

IMPLEMENTATION OF DISASTER RISK REDUCTION AND MANAGEMENT PROGRAMS IN DAGUPAN CITY SCHOOLS DIVISION

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Abstract

This study evaluated the implementation of Disaster Risk Reduction and Management (DRRM) programs in schools under the Dagupan City Schools Division, with a focus on the roles of school heads. Utilizing a descriptive quantitative research design, data were collected from 45 school heads and analyzed using Pearson correlation, weighted mean, and standard deviation. The findings revealed that the level of implementation of DRRM programs was generally high, particularly in disaster preparedness and stakeholder involvement. However, significant gaps were identified in the provision of sanitation facilities and water access. The study also found significant correlations between school heads' professional profiles, specifically tenure and hours of DRRM-related training, and their perceptions of DRRM implementation.

The results underscore the critical influence of experience and targeted training in fostering effective DRRM practices. While the schools demonstrated strong organizational structures and active engagement of stakeholders, the inadequacies in basic facilities highlight areas requiring urgent attention. The study recommends enhanced resource allocation for sanitation and water infrastructure, alongside continuous capacity-building programs for school heads. These measures aim to strengthen the overall resilience of schools and ensure a safer learning environment, particularly in disaster-prone regions such as Dagupan City. This research contributes to understanding how leadership and resources interplay in disaster risk reduction in education.

Keywords: *Disaster Risk Reduction and Management (DRRM), school heads, implementation, disaster preparedness, stakeholder involvement, school resilience, Dagupan City, professional profiles, sanitation and water access, capacity-building programs*

Introduction

The COVID-19 pandemic, first reported in Wuhan, China, in December 2019, disrupted daily life globally, presenting unprecedented challenges to education systems worldwide (World Health Organization, 2020). School closures and the transition to remote learning highlighted the need for educational leaders to adapt swiftly to crises to ensure learning continuity (Parker et al., 2024; Shankar & Robinson, 2024). Garcia and Weiss (2020) emphasized how alternative learning modalities negatively impacted students, particularly those with limited access to technology or sufficient teacher support (Shankar & Robinson, 2024).

In the Philippines, the vulnerability of schools extends beyond pandemics (Alibudbud, 2021; Funa et al., 2023). As a country ranked 9th on the World Risk Index, it frequently experiences typhoons, floods, and earthquakes (Forster et al., 2019). These disasters disrupt education through class cancellations, damage to infrastructure, and the repurposing of schools as evacuation centers (Forster et al., 2019; Onsay & Rabajante, 2024). Dagupan City, located in a flood-prone region, faces additional challenges due to monsoon rains and tidal flooding, making disaster preparedness a pressing issue for local schools (Cruz et al., 2014).

Research underscores the importance of disaster risk reduction and management (DRRM) in education (Orga et al., 2024). Lopez et al. (2018) noted that while schools in Bohol showed varying compliance with DRRM policies, resource and training deficiencies persisted. Catangui (2020) similarly identified gaps in DRRM preparedness in Albay, including inadequate stakeholder coordination. Corpuz (2019) highlighted disparities in disaster preparedness, finding public schools generally less equipped than private institutions. Despite these findings, little is known about how school heads in Dagupan City Schools Division implement DRRM programs and the factors influencing their efforts.

School heads play a critical role in ensuring disaster-resilient schools (Amri et al., 2022; Harada et al., 2023). Effective DRRM practices, such as risk assessment, disaster preparedness training, and continuity planning, are crucial for minimizing disruptions (Jha et al., 2018). In Dagupan City, the recurrence of severe typhoons, such as Typhoon Mangkhut in 2018, exacerbates these challenges, often delaying the resumption of regular classes (Theirworld, 2018). Leadership theories, including contingency approaches, emphasize the importance of adaptability and situational awareness in disaster scenarios (Cherry, 2019).

The Department of Education (DepEd) has mandated DRRM training through initiatives like the 2015 School DRRM Manual, but gaps remain in its implementation. Campilla (2016) advocated for intensified capacity-building to strengthen school leaders' disaster management skills. Salita, Tiongco, and Kawano (2020) emphasized the role of school heads in fostering disaster preparedness behaviors among stakeholders. Despite these efforts, a gap exists in localized research examining how professional factors such as tenure and DRRM training hours shape school heads' perceptions and implementation of DRRM programs in Dagupan City.

This study seeks to address this gap by assessing the implementation of DRRM programs in Dagupan City Schools Division through the perceptions of school heads. It will also determine whether their tenure as school head and their hours of DRRM-related training influence these perceptions, providing a foundation for strengthening local DRRM initiatives.

The specific Research Questions are: 1) What is the profile of school heads in terms of tenure as school head (in years) and relevant trainings along disaster risk reduction programs (hours); 2) What is the level of implementation of Disaster Risk Reduction and Management (DRRM) programs in Dagupan City Schools Division, as perceived by school heads; and 3) is there a significant relationship between the School Heads' perception of DRRM program implementation and their profile in terms of tenure as school head (in years) and relevant trainings along disaster risk reduction programs (hours).

Method

This study utilized a descriptive quantitative research design to evaluate the level of practice among school heads in implementing disaster risk reduction and management (DRRM) programs in Dagupan City schools. Descriptive research, according to Siedlecki (2020), is designed to explore and document phenomena as they naturally occur, offering an objective representation of practices without altering or influencing the variables. This design was selected to capture the current state of DRRM program implementation, providing a foundation for actionable recommendations aimed at enhancing the disaster preparedness and response capacity of school leaders.

The study involved a total of 45 school heads from the Schools Division Office (SDO) of Dagupan City for the 2020–2021 school year. These respondents included 34 school heads from elementary schools, five from junior high schools, and six from senior high schools. The participants, with varying lengths of tenure and hours of DRRM-related training, contributed valuable perspectives on their practices in implementing DRRM initiatives. This diverse sample ensured a robust representation of the schools in the division.

To analyze the data, three statistical tools were employed. First, minimum, maximum, mean, and standard deviation were used to summarize the professional profiles of respondents, specifically their tenure as school heads and the number of hours of training they attended related to DRRM. Second, weighted mean and descriptive equivalents, as described by Ganti (2020), evaluated the level of DRRM implementation across the three pillars outlined in the DepEd School Disaster Risk Reduction and Management Manual: safe learning facilities, school disaster management, and risk reduction and resilience education. Finally, Pearson product-moment correlation, as explained by Pearson and Spearman (2018), determined the relationship between the professional profiles of school heads and their DRRM implementation levels.

The study is subject to certain limitations. First, the findings are specific to the Schools Division Office of Dagupan City and may not be generalizable to other divisions with different contextual challenges or disaster profiles. Second, the reliance on self-reported data through surveys may introduce bias, as respondents could overstate or understate their practices. Lastly, the study focuses solely on quantitative data, which, while providing a broad overview, might not capture the nuanced experiences of school heads in dealing with disasters.

Ethical principles were strictly adhered to in conducting this study. Permission to conduct the research was obtained from the Schools Division Superintendent, ensuring compliance with institutional guidelines. Respondents were informed about the purpose of the study, their role, and their rights to voluntary participation. Anonymity and confidentiality of the respondents' data were maintained throughout the study. Additionally, the questionnaire was carefully designed and validated by experts to ensure it adhered to ethical standards and did not include invasive or inappropriate questions. These measures ensured the study upheld integrity and respected the rights of all participants.

Results and Discussion

Professional Profile of School Heads

Table 1 presents the professional profile of school heads in terms of number of years as school head and relevant trainings along disaster risk reduction programs.

Table 1. Professional Profile of the School Heads

Profile	N	Max	Min	Mean	SD
tenure as school head (in years)	45	13	1	6.87	3.24
relevant trainings along disaster risk reduction programs (hours)		144	8	67.52	10.25

The professional profile of the school heads in Dagupan City reveals significant data related to their tenure and relevant training in disaster risk reduction programs. Table 1 shows that the school heads have an average tenure of 6.87 years, with a range between 1 and 13 years, and a standard deviation of 3.24 years. This indicates a relatively diverse experience among the respondents, with some school heads having considerable experience, while others are relatively new to their roles. Research suggests that leadership experience plays a crucial role in effective disaster management, as experienced leaders are better equipped to navigate crises (Cherry, 2019). The variation in tenure might influence how school heads implement DRRM programs, as longer-tenured leaders may have greater familiarity with disaster management protocols, while newer leaders may require more guidance and training.

The school heads also reported an average of 67.52 hours of relevant training in disaster risk reduction programs, with a range from 8 to 144 hours and a standard deviation of 10.25 hours. This variability in training hours suggests that while some school heads have received extensive

training, others may not have had as much exposure to DRRM-related education. Previous studies have shown that training and capacity-building initiatives are critical to improving the preparedness and response of school leaders during disasters (Campilla, 2016; Salita, Tiongco, & Kawano, 2020). Inadequate training can lead to gaps in DRRM implementation, as noted by Lopez et al. (2018) and Catangui (2020), who identified resource and training deficiencies as barriers to effective disaster management in schools. The significant variation in training hours observed in the current study may highlight an opportunity to standardize training for all school heads to ensure more consistent and effective disaster preparedness.

When considering the professional profile of the school heads in relation to the broader context of disaster risk reduction, the role of leadership is crucial. According to Jha et al. (2018), effective DRRM practices require school leaders to implement risk assessments, disaster preparedness training, and continuity planning. The varying levels of training experienced by the school heads in Dagupan City, as reflected in Table 1, could influence their ability to carry out these practices. School heads with more training might be better prepared to assess risks and plan accordingly, whereas those with less training may struggle to implement DRRM programs effectively.

Moreover, the findings also align with the broader context of disaster preparedness in the Philippines, where vulnerability to natural disasters remains a significant issue. As noted by Forster et al. (2019), the Philippines is ranked 9th on the World Risk Index, and the country is highly susceptible to various natural hazards such as typhoons, floods, and earthquakes. In regions like Dagupan City, where schools face additional challenges from monsoon rains and flooding (Cruz et al., 2014), the role of school heads in managing disaster risks becomes even more critical. The findings from this study emphasize the need for school heads in disaster-prone areas to receive consistent and comprehensive training to mitigate the effects of disasters on education and ensure continuity in learning (Amri et al., 2022; Harada et al., 2023).

The diverse levels of tenure and training among the school heads in Dagupan City underscore the importance of further capacity-building and standardized training to enhance the disaster preparedness and resilience of schools. The findings suggest that the professional backgrounds of school heads, including their experience and training, significantly influence the effectiveness of DRRM program implementation, in line with the recommendations of Campilla (2016) and Salita et al. (2020). These results emphasize the need for continuous investment in leadership development to foster a disaster-resilient education system in the Philippines.

Level of Implementation of School Disaster Risk Reduction Management Programs Along Safe Learning Facilities

Illustrated in Table 2 on the next page is the level of implementation of School Disaster Risk Reduction Management Programs Along Safe Learning Facilities as perceived by the school heads.

The findings from Table 2 indicate that the implementation of School Disaster Risk Reduction (DRR) Management Programs along Safe Learning Facilities is generally strong, with several areas showing exceptional practice. One of the standout aspects is the preparation of school hazard maps, which received a perfect weighted mean (WM) score of 5.00. This reflects a high level of commitment by school heads to raising awareness about potential risks within the school community, which is a critical component of disaster preparedness (Jha et al., 2018). Hazard mapping is essential for identifying vulnerabilities and informing risk-reduction strategies, aligning with the insights of Forster et al. (2019), who emphasized the importance of proactive risk identification in disaster-prone regions.

Another area of significant success is ensuring the school is accessible to all students, regardless of physical ability, which earned a near-perfect rating of 4.98. This highlights the commitment of school heads to inclusivity, ensuring that all students can fully participate in school

Table 2. Implementation of School Disaster Risk Reduction Management Programs along Safe Learning Facilities

Indicators	WM	Description
1. School hazard maps have been prepared to increase knowledge of risks in the school community	5.00	Very Highly Implemented
2. Ensure that the school is accessible to all regardless of physical ability	4.98	Very Highly Implemented
3. The school is marked by visible boundaries and clear signs	4.91	Very Highly Implemented
4. The school grounds have adequate space for classes and administration, recreation and sanitation facilities.	3.68	Highly Implemented
5. Class space and seating arrangements are according to the prescribed ratio of space per learner and teacher at all grade levels, to facilitate participatory methodologies and learner-centered approaches.	4.52	Very Highly Implemented
6. Communities participate in the construction and maintenance of the school.	3.07	Optimally Implemented
7. Basic health and hygiene are promoted in the learning environment	5.00	Very Highly Implemented
8. Adequate sanitation facilities are provided, considering age, gender and special education needs and considerations.	2.27	Minimally Implemented
9. Adequate quantities of water for safe drinking and personal hygiene are available at the learning site.	1.00	Not Implemented
10. Schools and other learning environments are in close proximity to the populations they serve.	4.76	Very Highly Implemented
11. Access routes leading to the school are safe and secure for all.	3.88	Highly Implemented
12. The learning environment is free from dangers that may cause harm to learners.	4.89	Very Highly Implemented
13. Trainings for teachers and learners are conducted to promote safety, security and protection.	4.67	Very Highly Implemented
14. Teachers and other school personnel are provided with skills to give psychosocial support to learners.	4.93	Very Highly Implemented
15. The community is involved in decisions concerning the location of the learning environment and in establishing systems and policies to ensure that learners are safe and secure.	4.60	Very Highly Implemented
Overall Weighted Mean	4.52	Very Highly Implemented

activities, even in times of crisis. Accessibility, particularly in the context of disaster preparedness, is crucial for providing equitable opportunities for all learners, including those with disabilities (Shankar & Robinson, 2024). The focus on creating an inclusive environment resonates with global best practices, which advocate for accessible disaster risk reduction initiatives that consider the needs of vulnerable populations (Parker et al., 2024).

The promotion of basic health and hygiene within the learning environment also received a very high rating of 5.00, indicating that maintaining a healthy and safe school environment is a

priority for school heads. Ensuring proper sanitation and hygiene is essential for minimizing health risks, particularly during disasters when access to basic health services may be limited (Garcia & Weiss, 2020). This finding supports the views of Salita, Tiongco, and Kawano (2020), who stressed the role of school leadership in fostering environments conducive to both physical and mental well-being.

However, there are critical areas requiring attention, particularly in sanitation facilities. The provision of sanitation facilities designed to accommodate specific needs based on age and gender received a low rating of 2.27, indicating that this aspect of the DRRM program is only minimally implemented. Even more concerning is the absence of adequate water availability for drinking and personal hygiene, which received a score of 1.00, indicating it has not been implemented at all. These gaps highlight significant deficiencies in meeting basic hygiene and water access needs, which are crucial for ensuring the safety and well-being of students, particularly during emergencies (Lopez et al., 2018). The lack of adequate water and sanitation infrastructure can exacerbate health risks, as highlighted by Funa et al. (2023), who discussed the challenges of providing essential services in disaster-affected schools.

On a more positive note, the ability of teachers and personnel to provide psychosocial support to learners received a very high rating of 4.93. This underscores the importance of addressing emotional and mental health needs, particularly in times of crisis. Psychosocial support is vital in maintaining the resilience of students and ensuring their overall well-being during and after a disaster (Amri et al., 2022). The strong emphasis on this aspect aligns with the recommendations of Harada et al. (2023), who emphasized the need for mental health support in disaster preparedness and response.

Overall, the weighted mean of 4.52 suggests that, while most practices related to safe learning facilities in DRR programs are very highly implemented, there are still significant gaps in areas such as sanitation and water access. These findings highlight the effective leadership of school heads in fostering a safe, accessible, and healthy learning environment. However, they also emphasize the need for continued efforts to address critical gaps in sanitation infrastructure, which are essential for ensuring comprehensive disaster risk reduction strategies.

Level of Implementation of School Disaster Risk Reduction Management Programs Along School Disaster Management

Table 3 below presents the perceptions of the respondents on the level of implementation of School Disaster Risk Reduction Management Programs along the domain of school disaster management.

The findings presented in Table 3 reveal a high level of implementation of the School Disaster Risk Reduction Management (DRRM) Programs along School Disaster Management indicators. Overall, the programs have been very highly implemented, as indicated by the overall weighted mean (WM) of 4.77. Several key indicators demonstrate strong efforts by school heads and their teams to establish and maintain disaster resilience in their schools.

Table 3. Implementation School Disaster Risk Reduction Management Programs Along School Disaster Management

Indicators	WM	Description
1. The school has established the organizational support structure such as the assignment of SDRRM coordinators and other DRR teams.	4.95	Very Highly Implemented
2. The school DRRM teams are properly oriented and are well aware of their roles and functions.	4.75	Very Highly Implemented
3. The school DRRM teams are conducting regular meetings and school DRR activities are regularly implemented and monitored.	4.54	Very Highly Implemented
4. School head was able to manage information on any phase of disaster.	5.00	Very Highly Implemented
5. Parents, students and other stakeholders are involved in the development and implementation of DRRM activities	4.91	Very Highly Implemented
6. Students are involved in DRRM programs to increase ownership and understanding of SDRRM	4.88	Very Highly Implemented
7. Capacity building for school DRRM teams are incorporated in School Improvement Plan	4.68	Very Highly Implemented
8. Training needs analysis is conducted in designing appropriate program for SDRRM teams.	4.45	Very Highly Implemented
9. There is an available education continuity plan in the school that will serve as the contingency plan in case hazards would incur significant damage to school facilities.	4.88	Very Highly Implemented
10. There is/are existing partnership/s with NGOs, civil society organizations and the academe to maximize training programs for the school DRRM teams.	4.69	Very Highly Implemented
Overall Weighted Mean	4.77	Very Highly Implemented

A standout area is the management of information related to disasters. With a perfect rating of 5.00, this indicator reflects that school heads have implemented robust systems to manage disaster-related information during all phases of a crisis. This highlights a well-established practice of ensuring that relevant data and communications are handled effectively, which is crucial for timely responses and coordination during disasters (Forster et al., 2019; Jha et al., 2018). This excellent practice aligns with the findings of Lopez et al. (2018), who stressed the importance of accurate and timely information management in enhancing disaster preparedness.

Another area of strength is the establishment of organizational structures such as the assignment of SDRRM coordinators and other DRR teams, which received a very high rating of 4.95. This indicates that schools have a clear framework in place to manage disaster risk, with defined roles and responsibilities for staff members (Amri et al., 2022). The clear delineation of roles is crucial for effective disaster management, as it ensures that everyone knows their responsibilities, reducing confusion during crises (Salita, Tiongco, & Kawano, 2020).

Similarly, the proper orientation of DRRM teams and their awareness of their roles and functions were also rated highly (WM = 4.75). This finding reflects the importance of training and preparedness in ensuring that disaster management teams are capable of executing their duties

effectively. School heads have demonstrated their leadership in making sure that team members are equipped with the knowledge needed to respond to disasters (Shankar & Robinson, 2024). This corresponds with Campilla's (2016) call for strengthened capacity-building to ensure that school leaders and their teams are prepared for disaster scenarios.

The involvement of parents, students, and other stakeholders in DRRM activities, rated at 4.91, further emphasizes the inclusive approach schools have taken in disaster preparedness. This aligns with the recommendation by Theirworld (2018) that community involvement is essential for building disaster resilience. Engaging a broad range of stakeholders ensures that DRRM initiatives have wider support and effectiveness, as disaster preparedness is not solely the responsibility of school officials but requires collective action from the community.

The incorporation of capacity building into the School Improvement Plan (SIP), with a rating of 4.68, demonstrates that disaster risk reduction is integrated into the school's broader educational strategies. This finding highlights the importance of embedding DRRM into long-term school planning, as it ensures that disaster preparedness is not an isolated effort but part of the school's ongoing development (Harada et al., 2023). This aligns with the suggestions of Jha et al. (2018), who advocated for a comprehensive approach that links DRRM to educational goals and institutional improvement.

While the overall implementation is highly positive, there are still areas for further development. For instance, the training needs analysis for SDRRM teams, with a rating of 4.45, suggests that while some efforts are made to assess training needs, this process could be further optimized to ensure that the right skills are continuously developed in line with emerging disaster risks. Similarly, while partnerships with NGOs, civil society organizations, and academic institutions have been established (WM = 4.69), these partnerships could be expanded to ensure that schools have access to a broader range of resources and expertise (Alibudbud, 2021).

In conclusion, the findings from Table 3 suggest that the School DRRM Programs in the Dagupan City Schools Division are very highly implemented, with strong leadership from school heads and active participation from stakeholders. However, the need for ongoing assessment and the expansion of partnerships and training initiatives is evident. These efforts will further strengthen the ability of schools to manage disaster risks and ensure the continuity of education in the face of future challenges.

Level of Implementation of School Disaster Risk Reduction Management Programs Along Risk Reduction and Resilience Education

Table 4 shows the perceived level of practice of Implementation of School Disaster Risk Reduction Management Programs along Risk Reduction and Resilience Education by the schools in Dagupan as reported by school heads.

The findings from Table 4 show a generally high level of implementation of School Disaster Risk Reduction and Management (DRRM) programs focused on Risk Reduction and Resilience Education. Several indicators highlight areas where school heads have made considerable progress, while others suggest room for improvement.

One of the most notable findings is the integration of psychosocial support into the learning process, which received a very high rating of 4.99. This indicates that schools have made exceptional efforts to address the mental and emotional well-being of students, a crucial aspect of disaster resilience. Psychosocial support is an essential recovery mechanism during and after disasters, helping students cope with trauma and stress (Amri et al., 2022; Shankar & Robinson, 2024). The very high rating in this area reflects a deep understanding by school heads of the importance of mental health in disaster preparedness and recovery.

Table 4. Level of Practice of School Heads in Terms of the School Disaster Risk Reduction Management Programs Along Risk Reduction and Resilience Education

Indicators	WM	Description
1. School curriculum with DRRM integration is well implemented by teachers.	2.85	Optimally Implemented
2. Various co-curricular activities such as poster-making, slogan and essay writing, multi-hazard drills, solid waste management and posting of hazard maps are conducted.	3.89	Highly Implemented
3. Psychosocial support is also integrated in the learning process of students as a recovery mechanism.	4.99	Very Highly Implemented
4. Contextualized school calendar integrates various activities and celebrations (NSED, World Environment Day, Safe Kids Week, etc.) relative to DRRM.	4.93	Very Highly Implemented
5. Learning materials for DRRM education is present and available for all learners.	2.85	Optimally Implemented
6. Teachers are encouraged to develop learning materials for SDRRM purposes and are made available to all learners.	4.47	Very Highly Implemented
7. The school maintains its own Gulayan sa Paaralan and advocates sustainability measures for all learners.	4.95	Very Highly Implemented
8. Ecological solid waste management practices are evident in the school grounds with the establishment of the school's material recovery facility.	4.63	Very Highly Implemented
9. The school participated and/or initiated tree planting activities within the school community.	3.81	Highly Implemented
10. School-based gulayan sa paaralan, waste management and greening programs are also observed at home and in the communities through established partnerships with the local government officials.	2.45	Minimally Implemented
Overall Weighted Mean	3.98	Highly Implemented

Similarly, the contextualized school calendar, which integrates activities like National Schools Disaster Resilience Day (NSED), World Environment Day, and Safe Kids Week, received a very high rating of 4.93. This shows that school heads prioritize the inclusion of disaster risk reduction activities in the school year, enhancing students' understanding of DRRM through both curricular and extracurricular engagement. These activities contribute significantly to building resilience and environmental awareness (Lopez et al., 2018).

Other indicators related to school-based sustainability and environmental education also received strong ratings. For instance, the maintenance of the *Gulayan sa Paaralan* (School Garden) and sustainability advocacy earned a high score of 4.95, reflecting a commitment to environmental education and sustainable practices. Similarly, ecological solid waste management practices were highly implemented, with a rating of 4.63. These efforts align with global recommendations for schools to foster sustainability and ecological awareness as part of disaster risk reduction initiatives (Forster et al., 2019).

However, there are areas where implementation could be further strengthened. The integration of DRRM into the school curriculum received a rating of 2.85, classified as "Optimally

Implemented." While this suggests a solid foundation, it indicates that there is room for improvement in fully embedding DRRM content into everyday teaching. This finding is consistent with the concerns raised by Catangui (2020), who noted that while DRRM policies may exist, actual implementation can be uneven, particularly in terms of curriculum integration.

Similarly, the availability of learning materials for DRRM education also received a rating of 2.85, suggesting that while resources are present, they may not be universally accessible or adequately distributed among all students. This issue is critical, as Garcia and Weiss (2020) highlighted that access to educational resources, especially in times of crisis, can be a significant barrier to effective disaster resilience education. The availability and accessibility of DRRM materials are fundamental in ensuring that all learners are equipped with the knowledge and skills to respond to disasters.

The indicator related to the school's involvement in tree planting activities, with a rating of 3.81, also shows a strong but not exhaustive implementation. Tree planting activities are a key part of environmental education and contribute to long-term disaster risk reduction by reducing soil erosion and promoting biodiversity (Jha et al., 2018). Similarly, while co-curricular activities like poster-making, slogan writing, and multi-hazard drills received a high rating of 3.89, it suggests that such activities, while beneficial, could be expanded to ensure that all students are consistently engaged in hands-on DRRM learning.

The weakest area identified was the school's efforts in promoting DRRM activities at home and in the community, which was rated as "Minimally Implemented" with a score of 2.45. This indicates that while schools may be conducting DRRM activities within the school grounds, the extension of these initiatives to students' homes and local communities remains limited. Partnerships with local government officials to extend DRRM education beyond the school is an area that needs significant attention, as community-based resilience is critical to ensuring a broader and more sustainable impact (Parker et al., 2024).

Overall, the weighted mean of 3.98 reflects that, while many aspects of DRRM education are highly implemented, there are critical areas—such as curriculum integration, resource availability, and community involvement—that require continued attention to strengthen disaster resilience across the school system. These findings underscore the leadership efforts of school heads in integrating DRRM into education, but also highlight the need for further enhancement in some key areas to ensure comprehensive disaster risk reduction education.

Correlation between the Professional Profiles of School Heads and the Perceived Level of Implementation of School Disaster Risk Reduction Management Programs

Table 5 depicts the correlation between the professional profile of school heads and their perception on the level of implementation of school disaster risk reduction management programs – taken as the aggregate of the respondents' ratings for all indicators in all the three dimensions.

The findings presented in Table 5 provide valuable insights into the relationship between the professional profile of school heads and their perceptions of the level of implementation of School Disaster Risk Reduction and Management (DRRM) Programs. This correlation analysis reveals that both tenure as a school head and the number of hours of relevant DRRM training significantly influence how school heads perceive the implementation of DRRM programs.

Correlation with Tenure as a School Head. The data indicate a positive and statistically significant correlation between the tenure of school heads and their perceptions of DRRM program implementation, with a Pearson r of 0.302 ($p = .03$). This finding suggests that more experienced school heads tend to rate the implementation of DRRM programs more favorably. This aligns with Catangui's (2020) observation that experienced school leaders are better equipped to navigate the complexities of disaster preparedness, having likely encountered and

Interacting with Level of Implementation	Pearson r	Df	P-Value	Remarks
tenure as school head (in years)	0.302	43	.03	Significant
relevant trainings along disaster risk reduction programs (hours)	0.314	43	.01	Significant

managed previous disaster scenarios. The development of leadership skills over time enhances their ability to effectively implement and oversee DRRM strategies, including managing resources, engaging stakeholders, and fostering a culture of preparedness (Cherry, 2019).

Correlation with Relevant DRRM Training. Similarly, the analysis shows a significant positive correlation between the number of hours of DRRM-related training and the perceived implementation level, with a Pearson r of 0.314 ($p = .01$). This highlights the critical role of targeted training in equipping school heads with the necessary knowledge and skills to implement DRRM programs effectively. Training improves understanding of risk reduction practices, as well as familiarity with tools like hazard mapping, education continuity planning, and stakeholder collaboration (Campilla, 2016; Salita, Tiongco, & Kawano, 2020). This finding reinforces the recommendations of Harada et al. (2023), who emphasized the importance of capacity-building initiatives in enhancing the effectiveness of DRRM implementation in schools.

The significant relationships found in this study suggest that both experience and training are crucial for the successful implementation of DRRM programs. This underscores the need for continuous professional development, particularly for newer school heads who may lack extensive experience in disaster management. Tailored training programs focusing on practical skills, scenario planning, and community engagement could bridge this gap and ensure consistent implementation of DRRM strategies across schools (Lopez et al., 2018).

The positive correlations found in Table 5 affirm that the professional profile of school heads significantly impacts their perceptions of DRRM program implementation. These findings emphasize the importance of investing in leadership development through targeted training and mentorship, particularly for less experienced school heads. Such efforts can enhance disaster preparedness and resilience in schools, ultimately ensuring safer learning environments for students and staff.

In conclusion, the study underscores the pivotal role of school heads in the effective implementation of Disaster Risk Reduction and Management (DRRM) programs. The findings indicate that tenure and DRRM-related training significantly shape their perceptions of implementation, emphasizing the value of experience and targeted capacity-building in fostering disaster-resilient schools. While substantial progress has been achieved in areas such as disaster preparedness and stakeholder engagement, critical deficiencies remain, particularly in sanitation and water access. Addressing these gaps is essential to creating safe and sustainable learning environments.

As a general recommendation, the Department of Education and local government units should prioritize the provision of adequate resources for sanitation and water facilities in schools, alongside sustained professional development for school heads and DRRM teams. These efforts will strengthen the implementation of DRRM programs, ensuring that schools are better equipped to mitigate risks and maintain educational continuity in the face of disasters.

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