies confirm that DRR education requires the integration of local knowledge, as this ensures the provision of appropriate and effective content for both educational staff training and community member training (Isidiho & Sabran, 2016). The readiness of Araling Panlipunan teachers is assured to the community through this approach.

According to Scolobig et al. (2015), a well-informed teacher body establishes a basis for developing a positive disaster preparedness mindset in disaster-resilient communities. Further, Mamon et al. (2023) reveal in their study that teachers need access to properly structured training courses to maximize their knowledge of DRRM principles in schools.

Among all indicators, the statement "I am aware of the psychological impacts of disasters on affected communities" garnered the highest mean score of 4.59. Similarly, teachers were still very highly rated in the statement "I understand the basic concepts of disaster risk reduction," garnering a mean of 4.57, indicating a strong grasp of fundamental principles. Teachers also demonstrated significant knowledge regarding familiarity with different hazards, with a mean score of 4.46.

These suggest that teachers have a strong understanding of the importance of addressing the psychological well-being of disaster-affected individuals. The highest mean also demonstrates that Araling Panlipunan teachers at VCCS show a strong appreciation for addressing the psychological needs of disaster victims. Education Department policies support the need to create disaster response networks through their Comprehensive DRRM in Basic Education Framework (DepEd, 2015). According to Merrin-Davies et al. (2018), researchers must thoroughly understand these constructs to improve educational strategies that build DRR knowledge, resulting in superior preparedness measures. Such awareness enables educational institutions to develop full-scale DRRM programs with local government units to improve community resilience based on Republic Act No. 10121 (2010).

Teachers must demonstrate both expertise in emergency procedure protocols and compassion towards the emotional needs of disaster survivors, according to the research discovery. Several research findings demonstrate the positive impact of integrating psychological support in disaster risk reduction planning, which improves both community resilience and long-term recovery outcomes (Chisty et al., 2023). Students develop mental preparedness for calamities because teachers possess sufficient awareness about these incidents.

However, the sole acquisition of disaster awareness proves insufficient for meeting the requirements. Disaster-affected students and community members require teaching professionals to provide resources and training on delivering psychological first aid, as well as mental support. The remarkable awareness level requires additional support to be transformed into effective measures for teachers who will become essential contributors to school community welfare (Mamon et al., 2023).

On the other hand, the three statements with the lowest mean scores, while still indicating a very high level of knowledge, pertained to the specific's statements "I am knowledgeable about the processes involved in risk assessment" with the mean of 4.21, "I know how to access resources and information related to DRR 4.24, "I can describe community-based approaches to disaster risk reduction" 4.25. These results suggest that while teachers have good overall knowledge of DRRM concepts, they may need further training and resources to enhance their practical skills in risk assessment, resource utilization, and community-based DRR strategies. Further implies that there may be areas where their practical skills and specific knowledge could be further enhanced.

These findings align with Durkheim's Functionalist Theory, which emphasizes the role of education in preparing individuals for their roles in society, particularly during times of crisis (Prieto et al., 2019). They also support the Department of Education's (DepEd) efforts to integrate DRRM into the curriculum, as noted in DepEd Order No. 37 (DepEd, 2015). As indicated by the high mean scores, teachers generally grasp foundational DRRM concepts, thus providing a solid foundation for efficient learning by students and for responsible citizenship in the event of possible disasters.

The need for continual improvement in teachers' knowledge and skills is also supported by recent research. Aghaei et al. (2018) found that even with high levels of awareness, ongoing education and training are crucial for enhancing disaster management capabilities. Moreover, the importance of community-based DRR approaches aligns with Shaw's (2012) emphasis on community involvement as an essential aspect of disaster risk reduction. As such, continuous efforts on the part of teachers in terms of DRR should be prioritized by the school and the DepEd.

These results are important because, as Scolobig et al. (2015) found, prepared educators enhance public awareness of disaster risks. As community resilience relies on a solid educational foundation, enhancing the DRRM skills of Valencia City Central School's Araling Panlipunan teachers, especially about the access to DRR information, understanding processes involved in risk assessment, and describing community-based approaches to DRR, is essential.

Finally, UNDRR (2021) emphasized that teachers should have access to unified databases combined with online learning resources and workshop attendance to obtain DRRM materials. Schools can enhance the effectiveness of their DRRM programs by improving teachers' capability to utilize educational resources that are easily accessible.

Table 2 shows the level of knowledge on DRRM among Araling Panlipunan teachers in terms of emergency preparedness procedures.

The table consists of fifteen statements, each accompanied by a weighted mean, standard deviation, and qualitative interpretation.

Table 2. *Level of Knowledge on DRRM among Araling Panlipunan Teachers in Terms of Emergency Preparedness Procedure*

Statement	*Mean*	*SD*	*Qualitative Interpretation*
1. I understand how to conduct a headcount during an emergency evacuation.	4.48	0.58	Very Highly Knowledgeable
2. I understand how to coordinate with local emergency services during a disaster response.	4.46	0.58	Very Highly Knowledgeable
3. I understand the importance of drills and simulations in preparing for emergencies.	4.45	0.61	Very Highly Knowledgeable
4. I understand how to evaluate the effectiveness of emergency response actions.	4.40	0.64	Very Highly Knowledgeable
5. I know the emergency response procedures applicable in my school during a disaster.	4.39	0.55	Very Highly Knowledgeable
6. I am familiar with evacuation plans and routes for my school.	4.39	0.59	Very Highly Knowledgeable
7. I know how to communicate effectively during a crisis situation.	4.39	0.62	Very Highly Knowledgeable
8. I know how to report emergencies to local authorities properly.	4.38	0.63	Very Highly Knowledgeable
9. I can identify key personnel responsible for emergency management in my school.	4.38	0.61	Very Highly Knowledgeable
10. I am aware of first aid procedures that should be applied during emergencies.	4.36	0.67	Very Highly Knowledgeable
11. I am familiar with post-disaster recovery procedures within my school.	4.35	0.62	Very Highly Knowledgeable
12. I can articulate the importance of psychological first aid after a disaster.	4.34	0.65	Very Highly Knowledgeable
13. I know how to manage misinformation during an emergency situation.	4.31	0.61	Very Highly Knowledgeable
14. I can describe how to assist individuals with special needs during an evacuation.	4.30	0.66	Very Highly Knowledgeable
15. I can explain how to use emergency equipment (e.g., fire extinguishers).	4.29	0.65	Very Highly Knowledgeable
Overall	4.38	0.62	Very Highly Knowledgeable

Legend: *5 (4.21–5.00) Very Highly Knowledgeable; 4 (3.41–4.20) Highly Knowledgeable; 3 (2.61–3.40) Knowledgeable; 2 (1.81–2.60) Less Knowledgeable; 1 (1.00–1.80) Not Knowledgeable*

As reflected in the table, the overall mean is 4.38 with a standard deviation of 0.62, indicating that teachers are very highly knowledgeable regarding emergency preparedness procedures. This suggests that teachers at Valencia City Central School are well-versed in the necessary steps and protocols to ensure safety in the event of a disaster. Additionally, teachers are well-prepared to guide students in responding effectively to emergencies, which is crucial in a disaster-prone area. Their familiarity with emergency protocols, such as conducting headcounts and coordinating with emergency services, aligns with DepEd's Comprehensive DRRM Framework, which emphasizes the importance of school disaster management and safe learning facilities (DepEd, 2015). This knowledge enables teachers to act as first responders during crises, thereby safeguarding students and maintaining order.

By mastering emergency response protocols, Araling Panlipunan teachers can create a culture of preparedness, instilling in students the confidence and skills necessary to react effectively during emergencies (StatPearls, 2022). Leveraging this strength requires ongoing support to translate knowledge into practical action through regular drills, resource provision, and community collaboration, reinforcing the school's capacity to manage emergencies effectively (Isidiho & Sabran, 2016).

Looking at the highest individual statements with the highest mean scores indicates that teachers particularly understand "how to conduct a headcount during an emergency evacuation" with a mean of 4.48, "how to coordinate with local emergency services during a disaster response has a mean score of 4.46, and "the importance of drills and simulations in preparing for emergencies" 4.45 as its mean. These results highlight the teachers' strong grasp of crucial elements in ensuring efficient emergency management, particularly in accounting for students and coordinating immediate assistance.

The finding aligns with the Comprehensive DRRM in Basic Education Framework set by DepEd (2015), which underscores the importance of teachers being well-versed in emergency response procedures. As Mamon et al. (2023) and FEMA (2019) suggest, structured training programs and regular drills enhance knowledge retention and application of emergency response protocols, leading to better outcomes during emergencies. These competencies also address key components of effective emergency response plans outlined by StatPearls (2022), including clear communication channels, defined roles, and coordination with local emergency services.

The teachers' strong understanding of these critical elements suggests that VCCS is well-positioned to implement effective DRRM strategies, fostering a culture of preparedness and safety among students and staff. This proactive approach is essential for minimizing the impact of disasters and ensuring the well-being of the school community. The practical skills in conducting headcounts and coordinating with local emergency services highlight the teachers' readiness to respond swiftly and efficiently during crises, thereby enhancing overall school safety and resilience.

Statements with relatively lower mean scores, yet still indicating "Very Highly Knowledgeable," were "I can explain how to use emergency equipment (e.g., fire extinguishers)" 4.29, "I can describe how to assist individuals with special needs during an evacuation" 4.30, and "I know how to manage misinformation during an emergency situation" 4.31. These scores indicate areas for improvement, such as hands-on training on operating emergency equipment and developing enhanced strategies for managing misinformation and

supporting vulnerable populations during emergencies.

These findings align with the Experiential Learning Theory, as presented by Kolb (1984), which emphasizes that practical lessons enhance the knowledge base of teachers and students regarding disasters. Additionally, they are in line with Functionalist Theory, as proposed by Emile Durkheim (Prieto et al., 2019). As mentioned in the introduction to the study, the findings will lead to the preparation of students for efficient learning and responsible citizenship in the event of possible disasters and calamities.

The importance of practical skills in disaster preparedness is also supported by the literature, which indicates that experiential learning significantly enhances students' understanding of disaster risks and response strategies (Mamon et al., 2023). Additionally, studies have found that effective DRR programs hinge on educating communities about potential risks and appropriate responses (Chisty et al., 2023). As such, continually reinforcing the procedures to be implemented during emergencies, especially when it comes to using emergency equipment, managing misinformation, and ensuring safety for individuals with special needs, is very important.

Overall, these findings suggest that Valencia City Central School's Araling Panlipunan teachers possess a strong understanding of emergency preparedness procedures, which is essential for ensuring the safety and well-being of students during disasters. However, there is room for improvement in specific areas to further enhance their ability to respond effectively to emergencies. These areas of opportunity should be addressed with continued training to improve the school's overall DRRM capabilities.

Table 3 depicts the level of knowledge on DRRM among Araling Panlipunan teachers in terms of teaching strategies for DRRM classes. The data presented were based on the statistical treatment result. The indicators were ranked accordingly, from highest to lowest, based on their mean.

Table 3. *Level of Knowledge on DRRM among Araling Panlipunan Teachers in Terms of Teaching Strategies for DRRM Classes*

Statement	*Mean*	*SD*	*Qualitative Interpretation*
1. I encourage student participation in discussions about disaster preparedness.	4.49	0.60	Very Highly Knowledgeable
2. I utilize multimedia resources (videos, presentations) to enhance learning about DRRM.	4.48	0.63	Very Highly Knowledgeable
3. I engage students in hands-on activities related to emergency preparedness (e.g., drills).	4.43	0.64	Very Highly Knowledgeable
4. I encourage critical thinking and problem-solving skills related to disaster scenarios among students.	4.42	0.67	Very Highly Knowledgeable
5. I use real-life scenarios and case studies to illustrate DRR principles in class.	4.38	0.66	Very Highly Knowledgeable
6. I adapt my teaching strategies based on students' diverse learning needs regarding DRRM topics.	4.36	0.65	Very Highly Knowledgeable
7. I integrate technology into my teaching methods for DRRM education (e.g., simulations).	4.36	0.68	Very Highly Knowledgeable
8. I incorporate active learning strategies when teaching DRRM concepts.	4.34	0.66	Very Highly Knowledgeable
9. I continuously seek professional development opportunities related to teaching DRRM concepts.	4.30	0.69	Very Highly Knowledgeable
10. I facilitate group work and collaborative projects focused on DRR topics.	4.28	0.65	Very Highly Knowledgeable
11. I assess students' understanding of DRR concepts through varied assessment methods (quizzes, projects).	4.26	0.72	Very Highly Knowledgeable
12. I provide opportunities for students to participate in community-based DRR initiatives.	4.26	0.72	Very Highly Knowledgeable
13. I provide feedback on students' performance related to DRR activities effectively and constructively.	4.26	0.72	Very Highly Knowledgeable
14. I evaluate and reflect on my teaching practices concerning DRRM education regularly.	4.26	0.68	Very Highly Knowledgeable
15. I collaborate with local agencies to provide students with practical DRR experiences.	4.22	0.83	Very Highly Knowledgeable
Overall	4.34	0.68	Very Highly Knowledgeable

Legend: *5 (4.21–5.00) Very Highly Knowledgeable; 4 (3.41–4.20) Highly Knowledgeable; 3 (2.61–3.40) Knowledgeable; 2 (1.81–2.60) Less Knowledgeable; 1 (1.00–1.80) Not Knowledgeable*

It can be inferred from the table that the overall mean is 4.34, which is interpreted as indicating very high knowledge. This underscores the teachers' proactive approach towards integrating effective methods in DRRM education. This level supports the DRRM objectives set by the Philippine Disaster Risk Reduction and Management Act of 2010, through Republic Act No. 10121, which requires DRRM education at all levels of education. A clear understanding of DRRM principles among teachers enables them to develop preparedness and resilience in their students, who acquire essential capabilities to handle disasters. The school's high DRRM knowledge distinguishes it as a community resource for offering training and awareness programs to additional organizations, as well as to residents.

The research executed within Pampanga's coastal schools shows teachers maintain positive views about their DRRM activities but reveals knowledge gaps within coastal safety standards (Lim, 2023). Because educators exhibit high knowledge levels, this means their main task will be to acquire these specific skills and strengthen their capacity to respond immediately. Continuous professional development for teachers represents a fundamental requirement because of this preventive strategy. The knowledge enhancement of

DRRM indicates the success of DepEd's Comprehensive DRRM in the Basic Education Framework.

The statements with the highest mean scores are "I encourage student participation in discussions about disaster preparedness" (M = 4.49, SD = 0.60) and "I utilize multimedia resources (videos, presentations) to enhance learning about DRRM" (M = 4.48, SD = 0.63). These findings suggest that teachers prioritize student engagement and utilize diverse resources to create a more comprehensive learning environment. The integration of multimedia and the cultivation of an open classroom atmosphere may also indicate an understanding among teachers of constructivist learning approaches, enabling them to deliver their lessons effectively.

Mamon et al. (2023) found that active student participation significantly enhances competencies in disaster management, aligning with the constructivist approach that emphasizes student-centered learning. Research also indicates that experiential learning through simulations and virtual drills, which can be facilitated by multimedia resources, enhances engagement and knowledge retention (Baker & Marshall, 2016; Haghpanah et al., 2021). Similarly, Osei et al. (2017) noted that interactive techniques, such as brainstorming sessions and group discussions, are frequently used and effective in DRRM education.

However, the statements with relatively lower mean scores, though still indicating "Very Highly Knowledgeable," are "I collaborate with local agencies to provide students with practical DRR experiences" (M = 4.22, SD = 0.83) and "I evaluate and reflect on my teaching practices concerning DRRM education regularly" (M = 4.26, SD = 0.68). These results indicate areas for potential improvement. The data imply that teachers might benefit from additional support and resources to foster collaborations with local agencies and enhance their reflective practices in DRRM education.

As discussed earlier, Kolb's Experiential Learning Theory (1984) emphasizes the significance of practice and reflection in the learning process. This reinforces the concept that actively involving students through group discussions and hands-on activities is much more impactful and can translate learning into actual practice. The DepEd order no. 37 (2015) also highlights the need for training educators to impart disaster preparedness knowledge to their students effectively. The fact that a majority of the teachers in Valencia City Central School encourage students to have hands-on experiences with their learning can positively contribute to making the school DRRM-ready.

The importance of community engagement and teacher training in DRRM education is further emphasized by recent literature. Scolobig et al. (2015) suggest that the presence of prepared educators enhances public awareness of disaster risk, while Shaw (2012) highlights the critical role of community involvement in reducing disaster risk.

Additionally, studies have shown that integrating active learning strategies significantly impacts students' comprehension of disaster-related information and preparedness skills (Sozcu, 2020). Possible action research may be done to establish further the benefits of having a community-based DRRM for learning institutions.

These findings suggest that while the Araling Panlipunan teachers at Valencia City Central School are implementing various teaching strategies for DRRM classes, enhancing collaboration with local agencies and promoting reflective teaching practices could further improve their effectiveness in DRRM education. With continuous effort and the support of the local community, the implementation of DRRM can be more relevant and responsive for the students of Valencia City Central School.

Table 4 presents the level of preparedness among Araling Panlipunan teachers in implementing DRRM strategies in the classroom. Each statement has a corresponding weighted mean, arranged from highest to lowest, along with its standard deviation and a qualitative interpretation. The overall mean for all indicators is presented at the bottom part of the table.

Table 4. *Level of Araling Panlipunan Teachers' Preparedness in Implementing DRRM Strategies in the Classrooms*

Statement	*Mean*	*SD*	*Qualitative Interpretation*
1. I am familiar with the school's emergency evacuation plan and procedures.	4.49	0.60	Highly Prepared
2. I feel confident in my ability to teach students about disaster risk reduction concepts.	4.48	0.66	Highly Prepared
3. I can effectively communicate emergency procedures to my students during a crisis.	4.44	0.62	Highly Prepared
4. I have conducted emergency drills with my students to practice evacuation procedures.	4.42	0.62	Highly Prepared
5. I regularly assess and reflect on my teaching practices related to disaster preparedness.	4.33	0.68	Highly Prepared
6. I regularly incorporate DRRM topics into my lesson plans for Araling Panlipunan.	4.27	0.70	Highly Prepared
7. I have developed emergency response procedures specific to my classroom.	4.25	0.68	Highly Prepared
8. I have access to resources and materials that support teaching DRRM concepts.	4.18	0.80	Highly Prepared
9. I collaborate with local agencies or organizations to enhance DRRM education in my classroom.	4.14	0.84	Highly Prepared
10. I have participated in training programs related to disaster preparedness and response.	4.05	1.03	Highly Prepared
Overall	4.31	0.72	Highly Prepared

***Legend**: 5 (4.50–5.00) Very Highly Prepared; 4 (3.50–4.49) Highly Prepared; 3 (2.50–3.49) Prepared; 2 (1.50–2.49) Slightly Prepared; 1 (1.00–1.49) Not Prepared at All.*

The data show an overall mean of 4.31 with a standard deviation of 0.72, interpreted as indicating a high level of preparedness. This suggests that, collectively, the VCCS teacher respondents are equipped to integrate disaster preparedness into their teaching practices. The high preparedness level enables various programs that aim to build teacher knowledge and capacities regarding DRRM. The educational programs, combined with workshops and resource materials, successfully teach teachers how to apply DRRM methods within classrooms. The advanced preparation state enables teachers to become successful DRRM activity facilitators, developing their students' active participation and understanding of disaster preparedness.

This is in congruence with Lim (2023), who reported that teachers' understanding of emergency response procedures and their ability to integrate DRRM concepts into lessons significantly influence students' preparedness for disasters. Research also indicates that ongoing initiatives from DepEd and other organizations aim to enhance teachers' knowledge and preparedness through workshops, training sessions, and resource materials. On the contrary, Mamon et al. (2023) note that despite these efforts, many teachers still feel unprepared due to a lack of training and resources, emphasizing the need for ongoing professional development and support.

The statement "I am familiar with the school's emergency evacuation plan and procedures" revealed as the highest mean of 4.49. This indicates a solid foundation for ensuring student safety during crises and highlights the proactive measures taken by Valencia City Central School (VCCS) teachers in disaster preparedness. The implications of this strength extend beyond immediate disaster response. Teachers' familiarity with evacuation procedures reflects their ability to instill a culture of safety among students, preparing them not only for school-based emergencies but also for real-world scenarios. By consistently practicing evacuation drills and reinforcing safety protocols, teachers contribute to building a generation of students who are well-informed and capable of responding effectively to emergencies. The researcher has observed that these practices foster confidence among students, as they become more aware of their roles during crises, reducing panic and confusion.

This result aligns with the core principles of the Functionalist Theory by Durkheim that schools prepare students for their roles in society, including times of disaster (Prieto et al., 2019). Moreover, this strength underscores the importance of effective communication during emergencies, which is another critical aspect observed at VCCS. Teachers' ability to communicate clearly and calmly with students during evacuation drills ensures that instructions are followed promptly, further enhancing safety outcomes. Studies by Gowing et al. (2020) highlight that structured training programs improve educators' communication skills during crises, enabling them to convey critical information effectively. The researcher has observed that VCCS teachers frequently use visual aids and verbal instructions during drills to ensure that all students understand their roles and responsibilities.

However, the data also illuminates potential areas where focused attention could further enhance teachers' preparedness. Notably, the lowest-rated statement, "I have participated in training programs related to disaster preparedness and response," received the lowest mean of 4.05, yet was still interpreted as indicating a high level of preparedness. This implies that various factors restrict teachers' engagement in professional development programs, including time conflicts and resource limitations, as well as insufficient awareness of available training opportunities. The statement received the lowest mean, suggesting that there is a discrepancy between DepEd's interventions and teachers' time availability. The delivery of DRRM core competencies through training might be insufficient according to this finding. This finding further suggests that VCCS should prioritize strengthening training programs, ensuring that all teachers have access to quality professional development opportunities.

This supports the finding that the self-efficacy of most teachers is low due to the lack of training they have received (Shaw, 2012). This lack of training could have implications for their confidence and ability to effectively implement DRRM strategies, which is further underscored by a survey conducted by Santos and Marce in 2021, where a majority of the teachers reported a lack of confidence.

Table 5 presents the correlation analysis between the teachers' knowledge of DRRM and their preparedness in DRRM strategies in the classrooms. Three aspects of DRRM knowledge were examined: disaster risk concepts, emergency response procedures, and teaching strategies for DRRM classes. The table includes the variables, Pearson's r, p-value, and their corresponding interpretations.

Table 5. *Correlation of the Level of Araling Panlipunan Teachers' Knowledge on DRRM and their Preparedness in Implementing DRRM Strategies in the Classrooms.*

Variables	*Pearson's r*	*p-value*	*Interpretation*
Disaster Risk Concepts	.735**	.000	Significant
Emergency Response Procedure	.682**	.000	Significant
Teaching Strategy for DRRM Classes	.723**	.000	Significant

*** Correlation is significant at the 0.01 level (2-tailed)*

Specifically, the Pearson's r values for these relationships are 0.735, 0.682, and 0.723, respectively, with p-values of 0.000 for all. A strong positive correlation, suggesting that higher levels of knowledge in DRRM are associated with higher levels of preparedness. The p-value of .000, being less than 0.01, indicates that the relationship is statistically significant at the 0.01 level. This suggests that as teachers' knowledge of DRRM increases, their preparedness to implement DRRM strategies in the classroom also significantly increases. Therefore, the null hypothesis, which stated that there is no significant relationship between knowledge and preparedness, is rejected.

These findings also support the results of a study conducted by Santos and Marce (2021), which showed a correlational relationship

between knowledge and preparedness among teachers. As mentioned in the introduction to the study, the competency of teachers can affect students' comprehension of the same topic. In this case, if the teachers are knowledgeable in the field of DRRM and have a practical approach to the topic, it may positively influence the students.

This data also suggests a call for more training and literature regarding DRRM practices. As Aghaei et al. (2018) found, even with high levels of awareness, ongoing education and training are crucial for enhancing disaster management capabilities. Additionally, in line with the results, this study can provide information regarding school policy-making in DRRM practices. It supports the notion that well-informed teachers are more confident and effective in fostering a culture of safety and resilience among students, as highlighted by Lim (2023), who emphasizes the influence of teachers' understanding of emergency response procedures and their ability to integrate DRR concepts.

This further aligns with Mamon et al (2023), which identifies the need for improvement in knowledge. These results also highlight the effectiveness of experiential learning, interactive teaching strategies, and ongoing professional development. Effective DRRM education equips teachers with the skills and confidence needed to handle emergencies and foster a safer learning environment (Gowing et al., 2020; Osei et al., 2017). The correlations highlight the importance of continuous professional development, community collaboration, and the integration of technology in DRRM education, aligning with calls for sustained efforts to enhance teacher knowledge and preparedness for the effective implementation of DRRM strategies in schools (Haghpanah et al., 2021; Isidiho & Sabran, 2016). These initiatives are essential for creating safer, more resilient school communities as envisioned by national and international frameworks such as the Sendai Framework for Disaster Risk Reduction (UNDRR, 2019) and Republic Act No. 10121 (2010).

Conclusions

Based on the findings, the following conclusions were drawn:

Araling Panlipunan teachers at Valencia City Central School possess a high level of knowledge regarding DRRM concepts, emergency preparedness procedures, and teaching strategies for DRRM classes. The teachers demonstrate a satisfactory level of preparedness in implementing DRRM strategies, reflecting their readiness to apply their knowledge in practical classroom settings. The significant positive correlation between teachers' knowledge and preparedness underscores the importance of enhancing teachers' DRRM knowledge to improve their ability to implement effective DRRM strategies in their classrooms.

Based on the conclusion of this study, the following recommendations were given:

Continuous professional development programs are suggested to be provided to Araling Panlipunan teachers at Valencia City Central School. These programs may focus on enhancing specific areas, such as collaboration with local agencies, effective management of misinformation, assisting individuals with special needs during emergencies, and improving reflective teaching practices. Valencia City Central School needs further to equip their teachers with literature and other DRRM materials. In this way, they can be more confident in imparting their knowledge with practical implementation to their students. Engage with local community disaster preparedness organizations and other relevant agencies to support the implementation of DRRM activities in the school. These organizations can provide training and materials that teachers can use for DRRM implementation. Future research may investigate the impact of these interventions on students' knowledge, attitudes, and practices regarding disaster preparedness. Longitudinal studies could track changes in teachers' knowledge and preparedness over time and assess the sustainability of DRRM initiatives within the school. Similar studies may also be done on different schools to assess their knowledge and preparedness.

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