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Beyond the Fingerprints: Lived Experiences of Island and Mountain School Teachers on the Centralized Biometrics System

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ABSTRACT

This study explored the lived experiences of island and mountain school teachers in Talibon I and II Districts, Division of Bohol, regarding the implementation of the Centralized Biometrics System launched in February 2026. It examined teachers' initial reactions and lived experiences, the effects of the system on their teaching conditions and effectiveness, the challenges they encountered, their coping mechanisms, and the school support systems they received, as bases for a proposed action plan. Using a qualitative hermeneutic phenomenological design, data were gathered through validated semi-structured interviews with 12 purposively selected public elementary school teachers, six from island schools and six from mountain schools, and analyzed using Moustakas' phenomenological data analysis method with member checking. Teachers initially reacted with ambivalence and anxiety, but also with a professional growth mindset and recognition of the system's benefits. Their lived experiences centered on adjustment and adaptation, time management, system reliability challenges, external circumstances, emotional impact, policy constraints, work-life balance, and mixed perceptions. Although the system added routines, stress, and contextual constraints, it fostered positive professional habits and accountability, and teachers maintained their teaching effectiveness. Challenges included technical failures, geographic and weather-related barriers, administrative burden, emotional strain, and conflicts with personal responsibilities. Teachers coped through adaptation routines, emotional regulation, collective coping, and institutional navigation, supported by administrative responsiveness, peer guidance, and institutional mechanisms of varying adequacy. The study concludes that while the system posed challenges of reliability and rigidity, teachers reframed compliance as professional growth and sustained resilience through solidarity and support, and that the system ultimately had more positive than negative effects. It recommends a human-centered implementation with orientation, technical support, contingency measures, flexible adjustment policies, and regular monitoring.

Keywords: *centralized biometrics system, lived experiences, island and mountain schools, geographically isolated schools, teacher resilience, hermeneutic phenomenology*

INTRODUCTION

The Department of Education (DepEd) continues to introduce reforms, technological innovations, and programs to improve education. One such initiative is the Centralized Biometrics System, launched in the Division of Bohol in February 2026 to monitor personnel attendance. Through this system, DepEd aims to strengthen accountability, transparency, and efficiency in managing teacher attendance and related human resource processes. Traditional manual attendance systems were prone to errors, manipulation, and delays in filing records, which

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undermined fairness and consistency. By adopting biometrics, the Department sought to establish a uniform, tamper-proof, real-time attendance monitoring system that ensures accurate records for payroll, service credits, and personnel management.

The Division of Bohol is not alone in adopting this innovation; the Cebu Division, Northern Samar, and DepEd Imus, Cavite have also implemented biometric attendance systems. Studies have reported that biometric attendance reduces impersonation and proxy attendance and promotes discipline and punctuality (Adebayo et al., 2018), while also showing both the promise and the pitfalls of such systems and the importance of orientation before implementation (Carlon, 2024). However, many schools have struggled to comply because of unstable electricity and internet connectivity, raising concerns about fairness. While the Magna Carta for Public School Teachers guarantees teachers' rights, better working conditions, and compensation for extra hours (Republic Act No. 4670, 1966), the biometrics system has been perceived as one-sided—quick to record undertime and tardiness but silent on overtime. In the Division of Bohol, some schools also failed to provide proper orientation, and overlapping schedules confused teachers and contributed to negative perceptions of the program.

These concerns are most acute in geographically isolated schools. Teachers in island and mountain schools face long travel distances, sea and weather conditions, and limited infrastructure that make punctual compliance difficult (Lariosa et al., 2022; Quejada & Orale, 2018). During the first two months of implementation, teachers expressed varied perceptions and sentiments about the system, mirroring the reported advantages and disadvantages of centralized biometrics and the gaps in orientation. Existing studies, however, have largely examined the technical performance or administrative efficiency of biometric systems, and few have documented the lived experiences of teachers in island and mountain schools as they adjust to a centralized biometric attendance policy.

This study therefore explored the lived experiences of island and mountain public school teachers in Talibon I and II Districts, Division of Bohol, in the implementation of the Centralized Biometrics System during School Year 2026–2027. Specifically, it sought to describe (a) teachers' initial reactions to and lived experiences of the system; (b) how these experiences affect their teaching conditions and effectiveness; (c) the challenges they encountered; (d) their coping mechanisms; and (e) how the school support system affects their motivation, and (f) to propose an action plan based on the results. The findings may help learners through improved time on task and teacher engagement; help teachers strengthen accountability and voice suggestions for improving the system; guide school administrators in addressing and relaying teachers' concerns to the Human Resource team and Division Office; inform DepEd in enhancing support for remote schools; and provide baseline data for future researchers.

Literature Review

Theoretical Underpinnings

This study is anchored on Critical Pedagogy Theory, which holds that education must empower marginalized groups and challenge systemic inequities. Drawing on Paulo Freire, Akhter et al. (2023) emphasized that education, as an agent of change, should not be limited to a select few but must uplift Indigenous Peoples, Madrasah learners, and those living in remote islands or hazardous areas. Freire's concept of critical consciousness calls for a deep understanding of social, political, and economic contradictions, followed by praxis—reflection and action—achieved through dialogue. In this study, teachers are positioned as agents of social transformation whose insights can enable the Division's Human Resource Management team to reflect and take action to improve the Centralized Biometrics System, which is still in its initial stage of implementation.

Resilience Theory explains how individuals adapt and cope in adverse conditions; resilience involves positive adaptation despite significant adversity and is shaped by relationships, meaning-making, and resourcefulness rather than mental toughness alone (Luthar et al., 2000). Culturally responsive pedagogy adds that education must align with local culture, values, and realities, and Caingcoy (2023) argued that accountability systems such as biometrics under the Human Resource Management Information System (HRMIS) must adapt to

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local contexts rather than impose uniform standards. Luhmann's (1995) Systems Theory further suggests that organizations are interconnected systems in which inefficiencies in one part affect the whole; centralizing the HRMIS therefore affects not only attendance monitoring but also teacher morale and equity.

The study also draws on the Technology Acceptance Model, which holds that the use of an information system depends on perceived usefulness and perceived ease of use (Davis, 1989). Namiti and Ondick (2020) used this model, together with Innovation-Diffusion Theory, to explain teachers' negative perceptions of biometric systems, noting that although biometrics save time and offer secure, accurate, and convenient attendance tracking, adoption is affected by teachers' location, age, and education, the availability of technology, inadequate policy, and limited administrative support and training. Together, these perspectives frame teachers' experiences as shaped by equity, adaptation, local context, organizational interdependence, and technology acceptance.

Legal and Policy Bases of the Centralized Biometrics System

The legal basis for DepEd's use of biometrics derives from Civil Service, DepEd, and data privacy rules. As the central personnel agency of government, the Civil Service Commission (CSC) requires all agencies to maintain accurate and verifiable attendance records. CSC Memorandum Circular (MC) No. 41, s. 1998 and MC No. 1, s. 2017 reiterate policies on government office hours, attendance, and penalties for tardiness and absences, while CSC MC No. 23, s. 1998 and MC No. 16, s. 2010 require employees to render eight hours a day and 40 hours a week. The Code of Conduct and Ethical Standards for Public Officials and Employees likewise requires accountability, including accurate time records (Republic Act No. 6713, 1989). DepEd Order No. 008, s. 2013 mandates accurate monitoring of personnel attendance and punctuality, and DepEd Order No. 16, s. 2009 provides that teachers render eight hours, six of which are for actual teaching, with an official time of 8:00 AM to 5:00 PM and a one-hour noon break. Because biometric data are sensitive personal information, their processing must also comply with the principles of transparency, legitimate purpose, and proportionality under the Data Privacy Act of 2012 (Republic Act No. 10173, 2012).

At the division level, the Schools Division Office of Bohol proposed the centralized HRMIS through Office Memorandum No. 2025-28, issued on July 29, 2025, and Division Memorandum No. 752, s. 2025 required all public elementary and secondary schools to procure biometric devices with fingerprint and/or face recognition, cloud-based data upload, HRMIS compatibility, and reliable internet connectivity for real-time synchronization (Department of Education, 2024). The Bohol Division HRMIS includes features such as employee records, attendance, time and HR adjustments, service credits, leaves, and service records. These policies operate within the constitutional mandate that the State assign the highest budgetary priority to education and ensure that teaching attracts and retains talent through adequate remuneration and job satisfaction (1987 Philippine Constitution, Art. XIV, Sec. 5).

Biometric Attendance Systems in Educational Institutions

Studies on biometric attendance in schools report gains in efficiency and accountability. Esperanza et al. (2026) found that a biometric system in a private school in Ubay, Bohol, improved the efficiency and accuracy of time recording and payroll, although teachers resisted it out of fear of reduced flexibility and data privacy issues. Carlon (2024) documented how fingerprint biometrics streamlined attendance tracking and reduced manual errors at a school in Rizal, and Ogunleye and Olatunde (2019) reported improved efficiency in attendance management in Nigerian polytechnics, but also resistance due to inadequate training. Patil and Patil (2022) highlighted both the benefits and the risks of biometric attendance, especially in remote contexts with limited electricity and internet access.

Other studies point to the human and ethical dimensions of these systems. Ali et al. (2018) found that biometric attendance was positively related to the performance of university teachers but was also associated with job-related stress, and that rigid implementation without administrative support can cause dissatisfaction and resistance, particularly when teachers are marked absent while on approved off-site duty. Mohamed and Hussein (2020) revealed growing concerns about the misuse of biometric data and the need for strict data-protection

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policies, while Necochea-Chamorro et al. (2024) noted that biometric systems in educational institutions face hardware, software, and environmental limitations that affect reliability.

Teachers in Geographically Isolated and Resource-Constrained Schools

Teachers in remote school's work under conditions that shape how they experience accountability systems. Quejada and Orale (2018) described the physical hardships, emotional and social isolation, and resource scarcity faced by teachers in a remote school in Samar, and Lariosa et al. (2022) showed that geographic isolation and systemic neglect are widespread across far-flung schools. Baynosa et al. (2024) found that teachers in last-mile schools in Negros Occidental face resource scarcity, poor infrastructure, and administrative burdens, yet demonstrate resilience through adaptability, creativity, and commitment to their students. Because weather and long travel can cause such teachers to be marked late, these conditions bear directly on compliance with a centralized biometric system.

Teachers also frequently compensate for systemic gaps with their own resources. Dela Peña (2021) reported that teachers used their own money and resources during distance learning, and EDCOM II and IDinsight (2025) framed teacher workload as a systemic issue linked to staffing standards. Piele et al. (2026) argued that teachers who find meaning and value in their work cope better with professional difficulties, especially when the environment supports them through transparent, fair, and well-communicated procedures, adequate resources and infrastructure, and supportive workplace relationships. These studies suggest that the burdens of a new accountability system fall most heavily on teachers who already work under resource and geographic constraints.

Research Gap and Conceptual Framework

Although prior studies have documented the efficiency gains and technical limitations of biometric attendance systems, and the hardships of teachers in remote schools, few have examined how teachers in island and mountain schools experience a newly centralized biometric attendance policy. Research has focused largely on system performance and administrative efficiency rather than on the meanings teachers attach to compliance, its effects on their teaching, and the coping and support mechanisms they rely on. This study addresses that gap through a phenomenological inquiry in the Talibon Districts of Bohol.

Figure 1 presents the theoretical and conceptual framework of the study. Critical Pedagogy Theory, Resilience Theory, culturally responsive pedagogy, and Systems Theory, together with the legal bases of attendance monitoring, frame the experiences of island and mountain school teachers in Talibon I and II under the Centralized Biometrics System. The study examined five areas—lived experiences, teaching effectiveness, challenges, coping mechanisms, and school support—whose findings informed the proposed action plan.

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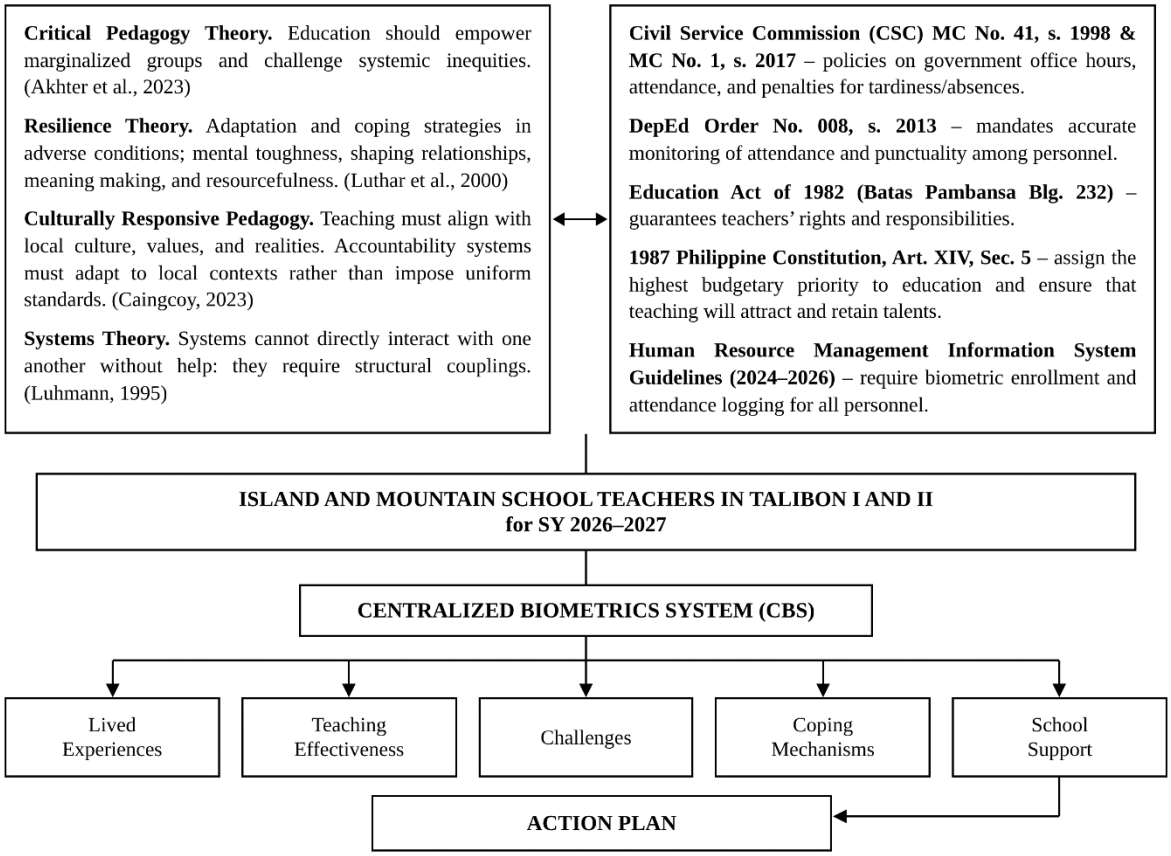


Figure 1. *Theoretical and Conceptual Framework of the Study*

METHODS

Research Design

The study used a qualitative hermeneutic phenomenological design to explore the lived experiences of island and mountain school teachers. This design allowed the researchers to examine how teachers' experiences affected their teaching conditions and effectiveness, the challenges they encountered, the coping mechanisms they adopted, and the support they received in the implementation of the Centralized Biometrics System. Hermeneutic phenomenology provided a systematic yet interpretive lens for capturing the meaning of teachers' narratives and offered a rigorous description of their experiences and concerns about the system.

Research Locale

The study was conducted in selected schools in the Municipality of Talibon, Bohol, a first-class municipality in the province's second congressional district, about 115 kilometers from Tagbilaran City. Talibon is bordered by Bien Unido to the east, Trinidad to the south, the Camotes Sea to the north, and Getafe to the west, and has a total land area of 140.46 square kilometers. Of its 25 barangays, 17 are on the mainland and eight are on islands. For educational administration, the municipality is divided into two districts: Talibon I, which covers schools in mountain areas, and Talibon II, which includes schools situated on islands.

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Participants and Sampling Technique

Purposive sampling was used to select 12 public elementary school teachers: six from mountain schools in Talibon I and six from island schools in Talibon II (Table 1). The inclusion criteria were that the teachers were currently employed in public schools; were teaching in island or mountain schools; had at least one year of teaching experience in their present assignment; had personally experienced challenges such as transportation difficulties, power interruptions, long travel time, and schedule-related issues; and, as a group, included both residents and non-residents of the barangay and both genders. Schools not situated in island or mountain areas were excluded.

Table 1. *Distribution of Participants*

School Location	District	Resident	Non-resident	Total	Participant Codes
Mountain	Talibon I	2	4	6	P1–P6
Island	Talibon II	1	5	6	P7–P12
Total		3	9	12	

Note. Residents: P3 and P6 (mountain) and P11 (island).

Research Instrument

A researcher-made semi-structured interview guide, developed from the research questions, served as the instrument. A semi-structured guide provides a concise list of high-level topics and questions that keeps interviews focused while allowing flexibility in the flow of dialogue (Creswell, 2014). The guide comprised introductory, rapport-building, substantive, and focused stages covering teachers' initial reactions, lived experiences, effects on teaching, challenges, coping strategies, and support received. It was reviewed and validated for content by teachers, master teachers, administrators, and research experts who were not participants in the study.

Data Gathering Procedure

Permission to conduct the study was obtained from the Dean of the School of Advanced Studies, the Campus Director, the University President, and the Schools Division Superintendent of Bohol. Request letters were then sent to the Public Schools District Supervisors and principals of Talibon I and II, and invitation letters outlining the participation agreement and data confidentiality were issued to the selected teachers. Interviews lasted approximately 45 to 60 minutes and were conducted in person or online through Google Meet, Messenger, or Zoom, depending on participants' availability; with participants' permission, interviews were audio-recorded and notes were taken. The responses were transcribed, categorized into themes and subthemes, and interpreted, and the themes and findings were returned to the participants for validation.

Data Analysis

Data were analyzed using Moustakas' (1994) phenomenological data analysis method. Through horizontalization, the researchers identified significant statements describing how participants experienced the phenomenon. These were clustered into meaning units or themes (reduction), and repetitive, overlapping, or irrelevant statements were eliminated. The researchers then wrote textural descriptions of what participants experienced and structural descriptions of how the experience unfolded, including its context and setting, and synthesized these into a composite description of the essence of the phenomenon. Finally, the descriptions were returned to the participants through member checking to verify that they accurately reflected their experiences.

Ethical Consideration

The study adhered to established ethical standards in educational research. Participants were fully informed of the study's purpose, scope, and procedures, and voluntarily agreed to participate with the assurance that they could withdraw at any time without penalty; no coercion was involved in recruitment. Participants' identities and school names were kept confidential, codes (P1 to P12) were used in reporting responses, and data were stored securely and used solely for academic purposes. Sensitive issues such as anxiety, ambivalence, and

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technostress were handled with empathy, and care was taken that participation caused no psychological, professional, or reputational harm. The researchers acknowledged the contextual realities of remote schools, reported findings without fabrication or misrepresentation, and followed the ethical protocols of the Division and the university.

RESULTS AND DISCUSSION

Initial Reactions and Lived Experiences of Island and Mountain School Teachers

Teachers' initial reactions to the Centralized Biometrics System yielded four themes: ambivalence, anxiety, professional growth mindset, and perceived system benefits (Table 2). Their reactions combined curiosity and cautious optimism with worry and frustration. Teachers acknowledged that the system could improve accountability and transparency, but doubted its reliability in island and mountain schools, where power interruptions, poor connectivity, and fingerprint mismatches created uncertainty even before full implementation. This ambivalence parallels findings that teachers simultaneously experience fulfillment and devaluation under systemic pressures (Alexandrino et al., 2025) and that they hold ambivalent views of professional demands that carry both value and practical burdens (Tampos & Cutamora, 2025).

Table 2. *Initial Reactions of Island and Mountain School Teachers to the Centralized Biometrics System*

Theme	Key Codes	Illustrative Vignettes
Ambivalence	Initial ambivalence; curiosity and worry; adjustment concerns	"Curious about the new system but also somewhat worried because I was not yet familiar with how it worked." (P4); "Mix of apprehension and frustration." (P6)
Anxiety	Worry about technical reliability; overwhelmed by multiple adjustments	"What if there is bad weather, or maybe I have another commitment, and I cannot come to school on time, what will happen to my attendance?" (P11); "Doubtful that the system would be successful." (P9)
Professional Growth Mindset	Recognition of professional growth; positive attitude despite challenges; recognition of positive purpose	"It is part of growing professionally, so I approached it with a positive attitude." (P10); "System aims to promote accountability and transparency." (P6)
Perceived System Benefits	Accountability and transparency; organizational benefits; acceptance of system as routine	"Make attendance monitoring more organized and provide a more accurate record of our attendance." (P5); "Purpose… accurate, transparent, standardized." (P1)

Anxiety stemmed from uncertainty about how the system would function in difficult geographic contexts and from the possibility of being penalized despite punctuality, since compliance depended on weather, travel, and technical factors beyond teachers' control. Similar anxiety has been reported among Filipino pre-service teachers (Belarmino et al., 2025) and public-school teachers burdened by workloads and administrative demands (Labial, 2025). Nonetheless, many teachers reframed the change as part of professional growth and approached it with a positive attitude, and acceptance grew as the system became routine. This shift toward recognizing the system's benefits is consistent with Escano (2025), who found that digital attendance monitoring enhanced administrative efficiency and punctuality while raising concerns about surveillance.

The lived experiences of teachers were consolidated into eight themes: adjustment and adaptation, time management, system reliability challenges, external circumstances, emotional impact, policy constraints, work-life balance, and mixed perceptions (Table 3). Teachers gradually learned to use the device, integrated it into their routines, and became more conscious of their time-in and time-out, consistent with studies showing that teachers

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who initially struggled later integrated biometrics into their routines with improved punctuality and accountability (Delyani, 2026; Shaheen et al., 2025) and managed their time more efficiently to comply (Akbar et al., 2026).

Table 3. *Lived Experiences of Island and Mountain School Teachers on the Centralized Biometrics System*

Theme	Key Codes	Illustrative Vignettes
Adjustment and Adaptation	Manageable but requires discipline; learning to use the device; daily routine integration	"Experience has generally been manageable, but it requires discipline and adjustment." (P1)
Time Management	Becoming more conscious of time-in and time-out	"More conscious of my time-in and time-out because the system records our attendance electronically." (P5)
System Reliability Challenges	Technical and connectivity issues	"There are instances when technical or connectivity problems make the process difficult." (P1)
External Circumstances	Weather, road, and sea travel conditions; travel difficulties	"Adjusting to the required time of login and logout was difficult because our travel depends on sea conditions." (P8)
Emotional Impact	Stress and anxiety over attendance accuracy; worry about circumstances beyond control	"Daily anxiety over whether the machine will read my fingerprint…" (P6)
Policy Constraints	Limited adjustment allowance (four per month); worry about wasted adjustments	"DepEd only allows us up to 4 adjustments per month… we might have to use those limited adjustments just to correct something that was not our fault." (P10)
Work-Life Balance	Busy with teaching and mentoring tasks; interrupted lunch rest	"It really affects our short resting time after lunch. Instead of taking a short nap, we go directly to the school office for break-in and break-out." (P11)
Mixed Perceptions	Convenience versus inconvenience; negative sentiment	"A mix of convenience and some challenges." (P10); "Very hard, and is not practical for us teachers." (P12)

These adjustments, however, were accompanied by recognition errors, power interruptions, connectivity problems, and queues at peak times, as well as weather disruptions, poor roads, and dependence on sea travel. Such reliability issues are common in resource-limited schools (Jayasekara et al., 2026), and biometric systems are known to be vulnerable to environmental conditions and infrastructural limitations (Necochea-Chamorro et al., 2024; Noekhah et al., 2025). Purnamawati et al. (2026) similarly observed that human-centered challenges such as travel delays and emergencies tend to be overlooked in favor of technical optimization. The emotional impact was considerable: teachers described daily anxiety over whether the device would read their fingerprints and fear of penalties despite being punctual, echoing reports of anxiety and fear of penalties when teachers first adopted biometric systems (Shaheen et al., 2025) and of job-related stress associated with biometric attendance (Ali et al., 2018).

Institutional rules intensified these burdens. The limit of four attendance adjustments per month forced teachers to ration corrections, which they felt were "wasted" on technical failures rather than reserved for genuine emergencies; Khan and Nawaz (2019) likewise found that strict attendance policies amplified stress when technical failures consumed limited adjustment allowances. The requirement to log out and in at noon also disrupted short rest periods and displaced time for checking outputs or mentoring, reflecting administrative demands that erode work-life balance (Belarmino et al., 2025; Labial, 2025). As a result, teachers held mixed perceptions: they valued automated, accurate records but found the system inconvenient and, for some, impractical, consistent with Celerez et al. (2024), who reported that biometrics improved accuracy but that performance varied with sensor quality.

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Effects of the Centralized Biometrics System on Teaching Conditions and Effectiveness

Five themes described the effects of the system on teaching conditions and effectiveness: routine adjustment and teaching focus; stress, anxiety, and system challenges; environmental and contextual constraints; positive professional habits and accountability; and teaching effectiveness maintained (Table 4). Biometric logging became part of teachers' daily routines and at times competed with lesson preparation and attention to learners. Shaheen et al. (2025) and Delyani (2026) found that biometric systems improve punctuality, discipline, and transparency, while Bete (2026) noted that structured monitoring improved punctuality but raised concerns about instructional focus, paralleling the finding that attendance compliance can overshadow teaching priorities.

Table 4. *Effects of the Centralized Biometrics System on Teaching Conditions and Teachers' Effectiveness*

Theme	Key Codes	Illustrative Vignettes
Routine Adjustment and Teaching Focus	Added routine; prioritizing attendance over lesson preparation; forgetting to log out; loss of rest time	"It adds another routine that I have to remember every day." (P1); "It forces me to prioritize beating the clock over focusing on student needs or early morning lesson prep." (P6)
Stress, Anxiety, and System Challenges	Stress from travel conditions, technical errors, and compliance	"Worrying about arriving on time despite difficult travel conditions can sometimes create stress before classes even begin." (P2)
Environmental and Contextual Constraints	Dependence on solar power; limited conducive environment	"Our school depends mainly on solar power… it makes the classroom not conducive to learning sometimes." (P7)
Positive Professional Habits and Accountability	Punctuality, discipline, organization, consistency	"It also encourages me to be punctual and more disciplined in my daily schedule." (P10)
Teaching Effectiveness Maintained	Minimal effect on teaching performance; resilience; professional growth	"It does not really affect my teaching performance. I am still doing my tasks effectively and efficiently." (P9)

Stress arose from difficult travel, technical errors, and the need to remember to log in and out, sometimes diverting attention before classes began. Attoillah et al. (2026) reported that digital attendance systems enhance discipline but can generate stress when perceived as rigid or punitive, and Mingua (2025) found that biometric monitoring improved punctuality but required corrective actions and training to reduce stress and errors. In remote schools, reliance on solar power and limited electricity affected both classroom conditions and attendance recording; within the Technology Acceptance Model, such environmental barriers reduce perceived ease of use and, consequently, acceptance (Davis, 1989).

At the same time, the system encouraged punctuality, discipline, organization, and consistency. Teachers reframed compliance as an opportunity to strengthen their professional identity and work ethic, illustrating how external requirements can be internalized as professional values, as explained by Self-Determination Theory (Deci & Ryan, 1985). Most importantly, teachers maintained that their teaching effectiveness in preparation, instruction, mentoring, and assessment remained intact. Viewed through Resilience Theory (Luthar et al., 2000), their professional dedication served as a protective factor that sustained instructional quality under systemic pressure.

Challenges Encountered in the Implementation of the Centralized Biometrics System

Six themes captured the challenges teachers encountered: technical and system reliability issues; external circumstances and environmental challenges; time management and administrative burden; stress, anxiety, and emotional impact; work-life balance and personal circumstances; and mixed perceptions and adaptation (Table 5). Persistent fingerprint recognition failures, device malfunctions, unstable internet, and power interruptions undermined fairness, and the limited adjustment allowance left teachers vulnerable to deductions. Beyond operational glitches, these failures carried symbolic weight: teachers felt underappreciated when a machine's inability to record their presence overshadowed their commitment. Esperanza et al. (2026) similarly found that

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biometrics improved record security and payroll efficiency but posed usability challenges and stress as employees adjusted, and Hernandez (2024) identified recurring problems that led employees to rely on traditional attendance methods.

Table 5. *Challenges Encountered by Island and Mountain School Teachers*

Theme	Key Codes	Illustrative Vignettes
Technical and System Reliability Issues	Fingerprint not recognized; device malfunction; unstable connectivity; power interruptions; limited adjustment allowance	"Stressful when I arrive at school on time but experience difficulty registering because of a technical problem." (P5)
External Circumstances and Environmental Challenges	Heavy rain, floods, slippery roads; strong winds, big waves, low tide; long travel distances; dependence on solar power	"I travel 15 kilometers to a remote mountain school; weather and road conditions greatly affect my travel time." (P2); "Big waves and strong winds may hinder our smooth and fast sailing to the island." (P10)
Time Management and Administrative Burden	Waking earlier; setting multiple alarms; queueing at the device; filing log justifications and HRMIS adjustments	"Since the system has been installed, I have set multiple alarms so I will not forget." (P9); "Long queue of teachers waiting to time in or time out." (P5)
Stress, Anxiety, and Emotional Impact	Worry about deductions; pressure from exact time recording; fatigue; feeling underappreciated	"It breeds a persistent sense of underappreciation and anxiety. It distracts my energy away from creative teaching and pastoral care toward compliance defense." (P6)
Work-Life Balance and Personal Circumstances	Nursing mother delays; family commitments; loss of short rest periods	"Being a nursing mom can sometimes cause delays in arriving at school." (P4)
Mixed Perceptions and Adaptation	Some teachers unaffected due to proximity; conscious time management; need for backup procedures; acceptance despite inconvenience	"School is located near our house… distance and transportation are not major concerns." (P3)

Geography and climate played a decisive role. Teachers described traveling 15 kilometers to a remote mountain school, battling strong winds and big waves on sea crossings, and walking long distances at low tide. Borlasa (2026) likewise documented weather-related suspensions, inadequate facilities, and inequities between urban and geographically isolated schools. Interpreted through Equity Theory (Adams, 1965) and the Capability Approach (Robeyns, 2005; Walker & Unterhalter, 2007), these findings suggest that teachers in remote schools lack the same real opportunity to comply as their urban counterparts, so that true accountability must consider contextual barriers rather than formal attendance records alone.

Compliance also reshaped teachers' use of time. Teachers woke earlier, set multiple alarms, queued at devices, and filed log justifications and HRMIS adjustments, shifting energy from pedagogy to compliance. This tension reflects Socio-Technical Systems Theory (Trist, 1981), which highlights the conflict between technological efficiency and human-centered work practices, and the reduced acceptance that follows when compliance tasks overshadow instructional preparation (Davis, 1989). Personal responsibilities compounded these demands: nursing mothers, teachers with household duties, and those balancing family commitments struggled with rigid schedules, consistent with Work-Family Conflict Theory (Greenhaus & Beutell, 1985) and with Saludares et al. (2026), who noted that situational factors created stress in faculty attendance monitoring. Not all experiences were negative, however; teachers living near their schools reported fewer difficulties, and others became more conscious of time management.

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Coping Mechanisms of Island and Mountain Teachers

Teachers' coping mechanisms yielded five themes: adaptation and coping strategies, emotional regulation, collective coping, institutional navigation, and mixed perceptions and adaptation (Table 6). Teachers consciously integrated compliance into their routines without allowing it to displace teaching, preparing the night before, monitoring the weather, setting alarms, and leaving home early. These strategies show that teachers were not passive recipients of technological impositions but actively reshaped their routines, consistent with Ali et al. (2018), who found that teachers developed coping mechanisms to manage the stress and technical failures associated with biometric attendance.

Table 6. *Coping Mechanisms of Island and Mountain School Teachers*

Theme	Key Codes	Illustrative Vignettes
Adaptation and Coping Strategies	Routine adjustment; preventive measures; proactive preparation	"Leave my house 15–20 minutes earlier than needed to give myself extra time in case of technical and weather issues." (P10)
Emotional Regulation	Staying calm; positive reframing; acceptance of uncontrollable factors; stress release	"Try to remain calm rather than becoming frustrated because getting stressed will not solve the problem." (P5)
Collective Coping	Peer reminders; shared responsibility; communication with colleagues and administrators	"We remind one another to log in and out properly through our GC or personal message." (P7)
Institutional Navigation	Administrative compliance; HRMIS time requests; documentation; backup procedures	"Log in to the HRMIS portal, then go to time request to avoid deductions." (P6); "Keep a counter-signed physical logbook." (P6)
Mixed Perceptions and Adaptation	Conditional acceptance	"A system can be effective when it is reliable, accessible, and flexible enough to address legitimate circumstances." (P3)

Emotional regulation was equally important. Teachers reminded themselves to stay calm, focus on what they could control, and accept circumstances beyond their control, reflecting the cognitive reappraisal and resilience that Montero (2026) found among teachers in technology-driven workplaces; Ainebyona et al. (2026) likewise highlighted the relevance of emotional states to attendance monitoring. Collective coping turned individual struggles into shared responsibility as teachers reminded one another through group chats, shared frustrations, and coordinated with school heads and administrative officers. This reflects communal coping (Lyons et al., 1998), communities of practice (Lave & Wenger, 1991), and the stress-buffering role of social support (Cohen & Wills, 1985).

Teachers also navigated institutional procedures by requesting time adjustments through the HRMIS portal, documenting issues promptly, and keeping counter-signed physical logbooks as backups. Institutional Theory (Scott, 2004) explains how organizations respond to external pressures by creating rules and correction mechanisms, and Weick's (1995) work on organizational sensemaking illuminates how such procedures help members interpret and respond to challenges. Throughout, teachers remained ambivalent, valuing the system's accountability while grappling with its flaws, yet their acceptance was an active negotiation rather than passive compliance.

School Support System and Teachers' Motivation

The support teachers received was organized into five themes: administrative responsiveness, relational support and guidance, collective coping, institutional support, and mixed perceptions (Table 7). School heads and administrative officers listened to teachers' concerns, documented technical issues, and reported them to higher offices, building trust and reducing stress. Delyani (2026) and Shaheen et al. (2025) reported that school heads' flexibility, guidance, and documentation of attendance issues reduced teacher anxiety and eased adaptation, and Ali et al. (2018) found that administrative support mitigated the stress associated with biometric systems.

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Table 7. *School Support Systems Received by Island and Mountain School Teachers*

Theme	Key Codes	Illustrative Vignettes
Administrative Responsiveness	Administrative communication; responsive and flexible leadership; documentation	"The school head is also very understanding; they document and report issues we encounter." (P10)
Relational Support and Guidance	Collegial support; peer guidance and encouragement	"Colleagues have been very helpful; they guide me when I encounter difficulties with the device." (P10)
Collective Coping	Peer solidarity; resource pooling; collective resilience	"We support each other by sharing weather updates, pooling resources for backup power." (P6)
Institutional Support	Institutional provision and orientation; technical assistance; procedural resolution	"DepEd provided the system and initial orientation." (P10); "Resolved through attendance adjustment." (P9)
Mixed Perceptions	Ambivalence toward technology; need for procedural clarity; lack of systemic support	"Technology can improve accountability… but technology also has limitations. Clear procedures and human consideration should support computerized system." (P1); "Structural support from upper education officials is lacking." (P12)

Colleagues provided reminders, encouragement, and technical help, fostering a non-blaming culture and pooling resources such as backup power. This peer solidarity reflects communal coping (Lyons et al., 1998) and the buffering effect of social support (Cohen & Wills, 1985), and is consistent with reports that peer encouragement and collective reminders helped teachers adapt to biometric systems (Shaheen et al., 2025). At the institutional level, DepEd provided the system, an initial orientation, technical assistance, and attendance adjustment procedures, offering formal mechanisms for resolving errors.

Support, however, was uneven. While most teachers described responsive leadership and collegial help, one participant observed that structural support from upper education officials was lacking, and others called for clear procedures and human consideration to accompany the technology. These mixed perceptions mirror the dual reality reported in the literature, in which biometrics strengthen accountability and institutional integrity while imposing emotional and technical burdens (Ali et al., 2018; Necochea-Chamorro et al., 2024; Shaheen et al., 2025). Overall, the findings indicate that resilience was sustained not by individuals alone but by a network of relational and institutional support that balanced accountability with human consideration.

Proposed Action Plan

Based on the findings, the study proposed the action plan "Navigating Biometric Attendance Systems: Teacher Resilience, Equity, and Well-Being" (Table 8). It comprises seven objectives addressing system reliability, contextualized attendance policies, administrative burden, teacher well-being, institutional responsiveness, adaptation and resilience, and equity and fairness. The plan includes a two-day, district-based training program for island and mountain teachers covering biometric systems, time management, emotional regulation, collective coping, institutional navigation, and policy and equity, to be implemented in School Year 2026–2027 and evaluated through pre- and post-training surveys, performance tasks, and teacher action plans.

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Table 8. *Summary of the Proposed Action Plan for Navigating Biometric Attendance Systems*

Objective	Key Activities	Responsible Persons	Success Indicators
Improve system reliability	Funds for backup devices, stable internet, and power; regular maintenance; rapid-response technical team	School heads, ICT coordinators, DepEd HRMIS personnel	Reduced device malfunctions and connectivity failures
Contextualize attendance policies	Increase allowable HRMIS adjustments; flexible policies for weather and sea travel delays; policy reviews with teacher input	Division HRMIS Office, District Supervisors	Fewer attendance disputes; improved teacher satisfaction
Reduce administrative burden	Simplify adjustment filing; delegate monitoring tasks; integrate logs with payroll	School heads, administrative aides, HRMIS personnel	Faster approvals; reduced teacher paperwork
Support teacher well-being	Stress management workshops; peer mentoring groups; recognition of teacher resilience	School heads, guidance counselors, DepEd wellness program	Lower reported stress; increased morale
Strengthen institutional responsiveness	Kumustahan sessions; grievance committees; forwarding consolidated issues	School heads, District Supervisors	Concerns resolved promptly
Foster adaptation and resilience	Time management training; collective coping practices; sharing best practices	School heads, teacher leaders, DepEd trainers	Improved coping and punctuality
Promote equity and fairness	Revisit guidelines on uncontrollable factors; pilot flexible policies in remote schools; program evaluation	Division HRMIS Office, DepEd Central Office	Fairer policies; improved equity between remote and urban schools

Note. Funding sources identified in the plan include school MOOE, the Special Education Fund, the GAD fund, and division funds.

CONCLUSION

The lived experiences of island and mountain public school teachers with the Centralized Biometrics System reveal a complex reality of both challenges and resilience. Teachers initially reacted with ambivalence and anxiety and continued to face technical failures, geographic and weather-related barriers, administrative burdens, emotional strain, rigid adjustment policies, and conflicts with personal responsibilities. These challenges were most pronounced in remote schools, where infrastructural and geographic conditions made uniform compliance difficult and raised concerns about fairness.

Nevertheless, because of their love for and commitment to teaching, teachers developed positive professional habits and accountability, maintained their teaching effectiveness, and reframed compliance as professional growth. They sustained resilience through adaptation routines, emotional regulation, collective coping, and institutional navigation, supported by responsive school leadership, collegial solidarity, and institutional mechanisms. Overall, the Centralized Biometrics System had a positive impact on teachers' personal and professional development, although its benefits depend on reliable infrastructure, flexible policies, and human-centered support. The study contributes to the understanding of how centralized accountability technologies are experienced in geographically isolated schools and of the conditions under which they can strengthen rather than undermine teacher welfare.

Recommendation

Teachers may develop consistent routines, strengthen time management, practice preventive measures, engage in collective coping, communicate concerns to school leaders, maintain emotional regulation, and seek

continuous learning. School administrators may expand orientation programs and provide continuous technical assistance from DepEd personnel, particularly during system updates; conduct implementation reviews; gather teachers' insights through kumustahan sessions; forward consolidated concerns to District Supervisors and the Division HRMIS Office; and establish formal school-level support systems. Schools may also allocate budget to improve system reliability through investments in connectivity, device maintenance, and backup power.

The Schools Division Office of Bohol HRMIS personnel may consider increasing the allowable number of attendance adjustments per month to account for uncontrollable circumstances such as weather, sea travel, and technical failures; revisit guidelines to balance accountability with empathy so that teachers are not penalized for factors beyond their control; and conduct program evaluations, especially for island and mountain schools. The Division may also consider adopting the proposed action plan and training program. Future researchers may expand the scope of this study to mainland, central, and secondary schools, use mixed methods, and further validate the results.

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