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RESEARCH ARTICLE

Technology-based teaching among nursing instructors: Confidence and apprehension in using simulation equipment for training

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ABSTRACT

Simulation provides a safe environment for nursing students to make mistakes, learn from them, and refine their skills without risking human patients. Simulation facilitates active, hands-on learning experiences that engage students in realistic patient care scenarios. Simulation often involves interdisciplinary collaboration, allowing nursing students to work alongside other healthcare professionals, such as physicians, pharmacists, and respiratory therapists. This qualitative exploratory study analyzed the confidence and apprehensions of nursing instructors (n=12) from Western Mindanao State University (WMSU) about integrating simulation for training and education. Through one-on-one interviews, findings indicated that while many expressed confidences in using simulation equipment, citing exposure during their academic and on-the-job training, others harbored concerns about instructional performance due to factors like limited resources and technical issues. WMSU instructors experienced *enactive attainment* which influences their self-efficacy in delivering quality simulation activities to their students. However, the study underscored the importance of addressing apprehensions related to technical issues and resource constraints. By providing adequate support systems, faculty development programs, and fostering a supportive social environment, institutions can empower nursing instructors to overcome these challenges and maximize the benefits of simulation-based education in preparing future healthcare professionals.

Keywords: apprehensions; confidence; nursing education; self-efficacy; simulation learning

1. Introduction

In nursing education, simulation-based learning is a highly creative pedagogical approach that has greatly contributed to the improvement of nursing education. By using simulation, instructional goals can be met in a safe setting without running the risk of endangering actual patients[1–4]. It can also be used through different methods and techniques that fosters collaboration between students and teachers[5].

Implementing simulation activities not only allows nursing students to simulate real clinical experiences without putting patients at risk[6,7], but also helps students enhance their expertise, abilities, and mindsets while ensuring safety for both patients and students[8]. An increased emphasis on simulation has been observed due to constraints in clinical sites for student training, shortage of nursing instructors and educators, and the improved standard of nursing education offered through simulations[9]. To conduct simulations for educational

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processes, ensuring the quality of equipment to be used must also be considered to protect the well-being of students and instructors[10].

Simulation may consist of computer-based programs, standardized patients, or manikin-based or hybrid simulations activities to help learners to understand their responsibilities as professionals[11-13]. Student nurses can also be influenced by social media which can be an avenue for awareness of how simulation works, leading to additional acquisition of knowledge[14]. By integrating simulation, nursing students can enhance their clinical skills, competence, and critical thinking[15-17]. Nurse practitioner students exhibit higher satisfaction levels with simulation compared to other educational methods[17]. Simulation has been established as an organized learning exercise to acquire the non-technical abilities required for effective teamwork without practicing on actual patients[18,19]. Student nurses are able to assess clinical situations since it is technology-based learning, which offers more support and effective experience for them[20].

Several empirical investigations concentrate on learners rather than educators and instructors[21-23]. There is a lack of studies on procedures to enhance faculty confidence and self-efficacy in teaching simulation, especially in developing countries where new teaching techniques like nursing simulation are becoming more popular[24,25]. Most importantly, simulation-enhanced interprofessional education is a hands-on educational environment in which faculty plays a significant role as facilitators, influencing how students engage with simulation and supporting (or failing to help) learners[26,27].

The results of a qualitative study indicate that faculty members have confidence in teaching simulation due to their clinical competence and credibility[28,29]. Being well-prepared in nursing faculty is crucial for enhancing nursing education and nurse capacity on a global scale[28,30-32]. Garner et al.[24] reported that nurse faculty who was new to simulation in India initially had low inter-rater reliability when assessing students during simulation activities. However, with continuous execution and continued training in evaluation, their inter-rater reliability showed improvement[33].

Studies on facilitator-related issues in simulation-based learning typically focus on facilitators separately from their students, and only examine their understanding of or opinions on simulation as an educational method[28,34-37].

To fill the gap from previous literature, this qualitative study analyzed the confidence and apprehension of nursing instructors in simulation learning. The study aims to provide valuable insights into the experiences, perceptions, and needs of nursing instructors regarding the use of simulation equipment for training. This information could potentially inform the development of support mechanisms, training programs, or interventions to enhance instructors' confidence and address their apprehensions, ultimately improving the effectiveness of simulation-based education in nursing.

2. Literature Review

2.1 Simulation learning in nursing education

The International Nursing Association for Clinical Simulation and Learning (INACSL) Standards Committee believes that self-monitoring, reflection, and insightfulness are observed in simulation learning through discussion, comments, and directed reflection[38]. Engaging in this process can assist learners in understanding the real-world applications, identifying areas where knowledge is lacking, enhancing skills, and facilitating the application of knowledge, skills, and attitudes[39].

Nursing education programs play a crucial role in addressing the increasing complexity of care needs, attracting and keeping nurses in direct patient care roles, and protecting patient safety and quality of nursing

facilities[40,41]. Getting involved in critical thinking is essential for nurses and is a key aspect of their daily professional duties. Nurses must possess critical thinking skills in analyzing, summarizing, and evaluating information to decide on appropriate action. Nurses are able to effectively handle uncertainties in nursing practice and provide safe and efficient care in various clinical settings due to their critical thinking skills[42-44].

Developing reflection and critical thinking skills can be enhanced through engaging in learning activities that incorporate effective teaching methods, such as simulation learning[44,45]. Simulation enables learning in a secure setting, providing a chance to build experience and skills without endangering the patient[46]. In their study, Bland et al.[47] describe simulation-based learning as a dynamic process that includes creating a hypothetical opportunity mirroring real-life situations, encouraging active student participation, and combining practical and theoretical learning while providing chances for repetitions, observations, evaluation, and reflection.

According to Cant and Cooper[48], simulation training was shown to significantly enhance self-efficacy in pre- and post-test studies. Additionally, self-efficacy was found to be more effective in experimental designs compared to other teaching methods. They discovered that numerous reviews shared similar conclusions about knowledge outcomes, but no specific quantitative impact was identified.

Experiential learning with patients in actual clinical environments is a crucial component of nursing students' clinical training[49]. Simulation training has been shown to have benefits on learning outcomes like expertise, decision-making processes, self-confidence, and self-efficacy when utilized as training for clinical practice[40,48,51,52].

2.2 Confidence and self-efficacy of instructors in simulation learning

Professional skills are not context free, and at a more advanced level, these skills could only be achieved through situational experiences in professional practice[52-55]. However, to train skills and working effectively in a team in emergency medicine situations only when “on the job” is unsatisfactory due to patient safety reasons and the random occurrence of suitable patient situations that meet the learners´ intended learning objectives[56,57].

Self-efficacy as expressed by Bandura[58] is an individual’s perception of one’s capacity to perform at various levels. The confidence of faculty members in nursing education is built on their ability to choose, utilize, and adjust suitable teaching strategies[33,59,60].

According to Britton[61], higher self-efficacy is achieved by understanding and experience which influences teaching behaviors, and professional development and is integral to increasing self-efficacy. Professional confidence in acute care situations is a complex construct based on relevant medical knowledge, professional skills, and a professional approach to acute care situations[53].

Nurse educators should receive effective training as simulation facilitators to boost their confidence and preparedness to facilitate the implementation of simulation-based clinical nursing education acceptably and successfully[62]. The training of nurse educators to assume the role of simulation facilitators is central in the design, implementation, and evaluation of simulation-based clinical nursing education, as the findings of this study revealed. However, evidence from the literature suggests a trend of poor or inadequate staff training and curriculum integration to allow for a smooth simulation design, implementation, and evaluation, particularly in low resource settings[62,63].

2.3 Nursing education in the Philippines

In the Philippines, universities and colleges offer a four-year program in Medical Technology or Medical Laboratory Sciences. Throughout the first three (3) years of the program, students will take general education and specialized courses to develop the necessary skills and knowledge for their potential career. Internship programs provide students with the opportunity to apply and enhance the theoretical knowledge and practical skills they have acquired during their studies[64].

Rotations in various sections of a CHED-accredited laboratory will assess the students' progress and skills. In this setting, students could build confidence in their acquired skills from school and learn from seasoned professionals. Simulation of clinical skills is now a standard part of undergraduate nursing programs and is increasingly utilized during hospital nurse training[65].

During the online learning, students, trainers, and facilitators in the performance of clinical skills learned to use low-cost materials to simulate nursing tasks. Berdida et al.[65] noted that various low-cost items like grapes, oranges, cucumber, meat, corrugated plastic tubes, balloons, sheets, toilet paper tubes, foam, and clay for modeling were used during home-based simulations. They also use pliers, wires, straw string, and clothespins that can be easily held and utilized for injecting purposes.

In the study of Nantes et al.[64], out of the 293 students who responded, 75% believed that their instructors effectively incorporated simulation activities to enhance their teaching style in the enriched virtual learning. Engaging in simulation activities like laboratory conferences allows the instructor to offer valuable suggestions and real-time feedback to improve the learners and their presentations.

However, nurse educators face various difficulties and challenges in enhancing the classroom and clinical learning. After their clinical skills simulation class, some nurse educators were overheard mentioning "extended return demonstration" or "eat while working," and even expressing the need for a break[67]. This prompts the researchers to conduct a study to further explore their experiences and enable them to express their thoughts on teaching clinical skills simulation.

Some studies have concentrated on students' classroom experiences, and less on instructor's experiences. Several studies indicate that the effectiveness of teachers' classroom management directly influences the academic achievement of students. Investigating the insights of nurse educators regarding teaching clinical skills simulation could have a significant influence on nursing education by improving the teaching-learning process in the classroom.

3. Methods

3.1 Research design

This study employed exploratory qualitative design[20,68,69] in determining the confidence and apprehension of WMSU nursing instructors in technology-based teaching. Exploratory designs are especially useful in the early phases of inquiries when researchers seek to obtain greater understanding of a complex subject or investigate innovative or underexplored research concerns.

The use of exploratory design enabled the researchers to delve into the attitudes and beliefs of the nursing instructors regarding on incorporating technology into their teaching methods, facilitating the exploration of undiscovered pedagogical and instructional approach in education.

3.2 Participants and sampling

WMSU nursing instructors were purposively sampled to select the participants to participate in this study. Purposive sampling is a systematic method for selecting study participants or elements based on criteria or qualities related to the research objectives[70-72].

In this study, the researchers selected participants based on their years in service, trainings attended, educational background, and age. For instance, years of service allow the researchers to gather a range of viewpoints and ideas molded by different levels of professional experience in the nursing education which may also influence their technical skills.

The researchers made an initial survey for all WMSU nursing faculty. In the survey, the researchers asked questions listed in **Table 1.** about their experience, years in service, their trainings, etc. After sampling, the researchers were able to select 12 nursing instructors to participate in the interview.

Table 1. Initial survey in sampling the participants

Categories	Questions
Educational Background	a. Give the following courses you took, whenever applicable. • Bachelor's degree • Master's degree • Doctorate degree b. Have you been in trainings, symposiums, or any skill development sessions while taking your courses?
Professional Background	a. How long had you been in teaching field? b. Did you received any forms of training while being employed as an instructor? What kind? c. Do you feel these trainings changed/shaped your skills? Can you elaborate?

3.3 Research instrument

The researchers developed open-ended interview guide questions to extract the narratives from the participants. The questions allowed the participants to offer comprehensive and detailed responses, enabling researchers to gain profound insights into their experiences, thoughts, and perspectives. **Table 2.** provides a detailed overview of the interview questions utilized during the one-on-one online interviews conducted with the participants.

Table 2. Interview guide questions

Objectives	Interview Questions
Determine the confidence of nursing instructors in using simulation equipment for training.	a. Are you familiar with the use of the simulation equipment to train nursing students? b. Can you elaborate on how you learn to use this simulation? c. Are you confident in using these sets of equipment to train your nursing students? Elaborate by citing instances. d. Do you think you can train other instructors to do simulations of these machines to their students? Explain.
Determine the apprehension of nursing instructors using simulation equipment for training.	a. Do you have any forms apprehensions in using the simulation equipment to train your students? Elaborate by citing situations? b. What are the factors that contribute to your apprehensions? c. What can be done to reduce your apprehension in using simulation equipment to train your students?

3.4 Data gathering procedure

The researchers adopted a methodical strategy throughout the investigation to ensure methodological rigor in data collecting. The following describes the step-by-step approach for gathering data.

Step 1: Participant Identification and Selection

To identify suitable participants, the researchers devised a pre-interview survey distributed among WMSU nursing instructors. The pre-interview survey elicited preliminary information crucial for participant selection, such as length of service, educational background, and relevant experience. Criteria for selection involved some factors, including variations in professional background and trainings undergone, ensuring a comprehensive representation of perspectives within the participant pool.

Step 2: Permission Acquisition

Upon the selection of the participants, the researchers diligently sought permission for their involvement in the study. Formal communication was established through personalized email correspondence, wherein participants were given a letter highlighting the purpose, terms, confidentiality measures, and intended use of the data. The researchers also seek permission from the college dean through a formal letter before administering the interview.

Step 3: Interview Session

Phone calls were the most suitable interview media because of the inaccessibility for interview venue. Before interview, the researchers introduced the study proponents and presented the overview of the study to the participants. The researchers highlighted the participant's contributions, emphasizing the potential value of their insights in advancing research and educational discourse. Throughout the interviews, participants were assured of the recording process, fostering transparency and informed participation. During the interview, each participant had 20–minute session with the researchers. They were given time to respond to all questions described in **Table 2.** based on their personal experience as a WMSU instructor.

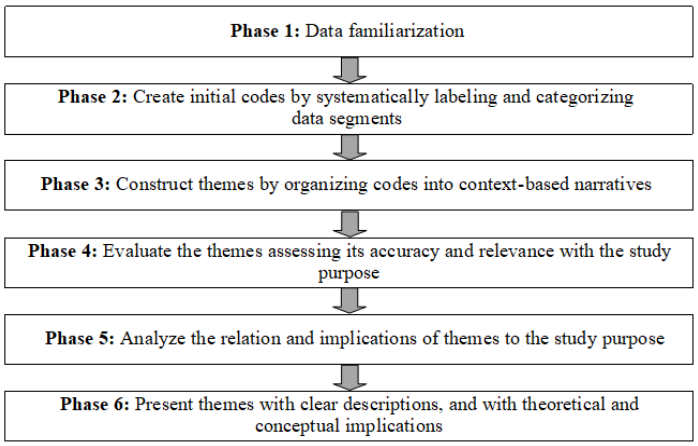
Step 4: Post-interview Analysis

Every interview segment was carefully examined, with emerging themes and patterns recognized and recorded. By assigning labels or codes to specific segments, the researchers aimed to methodically organize and categorize qualitative data, allowing for later interpretation and synthesis. During this crucial stage of post-interview analysis, it is necessary to extract valuable insights, uncover unexpected findings, and shed light on important trends that are essential to the purpose of this study.

3.5 Data analysis

Narratives from participants were the primary data in this study. This exploratory design used thematic analysis[73,74] in analyzing the narratives of participants by using codes and themes. Thematic analysis offers a flexible and systematic approach to analyzing qualitative data, allowing researchers to uncover meaningful insights and generate rich descriptions from participant's narratives. **Figure 1** presents the phases that the researchers employed in thematic analysis.

Figure 1. Thematic analysis flowchart



4. Results

Interview with the participants yielded remarkable insights about the confidence and apprehensions of WMSU nursing instructors. Some instructors feel confident in using simulation equipment because they were trained enough during their college days. They believe that collaboration among instructors not only encourages collective learning and growth, but it also improves teaching effectiveness and student outcomes.

4.1 Confidence in using simulation equipment

The instructors underlined the value of expertise with simulation technology in bridging the gap between theory and practice, allowing students to hone their skills and make sound decisions in a safe setting. Notably, they demonstrated a willingness to mentor and train their co-instructors in simulation-based teaching approaches, thereby creating a collaborative learning environment. This collaborative approach not only encourages collective learning and growth, but it also improves teaching effectiveness and student outcomes.

Theme 1: Familiarity

Some WMSU nursing instructors feel familiar and comfortable on the use of simulation equipment for training. By creating a controlled environment in which instructors can replicate real-life patient care settings, they can gain confidence and skill in dealing with numerous clinical conditions (*e.g.*, taking vital signs, oxygenation).

"I am familiar with the use of simulation equipment to train nursing students. Simulation is an integral part of nursing education, providing students with a safe and controlled environment to practice their skills and enhance their clinical decision-making abilities."

—Participant 2

"As an integral part of nursing education, simulations bridge the gap between theory and practice, preparing students to deliver high-quality patient care upon entering the dynamic healthcare landscape."

—Participant 10

"Simulation are not only providing a risk-free space for students to refine technical skills, but also foster a mindset geared towards quick and effective decision-making in complex healthcare settings."

—Participant 7

"We are exposed in some procedures like vital signs taking and oxygenation. I am very comfortable in some procedures in terms of BP apparatus, nebulizer, and DR techniques."

—Participant 5

Theme 2: Learned Skills

WMSU nursing instructors noted the importance of learned skills, particularly through specialized training and hands-on experience with simulation equipment. Nursing instructors have undergone specific training in the use of simulation equipment as part of their nursing education and professional development. Their practical experience with simulation-based training demonstrates its usefulness as a teaching tool for educating future nurses to face real-world healthcare challenges.

"I have received specialized training in the use of simulation equipment during my nursing education and subsequent professional development as a Nurse Instructor."

—Participant 1

"When I started teaching in the College of Nursing, I first worked as a Staff Nurse in one of the private hospitals in Cotabato City. There, we underwent several training and workshops, which include simulation activities. Our supervisors employed simulation equipment to train us on how to treat patients in the ward and during emergency cases."

—Participant 3

"During my college days, we were trained through simulations of cases and procedures by our clinical instructors."

—Participant 8

"I believe I have the clinical experience that will help me use simulation equipment to train my current and future students."

—Participant 10

Theme 3: Sharing Experience/Skills

WMSU nursing instructors also believe on the importance of sharing knowledge and expertise among nursing educators. By sharing their experiences, insights, and abilities in simulation-based teaching approaches, instructors help their colleagues learn and develop collectively. This collaborative approach creates a supportive environment in which instructors may learn from one another and continually improve their teaching efficacy.

"Absolutely. I believe in the importance of sharing knowledge and expertise within the nursing education community. I have experience mentoring and training other instructors in simulation-based teaching methods. By providing guidance, resources, and hands-on practice, I can help other instructors develop the skills and confidence needed to effectively incorporate simulation into their teaching practices."

—**Participant 12**

"Yes. I am willing to share my expertise with them but it is up to them whether to apply it to their students or not."

—**Participant 6**

Theme 4: Continuous Learning

WMSU instructors noted that by embracing simulation-based learning, fostering confidence through repetition, and remaining adaptable in the face of challenges, instructors can create enriching educational experiences that prepare students for success in their nursing careers. For instance, repetition of equipment and procedures helps

instructors and students gain confidence and expertise. Despite occasional challenges, such as material shortages, the instructor keeps a good attitude and continues to adapt and innovate in their teaching methods.

"Aside from return-demonstration, I also teach Transcultural Nursing which include using series of simulations among the students. Over time, this gave the confidence to continue using the simulation equipment to my future students."

—**Participant 11**

"The equipment being used, and the procedures are just repeated. I think I am very confident because of that. At our level, honestly, it seems okay because the school's requirements are also being met. Sometimes, we encounter problems like materials being out of stock."

—**Participant 4**

4.2 Apprehensions in using simulation equipment

Some WMSU nursing instructors expressed their apprehensions on the use of simulation equipment for training. For instance, one instructor noted that the university has limited resources in maintaining the quality of simulation trainings and instructional delivery. Another instructor experiences technical issues when using the simulation facilities and equipment disrupting the flow of simulation activities being conducted.

Theme 1: Technical Issues

One (1) WMSU instructor noted that one (1) major cause of high apprehension was experiencing technical issues. These challenges include problems with equipment functionality or software, as well as the difficulty of creating complex scenarios that accurately simulate real-life patient situations. Such technical issues can hinder the effectiveness of simulation-based learning experiences and require troubleshooting to maintain a seamless educational environment.

"While I have confidence in using simulation equipment, there have been instances where certain challenges or apprehensions have arisen. For example, technical issues with the equipment or software can sometimes disrupt the flow of a simulation session. Additionally, creating complex scenarios that accurately reflect real-life patient situations can be challenging."

—Participant 9

Theme 2: Limited Resources

WMSU instructors feel concerned about the resources for conducting simulation that are available in the university. Factors contributing to these concerns include insufficient access to advanced simulation technology (tangible factor), time (temporal factor) constraints for scenario development, and the need for ongoing faculty training and support (organizational factor). Lack of resources can impede the ability to produce engaging and flexible simulation experiences, limiting the standards of nursing education delivery.

"Factors that contribute to apprehensions in using simulation equipment may include limited resources or access to advanced simulation technology, time constraints for scenario development, and the need for ongoing faculty training and support."

—**Participant 3**

"I think possible factors causing apprehension in using simulation equipment could involve concerns about having limited resources or access to cutting-edge simulation technology. Time constraints for developing realistic scenarios and the necessity for ongoing faculty training and support might also contribute to reservations."

—**Participant 8**

Theme 3: Effective Support System

One (1) WMSU nursing instructor suggested an effective support system to improve the quality of simulation activities in the university. In addressing apprehensions surrounding simulation equipment usage, one (1) instructor emphasized adequate allocation of resources for equipment and technology upgrades, dedicated time, and support for faculty to develop and refine simulation scenarios, and the provision of regular faculty development programs and workshops focused on simulation education.

"To reduce apprehensions, it is important to address the factors mentioned earlier. This can be achieved through adequate allocation of resources for simulation equipment and technology upgrades. Providing dedicated time and support for faculty to develop and refine simulation scenarios. Offering regular faculty development programs and workshops focused on simulation education."

—**Participant 2**

5. Discussion

Findings of this study provided valuable insights about the confidence and apprehensions of WMSU nursing instructors in using simulation equipment for training. Instructors feel confident in using simulation equipment because they were exposed to it during college while having their on-the-job training. In contrast, some feel concerned about their instructional performance because of some factors *e.g.,* limited resources, technical issues.

5.1 Confidence in simulation activities

Instructors believe that "simulations not only providing a risk-free space for students…but also foster a mindset geared towards quick and effective decision-making" [Participant 7]. One (1) *instructor recalled that during college, "… [they] were trained through simulations of cases and procedures by [their] clinical instructors" [Participant 8]. Now being an instructor, "this gave the confidence to continue using the simulation equipment to [their] future students" [Participant 10].*

Simulation training may strengthen common practice, address their shortcoming of accuracy[75,76], and boost their confidence in instructing[77] without endangering actual students[78-82]. Bautista and Boone[82] revealed that mixed-reality simulation could increase self-efficacy in a short period of time. In the study of Gamble[83], students felt more confidence after using simulation to improve their problem-solving abilities. Jarvill et al.[84] found out that nursing students' drug administration skills improved more in the simulation group (59.5%) compared to the control group (9.3%).

The findings of this study reflected the quantitative data collected from previous studies. For instance, WMSU instructors feel confident when administering simulation training because they had been exposed to it during their college. There is a long-term impact on their confidence and self-efficacy especially with frequent simulation activities conducted. Similarly, Fuglsang et al.[85] found out that students who received more simulation training reported significantly better levels of professional self-confidence following their training. This explains why WMSU instructors feel confident and manifested promising self-efficacy level because of their academic experiences before.

Self-efficacy theory supports the findings of this study. WMSU instructors experience *enactive attainment* during their trainings and education. Previous studies noted that enactive attainment is typically recognized as the main source of teacher self-efficacy[86-89]. Enactive learning may appear to boost self-efficacy expectations more than informative sources[90]. Enactive experiences influence one's self-efficacy which in turn also drives their intrinsic motivation[91]. This direct experience with successfully completing simulated activities gives

instructors a sense of mastery and competence, strengthening their confidence in their capacity to effectively use simulation in their teaching methods.

5.2 Apprehensions in simulation activities

Instructors were concerned with different instructional aspects especially in the context of resources and support system. For them, *"technical issues with the equipment or software can sometimes disrupt the flow of a simulation session" [Participant 9]*. Others thought that *"having limited resources or access to cutting-edge simulation technology" [Participant 8]* could also impact the confidence and self-efficacy of instructors when conducting simulation activities. They noted that the university could *"[offer] regular faculty development programs and workshops focused on simulation education" [Participant 2]*.

This study describes the apprehension of WMSU nursing instructors as emerging concerns that influence their confidence for short-term. Apprehensions related to technical issues and resource limitations can contribute to anxiety and fear among instructors, impacting their confidence and teaching effectiveness. Narrative analysis indicates that apprehensions of WMSU instructors mainly came from external sources.

Social support indirectly affects teachers' self-efficacy through work engagement[92-94]; while focusing on social setting and environment can improve their psychological well-being[95]. According to Chen et al.[96], with social support, special education teachers felt they had a strong sense of professional identity and a sense of academic self-efficacy. Similarly, this study indicated that the WMSU nursing instructors feel concerned about having simulation activities because of some external factors hindering their training success. Although they feel confident, their apprehensions still appear, especially when outcomes did not meet their expectations *e.g.*, encountering problems while doing simulation activities.

6. Limitations

It is essential to recognize the limitations that emerged while conducting the study like limited sample size, as it only includes nursing instructors from WMSU. This narrow focuses on a single institution that may limit the generalizability of the findings to other nursing programs with different resources, curriculum structures, and teaching contexts. Including instructors from different institutions (*e.g.*, private and public schools) would enhance the external validity of the study.

The data collected in the study heavily relies on self-reporting through participant interviews. Self-reported data may be subject to biases such as social desirability bias, where participants may provide responses, they perceive as socially acceptable or expected. This bias could potentially influence the accuracy and reliability of the findings. Future studies might consider mixed methods or longitudinal designs to develop more comprehensive results. Incorporating quantitative measures alongside qualitative data could strengthen the robustness of the study's conclusions.

7. Conclusion

This study sheds light on the confidence and apprehensions of nursing instructors at WMSU regarding the use of simulation equipment for training. The findings highlight a notable level of confidence among instructors, stemming from their exposure to simulation training during their college education and on-the-job training. Such exposure has instilled in them a belief in the efficacy of simulation activities, not only in providing a risk-free learning environment for students, but also in fostering quick and effective decision-making skills.

Drawing from self-efficacy theory, the study underscores the significance of enactive attainment as a primary source of teacher self-efficacy, emphasizing the intrinsic motivation derived from successfully completing simulated activities.

However, the study also brings to light certain apprehensions among nursing instructors, particularly concerning technical issues and resource limitations. These concerns can pose challenges to instructors' confidence and teaching effectiveness, especially in the absence of adequate support systems and faculty development programs focused on simulation education. The narrative analysis suggests that these apprehensions primarily stem from external factors, highlighting the need for institutional support and social engagement to mitigate such concerns and enhance instructors' confidence in conducting simulation activities.

Conflict of interest

The authors declare no conflict of interest.

References

1. Farah, P. D., & El Hachem, P. (2020). The Current role of Medical Simulation in Palliative Care. StatPearls Publishing. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557464/ (accessed 23 January 2024)
2. Gore, T., Hunt, C. W., Parker, F., & Raines, K. H. (2011). The effects of simulated clinical experiences on anxiety: Nursing students' perspectives. *Clinical simulation in nursing*, *7*(5), e175-e180.
3. Kapucu, S. (2017). The effects of using simulation in nursing education: A thorax trauma case scenario. *International Journal of Caring Sciences*, *10*(2), 1069.
4. Kozhevnikov, D., Morrison, L. J., & Ellman, M. S. (2018). Simulation training in palliative care: state of the art and future directions. *Advances in medical education and practice*, 915-924.
5. Chavez, J. (2023). Assessing Online Academic Integrity and Humanized Teaching in Zamboanga Peninsula Polytechnic State University. Journal of Multidisciplinary in Social Sciences, 19(1), 9-17.
6. Maran, N. J., & Glavin, R. J. (2003). Low-to high-fidelity simulation–a continuum of medical education?. *Medical education*, *37*, 22-28.
7. Pai, D. (2018). Use of simulation for undergraduate medical education. *International Journal of Advanced Medical and Health Research*, *5*(1), 3-6.
8. Hoffmann, R. L., O'Donnell, J. M., & Kim, Y. (2007). The effects of human patient simulators on basic knowledge in critical care nursing with undergraduate senior baccalaureate nursing students. *Simulation in Healthcare*, *2*(2), 110-114.
9. Horsley, T. L., & Wambach, K. (2015). Effect of nursing faculty presence on students' anxiety, self-confidence, and clinical performance during a clinical simulation experience. *Clinical Simulation in Nursing*, *11*(1), 4-10.
10. Aguirre, J. K., Vicente, M., Chavez, J., Francisco, M., Mondido, J., & Visitacion, J. (2023). Content Analysis of Consumer Reviews on Preferred Characteristics of Accommodation Products. *Journal of Namibian Studies, 33*, 4264-4286.
11. Lioce, L., Lopreiato, J., Downing, D., Chang, T. P., Robertson, J. M., Anderson, M., & Terminology and Concepts Working Group. (2020). Healthcare simulation dictionary. *Rockville, MD: Agency for Healthcare Research and Quality*, *2020*, 20-0019.
12. Skedsmo, K., Nes, A. A. G., Stenseth, H. V., Hofsø, K., Larsen, M. H., Hilderson, D., & Steindal, S. A. (2023). Simulation-based learning in palliative care in postgraduate nursing education: a scoping review. *BMC Palliative Care*, *22*(1), 1-15.
13. Smith, M. B., Macieira, T. G., Bumbach, M. D., Garbutt, S. J., Citty, S. W., Stephen, A., & Keenan, G. (2018). The use of simulation to teach nursing students and clinicians palliative care and end-of-life communication: a systematic review. American Journal of Hospice and Palliative Medicine®, 35(8), 1140-1154.
14. Chavez, J., & Cuilan, J. (2023). Gender mainstreaming campaign as a casualty of the online gender-based humor: A discourse analysis. *Environment and Social Psychology*, *9*(2): 2044. DOI: 10.54517/esp.v9i2.2044
15. Anderson, M., Campbell, S. H., Nye, C., Diaz, D., & Boyd, T. (2019). Simulation in Advanced Practice Education: Let's Dialogue!!. *Clinical Simulation in Nursing*, *26*, 81-85.
16. Cant, R. P., & Cooper, S. J. (2010). Simulation-based learning in nurse education: systematic review. *Journal of advanced nursing*, *66*(1), 3-15.
17. Warren, J. N., Luctkar-Flude, M., Godfrey, C., & Lukewich, J. (2016). A systematic review of the effectiveness of simulation-based education on satisfaction and learning outcomes in nurse practitioner programs. *Nurse education today*, *46*, 99-108.

18. Meurling, L., Hedman, L., Sandahl, C., Felländer-Tsai, L., & Wallin, C. J. (2013). Systematic simulation-based team training in a Swedish intensive care unit: a diverse response among critical care professions. *BMJ quality & safety*, *22*(6), 485-494.
19. Robertson, J. M., Dias, R. D., Yule, S., & Smink, D. S. (2017). Operating room team training with simulation: a systematic review. *Journal of Laparoendoscopic & Advanced Surgical Techniques*, *27*(5), 475-480.
20. Duhaylungsod, A. V., & Chavez, J. V. (2023). ChatGPT and other AI users: Innovative and creative utilitarian value and mindset shift. *Journal of Namibian Studies*, *33*, 4367-4378.
21. Bradway, C., Cotter, V. T., Darrah, N. J., Gibbs, V. D., Hadley, D., Kim, E. H., & Westcott, A. M. (2018). An interprofessional education simulation workshop: Health professions learning palliative care communication. *Journal of Nursing Education*, *57*(8), 493-497.
22. Gordon, M., Fell, C. W., Box, H., Farrell, M., & Stewart, A. (2017). Learning health 'safety' within non-technical skills interprofessional simulation education: a qualitative study. *Medical education online*, *22*(1), 1272838.
23. Kumar, A., Wallace, E. M., East, C., McClelland, G., Hall, H., Leech, M., & Nestel, D. (2017). Interprofessional simulation-based education for medical and midwifery students: a qualitative study. *Clinical simulation in nursing*, *13*(5), 217-227.
24. Garner, S. L., Killingsworth, E., & Raj, L. (2017). Partnering to establish and study simulation in international nursing education. *Nurse educator*, *42*(3), 151-154.
25. Okrainec, A., Smith, L., & Azzie, G. (2009). Surgical simulation in Africa: the feasibility and impact of a 3-day fundamentals of laparoscopic surgery course. *Surgical endoscopy*, *23*, 2493-2498.
26. Rudolph, J. W., Simon, R., Dufresne, R. L., & Raemer, D. B. (2006). There's no such thing as "nonjudgmental" debriefing: a theory and method for debriefing with good judgment. *Simulation in healthcare*, *1*(1), 49-55.
27. Zigmont, J. J., Kappus, L. J., & Sudikoff, S. N. (2011). The 3D model of debriefing: defusing, discovering, and deepening. In *Seminars in perinatology* (Vol. 35, No. 2, pp. 52-58). WB Saunders.
28. Elsayed, H., Nivala, M., & Carlzon, L. (2023). Students' and Instructors' Perspectives on Learning and Professional Development in the Context of Interprofessional Simulation. *Teaching and Learning in Medicine*, 1-16.
29. Livesay, K., Lawrence, K., & Miller, C. (2015). Making the most of simulated learning: Understanding and managing perceptions. *International Journal of Nursing Education Scholarship*, *12*(1), 17-26.
30. Hilleren, I. H. S., Christiansen, B., & Bjørk, I. T. (2022). Learning practical nursing skills in simulation centers–a narrative review. *International Journal of Nursing Studies Advances*, 100090.
31. Spies, L. A., Garner, S. L., Faucher, M. A., Hastings-Tolsma, M., Riley, C., Millenbruch, J., & Conroy, S. F. (2017). A model for upscaling global partnerships and building nurse and midwifery capacity. *International Nursing Review*, *64*(3), 331-344.
32. Tong, L. K., Li, Y. Y., Au, M. L., Wang, S. C., & Ng, W. I. (2022). Prebriefing for high-fidelity simulation in nursing education: A meta-analysis. *Nurse Education Today*, 105609.
33. Garner, S. L., Killingsworth, E., Bradshaw, M., Raj, L., Johnson, S. R., Abijah, S. P., & Victor, S. (2018). The impact of simulation education on self-efficacy towards teaching for nurse educators. *International nursing review*, *65*(4), 586-595.
34. Davis, A. H., Kimble, L. P., & Gunby, S. S. (2014). Nursing faculty use of high-fidelity human patient simulation in undergraduate nursing education: A mixed-methods study. *Journal of Nursing Education*, *53*(3), 142-150.
35. Lemoine, J. B., Chauvin, S. W., Broussard, L., & Oberleitner, M. G. (2015). Statewide interprofessional faculty development in simulation-based education for health professions. *Clinical Simulation in Nursing*, *11*(3), 153-162.
36. Press, M. M., & Prytula, M. (2018). Faculty experiences with integrating mandated High-Fidelity Human Patient Simulation (HF-HPS) into clinical practice: A phenomenological study. *International Journal of Nursing Education Scholarship*, *15*(1), 20170047.
37. Stømer, U. E., Dieckmann, P., Laudal, T., Skeie, K. B., Qvindesland, S. A., & Ersdal, H. L. (2022). Exploring health service preparation for the COVID-19 crisis utilizing simulation-based activities in a Norwegian hospital: a qualitative case study. *BMC Health Services Research*, *22*(1), 1-12.
38. Decker, S., Alinier, G., Crawford, S. B., Gordon, R. M., Jenkins, D., & Wilson, C. (2021). Healthcare simulation standards of best practice™ The debriefing process. *Clinical Simulation in Nursing*, *58*, 27-32.
39. Stenseth, H. V., Steindal, S. A., Solberg, M. T., Ølnes, M. A., Mohallem, A., Sørensen, A. L., & Nes, A. A. G. (2022). Simulation-based learning supported by technology to enhance critical thinking in nursing students: protocol for a scoping review. *JMIR Research Protocols*, *11*(4), e36725.
40. Olaussen, C., Steindal, S. A., Jelsness-Jørgensen, L. P., Aase, I., Stenseth, H. V., & Tvedt, C. R. (2022). Integrating simulation training during clinical practice in nursing homes: an experimental study of nursing students' knowledge acquisition, self-efficacy and learning needs. *BMC nursing*, *21*(1), 1-11.
41. World Health Organization. (2016). Education and training: Technical Series on Safer Primary Care. Available from: http://apps.who.int/iris/bitstream/handle/10665/252271/9789241511605-eng.pdf;jsessionid=FD0CFCA93653C2B89C551E5A4E68E8BA?sequence=1 (accessed on 23 January 2024)

42. Forneris, S. G., & Fey, M. K. (2016). Critical conversations: The NLN guide for teaching thinking. *Nursing education perspectives*, *37*(5), 248-249.
43. Riegel, F., & Crossetti, M. D. G. O. (2018). Theoretical frameworks and instruments for evaluation of critical thinking in nursing and education. *Revista Gaucha de Enfermagem*, *39*.
44. Von Colln-Appling, C., & Giuliano, D. (2017). A concept analysis of critical thinking: A guide for nurse educators. *Nurse education today*, *49*, 106-109.
45. Carvalho, D. P., Azevedo, I. C., Cruz, G. K., Mafra, G. A., Rego, A. L., Vitor, A. F., & Júnior, M. A. F. (2017). Strategies used for the promotion of critical thinking in nursing undergraduate education: A systematic review. *Nurse education today*, *57*, 103-107.
46. Culha, I. (2019). Active Learning Methods Used in Nursing Education. *Journal of Pedagogical Research*, *3*(2), 74-86.
47. Bland, A. J., Topping, A., & Wood, B. (2011). A concept analysis of simulation as a learning strategy in the education of undergraduate nursing students. *Nurse education today*, *31*(7), 664-670.
48. Cant, R. P., & Cooper, S. J. (2017). Use of simulation-based learning in undergraduate nurse education: An umbrella systematic review. *Nurse education today*, *49*, 63-71.
49. Ministry of Education (2020). National regulations relating to a common curriculum for health and social care education. Available from: https://www.regjeringen.no/contentassets/389bf8229a3244f0bc1c7835f842ab60/national-regulations-relating-to-a-common-curriculum-for-health-and-social-care-education.pdf (accessed on 23 January 2024)
50. D'Souza, M. S., Arjunan, P., & Venkatesaperumal, R. (2017). High fidelity simulation in nursing education. *International Journal of Health Science and Research*, *7*(7), 340-353.
51. Haddeland, K., Slettebø, Å., Carstens, P., & Fossum, M. (2018). Nursing students managing deteriorating patients: A systematic review and meta-analysis. *Clinical Simulation in Nursing*, *21*, 1-15.
52. Fuller, C., Goodwyn, A., & Francis-Brophy, E. (2013). Advanced skills teachers: Professional identity and status. *Teachers and Teaching*, *19*(4), 463-474.
53. Kiessling, A., Amiri, C., Arhammar, J., Lundbäck, M., Wallingstam, C., Wikner, J., & Kuhl, J. (2022). Interprofessional simulation-based team-training and self-efficacy in emergency medicine situations. *Journal of Interprofessional Care*, *36*(6), 873-881.
54. Liakopoulou, M. (2011). The Professional Competence of Teachers: Which qualities, attitudes, skills and knowledge contribute to a teacher's effectiveness. *International Journal of Humanities and Social Science*, *1*(21), 66-78.
55. Yurt, E. (2023). 21st-century skills as predictors of pre-service teachers' professional qualifications: A cross-sectional study. *International Journal of Education in Mathematics, Science and Technology*, *11*(5), 1328-1345.
56. Drake, M., Bishanga, D. R., Temu, A., Njozi, M., Thomas, E., Mponzi, V., & Nelson, B. D. (2019). Structured on-the-job training to improve retention of newborn resuscitation skills: a national cohort Helping Babies Breathe study in Tanzania. *BMC pediatrics*, *19*(1), 1-8.
57. Shiri, R., El-Metwally, A., Sallinen, M., Pöyry, M., Härmä, M., & Toppinen-Tanner, S. (2023). The Role of Continuing Professional Training or Development in Maintaining Current Employment: A Systematic Review. In *Healthcare* (Vol. 11, No. 21, p. 2900). MDPI.
58. Bandura, A. (1977). Self-efficacy: toward a unifying theory of behaviour change. *Psychological Review, 84*, 191–215.
59. Nugent, K., Bradshaw, M. & Kilo, N. (1999). Teacher-self-efficacy in new nurse educators. *Journal of Professional Nursing, 15*(4), 229–237.
60. Sulaiman, M. H., Jasim, M. S., Abd Ahmed, A., Ahmed, A. A., Ibrahim, R. H., & Al-Mashhadany, O. I. (2023). A winning formula for nursing education: Effective study strategies and techniques. *Teaching and Learning in Nursing, 18(4),* e142-e145.
61. Britton, K. L. (2017). *Descriptive comparative study of nursing faculty self-efficacy in the simulation setting* (Doctoral dissertation, Capella University).
62. Munangatire, T., Estelle, S., & Dawn, E. (2019). Student nurses perceptions and experiences of high fidelity simulation use as a learning strategy in a resource limited setting. *Journal of Practical and Professional Nursing, 3(1),* 1–8.
63. Kunst, E. L., Henderson, A., & Johnston, A. N. B. (2018). A scoping review of the use and contribution of simulation in Australian undergraduate nurse education. *Clinical Simulation in Nursing, 19,* 17–29.
64. Nantes, E. G., Baguio, M. P., Sophia, F., Canono, R. T., Cruz, A. G., Herrera, A. S., & Mendoza, L. M. (2022). Exploring the Satisfaction and Self-confidence of 3rd Year Medical Technology Students from Manila, Philippines regarding their Simulation Activities during the Enriched Virtual Mode of Delivery. *European Online Journal of Natural and Social Sciences: Proceedings*, *11*(4), 379.
65. Morse, C., Fey, M., Kardong-Edgren, S., Mullen, A., Barlow, M., & Barwick, S. (2019). The changing landscape of simulation-based education. *AJN The American Journal of Nursing*, *119*(8), 42-48.

66. Berdida, D. J. E., Elero, F. S. L., Donato, M. F. T., Dungo, M. K. S., Dunque, N. I. O., Dy, K. J. E., & Espineli, V. J. G. (2023). Filipino nursing students' use of low-cost simulators during the COVID-19 pandemic: A summative content analysis of YouTube videos. *Teaching and Learning in Nursing*, *18*(1), 134-143.
67. Fortaleza, J. L., Andang, R. O., & Lubon, C. K. (2023). Crossing Bridges: Classroom Management Experiences of Nurse Educators in Teaching Clinical Skills Simulation. *Psychology and Education: A Multidisciplinary Journal*, *12*(9), 982-999.
68. Calaro, M. F., Vicente, M. B., Chavez, J. V., Reyes, M. J. D., Delantar, S., Jorolan, A., & Torres, J. (2023). Marketing campaigns leading to the purchase of accommodation products: A content analysis. *Journal of Namibian Studies: History Politics Culture*, *33*, 4221-4236.
69. Chavez, J. V. (2022). Narratives of bilingual parents on the real-life use of English language: Materials for English language teaching curriculum. *Arab World English Journals*, *13*(3).
70. Ceneciro, C. C., Estoque, M. R., & Chavez, J. V. (2023). Analysis of debate skills to the learners' confidence and anxiety in the use of the English language in academic engagements. *Journal of Namibian Studies: History Politics Culture*, *33*, 4544-4569.
71. Chavez, J. V. (2021). Bilingual parents' dispositions: Precursor to developing the English language teaching curriculum. *Psychology and Education*, *58*(5), 161-166.
72. Reyes, R. B. D., Tongkoh, A. L., & Chavez, J. V. (2023). Transitional Challenges And Factors Affecting English-Speaking Learners In Learning The Filipino Language. *Journal of Namibian Studies: History Politics Culture*, *33*, 1720-1744.
73. Chavez, J. V., Adalia, H. G., & Alberto, J. P. (2023a). Parental support strategies and motivation in aiding their children learn the English language. *Forum for Linguistic Studies*, 5(2), 1541.
74. Inoferio, H., Espartero, MM., Asiri, M., Damin, M., & Chavez J. V. (2024). Coping with math anxiety and lack of confidence through AI-assisted learning. *Environment and Social Psychology, 9(5),* 1-14.
75. Bondie, R., Mancenido, Z., & Dede, C. (2021). Interaction principles for digital puppeteering to promote teacher learning. *Journal of research on technology in education*, *53*(1), 107-123. https://doi.org/ 10.1080/15391523.2020.1823284.
76. Dieker, L. A., Rodriguez, J. A., Lignugaris/Kraft, B., Hynes, M. C., & Hughes, C. E. (2014). The potential of simulated environments in teacher education: Current and future possibilities. *Teacher Education and Special Education*, *37*(1), 21-33. https://doi.org/10.1177/ 0888406413512683.
77. Ledger, S., Ersozlu, Z., & Fischetti, J. (2019). Preservice teachers' confidence and preferred teaching strategies using TeachLivE™ virtual learning environment: A two-step cluster analysis. *EURASIA J Math Sci Technol Educ, 15(3),* 1–17.
78. Bradley, E. G., & Kendall, B. (2014). A review of computer simulations in teacher education. *Journal of Educational Technology Systems*, *43*(1), 3-12.
79. O'Callaghan, C., & Piro, J. (2016). Virtual simulations in a practice-based teacher education. *The Field Experience Journal*, *17*(1), 94-118.
80. Piro, J., & O'Callaghan, C. (2019). Journeying towards the profession: Exploring liminal learning within mixed reality simulations. *Action in Teacher Education*, *41*(1), 79-95.
81. Samuelsson, M., Samuelsson, J., & Thorsten, A. (2022). Simulation training-a boost for pre-service teachers' efficacy beliefs. *Computers and Education Open*, *3*, 100074.
82. Bautista, N. U., & Boone, W. J. (2015). Exploring the impact of TeachME™ lab virtual classroom teaching simulation on early childhood education majors' self-efficacy beliefs. *Journal of Science Teacher Education*, *26*(3), 237-262.
83. Gamble, A. S. (2017). Simulation in undergraduate paediatric nursing curriculum: Evaluation of a complex 'ward for a day' education program. *Nurse Education in Practice, 23(2),* 40–47. https://doi.org/10.1016/j.nepr.2017.02.001.
84. Jarvill, M., Jenkins, S., Akman O., Astroth K. S., Pohl C., Jacobs P. J. (2018). Effect of simulation on nursing students' medication administration competence. *Clinical Simulation in Nursing, 14(2),* 3–7. https://doi.org/10.1016/j.ecns.2017.08.001
85. Fuglsang, S., Bloch, C. W., & Selberg, H. (2022). Simulation training and professional self-confidence: A large-scale study of third year nursing students. *Nurse education today*, *108*, 105175.
86. Bandura, A., Freeman, W. H., & Lightsey, R. (1999). Self-efficacy: The exercise of control.
87. Locke, E. A. (1997). Self-efficacy: The exercise of control. *Personnel psychology*, *50*(3), 801.
88. Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and teacher Education*, *23*(6), 944-956.
89. Usher, E. L., & Pajares, F. (2008). Sources of self-efficacy in school: Critical review of the literature and future directions. *Review of educational research*, *78*(4), 751-796.
90. Resnick, B. (2008). Theory of self-efficacy. *Middle range theory for nursing*, *2*, 183-204.

91. Hampel, N., Sassenberg, K., Scholl, A., & Ditrich, L. (2023). Enactive mastery experience improves attitudes towards digital technology via self-efficacy–a pre-registered quasi-experiment. *Behaviour & Information Technology*, 1-14.
92. Minghui, L., Lei, H., Xiaomeng, C., & Potmesilc, M. (2018). Teacher efficacy, work engagement, and social support among Chinese special education school teachers. *Frontiers Psychology, 9,* 648. http://doi:10.3389/fpsyg.2018.00648
93. Shen, Y. E. (2009). Relationships between self-efficacy, social support and stress coping strategies in Chinese primary and secondary school teachers. *Stress Health, 25,* 129–138. DOI: 10.1002/smi.1229
94. Wallace, K. A., Bisconti, T. L., & Bergeman, C. S. (2001). The mediational effect of hardiness on social support and optimal outcomes in later life. *Basic Applied Social Psychology, 23(4),* 267–279. https://doi: 10.1207/S15324834BASP2304_3
95. Field, L. K., & Buitendach, J. H. (2012). Work engagement, organisational commitment, job resources and job demands of teachers working within disadvantaged high schools in Kwazulu Natal, South Africa. *Journal of Psychology in Africa, 27(2),* 87–95. http://dx.doi.org/10.1080/14330237.2012.10874525
96. Chen, X., Zhong, J., Luo, M., & Lu, M. (2020). Academic self-efficacy, social support, and professional identity among preservice special education teachers in China. *Frontiers Psychology, 11,* 374. doi: 10.3389/fpsyg.2020.00374