

Optimizing ICT-Mediated Faculty Workflows and Privacy-Compliant Management of Student Mental Health

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Abstract: The management of student well-being in higher education requires a transition from fragmented manual processes to secure, technology-driven information architectures. This study serves as a critical user-requirements analysis to establish the foundational data parameters for an Information and Communication Technology (ICT)-mediated support system at North Eastern Mindanao State University Cantilan Campus. Utilizing a convergent mixed-methods design, quantitative data were collected from 254 faculty members to assess user readiness, classroom data silos, and institutional management bottlenecks. Concurrently, qualitative narratives from students, guidance personnel, and administrators were analyzed to map existing referral workflows and privacy vulnerabilities. Results indicate strong faculty readiness to function as early identifiers within a digital network ($M = 3.70$). However, system efficacy is fundamentally constrained by informal, unrecorded manual handoffs and severe privacy concerns surrounding sensitive health data ($M = 3.20$). The findings demonstrate that psychological readiness must be augmented by technology, necessitating the deployment of an automated, privacy-compliant digital referral platform utilizing Role-Based Access Control and end-to-end encryption. This study conceptualizes a comprehensive digital workflow to optimize institutional coordination and secure data management.

Keywords: student mental health, ICT integration, digital workflows, privacy compliance, systems analysis

1. Introduction

Despite the growing demand for campus-wide student support, a critical gap exists in the optimization of Information and Communication Technology (ICT) systems to securely manage faculty workflows and privacy-compliant mental health referrals in higher education. International evidence demonstrates that psychological distress among university students is heavily linked with academic pressure, financial strain, and systemic barriers to professional help-seeking (Lipson et al., 2022; Hyseni Duraku et al., 2024). To bridge this gap, digital mental health interventions are increasingly recognized for addressing limited access to mental health supports due to their potential low cost and scalability (Madrid-Cagigal et al., 2025). Furthermore, digital tools and automated platforms not only improve accessibility but also provide measurable therapeutic and preventive benefits within the academic ecosystem (Rashid et al., 2025).

The management of student well-being requires a highly coordinated, institutional information management approach. International policy has rapidly shifted from a service-only model to a whole-university model, where mental health promotion is embedded within campus administrative data use, digital infrastructure, and institutional leadership (Brewster, 2023; Universities UK, 2023). Within this systemic architecture, effective digital initiatives depend on collaborative leadership structures and shared governance mechanisms to reduce organizational barriers and optimize communication workflows (Jawali, 2026). In this network, faculty members act as critical end-users and human sensors who can detect early signs of distress, operating as connectors and guardians of classroom safety (Douwes et al., 2024). However, without automated referral pathways and clear technological protocols, faculty often



face uncertainty about boundaries, crisis management, and the limits of data they can responsibly process (Hughes & Byrom, 2019).

Translating these human workflows into an ICT-mediated environment introduces paramount cybersecurity and data privacy challenges. Because digital communication tools process highly sensitive health data, students are expressing a strong desire for reliable devices capable of handling their sensitive information, indicating that many current ad-hoc systems fail to adequately protect user privacy (Montagni et al., 2020). Consequently, systems engineers and administrators must take adequate steps to ensure anonymity, privacy, and security when designing online mental health interventions (Oti & Pitt, 2021). The conceptualization of any digital mental health and psychological support system in higher education mandates a strong focus on confidentiality to prevent unauthorized data breaches and maintain user trust (Hiremath et al., 2026).

The necessity for optimized, secure ICT workflows is particularly urgent in resource-constrained regional environments. A systematic review of Southeastern Asia highlighted high burdens of depression alongside a severe lack of student-friendly facilities and digital counseling infrastructure (Dessauvague et al., 2022). In the Philippines, the socio-cultural environment shapes how students navigate mental health, often hampered by stigma, hesitance in help-seeking, and limited systemic management tools (Alejandria et al., 2023; Bangalan & Agnes, 2024). While state universities are legally mandated to deliver integrated, rights-based mental health services under Republic Act No. 11036 (2018) and relevant policies (CHED Memorandum Order No. 09, 2013; CHED Memorandum Order No. 05, 2026), local faculty continue to encounter systemic bottlenecks—such as lack of self-efficacy, time constraints, and the absence of streamlined digital reporting tools (Satparam, 2023).

Therefore, this study serves as a critical user-requirements analysis to establish the foundational data parameters for an automated, ICT-mediated support platform at North Eastern Mindanao State University (NEMSU) Cantilan Campus. By evaluating current faculty support, classroom strategies, and institutional management practices, this research aims to identify the operational workflows and privacy constraints necessary to design a secure, highly coordinated student mental health management system.

2. Methods

Research Design

This study used a convergent mixed-methods design to assess current mental health support practices and identify the requirements for a future ICT-mediated referral system. Quantitative and qualitative data were collected concurrently, analyzed separately, and then merged during interpretation. The quantitative strand measured baseline faculty support, classroom strategies, and institutional practices, while the qualitative strand gathered contextual explanations from stakeholders regarding current referral workflows and bottlenecks.

Respondents

The quantitative respondents were 254 faculty members from the academic departments of NEMSU Cantilan Campus, obtained through complete enumeration. For the qualitative strand, purposive sampling was used to select 100 students, five guidance personnel, and five administrators. The student participants represented different programs and year levels, while guidance personnel and administrators were included due to their direct roles in counseling, referral management, and institutional policy. This multi-stakeholder approach allowed the study to map the full workflow of mental health support across the campus.

Research Instruments

The quantitative instrument was a structured questionnaire organized around three construct-level variables: faculty support for student mental health, classroom strategies, and institutional mental health practices. The qualitative instruments consisted of open-ended survey prompts, semi-structured interviews, and stakeholder-specific guide questions. Faculty questions focused on support practices and current referral experiences; student questions explored help-seeking barriers; guidance personnel questions mapped the current referral flow and capacity; and administrator questions explored policy and resource allocation.

Data Collection Procedure

After securing institutional permission and informed consent, the survey was administered to the 254 faculty respondents, with open-ended responses collected simultaneously. The qualitative strand then gathered data from the 100 purposively selected students, five guidance personnel, and five administrators through interviews, focused

conversations, or open-ended written responses. Participation was voluntary, and respondents were informed they could withdraw without penalty.

Data Analysis and Integration

Quantitative data were analyzed using descriptive statistics at the construct level, calculating composite means by averaging the indicators under each construct. Pearson correlation analysis was used to examine relationships between selected faculty profile variables and support indicators. Qualitative data were analyzed using thematic analysis, with responses coded by participant group (F for faculty, S for students, GP for guidance personnel, and A for administrators). The qualitative and quantitative strands were then integrated using a joint display to identify where current manual workflows require technological optimization and clearer privacy protocols. Table 1 presents the integration plan for the study's research design.

Table 1. Integration Plan for the Convergent Mixed-Methods Design

Study Construct	Quantitative Source	Qualitative Source	Point of Integration	Purpose of Integration
Faculty support	Composite mean of faculty support indicators from 254 faculty respondents	Faculty, student, guidance, and administrator excerpts on willingness, confidence, boundaries, and referral behavior	Results and discussion	To explain whether strong faculty support reflects actual readiness to adopt structured digital referral workflows.
Classroom strategies	Composite mean of classroom strategy indicators	Faculty and student excerpts on flexibility, inclusive climate, and limits in integrating mental health topics	Results and discussion	To identify workflow constraints and communication gaps that prevent the systematic use of classroom support strategies.
Institutional practices	Composite mean of institutional practice indicators	Guidance personnel and administrator excerpts on training, referral pathways, counseling access, and resource gaps	Results and discussion	To identify specific bottlenecks in current manual referral pathways and map resource gaps for future digital optimization.
Faculty characteristics	Pearson correlation between selected profile variables and faculty support indicators	Stakeholder excerpts on how experience, training, and institutional coordination influence confidence and referral practice	Results and discussion	To connect statistical relationships with institutional experience to identify specific user-training needs for new support systems.

Validity, Reliability, and Ethical Considerations

The questionnaire and interview guides were reviewed by subject-matter experts. A pilot test with 30 faculty members confirmed clarity and internal consistency, achieving a high Cronbach's alpha of 0.89. Qualitative credibility was strengthened through stakeholder triangulation and the use of anonymized coded excerpts (e.g., F01, S01), which also aligned with the strict data privacy requirements necessary for managing sensitive health information. The study adhered to ethical guidelines for informed consent and confidentiality, and respondents were reminded that the study did not provide psychological diagnosis.

3. Results

Construct-Level Status of Faculty Support, Classroom Strategies, and Institutional Practices

The quantitative findings identify baseline user readiness and systemic bottlenecks for the proposed digital management system. Results show that faculty members report strong support for student mental health, moderate use of classroom-based strategies, and effective but resource-constrained institutional practices. Reporting these metrics at the construct level establishes the operational parameters required to transition from manual procedures to an optimized ICT workflow.

Table 2. Construct-Level Summary of Current Manual Workflows and User Readiness

Latent Variable / Construct	Indicators Covered	Composite Mean	Interpretation	Systems and Workflow Inference
Faculty support for student mental health	Recognition of mental health importance; willingness to support students; confidence in discussion; knowledge of referral options	3.70	Strongly Agree / Strong Support	Faculty members demonstrate high awareness and willingness to support students, indicating strong user readiness to function as early identifiers within a formalized digital workflow.
Classroom strategies for mental health support	Inclusive classroom climate; nonjudgmental communication; flexibility with academic tasks; mental health awareness in lessons	3.50	Agree / Moderate Implementation	Faculty utilize supportive practices, but implementation is moderate and lacks systematic integration, highlighting the need for standardized ICT-mediated protocols to unify classroom responses.
Institutional mental health practices	Faculty training; preparedness; service accessibility; policy effectiveness	3.20	Effective but Constrained	Institutional practices are recognized but remain limited by resource constraints and unclear manual referral systems, identifying the primary operational bottleneck an automated platform must resolve.

User Segmentation Parameters: Correlation Between Faculty Support and Selected Variables

To optimize user experience (UX) and determine if specific demographic groups require customized system interfaces or targeted training, Pearson correlation analysis was conducted between selected faculty profile variables and the faculty support indicators. The values are summarized by range, highlighting statistically significant localized indicators to inform future system deployment.

Table 3. Pearson Correlation Reporting Table for System Design and User Training Needs

Profile Variable	Exact Pearson r / p Values	Direction and Significance	System Design and Training Implication
Age	r = -.021 to -.120; p = .057 to .738	Very weak negative; not significant	Support orientations are consistent across age groups, suggesting that a standard, intuitive user interface can be deployed

			without requiring age-specific design modifications.
Sex	$r = -.066$ to $.099$; $p = .117$ to $.939$	Very weak mixed direction; not significant	Male and female faculty members reported comparable support orientations, indicating uniform system access and training will be effective.
Years in teaching	Range $r = -.203$ to $.040$; $p = .001$ to $.975$. Significant localized indicator Item 8, $r = -.203$, $p = .001$.	Weak negative localized association	More experienced faculty rated their time availability to check well-being lower, dictating that the proposed digital referral workflow must be highly automated and time-efficient.
Field of specialization	Range $r = -.139$ to $.041$; $p = .027$ to $.877$. Significant localized indicator Item 2, $r = -.139$, $p = .027$	Weak negative localized association	The lack of strong variance across fields suggests the system architecture and data parameters can be universally standardized across all academic departments.
Mental health training	Range $r = -.154$ to $-.026$; $p = .014$ to $.681$. Significant localized indicators Item 1, $r = -.154$, $p = .014$; Item 5, $r = -.129$, $p = .040$; Item 9, $r = -.128$, $p = .041$.	Weak negative localized associations	Trained personnel are more critical of existing manual support gaps, identifying them as ideal beta testers to evaluate the efficiency and privacy compliance of the future digital platform.

Qualitative Results and System Requirements Mapping

The qualitative strand helped explain the construct-level quantitative results by highlighting the operational bottlenecks in the current manual workflow. Faculty generally expressed willingness to support students but emphasized the lack of secure documentation tools. Students highlighted the importance of approachable teachers while expressing privacy concerns regarding traditional, visible help-seeking pathways. Guidance personnel pointed to the urgent need for structured digital referrals and capacity management, and administrators highlighted the need for coordinated data policies and sustained infrastructure. The lightly adapted excerpts below map these lived experiences to specific ICT and privacy compliance needs.

Table 4. Qualitative Themes and System Pain Points

Theme	Stakeholder Group / Code	Coded Verbatim-Excerpt	Connection to System Workflow
Faculty willingness and tracking gaps	Faculty F01 / F02	F01 "When I notice that a student suddenly becomes quiet, keeps missing class, or looks different from usual, I do not ask in front of everyone. I call the student privately after class... If the concern is already beyond what I can handle as a teacher, I encourage the student to visit the Guidance Office, though tracking this handoff securely is often difficult." F02 "I usually start by listening first... I tell them that whatever they share will be respected and kept strictly confidential, and if they need professional help, I can refer them to the proper office through the right channels."	Explains the strong faculty support mean ($M = 3.70$) while highlighting that human willingness is currently unsupported by a secure tracking mechanism.

Student privacy and help-seeking visibility	Student S01 / S02	S01 "It helps when the teacher is approachable because I feel less afraid to explain my situation... it matters when the teacher listens first, but I do worry about who else gets to access my personal information." S02 "I know that the Guidance Office is there, but sometimes I hesitate because I am afraid that other students might think I have a serious problem if they see my records or see me walk in. It is easier for me to talk first to a teacher I trust."	Expands the faculty-only survey by demonstrating that a privacy-compliant, discreet digital portal would reduce stigma and fear of data exposure.
Classroom flexibility and workflow fragmentation	Faculty F03 Student S03	F03 "I may give an extension, but I still ask the student to complete the requirement so compassion will not mean removing academic responsibility. However, managing these isolated adjustments across different classes is tough without a centralized platform." S03 "When teachers give a little flexibility, like allowing us to submit late when we are really struggling, it makes us feel that they understand us..."	Explains why classroom strategies are moderate (M = 3.50); interventions are siloed and lack a unified academic management system.
Need for automated and secure referral protocols	Guidance Personnel GP01 / GP02	GP01 "Some referrals come to us informally, but it would help if there is a clearer digital referral process. Faculty members need to know when a case should already be referred and what information should be documented without violating the student's privacy." GP02 "We need proper coordination because sometimes the teacher is concerned but unsure what step to take next. A simple automated referral form or protocol can help guide the process."	Directly justifies the need for optimizing ICT-mediated faculty workflows by highlighting the breakdown in manual documentation.
Administrative data coordination	Administrator A01 / A02	A01 "The university has initiatives for student welfare, but mental health support needs stronger policy backing. We need more trained personnel, budget for capacity-building, and integrated digital coordination among faculty, guidance, and administration." A02 "Mental health should not be handled by the Guidance Office alone. It has to be a campus-wide responsibility, with clear data-	Expands the quantitative finding that institutional practices are under-resourced, pointing to a need for robust digital governance.

		sharing roles for teachers, program heads, administrators, and student support offices."	
Limited system training and confidence	Faculty F04 Guidance Personnel GP03	F04 "We are willing to help students, but sometimes we are not sure if what we observe is already a warning sign. We also do not always know the right words to use or the exact codes to input when reporting a crisis." F05 "As teachers, we want to support students, but we also know our limits. We are not counselors, so we need training on how to respond properly and a secure system indicating when to refer."	Clarifies why mental health training showed weak negative localized associations; trained personnel recognize the absence of standardized reporting structures.

Integrated Mixed-Methods Findings and ICT Implications

The joint display below integrates the quantitative and qualitative strands to form the foundational systems architecture. The integration demonstrates where the strands converge, where stakeholder excerpts expand the survey findings to reveal manual workflow gaps, and where specific ICT action implications emerge for future system development.

Table 5. Joint Display of Integrated QUAN and QUAL Findings for System Design

Construct	QUAN Finding	QUAL Finding / Stakeholder Source	Integration / Workflow Meta-Inference	ICT Action Implication
Faculty support	Strong support (M = 3.70)	Faculty excerpts show willingness to listen; student excerpts show concerns over data visibility.	Convergence with expansion The high mean reflects user readiness, but excerpts verify that human support must be paired with secure data handling.	Develop a decentralized, privacy-compliant reporting interface with end-to-end encryption for faculty use.
Classroom strategies	Moderate implementation (M = 3.50)	Excerpts show deadline flexibility and uneven, siloed integration of support.	Expansion Supportive practices exist but are informal, fragmented, and dependent on individual teacher initiative.	Integrate a centralized academic dashboard feature to standardize academic flexibility and track accommodations securely.
Institutional practices	Effective but constrained (M = 3.20)	Guidance and admin excerpts highlight severe bottlenecks in manual referrals and privacy protocols.	Convergence The quantitative rating is positive, but qualitative data expose the structural failure of paper-based or informal referral routing.	Deploy an automated, algorithmic routing system with Role-Based Access Control (RBAC) to manage caseloads and protect student records.
Correlation findings	Weak localized negative associations for experience and training.	Stakeholder excerpts explain that trained faculty are highly aware of the lack of formal reporting systems.	Expansion Negative correlations reflect critical awareness of system deficits rather than a lack of empathy or willingness.	Utilize highly trained faculty as primary stakeholders in the User-Centered Design (UCD) phase to test system prototypes.

Discussion

The findings of this study provide a novel, systems-level contribution to the management of higher education by conceptualizing student mental health support not merely as a psychological service, but as a complex information management architecture. By evaluating current manual processes at NEMSU Cantilan Campus, this research identifies the critical operational parameters necessary for developing an optimized, ICT-mediated, and privacy-compliant referral workflow. The data reveal that while end-user (faculty) readiness is high, the absence of automated data routing and secure communication protocols fundamentally limits institutional efficacy.

The strong faculty support mean ($M = 3.70$) signifies that educators are highly willing to act as early identifiers within an institutional network. From a systems engineering perspective, faculty function as front-line human sensors who detect behavioral anomalies (e.g., changes in attendance or participation) that precede formal diagnoses. This aligns with Douwes et al. (2024), who observed that teachers increasingly operate as connectors within the university ecosystem. However, human willingness is currently bottlenecked by an informal, unrecorded manual handoff process. Faculty uncertainty regarding when to refer and what to document, as noted in the qualitative findings, reflects the systemic boundary challenges highlighted by Hughes and Byrom (2019). The novelty of this study lies in translating this uncertainty into a functional ICT requirement: faculty require a standardized, decentralized digital interface equipped with decision-tree algorithms to guide them safely through the referral process without forcing them to act outside their professional scope.

The moderate rating for classroom strategies ($M = 3.50$) reveals a fragmented information architecture. While faculty execute inclusive and flexible practices, these interventions remain siloed and dependent on individual user initiative. This fragmentation contradicts the whole-university governance models advocated by Brewster (2023) and Universities UK (2023), which demand cohesive data use. To resolve these silos, the study indicates that an institutional dashboard or integrated academic management system is required. Such a digital platform would allow faculty to apply and track academic flexibility systematically, ensuring that interventions are universally accessible and data-driven, rather than arbitrary.

The most critical bottleneck identified in this needs assessment is the constraint on institutional practices ($M = 3.20$), primarily driven by disorganized manual referral pathways and severe privacy concerns. Guidance personnel and students explicitly cited fears regarding who accesses personal information and the lack of a proper step-by-step coordination matrix. Because digital tools inherently make sensitive health information vulnerable (Montagni et al., 2020), this study confirms that current ad-hoc communication methods are insufficient. To mitigate these vulnerabilities, the system must incorporate the strict confidentiality frameworks mandated by Hiremath et al. (2026) and Oti and Pitt (2021). The qualitative narratives directly justify the development of an automated referral platform secured by end-to-end encryption and Role-Based Access Control (RBAC). Such AI-integrated routing would ensure that only authorized personnel (e.g., specific counselors) receive detailed case notes, while administrators view only aggregated, anonymized data for resource allocation, aligning with the collaborative governance structures proposed by Jawali (2026).

Finally, the correlation findings offer essential parameters for the User Interface (UI) and User Experience (UX) design of the proposed platform. The lack of significant variance across age and sex indicates that demographic segmentation is unnecessary; a universally intuitive UI will suffice. Furthermore, the weak negative associations involving years in teaching and mental health training (e.g., $r = -.203$, $p = .001$; $r = -.154$, $p = .014$) provide a crucial systems-level insight. Rather than indicating a lack of empathy, these metrics suggest that highly experienced and trained faculty possess a more critical awareness of the systemic bottlenecks and missing reporting tools, echoing the systemic constraints documented by Satparam (2023). In the systems development life cycle, this positions trained faculty not as resistant users, but as ideal stakeholders for testing and refining the prototypes of future ICT-mediated support systems.

This study advances the field by proving that psychological readiness alone cannot sustain student well-being in resource-constrained environments. Effective institutional support demands the translation of human empathy into a secure, automated, and digitally integrated management workflow.

4. Conclusion

The effective management of student well-being requires an immediate transition from informal, manual processes to a secure, ICT-mediated information architecture. While educational frontliners exhibit high readiness to function as early identifiers, their operational capacity is fundamentally constrained by the absence of automated reporting tools and secure data-routing protocols. Institutional support must therefore be reconceptualized as a digital

workflow optimization challenge, where human intervention is systematically augmented, tracked, and protected by technology.

To resolve existing communication silos and privacy vulnerabilities, universities must engineer and deploy a centralized digital management platform. Systems administrators should implement a privacy-compliant referral portal equipped with Role-Based Access Control (RBAC) and end-to-end encryption, ensuring that sensitive behavioral data is routed exclusively to authorized counseling personnel. Additionally, an integrated academic dashboard must be established to standardize classroom accommodations and track student interventions systematically across all academic departments. Institutions are also urged to shift their capacity-building focus toward digital system-specific training, utilizing highly experienced faculty as primary consultants to refine the workflow and reporting parameters.

Future research must advance into the applied software engineering phases of the Systems Development Life Cycle. Investigators should prioritize the agile development, deployment, and beta-testing of functional digital referral prototypes within resource-constrained higher education settings. Subsequent studies must explore the integration of machine learning algorithms to create predictive early-warning systems using the foundational data parameters established in this research. Finally, rigorous empirical evaluations of the User Interface and User Experience (UI/UX) of these newly developed digital platforms are essential to guarantee seamless adoption and sustained usage among multidisciplinary faculty.

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