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CLINICAL CONFIDENCE IN VIRTUAL AND ON-GROUND RELATED LEARNING EXPERIENCES AMONG NURSING STUDENTS AT ADAMSON UNIVERSITY

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Abstract:
Nursing education is a dynamic and evolving field that requires adaptability to meet the challenges of modern healthcare and educational demands. This study aimed to evaluate the clinical confidence of Level III and Level IV nursing students at Adamson University in both virtual and on-ground related learning experiences. Utilizing Bloom's Taxonomy as a framework, the research assessed the cognitive, psychomotor, and affective domains of clinical confidence. A non-probability convenience sampling technique was employed to gather data from 100 nursing students who had experienced both learning modalities. A validated questionnaire with high-reliability scores (Cronbach's Alpha = .953 for virtual and .989 for on-ground learning) was used to collect responses, and statistical analyses, including paired and independent t-tests, were conducted to determine significant differences between the two modalities. The findings revealed that nursing students demonstrated higher clinical confidence in on-ground related learning experiences (grand mean = 4.05) compared to virtual learning (grand mean = 3.16). On-ground learning showed significant advantages in psychomotor skill development and immediate feedback, contributing to higher confidence levels. However, virtual learning experiences fostered confidence in the affective domain through emotional and motivational support. A significant difference in clinical confidence was observed

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between the two modalities, with both Level III and Level IV students expressing greater confidence in on-ground learning. The study concludes that while on-ground learning remains essential for skill mastery and clinical competence, virtual learning has potential when supported by innovative teaching strategies and robust technological infrastructure. A hybrid learning approach, combining the strengths of both modalities, is recommended to optimize nursing education and better prepare students for the challenges of clinical practice. These findings underscore the importance of flexibility, adaptability, and resource allocation in enhancing nursing students' confidence and competence in varied learning environments.

Keywords: clinical confidence, nursing education, virtual learning, on-ground learning, Bloom's taxonomy

1. Introduction

The COVID-19 pandemic has brought unprecedented challenges to nursing education, compelling a sudden shift from traditional on-ground learning to online modalities. This transformation significantly impacted both the educational experiences and the mental well-being of nursing students. Related Learning Experiences (RLEs), a cornerstone of nursing education, were disrupted, leading to widespread dissatisfaction among students regarding their clinical training. Barriers such as unstable internet connectivity, power outages, lack of resources, inadequate online teaching experience, and diminished attentiveness further exacerbated the challenges. Moreover, the mental health of nursing students emerged as a critical factor, with heightened anxiety hindering their ability to focus and actively participate in online learning environments.

Clinical confidence, defined as the self-perceived ability to navigate clinical settings, is a vital component of nursing education. While not synonymous with competency, clinical confidence is essential for nursing students to engage effectively in clinical activities. It reflects their preparedness to translate acquired knowledge and skills into practice. The significance of clinical confidence is underscored by its reliance on cognitive, affective, and psychomotor domains as defined by Bloom's Taxonomy. These domains encompass critical thinking, skills integration, and value-based responses, all of which are pivotal in fostering clinical confidence.

The transition to virtual RLEs posed unique challenges for nursing students, particularly in simulating hands-on clinical activities such as wound care, blood pressure measurement, and medication administration. Despite advancements in technology and innovative solutions such as video conferencing and cloud-based learning management systems, nursing students expressed concerns about the lack of practical exposure in virtual settings. Traditional on-ground RLEs offer a more immersive environment that supports the development of psychomotor skills and builds confidence through direct

patient interaction. However, the pandemic necessitated the adaptation of virtual methodologies to ensure continuity in nursing education.

The integration of online and traditional teaching methods highlighted both advantages and limitations. Online classes provided flexibility and asynchronous learning opportunities, allowing students to balance academic and personal responsibilities. However, they lacked the collaborative and hands-on aspects inherent in conventional education. Nursing schools, including Adamson University, adapted by employing strategies such as return demonstrations, oral evaluations, and simulated clinical experiences to recreate the benefits of on-ground RLEs in a virtual format.

This study seeks to evaluate the clinical confidence of nursing students at Adamson University in both virtual and on-ground RLEs. By examining the cognitive, psychomotor, and affective domains, the research aims to identify the factors influencing clinical confidence and provide insights for improving nursing education. The findings of this study hold implications for nursing students, educators, clinical instructors, affiliated hospitals, and future researchers. Ultimately, the research aspires to enhance nursing education practices, ensuring that students are equipped with the confidence and competence required to excel in clinical settings.

2. Literature Review

The onset of the COVID-19 pandemic necessitated a rapid transition from traditional on-ground learning to fully online learning modes in colleges and universities worldwide. Nursing, medical, and allied health students were no exception, despite the hands-on nature of these disciplines. Adjustments were made to facilitate Related Learning Experience (RLE) activities such as oral revalidation, return demonstrations, hospital and community duties, and online examinations. However, these adaptations presented significant challenges, including internet connectivity issues, power interruptions, and other technological barriers that impacted student performance.

In the Philippines, as vaccination rates increased and understanding of SARS-CoV-2 evolved, the Commission on Higher Education (CHED) implemented flexible learning modalities. CHED Chairperson Prospero de Vera III (2021) emphasized that flexible learning would remain the norm to maximize investments in technology, teacher training, and facility retrofitting. Institutions were given the autonomy to select the learning modes most suited to their context. Flexible learning combines online and limited face-to-face classes, providing a balanced approach to education while addressing health and safety concerns.

The transition to online education introduced new tools and platforms such as Canvas, Moodle, Blackboard, Google Hangouts, Zoom, and Skype (Simbulan, 2020). These platforms facilitated virtual discussions, group meetings, and access to learning materials. However, challenges persisted, including internet and power issues that hindered students' ability to adapt to online classes. Unlike traditional on-ground

learning, where resources are readily available on campus, online education poses accessibility and reliability issues.

The practice of nursing, a critical component of nursing education, requires integrating knowledge and skills in clinical settings. Changes in clinical learning environments, such as the shift to virtual RLEs, have significant implications for the effectiveness of training (Chui-Yan Tang & Anson, 2021). Research has consistently revealed that students often express dissatisfaction with their clinical training, particularly during the pandemic. Anxiety levels among nursing students increased due to abrupt changes in clinical formats (Chandratre, 2020; Garcia-Gonzalez *et al.*, 2021). This heightened stress, coupled with the emotional burden of the pandemic, further impacted students' mental health and their confidence in clinical competencies.

Simulation-based learning has emerged as a valuable tool in nursing education, offering opportunities to practice skills in controlled environments. High-fidelity simulators, video simulations, and virtual case studies have been shown to improve students' satisfaction, confidence, and understanding of clinical scenarios (Herron, 2019). However, while simulations provide a safe and structured setting for skill development, they cannot fully replicate the experiential learning gained through direct patient care.

Mobile technologies, such as smartphones, have also been explored as supplementary tools for nursing education. These devices enable students to access educational materials, practice clinical skills, and enhance their learning experiences (Chuang, 2018). Despite these innovations, the lack of hands-on practice during the pandemic has highlighted the importance of balancing theoretical knowledge with practical application in nursing education.

The emotional and psychological demands of nursing education, particularly in clinical settings, further underscore the need for adequate support systems. Students often face emotionally taxing situations, such as witnessing patient suffering and navigating ethical dilemmas. Providing opportunities for students to discuss these experiences with peers and supervisors is crucial in building their emotional resilience and confidence (Weurlander, 2018).

Bloom's Taxonomy serves as a foundational framework for assessing learning outcomes in nursing education. Divided into three domains—cognitive, affective, and psychomotor—it provides a hierarchical structure for evaluating students' knowledge, skills, and attitudes. The cognitive domain encompasses critical thinking and problem-solving skills, the affective domain addresses values and emotional responses, and the psychomotor domain focuses on the integration of knowledge and physical skills (Krathwohl, 2001). These domains collectively contribute to the development of clinical confidence among nursing students.

Clinical confidence is essential for nursing students as they transition from academic settings to professional practice. It reflects their preparedness to apply acquired knowledge and skills in real-world clinical environments. However, confidence is not solely dependent on competency; it also involves self-efficacy, emotional resilience, and

the ability to adapt to dynamic situations (Moody, 2022). Enhancing clinical confidence through effective teaching strategies, such as simulation-based learning and flexible modalities, is critical in preparing nursing students for the challenges of modern healthcare.

The reviewed literature highlights the complex interplay between educational modalities, mental health, and clinical confidence in nursing students. By integrating theoretical knowledge with practical skills and addressing the emotional and technological barriers to learning, nursing education can better equip students to meet the demands of clinical practice. This study aims to measure the clinical confidence of nursing students at Adamson University, utilizing Bloom's Taxonomy as a framework to evaluate cognitive, affective, and psychomotor domains.

3. Materials and Methods

The study was conducted at Adamson University College of Nursing, located in Ermita, Manila, Philippines. Adamson University, founded on June 20, 1932, by Dr. George Lucas Adamson and his cousins, Alexander Adamson and George Athos, served as the setting for the research. The focus of the study was on Level III and Level IV nursing students who had experienced both virtual and on-ground related learning experiences, with a specific aim to investigate their clinical confidence in these modalities.

A nonprobability sampling method, specifically convenience sampling, was utilized in the study. This non-random approach allowed the researchers to select a sample based on predetermined criteria, treating all units within the selected population as equally qualified respondents. The convenience sampling ensured the inclusion of participants who were readily available and met the study's requirements. The sample size was determined using the central limit theorem, ensuring reliability by maintaining a sample size of at least 30 ($n \geq 30$), as larger sample sizes improve distribution accuracy. Respondents were identified from the population of nursing students and received invitations to participate through email or Facebook Messenger. These invitations included a brief description of the study’s purpose, assurances of confidentiality, and information on the duration of data validity.

Before data collection, the research instrument underwent validation by a panel of experts, including a psychometrician, an English major teacher, and a research expert, ensuring its relevance and accuracy. A pilot test involving 15 non-sample nursing students was conducted, yielding a Cronbach’s Alpha score of 0.953 for questions on virtual-related learning experiences and 0.989 for on-ground-related learning experiences, indicating excellent reliability. Following these procedures, a letter seeking permission to conduct the study was sent to the Dean of the College of Nursing. Upon approval, informed consent forms were distributed to potential participants, clearly explaining their freedom to voluntarily participate or decline.

Data collection involved disseminating informed consent forms and questionnaires through various channels, including the official Adamson University College of Nursing group chat, personal messages via Facebook, Adamson University email, and in-person distribution. Respondents completed the research questionnaires via Google Forms, and all data were gathered according to the approved research protocol. Once responses were collected, the data were collated, analyzed, and filtered before being submitted to a statistician for interpretation. Based on the findings, the researchers aimed to propose a Clinical Confidence program to address the identified needs.

Data analysis was conducted in collaboration with a statistician, employing methods aligned with the research design, sample size, and hypotheses. The reliability of the questionnaire was verified using Cronbach's Alpha. Descriptive statistics were calculated using a Likert scale to assess clinical confidence levels. Paired T-tests and independent samples T-tests were used to determine significant differences in clinical confidence across various conditions and groups.

4. Results and Discussion

The following are the results of the study and their corresponding analysis:

Table 1: Mean Result with Interpretation of Virtual-Related Learning Experiences

Domains	Mean	Description	Interpretation
Cognitive Domain	3.19	Undecided	Confident
Psychomotor Domain	3.06	Undecided	Confident
Affective/Attitudinal Skills	3.23	Agree	Highly Confident
Grand Mean	3.16	Undecided	Confident

Table 1 presents the mean results for nursing students' clinical confidence in virtual-related learning experiences. The cognitive domain scored a mean of 3.19, and the psychomotor domain scored 3.06, both interpreted as "Confident" but leaning towards indecision. Meanwhile, the affective/attitudinal skills domain scored a mean of 3.23, interpreted as "Highly Confident," contributing to a grand mean of 3.16.

These findings highlight the variability in students' confidence levels across domains during virtual learning. The higher confidence in the affective domain may reflect the emotional and motivational support students receive from instructors and family members, as noted by Ligita (2022). Family involvement, such as acting as patients during return demonstrations, and instructors' encouragement likely enhanced students' confidence in the attitudinal aspect of their education. However, the relatively lower confidence in the cognitive and psychomotor domains underscores challenges inherent to virtual learning, including limited opportunities for hands-on practice and real-time

instructor feedback. This aligns with the findings of Bao (2020), who emphasized the difficulty of replicating experiential learning and skill acquisition in virtual settings.

Table 2: Mean Result with Interpretation of On-Ground Related Learning Experiences

Domains	Mean	Description	Interpretation
Cognitive Domain	4.08	Agree	Highly Confident
Psychomotor Domain	4.13	Agree	Highly Confident
Affective/Attitudinal Skills	3.95	Agree	Highly Confident
Grand Mean	4.05	Agree	Highly Confident

Table 2 illustrates the mean results for clinical confidence in on-ground related learning experiences. The psychomotor domain achieved the highest mean score of 4.13, followed by the cognitive domain at 4.08 and the affective/attitudinal skills domain at 3.95. The grand mean of 4.05 indicates that students were "Highly Confident" in all domains during on-ground learning.

The prominence of the psychomotor domain highlights the effectiveness of on-ground learning in fostering hands-on skills and procedural competence. This is consistent with Cho and Kim (2021), who noted that physical settings enable immediate feedback and iterative practice, which is essential for skill mastery. Tasks such as IV insertion and medication preparation were better facilitated in this environment, allowing students to refine their clinical skills through practice and guidance. Moreover, the interactive and collaborative nature of on-ground learning supports the development of cognitive and affective domains, as students engage in real-world scenarios and peer interactions (Allobaney, 2022).

Table 3: Test of Difference Between Virtual and On-Ground Related Learning Experiences When Grouped According to Year-Level Nursing Students

Year Level	Group	Mean	N	t-value	df	p-value	Interpretation
Level 3	Virtual	3.18	65	-7.75	64	0.02	Significant difference
	On-Ground	4.04	65				
Level 4	Virtual	3.11	35	-6.37	34	0.03	Significant difference
	On-Ground	4.07	35				
Note: H_a μ Measure 1 - Measure 2 $\neq 0$							

Table 3 demonstrates a significant difference in clinical confidence between virtual and on-ground learning experiences for both Level III ($p = 0.024$) and Level IV ($p = 0.032$) nursing students. The data reveal higher confidence levels in on-ground experiences for both groups, with mean scores of 4.04 and 4.07 for Levels III and IV, respectively.

The findings emphasize the advantages of on-ground learning in building clinical confidence. Level IV students, with more advanced exposure to clinical settings, showed marginally higher confidence than Level III students. This supports Smith *et al.* (2018), who highlighted that increased clinical exposure and hands-on experience contribute to

higher confidence levels. On-ground learning fosters deeper comprehension through instructor feedback, peer collaboration, and direct patient interaction, which are difficult to replicate in virtual environments.

Table 4: Test of Difference Between Clinical Confidence in Virtual and On-Ground Related Learning Experiences

Group	t-value	df	p-value	Interpretation
Virtual	0.48	98	0.63	No Significant Difference
On-Ground	-0.20	98	0.84	No Significant Difference
Note: H_a μ 3rd year $\neq$ μ 4th year				

Table 4 presents no significant difference (p = 0.634 for virtual learning; p = 0.841 for on-ground learning) in clinical confidence between virtual and on-ground learning experiences when comparing Level III and Level IV nursing students. These results indicate that, despite challenges, students feel adequately confident in both settings.

This finding aligns with Enoch, Abraham, and Singaram (2022), who emphasized the importance of adaptable teaching strategies to ensure competence regardless of the learning modality. The ability of Adamson University's instructors to integrate effective virtual tools, such as Learning Management Systems (LMS), into their teaching methodologies ensured continuity in learning during the pandemic. Techniques like uploading materials for self-paced study allowed students to prepare and build confidence in virtual environments. Moreover, the smooth transition to on-ground learning further solidified their competence, demonstrating the adaptability and resilience of both educators and students.

5. Recommendations

Based on the findings of this study, the following recommendations are made to enhance the clinical confidence of nursing students in both virtual and on-ground related learning experiences.

First, nursing educators should consider integrating more active and engaging teaching strategies in virtual learning environments to address the gaps in cognitive and psychomotor domains. Techniques such as virtual simulations, case-based learning, and interactive modules can help replicate the benefits of hands-on experiences. Additionally, educators can use platforms that allow real-time feedback and collaboration, which would bridge the limitations of virtual learning. Providing access to high-quality virtual simulation tools and conducting regular training for faculty on how to maximize these tools can further improve the effectiveness of virtual learning.

Second, for on-ground learning experiences, it is essential to maintain and enhance the quality of clinical practice opportunities. Nursing schools should invest in simulation

laboratories equipped with high-fidelity mannequins and tools to create realistic clinical scenarios. These facilities should be used not only to teach psychomotor skills but also to integrate cognitive and affective learning through debriefing sessions and reflective exercises. Moreover, clinical instructors should continue to provide immediate and constructive feedback during clinical rotations, which has been shown to significantly boost students' confidence and competence.

Third, both virtual and on-ground modalities should prioritize the development of the affective domain. Mentorship programs, where instructors or senior students provide emotional and academic support, can help nursing students build resilience and confidence. Institutions should also create a supportive learning environment by addressing students' mental health needs. This includes providing access to counseling services, stress management workshops and fostering a culture where students feel comfortable seeking help when needed.

Fourth, the curriculum should emphasize a hybrid learning approach that leverages the strengths of both virtual and on-ground settings. For instance, pre-clinical knowledge acquisition could be done through virtual lectures and case studies, while clinical skills training can take place in physical laboratories or real-world settings. This blended approach would not only maximize the benefits of each modality but also prepare students to adapt to different learning and working environments in their future careers.

Lastly, policymakers and administrators should address the infrastructural and logistical challenges that nursing students face, such as unreliable internet connectivity and limited access to necessary equipment. Ensuring that all students have access to stable internet connections, appropriate devices, and learning resources will create a more equitable learning experience. Additionally, collaboration with affiliated hospitals and other healthcare institutions can provide students with more diverse and meaningful clinical placements, further enhancing their confidence and readiness for professional practice.

6. Conclusion

In conclusion, this study highlights the clinical confidence of nursing students in both virtual and on-ground related learning experiences, revealing the strengths and limitations of each modality. The findings demonstrate that on-ground learning experiences are more effective in fostering confidence across cognitive, psychomotor, and affective domains, as these settings provide students with opportunities for hands-on practice, immediate feedback, and real-world application of knowledge. On the other hand, virtual learning, while effective in specific contexts, poses challenges in replicating the interactive and experiential nature of traditional clinical education.

The significant difference in clinical confidence between virtual and on-ground learning modalities underscores the value of direct, physical engagement in clinical

training, particularly in skill-based tasks. However, the study also emphasizes the adaptability and resilience of nursing educators and students in overcoming the challenges of virtual learning, especially during the COVID-19 pandemic. The successful implementation of virtual tools, such as simulation exercises and Learning Management Systems, has demonstrated the potential of technology to support nursing education when complemented by thoughtful instructional design.

This study further highlights the need for a balanced, hybrid approach that integrates the advantages of both virtual and on-ground learning experiences. Nursing education programs can better equip students with the confidence and competence required for clinical practice by addressing the identified gaps in virtual learning and enhancing on-ground training opportunities. Ultimately, fostering clinical confidence in nursing students is crucial for preparing them to deliver safe, effective, and compassionate care in their future roles as healthcare professionals.

Conflict of Interest Statement

The authors of this study declare that there is no conflict of interest regarding the publication of this research. No financial, personal, or professional relationships have influenced the research process, data collection, analysis, or interpretation of the findings. This work has been conducted with integrity and transparency, adhering to ethical guidelines to ensure unbiased and independent results.

About the Author(s)

The authors are nursing students guided by their faculty adviser, who worked together to complete this research as part of their academic journey.

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