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Digitalization and Learning Effectiveness of Student Nurses in a Private Institution in Iloilo

ABSTRACT

Digitalization has become widely integrated into nursing education; however, its extent and impact on learning effectiveness in private institutions in Western Visayas remain unexplored. This study aimed to determine the level of digitalization and learning effectiveness of student nurses in a private institution in Iloilo and to examine the relationship between these variables. A descriptive-correlational research design was employed, involving 157 first-year and 130 second-year nursing students selected through simple random sampling. Data were collected using a researcher-made questionnaire, and ethical clearance was obtained prior to data collection. The findings revealed that students demonstrated high engagement with digital tools, with adaptive quizzing being the most frequently used for knowledge assessment and immediate feedback. Educational applications were utilized less consistently; however, they showed a stronger relationship with learning effectiveness. This suggests that while adaptive quizzing supports routine learning activities, educational applications may provide more comprehensive and interactive learning experiences that contribute more substantially to improved comprehension and critical thinking. Overall, a statistically significant moderate positive relationship was found between digitalization and learning effectiveness, indicating that increased engagement with digital tools is associated with better learning outcomes. The study concludes that digitalization plays a crucial role in enhancing learning among nursing students. It is therefore recommended that institutions strengthen the integration of digital learning tools to maximize the benefits of educational technologies.

Keywords: Digitalization, Learning Effectiveness, Nursing Students

1. INTRODUCTION

Digitalization refers to the broad integration of digital technologies into social, economic, and educational systems and has become a major driving force in the 21st century. Over the past years, digital technology has become an indispensable element of education, particularly in nursing programs. Online platforms, virtual simulations, and various digital tools have been implemented to facilitate teaching and learning processes in many schools (Alsharari et al., 2025; Chatzea et al., 2024). Through digitalization, the world has become increasingly interconnected, enabling knowledge and services to move across geographical boundaries.

In nursing, digital education occurs through various platforms such as learning management systems, virtual simulations, adaptive quizzes, and electronic health records. This shift is not merely a technical upgrade but also a pedagogical and ethical obligation for student nurses to acquire digital literacy to express caring in technologically mediated environments. This perspective aligns with the Technological Competency as Caring in Nursing (TCCN) theory.

In the Philippines, digitalization is rapidly progressing not only in education but also in healthcare. National policy commitments are supporting “digitally

enabled schools," modernized assessments, and improved curricula. These priorities are outlined in the Department of Education's Quality Basic Education Development Plan 2025–2035. The plan emphasizes the integration of digital tools to improve and expand teaching and learning processes.

Digital literacy has become a necessity for healthcare workers and serves as a major factor in motivating nursing students academically and encouraging lifelong learning. However, its application in practice remains limited due to poor internet connectivity, inadequate infrastructure, and insufficient faculty training during COVID-19 pandemic (Amin et al., 2025; Matlhaba & Khunou, 2023). The use of technology in nursing education has been characterized by four key themes: the rise of digital tools, improved flexibility and accessibility, challenges related to fatigue and inequity, and the overall impact on education (Agga & Lavin, 2022). Current trends in nursing education include the use of virtual simulations, mobile applications, and wearable technologies (Elmdni et al., 2023).

Despite these developments, some nursing schools have not yet fully transitioned to digitalized learning systems. Issues such as limited infrastructure, unstable connectivity, and outdated devices in low-resource settings remain major barriers (Regmi & Jones, 2020). In many cases, digital tools are implemented in isolated areas of instruction and are not consistently sustained, even though such technologies have the potential to enhance communication and patient care (Tischendorf et al., 2024).

Studies indicate that properly structured digital learning modalities significantly improve student engagement and academic performance; however, unequal access to technology and limited digital literacy continue to pose challenges (Akpen et al., 2024). Students' engagement and content retention may be enhanced through well-designed resources such as adaptive quizzes and multimedia modules, although their effectiveness largely depends on the quality of the instructional design and readiness of educators to integrate them effectively (Forsström et al., 2025).

Research conducted at West Visayas State University revealed that nursing students experienced dissatisfaction with online education due to poor internet connectivity, limited access to devices, and the abrupt transition to remote learning, which negatively affected academic performance and interaction (Oducado & Estoque, 2021). Consequently, digital learning should not be viewed merely as a temporary response to COVID-19 pandemic but rather as a long-term improvement in nursing education. Learning management systems, virtual simulation, and digital assessment tools should therefore be aligned with national competencies and international standards to strengthen both theoretical knowledge and clinical skills.

In the Philippines, the Commission on Higher Education (CHED) Memorandum Order No. 15, s. 2021, institutionalized flexible learning in higher education institutions. This initiative is further supported by the Philippine Health Strategic Framework, which aims to develop a digitally competent healthcare workforce (Commission on Higher Education, 2021). On a global scale, nursing informatics competencies, including digital knowledge, data management, and online patient care, are promoted by the TIGER Initiative, which also aligns with Sustainable Development Goal (SDG) 4 on quality education and SDG 9 on innovation and infrastructure (Shaw et al., 2020).

Although research on digital learning in nursing education is widely documented, studies focusing on private institutions, particularly in the Philippines and Western Visayas, remain limited. Most previous studies have concentrated on public universities and theoretical perspectives, leaving gaps in understanding the practical impact of digital tools on student learning outcomes. This study aims to address this gap by providing evidence-based insights that may support

curriculum development, faculty training, and institutional policy formulation.

Given the rapid advancement of digital technologies and the essential role of nurses in modern healthcare systems, understanding the effects of digital tools in nursing education is increasingly important. Therefore, this study aims to determine the extent of digitalization and the level of learning effectiveness among student nurses in a private institution in Iloilo.

2. LITERATURE REVIEW

Digitalization refers to the integration of digital technologies into everyday life, transforming the way people communicate, work, and learn. The use of these emerging technologies such as artificial intelligence and the Internet of Things enhances efficiency, accessibility, and decision-making processes (Calderón-Monge & Ribeiro-Soriano, 2023). Moreover, the emergence of digital technologies has significantly transformed traditional procedures, organizational workflows, and social interactions. Recent studies suggest that digitalization is not merely a tool but a driving force for progressive change in contemporary society (Nosratabadi, Atobishi, & HegedHus, 2023). Furthermore, digitalization has become a major instrument for promoting national development and modernization in the Philippine context. The Philippine Digital Transformation Strategy and the e-Government Master Plan aim to expand digital technologies, enhance public service delivery, and promote the use of online platforms. Similarly, the Commission on Higher Education (CHED) has encouraged the adoption of virtual classrooms, digital learning environments, and electronic learning resources (World Bank, 2022). Despite the numerous advantages it offers, digitalization in the Philippines continues to face several challenges, including inequalities between urban and rural areas, limited digital literacy, and unequal access to high-speed internet connections. Addressing these issues is essential to ensure inclusive digital transformation and sustainable development (Nosratabadi, Atobishi, & HegedHus, 2023). Therefore, investing in technological infrastructure and strengthening digital competencies are crucial for maximizing the benefits of digitalization in the Philippine context. Digitalization is not simply a technological trend but a transformative force that has the potential to create a more innovative, equitable, and connected society.

Research has shown that digital competency among undergraduate nursing students can significantly enhance academic performance and promote continuous learning. Results revealed a strong positive correlation between digital competence and academic motivation ($r=0.53$), as well as lifelong learning ($r=0.61$) (Amin et al., 2025). Additionally, digital tools such as virtual simulations and online learning materials helped improve students' clinical competence and confidence (Matlhaba & Khunou, 2023). However, challenges in adapting to e-learning platforms were observed among students and instructors (Nuuyoma et al., 2023). Furthermore, the use of mobile applications, adaptive quizzing, digital flashcards, e-textbooks, and online learning platforms has shown higher satisfaction, improved knowledge retention, and enhanced academic performance (Chang et al., 2021; Ador Dionisio et al., 2024; Gilbert et al., 2023; Yu et al., 2023). The reviewed studies indicate that digitalization in nursing education has the potential to improve knowledge acquisition, motivation, and academic performance. However, differences in digital literacy, access to technological resources, and faculty expertise may create disparities in learning experiences, and there remains limited evidence regarding its overall impact on learning effectiveness (Amin et al., 2025; Alsharif et al., 2024; Salameh & Alkhateeb, 2023).

3. THEORETICAL UNDERPINNING

This study is anchored in the Technology Acceptance Model (TAM) developed by Fred D. Davis (1989), which explains how individuals accept and use new technologies. The model emphasizes that perceived usefulness and perceived ease

of use influence users' attitudes, behavioral intentions, and ultimately their actual technology utilization. In nursing education, TAM provides a framework for understanding how students perceive and engage with digital tools such as adaptive quizzes, simulation technologies, and mobile learning applications, and how these perceptions shape their learning experiences.

When students view digital tools as useful and easy to use, they are more likely to develop positive attitudes toward technology, resulting in increased motivation, confidence, and self-efficacy—key attributes in the development of professional competence. Moreover, the model supports active participation in the learning process, as students are more inclined to engage with instructional materials, seek feedback, and apply knowledge in clinical contexts. It also promotes independent and flexible learning, enabling students to learn at their own pace and extend their practice beyond the classroom setting.

Furthermore, TAM highlights the processes of acceptance, adoption, and behavioral intention, which are closely aligned with the objectives of this study. Students who actively engage with digital platforms they perceive as beneficial are more likely to enhance their knowledge acquisition and apply learning effectively in real-life situations. Positive perceptions of technology also foster sustained usage, increased motivation, and continuous engagement, all of which contribute to improved learning outcomes. Guided by this model, the study examines how nursing students' perceptions of digitalization influence their acceptance and utilization of digital tools and how these, in turn, affect their overall learning effectiveness within a private institution in Iloilo.

4. OBJECTIVES OF THE STUDY

This study aimed to determine the extent of digitalization and the learning effectiveness of student nurses in a private institution in Iloilo.

5. METHODOLOGY

5.1 Research Design

This study employed a descriptive-correlational research design to investigate the relationship between digitalization and leaming effectiveness among student nurses in a private institution. This design was appropriate because it allowed the researchers to describe existing educational practices while determining the extent of the relationship between variables without manipulating them.

Descriptive research seeks to answer the question, "What is?", while correlational research aims to determine how variables are related. This design is commonly used in educational research where ethical and practical limitations prevent researchers from manipulating variables experimentally (Miksza et al., 2023). By using this design, the researchers were able to maintain methodological rigor and ethical feasibility while examining the association between digital learning tools, such as digital flashcards and other online learning platforms, and the learning effectiveness of student nurses.

5.2 Instrument

The primary tool utilized for data collection was a researcher-made questionnaire. The instrument consisted of a self-report questionnaire designed to measure the level of digitalization and learning effectiveness of student nurses in a private institution in Iloilo. The survey instrument consisted of three major parts, each corresponding to the specific objectives of the study.

Parts I (respondent characteristics), II (20 items on digitalization covering adaptive quizzing, digital flashcards, e-Textbook readings, and educational applications), and III (10 items on learning effectiveness including knowledge retention, critical thinking, preparedness, and academic performance) were researcher-made, based on relevant literature on digital learning and student outcomes. Part I

utilized a check-the-box format, while Parts II and III employed four-point Likert-type scales (Strongly Disagree to Strongly Agree) to assess accessibility, frequency of use, perceived usefulness, and learning outcomes.

Content validity was established through evaluation by three nursing experts using Oducado's (2020) validation scale, yielding a mean score of 4.54, indicating excellent validity. Revisions were made based on feedback to ensure clarity, coherence, and cultural appropriateness of the items.

Pilot testing on 30 non-participants established reliability using Cronbach's alpha, with values ranging from 0.706 to 0.913, exceeding the 0.70 threshold for acceptable to high internal consistency (George & Mallery, 2003). Learning Effectiveness (α=0.913) and Digital Flashcards (α=0.900) showed high reliability, while Adaptive Quizzing (α=0.815), e-Textbook Readings (α=0.724), and Educational Applications (α=0.706) demonstrated acceptable reliability.

Participants

The population of this study consisted of 1,126 first-year and second-year nursing students enrolled during the second semester of the Academic Year 2025–2026 in the selected private institution. These students were chosen because they are in the early stages of their nursing education and are still adapting to digital learning systems.

5.4 Research Setting

The study was conducted in a private institution located in Iloilo City. Data collection was carried out through face-to-face administration of questionnaires distributed in classrooms or other designated areas where nursing students could comfortably respond. The chosen setting provided a familiar and controlled environment that enabled respondents to participate without disrupting their academic activities. Conducting the study within the institution also ensured accessibility, convenience, and accuracy in collecting data from first-year and second-year nursing students.

5.5 Data Gathering Procedure

Following the necessary approvals and ethical clearance, data were gathered using validated standardized questionnaires. Consent forms were distributed and signed by participants who voluntarily agreed to take part in the study. During the administration of the instruments, the researchers assisted respondents, provided clarifications when needed, and ensured privacy while allowing sufficient time for completion.

5.6 Data Analysis

The collected data were organized and encoded in Microsoft Excel and subsequently analyzed using SPSS version 31. Descriptive statistics, including frequency, percentage, and mean, were employed to summarize the respondents' characteristics and to determine the levels of perceived usefulness, acceptance, and utilization of artificial intelligence (AI) for health information. For inferential analysis, the Kolmogorov-Smirnov test was used to assess the normality of the data distribution. As the data did not satisfy the assumption of normality, Spearman's rho correlation was applied to examine the relationships among the study variables. Statistical significance was set at a 0.05 level, wherein a p-value less than 0.05 led to the rejection of the null hypothesis, indicating a significant relationship between variables.

6. RESULTS AND DISCUSSION

6.1 Quantitative Interpretation of the Results

6.1.1 Profile of the Respondents

Table 1 presents the profile of the respondents based on their year level. More than half of the respondents (54.7%) were first-year nursing students, while nearly half (45.3%) were second-year

nursing students. This distribution reflects the actual
population distribution within the program.

Enrollment patterns in higher education typically result in a larger first-year
population, as universities admit most students at the entry-level intake. Factors such as dropouts, transfers, or academic progression difficulties may reduce the number of students advancing to the next year, which may explain the smaller proportion of second-year respondents in the study.

6.1.2 Level of Digitalization

Table 2 presents the level of digitization in terms of the utilization of adaptive quizzing. The results show an overall mean of 3.18, indicating a High Level of Digitalization. Most respondents reported using adaptive quizzing primarily to check their knowledge, which obtained the highest mean score of 3.29. In contrast, the use of adaptive quizzing to complete school-related work quickly obtained the lowest mean score of 3.13.

Based on the results, students demonstrated a generally positive and consistent perception of adaptive quizzing in their education, prioritizing knowledge checking over task efficiency. These results indicate that adaptive quizzing changes the way knowledge is evaluated by continuously adjusting the difficulty level of tasks based on a student's performance. This approach provides a more accurate measure of learning and reduces student disengagement by delivering content matched to the individual's level of proficiency (du Plooy, Castelejin, & Franzsen, 2024). An existing study on the effectiveness and student perceptions of adaptive learning systems found that adaptive quizzing not only improved academic performance but also served as a convenient method that supports daily study routines (Malabanan 2024). Students implied that adaptive quizzing helped them perform their academic tasks more effectively and increased their interest in the subject matter. These findings were consistent with Malaban's study, which identified adaptive quizzing as both a cognitive and motivational tool in online learning environments.

Table 2 also presents the level of digitalization in terms of the utilization of digital flashcards. The results show an overall mean of 3.10, indicating a High Level of Digitalization. Most students reported that digital flashcards were convenient for studying nursing terms, which obtained the highest mean of 3.24. However, using them as part of their regular study routine obtained the lowest mean of 2.88.

Based on the results, students recognized the usefulness of digital flashcards, particularly in studying nursing terminology, but they may not regularly create their own flashcards or consistently incorporate them into their study routines. The findings were consistent with a recent study which reported that digital flashcards improved academic preparation and supported better retention of information through active recall strategies (Zarrati et al., 2024).

It further presents the level of digitalization in terms of the utilization of e-Textbook readings. The results show an overall mean of 3.00, indicating a High Level of Digitalization. Most students reported using PDF files, which obtained the highest mean of 3.33. In contrast, students' ability to use e-Textbooks to complete school-related activities independently obtained the lowest mean of 2.81.

Based on the results, although students frequently used PDFs, their independent engagement with e-Textbooks appeared to be limited. This finding aligns with previous research, which reported that while students are comfortable accessing PDF materials, they often experience difficulties navigating e-Textbook platforms due to usability issues, which may limit deeper engagement and independent learning (Pierard et al., 2020).

In the level of digitalization, on the utilization of educational applications, the

results show an overall mean of 2.98, indicating an Average Level of Digitalization. Most respondents reported using educational applications such as Google Classroom, Grammarly, and Course Hero, which obtained the highest mean of 3.17. In contrast, students' ability to use educational applications independently obtained the lowest mean of 2.79.

Based on the results, while students frequently used certain educational applications, they had not yet fully explored their potential for academic work. This finding aligns with a recent study, which reported that the use of educational applications increases student engagement and leads to improved learning outcomes (Forsstrom et al., 2025).

6.1.3 Learning Effectiveness

Table 3 presents the level of learning effectiveness among the nursing students. The overall mean was 3.05, which was interpreted as a High Level of Learning Effectiveness. This indicates that the respondents generally perceived themselves as effective in their learning. Among the items, developing critical thinking skills and adapting to new nursing concepts obtained the highest mean of 3.21, while being well prepared for examinations received the lowest mean of 2.94.

Based on the results, nursing students demonstrated a high level of perceived learning effectiveness. However, preparedness for examinations was rated lower compared to the other areas. These findings suggest that although students were developing critical thinking skills and adapting to new nursing concepts, there is still a need to improve their readiness for examinations. The results are consistent with a recent study, which found that digital learning enhanced nursing students' engagement, supported active participation and improved their understanding of course content (Al-Osaimi, 2024).

6.1.4 Relationship between Digitalization and Learning Effectiveness

To determine the relationship between the respondents' level of digitalization and learning effectiveness, Spearman's Rho correlation was used. This non-parametric test was selected because both variables significantly deviated from normality.

As shown in Table 4, there is a significant positive relationship between the level of digitalization and learning effectiveness ($rs = 0.243$, $P < 0.001$), leading to the rejection of the null hypothesis. This indicates a weak to moderate positive correlation, suggesting that higher engagement with digital tools is generally associated with greater learning effectiveness among nursing students. Specifically, adaptive quizzing ($rs = 0.248$, $P < 0.001$), digital flashcards ($rs = 0.203$, $P < 0.001$), and eTextbook readings ($rs = 0.207$, $P < 0.001$) showed weak but statistically significant positive correlations with learning effectiveness. Meanwhile, educational applications demonstrated a moderate positive correlation ($rs = 0.315$, $P < 0.001$), highlighting their relatively stronger association with improved learning outcomes.

These findings are consistent with the Technology Acceptance Model, which proposes that perceived usefulness and ease of use are key factors influencing the adoption of digital technologies and their impact on learning effectiveness (Davis, 1989). The results also align with studies indicating that the use of adaptive quizzes and multimedia modules enhances student engagement and improves learning outcomes (Forsström et al., 2025). In line with this, digital flashcards have been recognized as effective tools for memorization and examination preparation (Lu et al., 2021). In addition, e-Textbook readings play an important role in supporting learning, as they provide accessible and flexible resources that help students better understand complex materials (Zhang et al., 2021).

Table 1.
Profile of the Respondents (n = 287)

Year Level	*f*	%
Level 1	157	54.7
Level 2	130	45.3
Total	287	100

Table 2.
Mean Responses in the Level of Digitalization Specific Items (n = 287)

Adaptive Quizzing	Mean	SD
I use it to check my knowledge.	3.29	0.56
I find adaptive quizzes convenient to use.	3.24	0.49
I include it in my study routine.	3.20	0.56
I use online practice tests.	3.18	0.55
I use adaptive quizzing to help me finish school-related work quickly.	3.13	0.50
Overall Adaptive Quizzing	3.18	0.47
Digital Flashcards		
I find digital flashcards convenient to use for nursing terms.	3.24	0.63
I use it to help me prepare for my exams.	3.23	0.68
I strengthen my memorization through flashcards.	3.18	0.65
I create digital flashcards.	2.91	0.74
I make it a regular part of my study routine.	2.88	0.71
Overall Digital Flashcards	3.10	0.65
e-Textbook Readings		
I use portable document formats (PDFs).	3.33	0.60
I highlight important points in digital texts.	3.17	0.68
I rely on digital readings for class preparation.	2.92	0.69
I rely on my e-Textbooks as my main source of learning.	2.86	0.72
I am able to accomplish school-related activities using e-Textbooks without any help from others.	2.81	0.68
Overall e-Textbook Readings	3.00	0.56
Educational Applications		
I use educational applications such as Google Classroom, Grammarly, and Course Hero.	3.17	0.62
I connect theory with practice through educational applications.	3.00	0.49
I track my progress using educational applications.	2.97	0.67
I get instant feedback on completed tasks.	2.91	0.63
I can navigate educational applications without needing help from others.	2.79	0.68
Overall Educational Applications	2.98	0.56
Overall Mean	3.18	

Table 3.
Level of Learning Effectiveness (n = 287)

Items	Mean	SD
I develop critical thinking skills.	3.21	0.50
I can adapt to new nursing concepts.	3.21	0.44
I can connect theoretical lessons to real-life situations.	3.18	0.50

I can integrate new nursing knowledge.	3.15	0.45
I can monitor my own learning progress effectively.	3.11	0.55
I can study efficiently.	3.11	0.54
I can recall the procedures well.	3.06	0.53
I feel prepared for my competency-based assessments	3.03	0.51
I am performing well both in academic and clinical practice.	3.01	0.47
I am well prepared to take examinations.	2.94	0.59
Overall Mean	3.05	0.44

Table 4.
Relationship between Digitalization and Learning Effectiveness (n = 287)

Level of Digitalization	Learning Effectiveness
Adaptive Quizzing	r = .248 p-value = <.001
Digital Flashcards	r = .203 p-value = <.001
e-Textbook Readings	r = .207 p-value = <.001
Educational Applications	r = .315 p-value = <.001
Overall Mean	r = .243 p-value = <.001

**Correlation is significant at the .01 level (2-tailed)*

7. CONCLUSION

The respondents of the study were first-year and second- year nursing students, with the majority coming from the first-year level. This reflects typical higher education enrollment patterns, where most students are admitted at the beginning of the program.

Student nurses demonstrated a consistently high level of engagement in the use of digital learning tools. Adaptive quizzing was mainly utilized for knowledge assessment and self-evaluation. Digital flashcards were commonly used for studying nursing terminologies and preparing for examinations; however, fewer students created their own digital flashcards or incorporated them consistently into their study routines.

The use of e-Textbook readings, particularly portable document formats (PDFs), was primarily for accessing course materials. Nevertheless, many students still required guidance to utilize these tools effectively. Educational applications such as Google Classroom, Grammarly, and Course Hero were used at an average level, indicating relatively limited engagement among nursing students.

The majority of the respondents perceived themselves as effective learners, as reflected by the high level of learning effectiveness. While digital tools support critical thinking, problem-solving, and comprehension, some students still struggle with retaining information and preparing for examinations. This suggests that the use of digital tools alone is insufficient, and that students must also develop consistent and effective study habits to achieve optimal learning outcomes.

Digitalization and learning effectiveness showed a statistically significant positive correlation. Adaptive quizzing, digital flashcards, and e-Textbook readings demonstrated weak but significant

correlation, while educational applications showed a moderate positive correlation. These findings suggest that although frequency of using digital tools is important, the level of engagement and interactivity plays a greater role in enhancing comprehension, knowledge retention, and overall academic and clinical performance.

8. RECOMMENDATION

Based on the findings of the study, several recommendations are proposed to further enhance digital learning in nursing education.

For Student Nurses, the researchers commend their active engagement in digital learning and their efforts to adapt to technological changes in education. However, student nurses are encouraged to develop effective study habits when using digital tools. The effectiveness of digital learning largely depends on how students utilize these tools. They are encouraged to maximize available digital resources, such as online learning platforms and educational applications, while maintaining discipline in improving their learning outcomes.

For Nursing Educators, their role in guiding students toward the effective use of digital tools remains essential. Educators are encouraged to integrate digital resources more strategically in classroom and clinical instruction. This may include utilizing interactive quizzes through learning management systems after lectures to reinforce key concepts, incorporating short instructional videos to support return demonstrations, and promoting digital reading strategies such as highlighting and annotation features.
Educators may also combine digital and printed resources through blended learning approaches to help students use e-Textbooks more effectively. The use of digital case scenarios or virtual simulations may further enhance clinical reasoning skills among nursing students. Additionally, educators are encouraged to promote collaborative digital learning by the use of online platforms for group discussions and collaborative note-sharing. Educators should also remind students about the responsible and ethical use of digital resources, including avoiding misinformation and ensuring proper citation of online materials. Providing clear guidance and support in the use of digital platforms may enhance students' learning experiences. Furthermore, integrating digital learning with traditional teaching methods may help address diverse learning styles.

For the Dean of the College of Nursing, the findings of this study may be considered in strengthening the strategies and implementation of academic programs within the college. Improving learning management systems by ensuring that platforms are user-friendly, regularly updated, and capable of supporting interactive features such as online quizzes and submission portals may enhance digital learning.
Strengthening support for digitalization through faculty training programs, such as workshops on effective integration of digital tools, online assessment methods, and technology-assisted teaching strategies, may further improve instructional effectiveness. Continuous evaluation of digital learning practices is also recommended to ensure alignment with program outcomes.

School administrators are likewise encouraged to invest in reliable digital infrastructure, including stable internet connectivity, updated software, and access to relevant online educational resources. Adequate budget allocation and technical support for digital learning tools may improve accessibility and enhance students' overall learning experiences. Strengthening institutional digital systems can contribute to a more flexible, efficient, and supportive learning environment for nursing students.

Finally, future researchers are encouraged to conduct similar studies involving students from higher year levels or from public institutions to provide broader perspectives. Conducting correlational, experimental, or qualitative studies may also provide deeper insights into the long-term effects of digitalization

on learning effectiveness. Future research may further explore specific digital tools and their impact on nursing competence and clinical performance over time.

ETHICAL APPROVAL AND CONSENT

This study was submitted to the Iloilo Doctors College Institutional Research Ethics Committee and was granted ethical clearance (IDIREC-2025.OI_191). The ethical principles observed in this study ensured compliance with the principles of respect, beneficence, and justice as outlined in both international and national research ethics guidelines.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

The authors utilized Microsoft Copilot to assist in the synthesis of literature, organization of ideas, and improvement of the manuscript's structure. QuillBot was used to enhance sentence clarity, while Grammarly was utilized to improve grammar, spelling, and overall writing style. All AI-generated outputs were carefully reviewed, verified, and edited by the authors to ensure accuracy, academic integrity, and clarity. The authors take full responsibility for the content of the manuscript.

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