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Building a disaster-resilient school community: The case of rural and urban schools in Oriental Mindoro

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ABSTRACT

Schools in hazard-prone communities serve not only as centers for learning but also as critical hubs for safety, coordination, and recovery during disasters. This study examined the disaster resilience of rural and urban school communities in Oriental Mindoro by assessing existing mechanisms and practices, perceived challenges and barriers, underlying constructs, and the overall level of resilience, to develop a contextualized framework to strengthen school-community disaster preparedness and response. An exploratory sequential mixed-methods design was employed, with the qualitative phase involving 35 school and community stakeholders, including school heads, DRRM coordinators, barangay officials, and parent-teacher association leaders, through semi-structured interviews and focus group discussions. The quantitative phase involved 210 public secondary school teachers, equally distributed between rural and urban schools, using a validated researcher-made survey questionnaire. Data were analyzed using thematic analysis, descriptive statistics, Exploratory Factor Analysis (EFA), Cronbach's alpha, and the Mann-Whitney U Test. Findings revealed seven major mechanisms and practices that contribute to building disaster-resilient school communities, along with seven key challenges and barriers. EFA identified four underlying constructs: institutional and adaptive preparedness, community coordination and collaboration, capacity and competence, and structural readiness. Results further indicated that rural and urban schools require sustained investment, regular monitoring, infrastructure improvements, strengthened stakeholder linkages, and the institutionalization of adaptive and proactive DRRM strategies, with both types of schools demonstrating comparable levels of preparedness, capacity, and implementation. Based on these findings, the study proposed the K.A.L.A.S.A.G. ng Mindoreño Disaster-Resilient School Community Framework, which provides a collaborative, adaptive, and systems-based approach to enhancing disaster resilience in school communities.

Keywords: Disaster resilience, DRRM, rural and urban schools, mixed-methods research, community collaboration, contextualized framework, Oriental Mindoro.

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INTRODUCTION

In recent years, schools have increasingly been recognized not only as centers of learning but also as critical hubs for disaster preparedness and response. Beyond their primary educational function, schools play an essential role in protecting learners, personnel, and surrounding communities before, during, and after disasters. This expanded responsibility has become increasingly significant in hazard prone areas where educational institutions must maintain learning continuity while safeguarding lives and supporting community recovery. Within this context, the present study examines the disaster resilience of school communities in Oriental Mindoro, focusing on rural and urban public secondary schools and exploring how these institutions prepare for, withstand, and recover from natural hazards such as floods, typhoons, and earthquakes. Strengthening disaster resilience in schools is therefore fundamental to ensuring uninterrupted education, protecting learners and staff, and reinforcing the capacity of communities to respond effectively during emergencies.

The growing body of literature consistently recognizes disaster resilience in educational settings as a multidimensional construct that extends beyond physical infrastructure to encompass organizational, social, and leadership capacities. According to UNDRR (2020), resilient schools are those capable of withstanding disruptions while maintaining essential educational functions and recovering effectively from adverse events. Complementing this perspective, King and Suryadarma (2025) describe school resilience as a multifaceted process that integrates institutional readiness with adaptive capacity, enabling schools to function as stabilizing institutions for communities during emergencies. These perspectives collectively emphasize that effective disaster resilience requires the interaction of structural resilience through safe and functional infrastructure, individual resilience through the knowledge and competencies of teachers and learners, and system resilience through effective governance, coordination, and resource management. Together, these dimensions highlight that resilience is not solely determined by physical preparedness but also by the institutional systems and collaborative mechanisms that enable schools to adapt to changing conditions.

Studies conducted in the Philippine context further demonstrate that disaster resilience is shaped by differences in local environments and available resources. Rural schools frequently rely on strong social capital, community participation, and volunteerism to sustain disaster preparedness initiatives, whereas urban schools generally benefit from more developed infrastructure, technical assistance, and institutional support (Baluran, 2023; Tayug, 2024; Cubillas et al., 2022). Despite these contextual differences, existing evidence consistently identifies persistent challenges that limit the effectiveness of school-based disaster risk reduction and management initiatives. These challenges include insufficient formal partnerships, inadequate capacity building opportunities, and inconsistent implementation of disaster risk reduction and management plans, all of which may compromise school readiness and emergency response. At the same time, the literature converges on the importance of proactive school leadership, strong community linkages, and well supported Disaster Risk Reduction and Management teams in enhancing preparedness, strengthening adaptive capacity, and sustaining coordinated responses during disasters (Balanggoy, 2024; Gabuya, 2024; Salindo & Salindo, 2024). While these studies provide valuable insights into individual dimensions of resilience, they also reveal the need for a more integrated understanding of how structural readiness, institutional preparedness, community collaboration, and leadership collectively contribute to disaster resilience across diverse school settings, particularly within rural and urban communities.

The present study is conceptually grounded in complementary theoretical perspectives that explain the complex processes underlying disaster resilient school communities. Resilience Theory proposed by Holling (1973) and further developed by Masten (2014)

provides the foundation for understanding how schools absorb disturbances, reorganize resources, adapt to changing conditions, and sustain educational continuity despite disruptive events. This adaptive perspective is reinforced by Social Capital Theory, which emphasizes that trust, collaboration, and strong social networks among stakeholders enhance collective preparedness and strengthen the capacity of communities to respond effectively during disasters (Coleman, 1988; Putnam, 1993). In addition, Transformational Leadership Theory explains how school leaders inspire, motivate, and coordinate teachers, staff, students, parents, and community partners to pursue shared disaster preparedness goals that extend beyond individual interests (Bass, 1985). The integration of these theoretical perspectives provides a comprehensive lens for understanding disaster resilience as a dynamic interaction among adaptive systems, collaborative relationships, and effective leadership. Guided by these theoretical foundations, the study advances the K.A.L.A.S.A.G. Disaster Resilient School Community Framework, which emphasizes structural readiness, institutional preparedness, community collaboration, and capacity building as interconnected pillars of resilient educational communities.

The synthesis of existing literature and theoretical perspectives underscores the importance of examining disaster resilience through an integrated and context sensitive approach that recognizes both environmental and organizational factors influencing school preparedness. Although previous studies have documented the significance of infrastructure, governance, leadership, and community participation, relatively limited attention has been devoted to understanding how these elements collectively operate within the contrasting contexts of rural and urban public secondary schools in Oriental Mindoro. Addressing this gap is essential for generating evidence that reflects local realities while contributing to broader efforts to strengthen disaster risk reduction and management practices in educational institutions. Accordingly, the findings of this study are expected to provide practical guidance for school administrators and Disaster Risk Reduction and Management coordinators in enhancing leadership, coordination, and capacity building initiatives. Teachers and school personnel may benefit from improved preparedness strategies and structured professional development opportunities that strengthen their disaster response competencies. Students are expected to gain safer learning environments and greater opportunities to develop resilience related knowledge and skills, while parents and community members may benefit from strengthened collaboration with schools that prioritize safety and coordinated disaster response. Furthermore, the findings may serve as valuable references for policy makers in designing context responsive Disaster Risk Reduction and Management programs and for future researchers seeking to replicate and extend best practices in similar provinces, thereby contributing to the continued development of resilient school communities.

Statement of the problem

The study aims to examine and compare disaster resilience in rural and urban school communities in Oriental Mindoro. Specifically, it seeks to investigate existing Disaster Risk Reduction and Management mechanisms and practices, identify the challenges affecting their implementation, evaluate the level of disaster resilience across key dimensions, compare disaster resilience between rural and urban schools, and develop a contextualized disaster resilient school community framework applicable to Oriental Mindoro. To achieve these objectives, the study seeks to answer the following research questions:

1. What are the existing Disaster Risk Reduction and Management mechanisms and practices implemented in rural and urban schools in Oriental Mindoro?

2. What challenges and barriers affect the implementation of Disaster Risk Reduction and Management programs in rural and urban schools?
3. What is the level of disaster resilience in rural and urban schools in terms of structural readiness, institutional preparedness, capacity, and community coordination?
4. Is there a significant difference in the level of disaster resilience between rural and urban schools in Oriental Mindoro?
5. Based on the findings of the study, what contextualized disaster resilient school community framework can be developed for application in Oriental Mindoro?

METHODOLOGY

This study employed an exploratory sequential mixed methods design, which consisted of a qualitative phase followed by a quantitative phase. The qualitative phase explored experiences, practices, challenges, and enabling factors related to disaster resilient school communities in rural and urban contexts, and the themes generated from the qualitative analysis subsequently informed the development of the quantitative survey instrument. The quantitative phase then measured the level of disaster resilience and compared differences between rural and urban schools, allowing the researcher to explore the disaster resilience phenomenon in rural and urban school communities before measuring and comparing the findings quantitatively.

The research was conducted in selected public secondary schools within the Schools Division of Calapan City, representing the urban locale, and the Schools Division of Oriental Mindoro, representing the rural locale. For the qualitative phase, 35 school and community stakeholders, including school heads, DRRM coordinators, Barangay Captains, chairs of Barangay DRRM Committees, and GPTA Presidents, were selected through purposive criterion sampling to ensure that participants had direct knowledge of school community disaster resilience. The quantitative phase involved 210 secondary school teachers, consisting of 105 from rural schools and 105 from urban schools, who were selected using stratified disproportionate random sampling in order to ensure proportional representation and comparability across school clusters. The inclusion criteria required active involvement in DRRM activities, while private schools and non participating community members were excluded from the study.

Data for the qualitative phase were gathered using semi structured interviews and a Focus Group Discussion guide. These tools allowed participants to share their experiences, describe current practices, and highlight challenges and enabling factors in DRRM implementation, while the Focus Group Discussions facilitated the collection of shared perspectives among stakeholders. For the quantitative phase, a structured survey questionnaire was developed based on the themes that emerged from the qualitative data. The initial instrument, composed of 55 items, was refined to 36 items following expert validation, pilot testing, reliability assessment using Cronbach's alpha, and Exploratory Factor Analysis, all of which were conducted to ensure construct validity and internal consistency. The survey employed a five-point Likert scale to quantify disaster resilience practices.

Prior to data collection, permission to conduct the study was obtained from school division offices, school principals, and barangay officials, and informed consent was secured from all participants. Interviews were conducted either face to face or online, while Focus Group Discussions were conducted mostly online in order to accommodate geographical constraints and reduce travel related limitations. Data collection continued until data saturation was achieved. Survey questionnaires were subsequently administered online via Google Forms to all 210 teacher respondents.

Qualitative data were transcribed and analyzed using thematic analysis in order to identify patterns and themes related to disaster resilience, following the approach of Braun and Clarke (2006), and triangulation across stakeholder groups was employed to strengthen the credibility of the findings. Quantitative data were analyzed using descriptive statistics to determine the levels of disaster resilience. The Shapiro Wilk test was used to check the normality of the data, and because normality assumptions were not met, the Mann-Whitney U Test was used to compare rural and urban schools. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity were employed to confirm the suitability of the data for factor analysis, after which Exploratory Factor Analysis was conducted to identify the underlying constructs of disaster resilience, while Cronbach's alpha was used to assess the internal consistency of the survey instrument. The Mann-Whitney U Test was further used to determine whether significant differences existed between rural and urban schools at a 0.05 probability level.

Throughout the conduct of the study, ethical research guidelines were strictly observed to ensure voluntary participation, informed consent, and the right of participants to withdraw without penalty. Confidentiality and anonymity were maintained through anonymized data presentation and secure data storage, and potential risks were minimized in order to prevent psychological, social, or physical harm to participants. The study likewise observed the principle of justice by ensuring equitable treatment of all participants regardless of their role, as well as the principle of beneficence by maximizing the benefits derived by participants and their communities. Finally, the research findings were disseminated responsibly in order to contribute to improved DRRM practices and policies in school communities.

RESULTS AND DISCUSSION

This chapter presents and discusses the results of the study on disaster resilience in rural and urban school communities in Oriental Mindoro. The results are grounded in the responses of 35 school and community stakeholders who participated in the qualitative phase, comprising school heads, DRRM coordinators, Barangay Captains, chairs of Barangay DRRM Committees, and GPTA Presidents selected through purposive criterion sampling, and 210 secondary school teachers who participated in the quantitative phase, consisting of 105 respondents from rural schools and 105 respondents from urban schools selected through stratified disproportionate random sampling. Consistent with the exploratory sequential mixed methods design employed in this study, the qualitative findings derived from semi-structured interviews and Focus Group Discussions were used to inform the development of the 36-item structured survey questionnaire, which was subsequently subjected to descriptive statistics, Exploratory Factor Analysis, Cronbach's alpha reliability testing, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy, Bartlett's Test of Sphericity, and the Mann-Whitney U Test. The results presented in this chapter are interpreted directly in relation to the objectives of the study, namely to explore the existing mechanisms and practices in building disaster-resilient school communities, to identify the challenges and barriers encountered, to determine the underlying constructs of disaster resilience, to assess the level of disaster resilience among rural and urban schools, and to examine whether significant differences exist between the two contexts.

Existing mechanisms and practices in building a disaster-resilient school community

The qualitative findings revealed that disaster-resilient school communities in rural and urban schools in Oriental Mindoro are supported by several institutionalized mechanisms and practices. Participants highlighted the presence of written disaster risk reduction and management (DRRM) plans, posted evacuation procedures, assigned roles, and regular review of school preparedness systems, with urban schools exhibiting more structured systems while rural schools maintained basic plans and role assignments despite resource limitations. As one participant shared, "May written DRRM plan kami at naka-post ang evacuation plans sa bawat classroom." These practices align with UNDRR (2020), which emphasizes the importance of formalized policies and protocols in sustaining school disaster preparedness. Capacity building and preparedness training likewise emerged as key practices, including drills, emergency simulations, first aid training, and preparedness orientations that helped teachers, learners, and community responders understand their roles and build practical skills, although rural schools reported fewer opportunities for advanced training due to resource constraints. A participant explained, "Teachers attended DRRM trainings and seminars," underscoring the need for skill-based, hands-on preparedness (Baluran, 2023; King & Suryadarma, 2025).

Structural safety and infrastructure preparedness were also identified as important practices, encompassing roof repairs, classroom reinforcement, drainage improvement, hazard maps, safety signage, fire extinguishers, evacuation areas, and early warning devices. Urban schools demonstrated more visible infrastructure improvements, while rural schools relied on local materials for retrofitting, as reflected in the statements "Nagkaroon kami ng roof repair" and "Old classrooms need reinforcement." These findings reflect the role of infrastructure in disaster resilience, as highlighted by UNDRR (2020) and Widowati et al. (2023). Community collaboration and coordination between schools, barangays, parents, and local DRRM groups were described as essential, with joint drills, meetings, and emergency simulations enhancing disaster preparedness; rural schools depended on informal networks, whereas urban schools utilized MOAs and structured agreements, as illustrated by the statement "Regular ang coordination namin sa barangay." This supports literature emphasizing that school-community partnerships improve disaster response effectiveness (Boston et al., 2024; Wang et al., 2025). Leadership and governance in DRRM implementation were also found to sustain DRRM programs, with school heads and coordinators leading committees, overseeing drills, and ensuring stakeholder participation. Urban schools benefited from structured leadership, while rural schools emphasized adaptive and resourceful leadership, as expressed in the statement "Leadership is very important, dapat decisive ang principal." This confirms literature indicating that strong leadership and shared governance are critical for resilience (Cayanan et al., 2025; Baluran, 2023).

In addition, schools implemented adaptive and resourceful resilience practices such as localized hazard mapping, adjusted evacuation protocols, and flexible coordination during emergencies, with rural schools demonstrating resourcefulness through community support and local materials, as one participant noted, "A DRRM-ready school is flexible and resourceful." These practices illustrate resilience as an adaptive process, consistent with King and Suryadarma (2025). Finally, awareness and participation mechanisms engaged stakeholders through meetings, advisories, orientations, campaigns, and risk communication initiatives, although parent and learner participation varied, with some rural schools relying on informal involvement, as reflected in the statement "Parents can help, active participation at support." This highlights the importance of awareness and engagement for effective disaster preparedness (Tayug, 2024; Noynay, 2025).

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Challenges and barriers to building a disaster-resilient school community

Despite these existing mechanisms, participants identified several challenges that hinder the full realization of disaster-resilient school communities. Infrastructure vulnerabilities emerged as a major barrier, with weak and aging infrastructure, deteriorating roofs, light-material classrooms, unsafe stairways, narrow corridors, unsafe evacuation spaces, and congested movement areas limiting safe evacuation during drills or actual disasters, as expressed in the statements "May old classrooms at weak roofing systems" and "Some classrooms are made of light materials." These findings suggest that even when schools have disaster plans, poor infrastructure limits the effectiveness of emergency preparedness measures (UNDRR, 2020; Baluran, 2023). Environmental risks such as flood-prone classrooms, low-lying school locations, and exposure to climate-related hazards were also identified as barriers that increase the risk of damage and delay response during emergencies, as one participant noted, "Flood-prone facilities and drainage vulnerabilities expose the school to environmental hazards." This emphasizes the need for context-specific planning and risk assessment (King & Suryadarma, 2025; Widowati et al., 2023).

Insufficient facilities and equipment, including limited or non-functional first aid kits, fire extinguishers, warning systems, and evacuation facilities, further weakened disaster preparedness, as illustrated by the statements "The lack of warning systems, rescue equipment, and emergency supplies weakens disaster response capacity" and "Inadequate evacuation facilities limit effective emergency preparedness implementation" (Rouhana & Zhu, 2023; Li et al., 2025). Limited financial and material resources were also frequently cited as barriers, with schools struggling to fund DRRM programs, infrastructure upgrades, and equipment procurement, as one participant stated, "Budget talaga ang biggest challenge. Limited funds for upgrading facilities," with rural schools especially affected by logistical difficulties due to remoteness and limited external support (Baluran, 2023; Government Accountability Office, 2022). Training and technical competency gaps were similarly reported, including insufficient simulation exercises, limited rescue skills, and low confidence among personnel, with one participant stating the need for "advanced rescue training" and another noting the lack of hands-on drills, indicating the need for regular, skills-based training (Cresencio & Yabut, 2023; Cvetković et al., 2024).

Inconsistent policy implementation and participation were also observed, with irregular updating of DRRM plans and weak enforcement limiting compliance and continuity of preparedness activities, as reflected in the statements "May orientation, oo, pero hindi consistent" and "Participation in drills depends on availability and interest," which aligns with studies emphasizing that sustained and institutionalized practices are crucial for effective disaster preparedness (UNDRR, 2020; Cayanan et al., 2025). Finally, communication and coordination barriers between schools, barangays, parents, and responders were reported, including delayed information, informal coordination, scheduling conflicts, and accessibility issues, as expressed in the statements "Coordination issues dahil sa distance at accessibility" and "Collaboration is not consistent because of overlapping responsibilities." Effective communication and clear coordination protocols are therefore necessary to ensure timely and organized disaster response (Boston et al., 2024; Wang et al., 2025).

Underlying constructs in building disaster-resilient school community

To determine the underlying constructs and statements of the questionnaire on disaster resilience of rural and urban school communities in Oriental Mindoro, Exploratory Factor

Analysis was used. The initial analysis showed a Kaiser-Meyer-Olkin value of 0.962, exceeding the minimum threshold of 0.50, indicating that the data were highly suitable for factor analysis. Bartlett's Test of Sphericity yielded a significant result, with an approximate chi-square value of 8846.332, df = 990, and p = 0.000, showing that the correlation matrix was appropriate for factor extraction. The total variance explained in the initial iteration showed that four components could be derived from the evaluated items, and the initial factor solution accounted for 67.002% of the variance in the data. After the first analysis, one item failed to load significantly on any factor and was removed, and items that showed weak loading, cross-loading, or loading under a different construct were also reviewed and deleted. This process was conducted through ten iterations, using principal component analysis with promax rotation, until the remaining items showed acceptable factor loadings greater than 0.40.

Through this iterative process, the final analysis produced a Kaiser-Meyer-Olkin value of 0.963, which again exceeded the threshold of 0.50 and approached unity, indicating that the instrument had a high level of usefulness and acceptability for measuring disaster resilience. Bartlett's Test of Sphericity remained statistically significant, with an approximate chi-square value of 6882.946, df = 630, and p = 0.000, confirming that the dataset was appropriate for factor analysis. The refined set of 36 items produced a final four-factor solution explaining 68.810% of the total variance, indicating that the retained factors strongly represented the dimensions of disaster resilience among school communities in Oriental Mindoro.

The rotated component matrix showed that items 1 to 16 loaded significantly onto Factor 1, items 17 to 31 onto Factor 2, items 32 to 36 onto Factor 3, and items 37 to 42 onto Factor 4, with each factor representing a key dimension of disaster resilience in school communities. Factor 1, composed of 16 items, was named Institutional and Adaptive Preparedness and reflects the presence of DRRM policies, preparedness plans, regular drills, adaptive procedures, and responsive measures, with items such as the alignment of the school's DRRM plan with DepEd Order No. 21, s. 2015 loading at .845, consistent implementation of disaster preparedness policies across staff levels loading at .689, the maintenance of a formally approved written Disaster Preparedness and Response Plan loading at .710, regular updating and review of the DRRM plan loading at .791, the use of hazard mapping and risk assessment loading at .643, teacher awareness of specific roles in emergency procedures loading at .735, effective communication of hazard warnings loading at .849, regular conduct and monitoring of evacuation drills loading at .631, clarity of contingency procedures loading at .620, strong and proactive school leadership loading at .596, an organized system for disaster response and recovery loading at .806, established funding and resource mechanisms loading at .683, encouragement of stakeholder capacity development loading at .485, the use of lessons learned from past disasters loading at .829, the maintenance of updated and visibly posted Standard Operating Procedures loading at .517, and mechanisms to adapt preparedness based on local risks loading at .574.

Factor 2, consisting of 10 items, was labeled Community Coordination and Collaboration and captures the strength of collaboration between schools, barangays, parents, and local DRRM committees, with items such as regular communication with the barangay regarding disaster preparedness loading at .497, active barangay support for school DRRM activities loading at .668, the conduct of joint drills and disaster preparedness activities loading at .824, clear and effective communication channels between school and community loading at .533, parental participation in school disaster preparedness activities loading at .813, community support for evacuation and relief operations loading at .703, fortification of the school's disaster response capacity through a formal Memorandum of Agreement and representation in barangay preparedness committees loading at .653, teacher awareness and integration of barangay DRRM plans loading at .743, joint disaster action plans addressing

coordination challenges loading at .768, and continuous collaboration to improve DRRM strategies loading at .760.

Factor 3, comprising 6 items, was labeled Capacity and Competence and measures the technical skills, confidence, and preparedness of teachers, learners, and personnel to respond to emergencies, with items such as teacher confidence in performing roles during a disaster loading at .662, the carrying out of assigned evacuation and safety procedures and accounting for learners at designated assembly areas loading at .717, learner familiarity with evacuation procedures and safety rules loading at .752, personnel capability in identifying risks and responding proactively loading at .757, regular assessment of teacher and learner preparedness loading at .546, and compliance with evacuation and safety instructions, mutual assistance, and return to routine activities as directed loading at .580. Factor 4, composed of 4 items, was named Structural Readiness and reflects the physical infrastructure, facilities, and safety measures in schools, with items such as the functionality, visibility, and accessibility of emergency exits, fire safety equipment, and hazard signage loading at .755, regular inspection of classrooms, laboratories, and electrical utilities loading at .757, proactive identification and management of areas vulnerable to specific local disasters loading at .689, and the safety, accessibility, and adequacy of designated evacuation zones loading at .644.

The reliability results further supported the acceptability of the instrument. Institutional and Adaptive Preparedness obtained a Cronbach's alpha of 0.966 across its 16 items, Community Coordination and Collaboration obtained 0.946 across its 10 items, Capacity and Competence obtained 0.905 across its 6 items, and Structural Readiness obtained 0.859 across its 4 items. These values indicate that the instrument had high internal consistency and was reliable for measuring the major constructs of disaster resilience in rural and urban school communities.

Level of disaster resilience in the rural and urban schools in Oriental Mindoro

The results generally revealed that both rural and urban schools in Oriental Mindoro already demonstrate observable preparedness practices, coordination mechanisms, trained personnel, and basic structural readiness. This finding aligns with the Comprehensive School Safety Framework (UNDRR, 2020), which emphasizes that school resilience is developed through enabling systems and policies, safe learning facilities, school safety and educational continuity management, and risk reduction and resilience education. However, the findings also show that these areas still require continuous improvement, particularly in infrastructure safety, regular assessment, advanced training, and stronger stakeholder participation, consistent with Paci-Green et al. (2020), who reported that while many countries have adopted school safety and emergency management policies, implementation is often constrained by funding limitations and technical capacity gaps.

Among the four dimensions, Institutional and Adaptive Preparedness obtained the highest overall mean of 3.24, with rural schools obtaining a mean of 3.31 and urban schools obtaining a mean of 3.18, indicating that schools have existing policies, protocols, and preparedness systems. This is followed by Capacity and Competence with an overall mean of 3.13, with rural schools obtaining a mean of 3.07 and urban schools obtaining a mean of 3.18, and Community Coordination and Collaboration with an overall mean of 2.97, with rural schools obtaining a mean of 2.96 and urban schools obtaining a mean of 2.97. These results support findings by Bentor et al. (2024) and Cayanan et al. (2025), which highlight that active school-community partnerships, stakeholder engagement, and teacher training are critical in strengthening resilience. Structural Readiness emerged as the weakest dimension, with an

overall mean of 2.96, with rural schools obtaining a mean of 2.82 and urban schools obtaining a mean of 3.10, demonstrating the need for infrastructure improvement, regular safety inspections, functional equipment, and better evacuation facilities. This corroborates Baluran (2023) and Cresencio and Yabut (2023), who emphasize that safe school buildings, functional emergency facilities, and retrofitting are essential components of disaster-resilient educational environments.

Significant differences in the level of disaster resilience between rural and urban schools in Oriental Mindoro

The Mann-Whitney U Test showed no statistically significant difference in overall disaster resilience between rural and urban schools, with test statistics of $U = 4726.5$, $z = -1.79$, and $p = 0.075$, and correspondingly reported as $U = 4726.500$, $z = -1.786$, and $p = 0.074$ at the 0.05 level of significance, resulting in the acceptance of the null hypothesis and indicating comparable levels of preparedness, capacity, and implementation despite contextual differences. This indicates that rural and urban schools demonstrated comparable levels of preparedness, capacity, and implementation of disaster risk reduction and management practices despite differences in resources, infrastructure, and local conditions. This agrees with Chong et al. (2025) and Baluran (2023), who explained that disaster resilience is shaped not only by geographical location but also by the interaction of leadership, community engagement, policy implementation, and context-appropriate resource mobilization. It also supports Nurdiansyah and Nurwati (2025), who argued that resilience depends on the functioning of both social and technical systems within the school community.

Proposed contextualized framework

Drawing from the qualitative and quantitative findings of this study, the K.A.L.A.S.A.G. (Kahandaan ng Estruktura, Adaptibong Kahandaan ng Institusyon, Lakas ng Kakayahan at Kasanayan, Aktibong Ugnayan at Koloborasyon ng Komunidad, Sistematikong Pagpapatupad, Agarang Aksyon at Adaptibong Tugon, at Gabay at Suportang Pang-institusyon) Disaster-Resilient School Community Framework was developed to integrate the findings of this study into a comprehensive, contextualized, and values-driven model for enhancing disaster resilience in school communities of Oriental Mindoro. The framework conceptualizes disaster resilience as a building system, with each structural element representing a functional component of resilience that highlights stability, support, and interdependence. The ultimate goal of the framework is to achieve schools that can maintain safety, continuity of learning, and adaptive capacity before, during, and after disaster events, consistent with UNDRR (2020), which defines resilience as the capacity to foresee, withstand, adapt to, and recover from disasters while maintaining essential functions.

Taken together, the findings of this study demonstrate that rural and urban school communities in Oriental Mindoro have already established foundational mechanisms for disaster resilience, including institutionalized DRRM policies, capacity building initiatives, structural safety measures, community collaboration, proactive leadership, adaptive practices, and awareness mechanisms, yet these efforts continue to be constrained by infrastructure vulnerabilities, environmental risks, insufficient facilities, limited financial resources, training gaps, inconsistent policy implementation, and communication barriers. The Exploratory Factor Analysis confirmed that disaster resilience among these school communities can be reliably measured through four interrelated constructs, namely Institutional and Adaptive Preparedness, Community Coordination and Collaboration, Capacity and Competence, and Structural Readiness, each demonstrating strong internal consistency as reflected in their respective

Cronbach's alpha values. The overall levels of disaster resilience across these dimensions ranged from moderate to relatively higher levels, with Structural Readiness identified as the area most in need of improvement, while the Mann-Whitney U Test confirmed that rural and urban schools exhibit statistically comparable levels of disaster resilience despite their contextual differences in resources and infrastructure. These findings directly address the objectives of the study by empirically identifying the existing practices, challenges, underlying constructs, and comparative levels of disaster resilience in rural and urban school communities, and they contribute to the field by providing an empirically grounded and contextually relevant understanding of school-based disaster resilience in a Philippine provincial setting. The synthesis of these findings further informed the development of the K.A.L.A.S.A.G. framework, which offers a values-driven and contextualized model for strengthening disaster-resilient school communities. Building upon these results, the succeeding chapter presents the summary of findings, conclusions, and recommendations of the study, translating the empirical and thematic insights generated in this chapter into actionable directions for policy, practice, and future research.

CONCLUSION

The study revealed that schools in rural and urban areas of Oriental Mindoro demonstrate observable disaster resilience through preparedness practices, trained personnel, coordination mechanisms, and basic structural readiness, with Institutional and Adaptive Preparedness being the strongest dimension and Structural Readiness the weakest. The findings indicate that a holistic, systems-based approach is needed, integrating physical infrastructure, policies, human capacity, and community collaboration. To sustain and enhance resilience, schools should implement continuous capacity-building programs, regular safety assessments, infrastructure improvements, and stronger stakeholder engagement. Partnerships with barangays, private sectors, NGOs, and parents should be formalized through MOAs and community-based drills. Efficient, technology-supported communication systems, structured governance, and consistent monitoring of DRRM programs are also recommended. The Department of Education should provide training, resources, and institutional support, while barangays should invest in early warning systems, emergency equipment, evacuation centers, and awareness campaigns. Finally, the proposed K.A.L.A.S.A.G. ng Mindoreño Disaster-Resilient School Community Framework may serve as a guiding model, offering a practical, adaptable, and sustainable approach to enhance disaster resilience across school communities. Future studies are encouraged to replicate this research in other school divisions and explore additional factors affecting school disaster resilience to further refine strategies and frameworks.

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