

Retooling the Aging Health Workforce: A Phenomenological Study of Older Nurse Educators' Digital Training and Productivity Needs

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ABSTRACT

The rapid digitization of higher education introduces operational complexities for the aging academic workforce, particularly within the tactile domain of nursing education. This descriptive phenomenological study explored the authentic lived experiences of older adult nurse educators navigating learning management systems within private higher education institutions, mapping their digital training and productivity needs. Guided by the COREQ guidelines, purposive sampling selected six informants aged 60 to 72 years with up to 20 years of academic tenure in Cebu City, Philippines. In-depth, semi-structured face-to-face interviews were evaluated using Colaizzi's seven-step phenomenological approach, achieving data saturation at 100% code duplication. Five definitive themes emerged: overwhelming immediate exposure to varied digital tools, a sense of vulnerability and powerlessness, convenience in information exchange, adverse online teaching-learning encounters, and a proactive plea to meet productivity needs. The findings reveal a technological paradox where the administrative convenience of instant data exchange is deeply compromised by severe technostress, operational dependency, and pedagogical erosion during virtual clinical psychomotor evaluations. This inquiry concludes that technological vulnerability is a structural consequence of non-age-friendly environments rather than individual incompetence. Consequently, higher education administrators must transition from uniform technology mandates toward age-friendly human resource policies, incorporating structured reverse mentoring, dedicated instructional design support, and real-time helpdesks to optimize faculty retention, restore professional self-efficacy, and safeguard downstream patient safety.

Keywords: Aging Faculty, Digital Health, Learning Management Systems, Nurse Educators, Retooling, Workforce Management



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1. INTRODUCTION

The pervasive advancement of digital health informatics has fundamentally restructured the global landscape of higher education, demanding a permanent paradigm shift in instructional delivery models (Aldhafeeri & Alotaibi, 2023; Wani et al., 2026). Within this transition, Learning Management Systems (LMS) and Information and Communication Technologies (ICT) have evolved from temporary crisis-response mechanisms into core, indispensable components of the contemporary educational ecosystem. While these digital architectures offer structural continuity and logistical flexibility, they simultaneously introduce unprecedented operational complexities for the teaching faculty. In the specific realm of nursing education, which is a discipline traditionally anchored in tactile empathy, humanistic engagement, and rigorous clinical judgment, the mandatory reliance on virtual platforms presents a distinct pedagogical challenge (Abou Hashish, 2025; Gause et al., 2022). Consequently, critically analyzing how

professional educators navigate and adapt to this digital ecosystem has become paramount to ensuring the sustained delivery of high-quality nursing instruction worldwide.

Despite the extensive volume of scholarship dedicated to educational technology implementation, the current literature exhibits a profound empirical imbalance. The vast majority of prior studies, including Yoo & Jung (2022), Turan et al. (2022), Peralta et al. (2024), and Hassan et al. (2024), have heavily prioritized the student perspective, focusing on learner satisfaction, performance tracking, and the perceived convenience of flexible learning programs. Conversely, research addressing the experiences of educators as the primary consumers and managers of these technological platforms remains sparse. Although foundational studies acknowledge that LMS efficiency heavily depends on the instructor's active presence and central management role, such as those by Annamalai et al. (2021), Bradley (2020), and Maslov et al. (2021), institutional frameworks consistently overlook the structural strains and pedagogical friction encountered by faculty members when navigating complex virtual environments. This gap in the literature represents a critical blind spot, particularly regarding the marginalized demographic of senior educators who are increasingly isolated by the rapid pace of academic digitalization.

This empirical gap directly intersects with a pressing global challenge, namely the rapid aging of the health workforce and the critical shortage of nursing faculty. Higher education institutions worldwide depend heavily on the extensive clinical expertise and pedagogical experience of older nurse educators to maintain educational quality and prepare future nursing professionals. However, recent evidence indicates that increasing age is often associated with lower levels of digital literacy and ICT competence, as older educators frequently encounter greater challenges in adopting and integrating digital technologies into teaching compared with their younger counterparts (Li et al., 2025; Oh et al., 2021; Saltos-Rivas et al., 2023; Zhao et al., 2026). Furthermore, recent gerontechnology frameworks argue that technological innovation often outpaces the age-related cognitive, physical, and psychological adaptive capacities of older adults, emphasizing that technologies designed without accommodating these changing capabilities are less likely to be successfully adopted and sustained (Chan et al., 2023; Huang & Oteng, 2023; Mannheim et al., 2023). Forced to abandon traditional physical classrooms for sophisticated digital interfaces without targeted, age-friendly support systems, senior educators face severe technostress, a loss of professional autonomy, and an acute sense of vulnerability within the digital learning environment.

In developing regions such as the Philippines, this digital divide is further exacerbated by persistent infrastructural limitations and uneven institutional readiness. Although national policies issued by the Commission on Higher Education (CHED) have accelerated the adoption of flexible and hybrid learning modalities, higher education institutions continue to face substantial implementation barriers, including unstable internet connectivity, inadequate digital infrastructure, limited institutional technical support, and insufficient organizational capacity to sustain technology-enhanced teaching (Barrot et al., 2021; Baticulon et al., 2021; Cabauatan et al., 2021). For older faculty members, these technical disruptions create a severe paradox of convenience; while LMS platforms theoretically ease information exchange, they practically threaten facilitator control, disrupt virtual classroom management, and compromise the integrity of clinical skills assessments. When senior educators are forced to evaluate hands-on procedures, such as complex clinical return-demonstrations, through unstable digital feeds rather than physical interaction, they experience profound pedagogical erosion, wherein the humanistic essence of nursing training is compromised. Neglecting these multi-layered challenges not only degrades educational outcomes but also risks accelerating the premature retirement of an irreplaceable segment of the healthcare workforce.

While current interventions frequently focus on generalized, one-size-fits-all software training or basic hardware provisions, they fundamentally fail to address the specific, andragogy-based productivity needs of senior faculty members who require specialized retooling strategies to thrive post-crisis. Therefore, a critical inquiry into the authentic, lived experiences of these marginalized consumers is urgently required to inform sustainable institutional policies. To address this necessity, this descriptive phenomenological study explicitly explores the lived experiences of older adult nurse educators navigating Learning Management Systems within private higher education institutions. By capturing their pedagogical encounters, technological barriers, and institutional struggles, this study aims to map the precise digital training and productivity needs of senior faculty. Ultimately, this inquiry seeks to provide an empirical blueprint for academic leaders and policymakers to develop age-friendly professional development frameworks, thereby optimizing workforce retention, restoring faculty productivity, and safeguarding the quality of nursing education in an increasingly digitized era.

2. METHOD

2.1. Research Design

To capture the authentic psychological and operational realities of senior faculty members, this study adopted a Husserlian descriptive phenomenological approach, which seeks to describe individuals'

lived experiences as consciously experienced while minimizing researchers' preconceptions through bracketing (Al-Sheikh Hassan, 2023; Shorey & Ng, 2022). This methodology was selected because it enables researchers to explore the essence of lived experiences while minimizing the influence of preconceived theoretical assumptions, thereby facilitating a rich description of how older adult educators experience technological adaptation. The reporting of this study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) to ensure methodological transparency, completeness, and rigor (Dossett et al., 2021; King, 2021).

Central to the descriptive phenomenological approach, the principles of epoche, or bracketing, were rigorously applied throughout the inquiry. The researchers, who possess backgrounds in nursing education, actively identified and suspended their preconceived notions regarding the digital competence and resistance of aging faculty members. This bracketing process was operationally maintained by keeping a detailed reflexive journal before, during, and after the interview process, ensuring that the final interpretation of the data was derived exclusively from the conscious experiences of the participants rather than the subjective biases of the investigative team.

2.2. Research Setting and Participants

The study was conducted within a Commission on Higher Education accredited higher education institution offering a Bachelor of Science in Nursing degree in Cebu City, Philippines, which represents a private educational sector heavily impacted by the rapid post-crisis digital shift. A purposive sampling strategy was employed to recruit key informants who could provide information-rich narratives concerning the phenomenon under investigation.

The strict inclusion criteria required participants to be practicing nurse educators aged sixty years or older, regardless of gender, who had actively utilized the institutional learning management systems for at least one full academic year within the private higher education sector. Individuals who did not meet these criteria were excluded from the sample. While ten potential informants initially assented to participate, final data collection concluded at the sixth participant. Data saturation was operationally defined as the point during concurrent data analysis where code duplication reached one hundred percent, meaning that the fifth and sixth interviews yielded zero new thematic variations, concept dimensions, or novel insights regarding digital training struggles.

2.3. Data Gathering Procedure

Data collection commenced immediately after securing a formal Notice to Proceed from the institutional Ethics Review Committee on November 23, 2024, under the specific Ethics Clearance code 1229 / 2024-10 Blasé. Administrative clearance was subsequently obtained from the target university before contacting the potential participants through formal institutional invitations. Informants were provided with a comprehensive Participant Information Sheet and granted a twenty-four hour consideration period to ensure autonomous decision making prior to signing the written informed consent form.

The primary researcher conducted individual, face-to-face, semi-structured interviews utilizing a validated interview protocol consisting of open-ended and probing questions. Each interview lasted approximately forty-five minutes and was conducted within a quiet, dedicated closed space within the university premises to maintain absolute privacy and comfort, with only the researcher, the participant, and an official witness present. The interviews were conducted using a blend of English and the local vernacular, Cebuano, to facilitate natural expression and emotional depth.

All sessions were digitally audio-recorded with explicit participant permission. To ensure lexical and conceptual equivalence during transcription, the local dialogues were translated into English using a rigorous forward and backward translation protocol verified by an independent bilingual language expert. All identifying personal indicators were immediately redacted from the final transcripts and replaced with alphanumeric codes to ensure participant anonymity. In accordance with international data protection standards, the digital audio files and translated transcripts were securely encrypted and stored in a password-protected repository, which will be maintained for a mandatory period of three years post-publication before permanent cryptographic deletion.

2.4. Data Analysis

The qualitative data were systematically analyzed using Colaizzi's seven-step descriptive phenomenological approach to identify and synthesize the essential meanings embedded in the verbatim transcripts (Tavakol et al., 2026; Vignato et al., 2022). The analysis commenced with repeated reading of each transcript to achieve immersion in the data and gain a holistic understanding of the senior educators' lived experiences. Subsequently, significant statements directly related to the phenomenon of technological adaptation and learning management system use were carefully extracted before progressing to the formulation of meanings and thematic clustering.

Following the extraction of significant statements, the researchers formulated meanings by interpreting the underlying significance of each statement while remaining faithful to the participants'

original descriptions of their lived experiences. These formulated meanings were subsequently organized into clusters of themes, and related themes were integrated into broader thematic categories that captured the shared experiences of senior nurse educators in adapting to learning management systems. The thematic clusters were continuously compared with the original transcripts to ensure consistency and preserve the contextual integrity of participants' accounts. The integrated themes were then synthesized into an exhaustive description of the phenomenon, from which the essential structure of the lived experience was derived in accordance with Colaizzi's descriptive phenomenological method.

To enhance the credibility and descriptive validity of the findings, member checking was conducted as the final stage of the analysis. The exhaustive description and thematic interpretation were returned to the participants for verification, allowing them to confirm whether the findings accurately represented their lived experiences and to provide clarification or additional insights where necessary. Participant feedback supported the credibility of the thematic structure, and only minor refinements were incorporated where appropriate.

2.5. Trustworthiness of the Study

The methodological rigor of this study was established by applying the trustworthiness framework proposed by Lincoln and Guba, encompassing credibility, transferability, dependability, and confirmability (Enworo, 2023; Stenfors et al., 2020). Credibility was enhanced through prolonged engagement with participants and member checking, enabling participants to verify the accuracy of the researchers' interpretations. Dependability and confirmability were strengthened through the maintenance of a comprehensive audit trail documenting methodological decisions, coding procedures, analytical memos, and theme development throughout the research process, thereby ensuring transparency and consistency in data analysis.

Furthermore, peer debriefing sessions were regularly conducted with qualitative research experts and gerontological education specialists to challenge the interpretation of the themes and eliminate secondary researcher bias. Transferability was addressed by providing a dense, contextualized description of the institutional setting, participant profiles, and technological boundaries, allowing future international researchers to determine the applicability of these phenomenological findings to similar aging academic workforces.

3. RESULTS

3.1. Participant Demographic Characteristics

The empirical framework of this descriptive phenomenological study is anchored in the lived experiences of six carefully selected key informants within the private nursing education sector of Cebu City, Philippines. The baseline demographic profiles of these participants are systematically compiled in Table 1, detailing their specific age and cumulative years of experience within the academic environment.

Table 1
Demographic Profiles of the Key Informants

Informant Code	Age (Years)	Academic Experience (Years)
P1	67	19
P2	65	19
P3	71	3
P4	65	20
P5	72	5
P6	60	3

The demographic data reveal a cohort characterized by advanced age, ranging from 60 to 72 years, alongside significant institutional tenure, with participants dedicating up to 20 years to the nursing academe. This extensive longevity within the profession underscores a high level of institutional loyalty and robust clinical and pedagogical competence, reflecting their status as vital repositories of seasoned healthcare expertise. However, the most critical dimension of this demographic profile is the structural timing of the technological shift. These senior educators experienced a sudden, mandatory, and drastic transition to digital learning modalities precisely during the late or twilight stages of their professional trajectories. Having spent years refining traditional, physical, and highly tactile teaching methodologies, this cohort encountered an abrupt digital displacement, which subverted their established pedagogical routines and forced them to navigate complex digital learning management systems at a time when they were preparing for career completion.

Although the final sample size is delimited to six key informants, the qualitative depth of the extracted narratives provides a comprehensive methodological justification that satisfies the rigorous standards of descriptive phenomenological inquiry. Within this qualitative paradigm, the empirical power

of the study relies heavily on the richness, authenticity, and purposive selection of information-rich cases rather than broad statistical generalizability. These six informants are exceptionally crucial and highly relevant to this investigation because they represent the exact intersection of advanced gerontological profiles and long-term commitment to nursing education within private higher education institutions. The strict adherence to the inclusion criteria guaranteed that each participant had actively operated institutional learning management systems for at least one full academic year, ensuring that their accounts were grounded in sustained operational reality rather than brief or casual technological encounters. Data saturation was operationally confirmed at the sixth participant, at which point the ongoing data analysis yielded completely redundant structural codes and zero novel conceptual categories, thereby proving that the sample size was perfectly sufficient to capture the essential structure of the phenomenon.

3.2. Theme 1: Overwhelming Immediate Exposure to a Variety of LMS Tools

The first theme extracted from the phenomenological data captures the profound digital shock experienced by senior faculty members at the onset of the mandatory transition to online teaching. This digital shock was primarily characterized by extreme application fragmentation, as the academic institution operated without a centralized or uniform learning management system. Consequently, older adult nurse educators were abruptly forced to manage multiple digital platforms simultaneously and independently, utilizing whatever disconnected tools were at their immediate disposal to ensure instructional continuity.

This lack of institutional standardization resulted in an ad-hoc learning ecosystem where educators had to juggle professional video-conferencing software, virtual classrooms, and social media applications all at once. P1 highlighted the sudden structural pressure to conform to this unfamiliar, multi-platform environment, noting the necessity of personal adaptation to new tools:

“When I started using the LMS, I had to adjust because I was new to that tool.”

Because institutional guidelines were non-existent or highly flexible, senior educators frequently had to combine traditional educational platforms with social media channels like Messenger to distribute materials and communicate with students. P2 illustrated this chaotic fragmentation of platforms, verbalizing the baseline reality of modern virtual instruction during the transition:

“During pandemic, I use messenger and googlemeet because I just upload modules that was usually used during pandemic.. I'm having a hard time in using google classroom because I don't know what to click.”

The requirement to manipulate these distinct interfaces generated a severe cognitive overload for the aging academic workforce. Without the benefit of structured institutional training, introductory orientations, or interface overviews, senior faculty members were left to decipher the unique technical layouts and navigational configurations of each application by themselves. This forced independence led to profound operational confusion, as the physical and cognitive requirements of switching between different navigation buttons and settings across multiple platforms exceeded their existing digital capabilities.

The technical confusion surrounding specific navigational tasks was explicitly expressed by the participants, who struggled to perform basic functions within these digital spaces. P2 stated clear frustration regarding the unintuitive layout of digital classrooms, explaining that they did not know where to click to manage the learning space. Similarly, the absence of an institutional technical blueprint forced these senior educators to seek immediate, unstandardized human assistance just to initiate virtual sessions. P3 underscored this intense operational barrier, emphasizing a complete reliance on external support due to a lack of baseline technical knowledge:

“In using zoom, I had to ask for assistance since I do not know how to use it.”

In summary, the empirical evidence within this theme demonstrates that the unstandardized deployment of digital learning environments created a highly fragmented and overwhelming technical landscape. By forcing older nurse educators to navigate an array of disparate applications without systematic, age-friendly structural support, the institution inadvertently subjected this vulnerable workforce to severe cognitive strain and operational disorientation.

3.3. Theme 2: Sense of Vulnerability and Powerlessness in the Use of LMS

The second theme delineates a profound psychological shift among senior faculty members, moving from their established roles as highly independent pedagogical authorities to vulnerable individuals who are structurally dependent on external assistance. Within the traditional physical classroom, these educators operated with full professional autonomy, command, and self-efficacy. However, the mandatory implementation of learning management systems eroded this sense of mastery, giving rise to acute feelings of powerlessness and an absolute reliance on others to perform basic instructional duties.

This psychological vulnerability was explicitly manifested in the educators' absolute dependence on external support networks, including students, institutional assistants, and family members, just to initiate and maintain the virtual learning space. Rather than acting as autonomous facilitators, the older adult nurse educators found themselves completely unable to execute the technical setup required for online

lectures. P3 provided a vivid account of this stark operational displacement, highlighting a generational technological gap that necessitated constant manual intervention from others:

"I'm not the one who'll set it up. There is a need for someone to set it up for since I don't know how. Because during our time we do not have that, we only had typewriter back then... Whenever there is a zoom session I need assistance since I do not know how. I would ask someone to set it up for me. I really do not know how so long as there is someone to set it up I am good otherwise I would have a hard time... During the pandemic usually there was someone who would set it up for me so that I could do the lecture but if there is no one to assist me it would really be difficult since I do not know how to use a computer."

This operational reliance on external actors effectively inverted the traditional classroom hierarchy, forcing senior faculty members to depend on their own students for basic software navigation. P4 explicitly recognized this deficit by stating that they knew less about these technological tools and counted it as a good thing when a student was available to assist them. Similarly, P5 briefly yet powerfully reinforced this structural dependency by admitting that they really did not know how to operate the system, which made an assistant absolutely mandatory.

Beyond the loss of operational independence, this sense of powerlessness was profoundly exacerbated by a severe mismatch between the complex user interface and user experience design of the digital platforms and the natural physical, cognitive, and psychological adaptation profiles associated with aging. The intricate navigational paths, small visual icons, and multi-layered configurations of systems like Google Classroom were not designed to accommodate the declining visual acuity, working memory capacity, and physical reflexes of older adults. This design incongruity resulted in persistent confusion during real-time teaching encounters, where educators struggled to locate standard operational commands. P2 articulated this friction clearly, describing the prolonged and frustrating process of attempting to navigate an unsupportive digital interface:

"I'm having a hard time in using google classroom because I don't know what to click... Sometimes I don't know where to click my student guides me through it though it would take long until I got it."

Ultimately, the empirical data within this theme reveal that the abrupt imposition of non-age-friendly technology caused a significant psychological strain on the older academic workforce. By forcing seasoned educators into a state of absolute operational dependency and exposing them to rigid digital architectures that ignored their natural gerontological needs, the virtual transition severely compromised their professional identity, leaving them feeling profoundly vulnerable and disempowered within their own instructional domains.

3.4. Theme 3: Convenience in the Exchange of Information

The third theme illuminates a distinct technological paradox within the digital transition, wherein senior faculty members recognized clear structural benefits regarding the efficiency of material distribution despite their baseline operational struggles. This theme highlights the perceived usefulness of digital tools, specifically focusing on the elimination of geographical and temporal barriers to instruction. While older adult nurse educators faced intense technostress during system navigation, they simultaneously acknowledged that learning management systems streamlined administrative tasks and optimized the speed of academic communication.

A primary dimension of this convenience was the ease of uploading and instantly sharing comprehensive learning modules, powerpoint presentations, and administrative resources. Once the initial operational hurdles were mitigated, senior educators found that digital interfaces facilitated immediate information dissemination, completely bypassing the physical constraints of traditional document distribution. P1 reflected on this transition from early operational friction to administrative convenience, detailing how the availability of information became optimized:

"For me I find the uploading of lesson and instant sharing of powerpoint presentation as challenging. Now that I know how to go about it sharing has been easy...It is very accessible. Information is readily available and I can provide materials right away and then I can have feedback online so meaning in short information is readily available..."

Similarly, P2 corroborated this operational convenience, noting that the capacity to upload pre-existing materials instantly allowed them to preserve instructional continuity during emergency disruptions:

"During pandemic, I use messenger and googlemeet because I just upload modules that was usually used during pandemic..."

Beyond the simple dissemination of resources, the accessibility of real-time online feedback emerged as a significant factor in enhancing time efficiency within the teaching-learning process. Senior educators appreciated the capacity to monitor student presence and gauge real-time engagement through synchronous digital channels, which served as a crucial counterweight to the isolation of the virtual environment. P1 emphasized the value of immediate visual verification and learner responsiveness during live digital interactions, explicitly connecting platform visibility with effective classroom evaluation:

"...so that's why I like googlemet for videoconference because I can really see everyone since video camera is on. So I can see what they are doing, and how they respond during discussion."

In conclusion, the empirical findings within this theme demonstrate a complex technological paradox, as the clear administrative benefits of instant information exchange and enhanced feedback accessibility coexisted alongside severe operational stress. While the platforms effectively eliminated traditional geographical boundaries and streamlined resource management, the underlying technical demands continued to challenge the physical and cognitive adaptation capacities of the aging academic workforce. This dual reality underscores that older educators are fully capable of recognizing the strategic value of educational technology even as they experience acute vulnerability during its day-to-day implementation.

3.5. Theme 4: Teaching-Learning Encounters in the Online Learning Environment

The fourth theme delineates the extensive external barriers and the subsequent degradation of pedagogical interaction quality caused by the technological limitations of the virtual classroom environment. Unlike the controlled setting of a physical classroom, the online space subjected both senior educators and learners to systemic disruptions that fractured instructional continuity. This theme highlights a multi-layered educational crisis encompassing severe infrastructural precarity, the erosion of classroom discipline, and a profound compromise in both academic integrity and clinical competency evaluation.

A primary dimension of these adverse encounters was the pervasive infrastructural barriers, specifically unstable internet connectivity, financial constraints related to data consumption, and environmental disruptions. Senior faculty members frequently encountered asynchronous communication gaps because students could not afford permanent broadband installations, forcing them to rely on weak mobile data packages that resulted in intermittent attendance and compromised student engagement. P1 detailed this structural frustration, explaining how weak connectivity directly eroded the learners' educational motivation:

"Usually, our learners don't have enough signal because they cannot afford... usually most of them... they cannot install or subscribe to a modem or permanent internet connection and then they usually depend on their data sim which is really weak and very poor resulting in on and off teaching which lessens the interest of the learners to learn..."

These network deficits frequently forced educators to disable video feeds, which restricted their ability to visually evaluate student engagement. P3 emphasized this extreme technical limitation, noting that severe signal disruptions forced a resort to audio-only delivery, which prevented them from seeing the students altogether. Furthermore, these infrastructural vulnerabilities were severely aggravated by unpredictable environmental factors, such as catastrophic weather events like Typhoon Odette, which caused prolonged electricity and internet blackouts that completely halted academic activities. The logistical strain also extended into the educators' personal time, as illustrated by P2, who noted that delayed student submissions due to poor connectivity forced them to review academic work until three o'clock in the morning.

Beyond technical disruptions, senior educators experienced a significant loss of virtual classroom control, characterized by a transition from formal physical discipline to excessive leniency within the online space. P1 contrasted these environments, stating that while physical classrooms allowed educators to maintain absolute environmental control, the online format allowed students to wander and ignore real-time queries. The traditional behavioral standards of the nursing discipline were routinely replaced by informal habits, as students frequently engaged in non-academic behaviors during live lectures. P5 provided a critical reflection on this erosion of classroom decorum:

"If it's online, it's not formal. The student may take on whatever position, they sit wherever, while there are others who don't wear uniform and do whatever they like. Sometimes there were student who were eating. Online learning is lenient."

The most critical challenge identified within this theme was the crisis of clinical skills evaluation and the vulnerability of academic integrity during online examinations. In nursing education, the acquisition of psychomotor competencies requires meticulous visual assessment and immediate correction, an instructional process that senior faculty found impossible to replicate via digital screens or pre-recorded videos. P2 argued that video-sharing platforms like YouTube were entirely insufficient for procedural training, emphasizing that teaching hands-on skills required actual physical demonstration to correct errors immediately.

This pedagogical deficit resulted in direct failure rates during vital clinical orientations, as highlighted by P6, who recalled that numerous students failed their initial virtual evaluations for personal protective equipment donning and doffing, requiring multiple attempts before achieving passing marks. Furthermore, the lack of direct physical surveillance severely compromised the validity of student evaluations, leading to widespread suspicion of academic dishonesty. P4 exposed this diagnostic breakdown during high-stakes assessments:

"During pandemic my exams in the online class were like open notes, although I can see the students, their answers seemed uniform. It's different when it is face to face you get to see what student is doing, for online you can't even see if someone has already given them answers on the other side, resulting to uniform scores."

In summary, the empirical data within this theme demonstrate that the online learning environment caused a severe erosion of pedagogical standards within the nursing curriculum. By replacing direct physical oversight with fragmented virtual feeds, the digital transition compromised the capacity of senior educators to enforce behavioral discipline, guarantee authentic academic metrics, and ensure the safety of clinical psychomotor training.

3.6. Theme 5: Plea to Meet Productivity Needs

The final theme captures the explicit and proactive articulation of concrete institutional needs by senior nurse educators, highlighting their desire to sustain their vocational longevity and maximize professional productivity. Rather than demonstrating passive resistance to technological shifts, the older adult educators clearly identified the systemic deficiencies that impeded their performance, beginning with a strong demand for the adoption of a uniform, institutionalized learning management system. The previous absence of a standardized digital architecture forced faculty members to constantly shift between disparate applications, causing intense operational fragmentation. To mitigate this operational burden, P1 articulated a direct request for structural uniformity across the academic institution:

"I would request for an institutional LMS unlike before instructors were given the option which application to use..."

In addition to software standardization, the participants underscored a critical deficit in supporting physical infrastructure, identifying a stark lack of baseline digital resources and financial strain related to connectivity costs. Senior educators emphasized that institutional expectations for high-quality virtual delivery must be balanced by the provisioning of adequate campus hardware and network subsidies. Without accessible physical workstations, these educators were structurally prevented from engaging in self-paced, hands-on practice to improve their computer literacy. P2 highlighted the financial aspect of this infrastructure gap, stating that it would be beneficial if the institution provided direct support for internet connectivity. Furthermore, P3 expressed profound institutional frustration regarding the absolute scarcity of physical devices required for digital upskilling:

"If there is availability of equipment such computer to allow us to learn. There is lack of equipment... I am interested to learn, I would exert effort given someone will teach me because I do not know how. So what do we do if we do not have the device to practice on."

Finally, the theme highlights a clear demand for regular, age-appropriate training frameworks, widely described as retooling strategies, accompanied by continuous technical monitoring and operational support. The participants explicitly rejected the efficacy of generic, one-size-fits-all digital orientations, advocating instead for systematic, ongoing instruction tailored to the unique learning curves and cognitive profiles of an aging workforce. P1 emphasized that professional development must include regular trainings regarding the learning management system alongside the active monitoring of technical issues. This structural need for patient, directed human instruction was further reinforced by P4, who simply stated that they must learn how to navigate and explicitly required someone to teach them. Ultimately, the older adult educators recognized that digital competence is a long-term professional necessity, a reality summarized by P5, who urged for targeted faculty training and regular seminars:

"It would be better if the teacher could be trained because online is the trend. Seminars be conducted."

In summary, the empirical findings within this theme demonstrate that the aging academic workforce possesses a strong willingness to learn and adapt. However, their long-term productivity remains entirely contingent upon whether the institution transitions from passive mandate enforcement to active resource provisioning, infrastructure optimization, and dedicated pedagogical retooling.

4. DISCUSSION

4.1. Integration of Gerontechnology and Andragogy Theory in Nursing Education

The empirical findings embedded within the first and second themes expose a critical structural conflict between rapid institutional digital mandates and the gerontechnological realities of an aging academic workforce. The intense digital shock caused by platform fragmentation and the subsequent sense of vulnerability reflect a state of acute technostress that directly corresponds with the broader literature on the digital divide in higher education. Specifically, these results validate the assertions of Pajari et al. (2026) and Zhao et al. (2026), who identified a significant negative association between advanced age and the digital competence of nursing faculty, indicating that older educators generally report lower levels of digital literacy and information and communication technology (ICT) competence, which consequently limits their effective use of educational technologies in teaching and professional

practice. Furthermore, this operational disorientation is consistent with recent gerontechnology research, which suggests that many contemporary digital learning environments remain insufficiently adapted to the cognitive, physical, and psychological characteristics of older adult learners. As a result, age-related declines in digital literacy and adaptive capacity may further hinder effective engagement with educational technologies unless age-inclusive instructional and technological designs are implemented (Ahmad et al., 2022; Huang & Oteng, 2023; Mannheim et al., 2023). When forced to navigate a variety of unstandardized digital tools simultaneously, senior educators face an immediate cognitive overload that severely threatens their pedagogical efficacy and emotional well being.

Beyond basic operational challenges, the lived experiences of the informants reveal a profound erosion of professional autonomy that severely disrupts the vocational identity of seasoned educators. In traditional brick-and-mortar classrooms, these senior faculty members exercise extensive expert power developed through decades of clinical tenure and pedagogical mastery. However, as documented by Kwon et al. (2021), Steindal et al. (2021), and Zhu & Zhang (2022), because learning management systems require educators to organize course content, coordinate learning activities, monitor student progress, and facilitate interaction, their effective implementation depends substantially on nursing educators assuming a central instructional and managerial role throughout the teaching process. When senior educators are unable to independently manage these platforms due to non-user-friendly interfaces, a critical operational breakdown occurs, resulting in an absolute dependency on external support networks, including family members, technical assistants, and their own students. This structural dependency leads to a problematic inversion of the academic hierarchy within the virtual classroom. The senior nurse educator, who historically represented an absolute figure of clinical authority, is reduced to a vulnerable novice who must be manually guided through basic software functions by the very students they are tasked to evaluate. This hierarchical inversion undermines their professional prestige and instructional confidence, reinforcing the pervasive sense of powerlessness and vulnerability identified in the text.

This multi-layered vulnerability highlights the necessity of critiquing contemporary institutional policies that rely on generalized, uniform IT training programs across the entire faculty body. Academic administrations often operate under the flawed assumption that technological shifts can be universally adopted, thereby treating older educators identically to their younger, digitally native colleagues. As highlighted by Kolnik et al. (2026), Owwoye et al. (2025), and Reid et al. (2024), limited digital competence, insufficient nursing education resources, and inadequate institutional support for faculty development substantially hinder the effective integration of educational technologies into nursing education. To mitigate this issue and enhance institutional productivity, higher education leaders must align their professional development policies with the core principles of gerontechnology and andragogy. As established by Finkelstein et al. (2023), technological upskilling for the aging academic population must be highly individualized and structured around the existing technical capacities of the individuals rather than chronological assumptions. Consequently, institutional frameworks must transition away from fast-paced, macro-level software orientations toward specialized, andragogy-based retooling strategies. These strategies should feature slow-paced, highly structured, and repetitive simulations utilizing university-provided devices within an age-friendly environment, ensuring that senior nurse educators can safely internalize digital workflows, restore their professional autonomy, and maintain high-quality instructional delivery.

4.2. The Paradox of Digital Convenience versus Older Faculty Workload

The juxtaposition of administrative convenience in information dissemination and the severe psychological toll of system navigation unveils a compelling technological paradox within the experiences of senior faculty members. This structural contradiction between perceived operational efficiency and acute powerlessness can be critically evaluated through the lens of the Technology Acceptance Model, which posits that user technology adoption is primarily governed by the dual constructs of Perceived Usefulness and Perceived Ease of Use (Alsyouf et al., 2023; Zin et al., 2023). According to Hussein & Hilmi (2021), the administrative convenience of material availability and instant communication heavily influences the baseline utility of learning management platforms. This specific advantage was recognized by the informants, particularly P1 and P2, who acknowledged the ease of uploading lessons, sharing powerpoint presentations instantly, and accessing online feedback mechanisms once initial configurations were managed. This aligns with the work of Alkhuzaimi et al. (2025) and Bradley (2020), both of whom emphasized that learning management systems complement traditional instruction by reinforcing resource accessibility and flexible document sharing.

However, within the framework of the Technology Acceptance Model, a severe systemic imbalance occurs because this high level of perceived usefulness is deeply compromised by an exceptionally low level of perceived ease of use among the aging demographic. As established by Green (2024), older users often report lower digital competence, greater resistance to technology-related change, and reduced confidence in navigating complex digital systems, all of which may hinder effective technology adoption and use. This structural mismatch between platform utility and user fatigue is further supported by

Maslov et al. (2021), who argued that the ultimate efficiency of a learning management system is completely contingent upon the user experience of the instructor. When digital platforms fail to accommodate the cognitive, sensory, and physical characteristics of older adults, technology use becomes increasingly demanding and may generate higher levels of technostress. A study by Mannheim et al. (2023) and Yoon et al. (2026) showed that technological complexity, combined with age-related changes in adaptive capacity, contributes to greater cognitive burden, technology-related anxiety, and reduced acceptance of digital systems among older users and healthcare workers. Consequently, the convenience highlighted in general literature operates as a hollow structural asset, because the primary managers of the platform are left in a state of operational disempowerment, which directly threatens their professional self-efficacy.

Although flexible learning is consistently associated with greater learner autonomy, flexibility, and student engagement, its implementation often shifts substantial instructional and organizational responsibilities to educators. Faculty members are required to redesign learning materials, manage learning management systems, maintain continuous asynchronous communication, monitor student progress, and sustain instructor presence across multiple delivery modes, thereby substantially increasing academic workload (Cook, 2026; Mahmud et al., 2026). The lack of structural and temporal boundaries within the digital learning environment is illustrated by P2's account of extending grading activities until three o'clock in the morning because unstable student internet connectivity resulted in irregular submission schedules that disrupted normal working hours. This experience is consistent with recent evidence from higher education in the Philippines, which indicates that poor network connectivity, limited digital infrastructure, and unequal access to online learning resources frequently delay academic transactions, require greater scheduling flexibility, and substantially increase faculty workload as educators continuously adjust their teaching and assessment practices (Barrot et al., 2021; Collado et al., 2021).

Furthermore, research by Boamah et al. (2023) and Laugaland et al. (2023) shows that nursing educators' satisfaction is closely associated with the reliability of the underlying ICT infrastructure and the quality of institutional technological support. System instability and inadequate digital resources can disrupt teaching activities, reduce instructional effectiveness, and negatively influence faculty satisfaction with technology-enhanced education. When the infrastructure is unstable, the constant pressure to maintain facilitator presence, which Annamalai et al. (2021) identified as a critical yet often deficient element in distance education, forces senior faculty members to absorb the institutional inefficiencies of the platform through their own personal rest hours. By replacing the clear spatial and temporal boundaries of traditional physical teaching with an unstructured, always-online ecosystem, the digital transition operates as an extractive mechanism that inflates uncompensated labor. Therefore, to advance the sustainability of higher education and protect the senior health workforce, institutional frameworks must look past the superficial convenience of educational technology and actively formulate labor-protection policies that safeguard the physical endurance and professional productivity of aging faculty members.

4.3. The Pedagogical Erosion and Threat to the Quality of the Future Healthcare Workforce

The empirical narratives crystallized within the fourth theme expose a profound philosophical crisis that transcends basic operational friction, pointing toward a significant pedagogical erosion within the nursing curriculum. This structural breakdown can be critically examined through the foundational philosophy of humanistic nursing theory, which posits that nursing education is not merely a mechanism for informational transfer, but an experiential process deeply rooted in tactile empathy, immediate interpersonal presence, and direct emotional connection. The mandatory transition to an unstructured digital ecosystem effectively severs this critical relationship dynamic between the facilitator and the learner. As articulated by P5, the virtual classroom replaces traditional academic decorum and physical discipline with excessive leniency, allowing students to engage in informal habits that disrupt professional socialization. This pedagogical erosion directly supports the arguments of Bradley (2020), who noted that maintaining meaningful instructor presence is a complex requirement in virtual spaces, and validates the findings of Annamalai et al. (2021), which revealed that the instructor's presence in distance education often fails to meet expectations, leaving student engagement severely deficient. By reducing direct physical interactions to fragmented digital feeds, the technology disrupts the transmission of the humanistic essence of nursing, turning what should be a holistic professional socialization process into a distant and transactional experience.

Beyond the loss of emotional connection, this technological displacement creates a critical breakdown in the transfer of complex clinical psychomotor skills, posing a direct threat to patient safety and the long-term quality of the healthcare workforce. In nursing education, procedural competencies require detailed visual assessments, real-time tactile corrections, and immediate physical adjustments by expert faculty members. However, as emphatically stated by P2, asynchronous instructional resources such as YouTube videos are entirely insufficient for procedural training, because digital interfaces cannot replicate the diagnostic utility of an actual physical demonstration. This diagnostic failure is vividly

illustrated by the account of P6, who noted that a large number of students failed their initial virtual evaluations for vital techniques like personal protective equipment donning and doffing, requiring multiple attempts due to the limitations of online instruction. When senior nurse educators are required to assess hands-on clinical procedures through low-quality video recordings, unstable internet connections, limited camera perspectives, or network latency, the accuracy and authenticity of clinical skills evaluation can be substantially compromised. Research by Kamboo et al. (2026) and Clerkin et al. (2022) suggests that remote video-based assessment presents considerable challenges for observing psychomotor performance, clinical decision-making, and procedural competence, particularly when technical limitations reduce the quality and continuity of assessment.

This operational blind spot is further exacerbated by the difficulty of maintaining academic integrity during online nursing assessments. As uncovered by P4, online examinations often resemble open-resource assessments, resulting in homogeneous student performance and making it difficult to determine whether submitted work genuinely reflects students' knowledge and clinical reasoning or external assistance. Contemporary evidence similarly indicates that online assessment environments present substantial challenges in verifying authentic student competence, particularly when assessment design, institutional support, and technological safeguards are insufficient to uphold academic integrity (Aplin-Snyder et al., 2021; Lynch et al., 2021). If academic administrations continue to force older adult educators to pass students based on flawed virtual metrics, the institution effectively creates a dangerous pathway for clinical incompetence to enter the workforce. When these inadequately evaluated graduates transition into real-world hospital environments, their lack of genuine psychomotor mastery directly threatens the safety of vulnerable patients. Therefore, this study argues that the digital transition must not be uncritically celebrated as an educational milestone; rather, it must be recognized as a structural threat to the safety of the healthcare ecosystem, requiring immediate face-to-face clinical remediation to safeguard professional standards.

4.4. Policy Implications: Retooling and Retention Strategies for Older Faculty Members

The explicit demands articulated within the fifth theme, titled a Plea to Meet Productivity Needs, provide an empirical foundation for developing high-level human resource management strategies within nursing higher education institutions. The narratives of the senior educators, particularly their proactive requests for standardized software, accessible hardware, and targeted pedagogical training, challenge the misconception that aging faculty members are passively resistant to digital transformation. Instead, as demonstrated by P1, P2, P3, P4, and P5, these professionals possess a strong willingness to adapt, yet their long-term institutional utility is completely hindered by systemic resource scarcity and unsupportive organizational structures. Academic administrators must look past temporary solutions and critically reformulate their human resource frameworks. This study argues that ensuring the retention and optimization of the senior health workforce requires a fundamental paradigm shift toward the institutionalization of comprehensive, age-friendly, and infrastructure-backed policy interventions.

A primary recommendation of this inquiry is the conceptual formulation and operational deployment of Age-Friendly Educational Institutions. This macro-level organizational framework dictates that higher education campuses must actively adapt their technological environments to accommodate the natural physical, cognitive, and psychological adjustments associated with the aging academic demographic. As established by Mannheim et al. (2023), conventional information and communication technology landscapes frequently ignore the declining adaptation profiles of older adults, which drives low digital literacy and acute technostress. By redesigning the institutional environment to be age-friendly, university leaders can actively minimize the severe digital frustration that frequently leads to professional burnout. This structural adjustment is vital for mitigating the risk of premature retirement among seasoned educators, who hold decades of irreplaceable clinical erudition and expert pedagogical power. In an era marked by a severe global shortage of qualified nursing faculty, establishing an age-friendly ecosystem serves as a critical labor-protection strategy that safeguards the stability of the healthcare workforce.

To translate this framework into concrete human resource practices, institutions should abandon generic, fast-paced IT training and instead adopt a structured Reverse Mentoring or Peer-Coaching model. This strategic intervention directly answers the explicit requests of P3 and P4, both of whom verbalized a profound interest to learn provided that the institution supplies dedicated human instruction and adequate physical devices to practice on. By systematically pairing digitally native younger faculty members with senior educators, the institution establishes a bidirectional professional development pathway. Within this peer-coaching architecture, the younger mentor serves as a personal digital guide, offering slow-paced, individualized, and repetitive simulations that align with the specific gerontological needs highlighted by Finkelstein et al. (2023). Crucially, this model protects the professional autonomy of senior educators, transforming an intimidating technical mandate into a collaborative, supportive, and dignified intergenerational learning experience.

Furthermore, universities must establish a specialized, standalone unit of Digital Nursing Instructional Designers to bridge the structural divide between complex technological architectures and traditional nursing pedagogy. As documented in the literature, generic learning management system

orientations fail because they do not account for the instructor-oriented nature of the platform or the tactile complexities of the nursing curriculum (Annamalai et al., 2021; Maslov et al., 2021). A dedicated instructional design unit, specifically trained in nursing informatics, can work directly with older nurse educators to translate hands-on clinical competencies into intuitive virtual structures. This structural support mitigates the cognitive overload identified in the text, ensuring that senior faculty can successfully manage virtual spaces without compromising the humanistic essence of nursing education.

Finally, academic institutions should provide dedicated ICT-LMS support services that offer timely technical assistance to faculty members. Contemporary evidence demonstrates that institutional technical support, together with reliable digital infrastructure, significantly enhances educators' satisfaction, perceived ease of use, and the sustained adoption of e-learning technologies (Mutambara & Chibisa, 2023; Simon et al., 2024). This recommendation directly satisfies the request of P1 for continuous technical monitoring and operational support during online transactions. Rather than leaving senior educators to experience severe vulnerability and powerlessness when systems fail during live lectures, this dedicated helpdesk operates as a technical triage unit, providing instantaneous troubleshooting for both facilitators and learners. Accompanied by institutional internet connectivity subsidies and accessible campus workstations, as requested by P2 and P3, these integrated policy adjustments ensure that senior educators are structurally empowered to maintain high-quality instructional delivery. Ultimately, by executing these high-level human resource interventions, nursing education institutions can successfully optimize workforce retention, restore faculty self-efficacy, and safeguard patient safety by protecting the academic integrity of the future healthcare workforce.

5. CONCLUSION

This descriptive phenomenological study successfully captures and conceptualizes the essential structure of the lived experiences of senior nurse educators navigating digital learning management systems. The empirical findings conclusively answer the primary research inquiry by demonstrating that while the sudden digital transition subjected senior faculty to profound technostress, operational dependency, and pedagogical erosion, it simultaneously highlighted their remarkable vocational resilience and dedication to the nursing discipline. Rather than resisting technological advancement, these seasoned educators actively mobilized their professional energies to maintain instructional continuity and support their learners, despite encountering significant infrastructural precarity and a distressing inversion of the traditional classroom hierarchy. The study establishes that the technological challenges faced by this cohort are not individual deficits, but are rather the direct product of rigid, non-age-friendly institutional environments that completely disregard the natural cognitive, physical, and psychological adaptation profiles of an aging academic workforce.

The primary contribution of this inquiry lies in its capacity to bridge a critical empirical gap at the intersection of gerontechnology, andragogy, and health workforce management within the nursing discipline. By shifting the analytical focus away from ubiquitous student-centered technology evaluations, this study provides a unique qualitative framework that treats senior educators as vulnerable consumers and key stakeholders within the digital health informatics landscape. Theoretically, it enriches the literature on educational technology acceptance by exposing the paradox of digital convenience, demonstrating that high perceived usefulness can coexist with debilitatingly low perceived ease of use among older adults. Practically, it offers a definitive empirical blueprint for higher education administrators to develop age-friendly professional development frameworks, optimize workforce retention, and preserve valuable clinical erudition within the global healthcare ecosystem.

Despite these critical insights, several methodological limitations must be acknowledged to properly contextualize the scope of the findings. The study was strictly delimited to six key informants recruited from a single, private higher education institution in Cebu City, Philippines. Consequently, the localized infrastructural deficiencies and specific organizational nuances of this single setting may restrict the immediate transferability of the thematic structures to broader public, national, or international nursing education contexts. Furthermore, the qualitative reliance on retrospective self-reported narratives during face-to-face interviews introduces the potential for recall bias regarding the initial acute phases of the digital shock.

To advance the scholarship surrounding the retention of the aging health workforce, future research must expand upon the operational boundaries of this inquiry. Subsequent studies should implement multi-institutional and comparative designs, explicitly evaluating the differences in digital adaptation profiles and technostress levels between senior faculty members employed in public versus private educational sectors across diverse regions. Longitudinal qualitative or mixed-methods inquiries are also highly recommended to monitor the long-term efficacy of specialized, age-appropriate retooling strategies, such as reverse mentoring and peer-coaching models, on faculty productivity and professional self-efficacy. Finally, future investigative efforts should examine the direct correlation between institutional technology

configurations and downstream patient safety outcomes, ensuring that virtual clinical evaluations do not compromise the hands-on operational readiness of future nursing graduates.

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REFERENCES

- Abou Hashish, E. A. (2025). Compassion through technology: Digital empathy concept analysis and implications in nursing. *DIGITAL HEALTH*, 11. <https://doi.org/10.1177/20552076251326221>
- Ahmad, N. A., Abd Rauf, M. F., Mohd Zaid, N. N., Zainal, A., Tengku Shahdan, T. S., & Abdul Razak, F. H. (2022). Effectiveness of Instructional Strategies Designed for Older Adults in Learning Digital Technologies: A Systematic Literature Review. *SN Computer Science*, 3(2), 130. <https://doi.org/10.1007/s42979-022-01016-0>
- Al-Sheikh Hassan, M. (2023). The use of Husserl's phenomenology in nursing research: A discussion paper. *Journal of Advanced Nursing*, 79(8), 3160–3169. <https://doi.org/10.1111/jan.15564>
- Aldhafeeri, F. M., & Alotaibi, A. A. (2023). Reimagining Education for Successful and Sustainable Digital Shifting. *Sage Open*, 13(1). <https://doi.org/10.1177/21582440231154474>
- Alkhuzaimi, F., Wilson, C. B., & Wong, W. Y. A. (2025). Key factors influencing undergraduate nursing students' perceptions of the use of learning management systems: a systematic literature review. *BMC Nursing*, 24(1), 323. <https://doi.org/10.1186/s12912-025-02962-9>
- Alsyouf, A., Lutfi, A., Alsubahi, N., Alhazmi, F. N., Al-Mugheed, K., Anshasi, R. J., Alharbi, N. I., & Albugami, M. (2023). The Use of a Technology Acceptance Model (TAM) to Predict Patients' Usage of a Personal Health Record System: The Role of Security, Privacy, and Usability. *International Journal of Environmental Research and Public Health*, 20(2), 1347. <https://doi.org/10.3390/ijerph20021347>
- Annamalai, N., Ramayah, T., Kumar, J. A., & Osman, S. (2021). Investigating the Use of Learning Management System (LMS) for Distance Education in Malaysia: A Mixed-Method Approach. *Contemporary Educational Technology*, 13(3), ep313. <https://doi.org/10.30935/cedtech/10987>
- Aplin-Snyder, C., Buterakos, R., Creech, C., Schapel, S. A., & Feige, B. D. (2021). Academic integrity in online examinations in a graduate nurse practitioner program: Student perceptions and lessons for nurse educators. *Nurse Education Today*, 107, 105099. <https://doi.org/10.1016/j.nedt.2021.105099>
- Barrot, J. S., Llenares, I. I., & del Rosario, L. S. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Education and Information Technologies*, 26(6), 7321–7338. <https://doi.org/10.1007/s10639-021-10589-x>
- Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., Tiu, C. J. S., Clarion, C. A., & Reyes, J. C. B. (2021). Barriers to Online Learning in the Time of COVID-19: A National Survey of Medical Students in the Philippines. *Medical Science Educator*, 31(2), 615–626. <https://doi.org/10.1007/s40670-021-01231-z>
- Boamah, S. A., Kalu, M. E., Havaei, F., McMillan, K., & Belita, E. (2023). Predictors of Nursing Faculty Job and Career Satisfaction, Turnover Intentions, and Professional Outlook: A National Survey. *Healthcare*, 11(14), 2099. <https://doi.org/10.3390/healthcare11142099>
- Bradley, V. M. (2020). Learning Management System (LMS) Use with Online Instruction. *International Journal of Technology in Education*, 4(1), 68–92. <https://doi.org/10.46328/ijte.36>
- Cabauatan, R. R., Uy, C., Manalo, R. A., & Castro, B. de. (2021). Factors Affecting Intention to Use Blended Learning Approach in the Tertiary Level: A Quantitative Approach. *Higher Education for the Future*, 8(2), 239–255. <https://doi.org/10.1177/23476311211011934>
- Chan, D. Y. L., Lee, S. W. H., & Teh, P.-L. (2023). Factors influencing technology use among low-income older adults: A systematic review. *Heliyon*, 9(9), e20111. <https://doi.org/10.1016/j.heliyon.2023.e20111>
- Clerkin, R., Patton, D., Moore, Z., Nugent, L., Avsar, P., & O'Connor, T. (2022). What is the impact of video as a teaching method on achieving psychomotor skills in nursing? A systematic review and meta-analysis. *Nurse Education Today*, 111, 105280. <https://doi.org/10.1016/j.nedt.2022.105280>
- Collado, Z. C., Concha, C. B. A., & Orozco, N. M.-I. G. (2021). Teaching in Transition: How Do Filipino Teachers Face the Migration to Cyberspace amid the Pandemic? *Computers in the Schools*, 38(4), 281–299. <https://doi.org/10.1080/07380569.2021.1988317>
- Cook, D. J. (2026). Engagement as Care: Instructor Presence, Connection, and Student Well-Being in Asynchronous Learning. *Social Work in Public Health*, 41(5), 368–371. <https://doi.org/10.1080/19371918.2026.2637774>
- Dossett, L. A., Kaji, A. H., & Cochran, A. (2021). SRQR and COREQ Reporting Guidelines for Qualitative Studies. *JAMA Surgery*, 156(9), 875. <https://doi.org/10.1001/jamasurg.2021.0525>
- Enworu, O. C. (2023). Application of Guba and Lincoln's parallel criteria to assess trustworthiness of qualitative research on indigenous social protection systems. *Qualitative Research Journal*, 23(4),

- 372–384. <https://doi.org/10.1108/QRJ-08-2022-0116>
- Finkelstein, R., Wu, Y., & Brennan-Ing, M. (2023). Older adults' experiences with using information and communication technology and tech support services in New York City: findings and recommendations for post-pandemic digital pedagogy for older adults. *Frontiers in Psychology*, 14, 1129512. <https://doi.org/10.3389/fpsyg.2023.1129512>
- Gause, G., Mokgaola, I. O., & Rakhudu, M. A. (2022). Technology usage for teaching and learning in nursing education: An integrative review. *Curationis*, 45(1), a2261. <https://doi.org/10.4102/curationis.v45i1.2261>
- Green, G. (2024). Analysis of the mediating effect of resistance to change, perceived ease of use, and behavioral intention to use technology-based learning among younger and older nursing students. *Journal of Professional Nursing*, 50, 66–72. <https://doi.org/10.1016/j.profnurs.2023.11.003>
- Hassan, E. A., Mohamed, A. M., Eltaib, F. A., & Khaled, A. M. S. (2024). Determinants of nursing students' satisfaction with blended learning. *BMC Nursing*, 23(1), 766. <https://doi.org/10.1186/s12912-024-02393-y>
- Huang, G., & Oteng, S. A. (2023). Gerontechnology for better elderly care and life quality: a systematic literature review. *European Journal of Ageing*, 20(1), 27. <https://doi.org/10.1007/s10433-023-00776-9>
- Hussein, L. A., & Hilmi, M. F. (2021). The Influence of Convenience on the Usage of Learning Management System. *Electronic Journal of E-Learning*, 19(6), pp504-515. <https://doi.org/10.34190/ejel.19.6.2493>
- Kambo, M. S., Ahmady, S., Sohrabi, S., Abdollahi, H., Hemmatipour, A., & Mirmoghtadaie, Z. (2026). A Comprehensive Review of Technological Innovations in Teaching Clinical Nursing Skills: A Scoping Review. *Iranian Journal of Nursing and Midwifery Research*, 31(2), 175–184. https://doi.org/10.4103/ijnmr.ijnmr_368_24
- King, O. (2021). Two sets of qualitative research reporting guidelines: An analysis of the shortfalls. *Research in Nursing & Health*, 44(4), 715–723. <https://doi.org/10.1002/nur.22157>
- Kolnik, T. Š., Poredoš, M., Filej, B., Čuk, V., & Vejzovic, V. (2026). Contextualizing the digital competence framework for nursing education: Findings from a Delphi. *Nurse Education in Practice*, 94, 104909. <https://doi.org/10.1016/j.nepr.2026.104909>
- Kwon, S., Kim, W., Bae, C., Cho, M., Lee, S., & Dreamson, N. (2021). The identity changes in online learning and teaching: instructors, learners, and learning management systems. *International Journal of Educational Technology in Higher Education*, 18(1), 67. <https://doi.org/10.1186/s41239-021-00304-8>
- Laugaland, K. A., Handeland, M., Aase, I., Husebø, A. M. L., Frøiland, C., & Akerjordet, K. (2023). Supporting the nurse educator in clinical education – a qualitative evaluation of a digital educational resource DigiVIS. *BMC Nursing*, 22(1), 432. <https://doi.org/10.1186/s12912-023-01599-w>
- Li, P., Tan, R., Yang, T., & Meng, L. (2025). Current status and associated factors of digital literacy among academic nurse educators: a cross-sectional study. *BMC Medical Education*, 25(1), 16. <https://doi.org/10.1186/s12909-024-06624-3>
- Lynch, J., Salamonson, Y., Glew, P., & Ramjan, L. M. (2021). "I'm not an investigator and I'm not a police officer" - a faculty's view on academic integrity in an undergraduate nursing degree. *International Journal for Educational Integrity*, 17(1), 19. <https://doi.org/10.1007/s40979-021-00086-6>
- Mahmud, M. M., Teh, J. K. L., & Azizan, S. N. (2026). Hyflex learning and student engagement in higher education: a systematic literature review. *Frontiers in Education*, 11, 1773704. <https://doi.org/10.3389/feduc.2026.1773704>
- Mannheim, I., Wouters, E. J. M., Köttl, H., van Boekel, L. C., Brankaert, R., & van Zaaen, Y. (2023). Ageism in the Discourse and Practice of Designing Digital Technology for Older Persons: A Scoping Review. *The Gerontologist*, 63(7), 1188–1200. <https://doi.org/10.1093/geront/gnac144>
- Maslov, I., Nikou, S., & Hansen, P. (2021). Exploring user experience of learning management system. *The International Journal of Information and Learning Technology*, 38(4), 344–363. <https://doi.org/10.1108/IJILT-03-2021-0046>
- Mutambara, D., & Chibisa, A. (2023). An Analysis of Rural-Based Universities' Faculty Members' Satisfaction with E-Learning: The Case of Developing Countries. *Sustainability*, 15(12), 9522. <https://doi.org/10.3390/su15129522>
- Oh, S. S., Kim, K.-A., Kim, M., Oh, J., Chu, S. H., & Choi, J. (2021). Measurement of Digital Literacy Among Older Adults: Systematic Review. *Journal of Medical Internet Research*, 23(2), e26145. <https://doi.org/10.2196/26145>
- Owoeye, I. D., Chipps, J.-A., & Daniels, F. (2025). Nurse educators' competence and use of digital education technology at selected nursing education institutions in Nigeria. *International Journal of Africa Nursing Sciences*, 23, 100870. <https://doi.org/10.1016/j.ijans.2025.100870>

- Pajari, J., Sormunen, M., Salminen, L., Elonen, I., Pasanen, M., Martin-Delgado, L., Camilleri, M., Sollárová, A., Haycock-Stuart, E., & Saaranen, T. (2026). Nurse Educators' Background, Education, and Experience in Digital Competence Profiles: A Descriptive Comparative Cross-Sectional Study in Four Countries. *Journal of Advanced Nursing*, 82(4), 3172–3183. <https://doi.org/10.1111/jan.70077>
- Peralta, A. B., Banayat, A. C., Mabale, M. A. A., & Baccay, K. B. (2024). Flexible learning in nursing in the Philippines as a response to the restrictions of the COVID-19 pandemic: An educational case report. *Acta Medica Philippina*, 58(12), 118. <https://doi.org/10.47895/amp.v58i12.9784>
- Reid, L., Button, D., Breaden, K., & Brommeyer, M. (2024). Nursing Informatics: Competency Challenges for Nursing Faculty. *Studies in Health Technology and Informatics*, 310, 1196–1200. <https://doi.org/10.3233/SHTI231154>
- Saltos-Rivas, R., Novoa-Hernández, P., & Rodríguez, R. S. (2023). Understanding university teachers' digital competencies: a systematic mapping study. *Education and Information Technologies*, 28(12), 16771–16822. <https://doi.org/10.1007/s10639-023-11669-w>
- Shorey, S., & Ng, E. D. (2022). Examining characteristics of descriptive phenomenological nursing studies: A scoping review. *Journal of Advanced Nursing*, 78(7), 1968–1979. <https://doi.org/10.1111/jan.15244>
- Simon, P., Jiang, J., & Fryer, L. K. (2024). Measurement of higher education students' and teachers' experiences in learning management systems: a scoping review. *Assessment & Evaluation in Higher Education*, 49(4), 441–452. <https://doi.org/10.1080/02602938.2023.2266154>
- Steindal, S. A., Ohnstad, M. O., Landfald, Ø. F., Solberg, M. T., Sørensen, A. L., Kaldheim, H., Mathisen, C., & Christensen, V. L. (2021). Postgraduate Students' Experience of Using a Learning Management System to Support Their Learning: A Qualitative Descriptive Study. *SAGE Open Nursing*, 7. <https://doi.org/10.1177/23779608211054817>
- Stenfors, T., Kajamaa, A., & Bennett, D. (2020). How to ... assess the quality of qualitative research. *The Clinical Teacher*, 17(6), 596–599. <https://doi.org/10.1111/tct.13242>
- Tavakol, M., Sandars, J., & Sharpe, C. C. (2026). How to ... Analyse Descriptive Phenomenological Data in Health Professions Education. *The Clinical Teacher*, 23(3). <https://doi.org/10.1111/tct.70441>
- Turan, Z., Kucuk, S., & Cilligol Karabey, S. (2022). The university students' self-regulated effort, flexibility and satisfaction in distance education. *International Journal of Educational Technology in Higher Education*, 19(1), 35. <https://doi.org/10.1186/s41239-022-00342-w>
- Vignato, J., Inman, M., Patsais, M., & Conley, V. (2022). Computer-Assisted Qualitative Data Analysis Software, Phenomenology, and Colaizzi's Method. *Western Journal of Nursing Research*, 44(12), 1117–1123. <https://doi.org/10.1177/01939459211030335>
- Wani, T. A., Liem, M., Boyd, J., Wijesooriya, H., & Khan, U. R. (2026). Digital health education in Australian universities: Trends, gaps, and future directions. *International Journal of Medical Informatics*, 205, 106105. <https://doi.org/10.1016/j.ijmedinf.2025.106105>
- Yoo, L., & Jung, D. (2022). Teaching Presence, Self-Regulated Learning and Learning Satisfaction on Distance Learning for Students in a Nursing Education Program. *International Journal of Environmental Research and Public Health*, 19(7), 4160. <https://doi.org/10.3390/ijerph19074160>
- Yoon, H., Lee, J., Kim, N., Ban, S., Shin, H., & Kim, Y. (2026). Technostress in older healthcare workers: Latent profiles and implications for care robot acceptance. *DIGITAL HEALTH*, 12. <https://doi.org/10.1177/20552076261451213>
- Zhao, J., Hua, X., Hu, R., Chen, C., Wu, W., Zhang, Y., Zhang, Y., Wu, A., & Zhang, Y. (2026). Assessing Digital Literacy Among Nursing Faculty Under the Artificial Intelligence-Enhanced Technological Pedagogical Content Knowledge Framework: Cross-Sectional Survey Analysis. *JMIR Nursing*, 9, e88016–e88016. <https://doi.org/10.2196/88016>
- Zhu, M., & Zhang, Y. (2022). Medical and public health instructors' perceptions of online teaching: A qualitative study using the Technology Acceptance Model 2. *Education and Information Technologies*, 27(2), 2385–2405. <https://doi.org/10.1007/s10639-021-10681-2>
- Zin, K. S. L. T., Kim, S., Kim, H.-S., & Feyissa, I. F. (2023). A Study on Technology Acceptance of Digital Healthcare among Older Korean Adults Using Extended Tam (Extended Technology Acceptance Model). *Administrative Sciences*, 13(2), 42. <https://doi.org/10.3390/admsci13020042>