



Research Article

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From Classroom to Clinic: Leveraging Simulation to Bridge the Theory–Practice Gap in Nursing Education

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Abstract

Simulation-based education is an emerging educational strategy that is being leveraged to bridge the long-standing theory-practice gap in nursing education. Although the theory-practice gap occurs in various forms of education, it seems to pose more challenges in clinical education, particularly nursing. Simulation can be used to create a realistic environment for learners to acquire competencies in assessing, communicating, interacting, thinking critically, performing procedures, and responding to emergency situations. This article discusses how simulation can be leveraged to bridge the gap between theoretical classroom and clinical practice in nursing education. The article also highlights various aspects of the theory-practice gap, types of simulation, and the role of educators and debriefing in simulation-based learning. The article further highlights the benefits and limitations of simulation-based education in nursing education. The article finally emphasizes the need for strategic investments in simulation laboratories, faculty development, standardized patients, low- and high-fidelity manikins, virtual simulation, and standardized assessments to enhance nursing education. When leveraged appropriately, simulation can serve as a much-needed bridge between the theoretical knowledge learned in colleges and universities and the skills needed to provide appropriate nursing care in the clinical settings.

Keywords: Nursing education, simulation-based education, theory-practice gap, clinical education, nursing students, clinical competence, experiential learning.

Introduction

Nursing education is a process by which individuals learn how to provide appropriate and ethical care to individuals, communities, and populations. Nursing students in colleges and universities learn anatomy, physiology, pharmacology, microbiology, nursing theories, ethics, communication, and relevant procedures in the classroom. However, the classroom knowledge and skills are just components of clinical competence[1]. They need appropriate contexts for practicing the learned skills and gaining confidence. For instance, knowing the causes, symptoms, and treatment of illnesses is not enough; they need to know how and when to perform specific procedures in the clinical settings. The transition from the classroom to the clinical environment can sometimes be challenging for nursing students. This challenge is referred to as the theory-practice gap. This gap can impede the ability of nursing students to deliver competent care in the clinical settings. This article discusses how the problem of the theory-practice gap in nursing education can be addressed using simulation-based education. The article also covers the background and scope of the theory-practice gap, types of simulation, and the role of simulation in bridging the gap. The article further highlights the role of debriefing and educators in simulation-based learning, as well as the benefits and limitations of using simulation to teach nursing students[2].

The term theory-practice gap is used to describe the situation whereby nursing students or new nurses are unable to implement the theoretical knowledge they have learned in the classroom. In other words, theory-practice gap occurs when

nurses and nursing students face challenges integrating classroom theoretical knowledge into clinical practice[3]. Theory-practice gap often results from the inability to apply information learned in the classroom or textbooks to real-life situations. It may also arise from lack of opportunity or time to practice the learned skills. Theory-practice gap can also occur due to the inability to engage in critical thinking and decision-making when faced with challenging circumstances. It is often common for nursing students to understand theories and facts but face challenges when they need to combine the facts and theories to make judgments or make decisions. For instance, a student may know the theory of managing low blood sugar levels but may fail to apply the theory appropriately when confronted with an ill patient. The theory-practice gap may also arise due to differences between class and real-life settings. The classroom is ideal for gaining theoretical knowledge, but it may lack the real-life environment needed to develop skills, confidence, and competence[4].

Various factors contribute to theory-practice gaps in nursing education. First, the nursing education process is multifaceted; it involves anatomy and physiology, pharmacology, microbiology, psychology, and communication. Students need to develop insight into various areas of nursing before they become clinical professionals[5]. For instance, a patient coming in with heart failure may require nursing interventions, medication, diet, fluids, and psychological support. Second, the real-life clinical environment is unpredictable; it can involve emergency cases and patients who may be sick with different illnesses at the same time. Finally, some procedures are only performed occasionally; thus, students may graduate without mastering them because they may rarely encounter them during clinical placement. The challenges of theory-practice gaps can be addressed by introducing simulation-based learning in nursing education. Simulation can provide students with the realistic environment and opportunity to practice the procedures they would rarely encounter during clinical placement[6].

Simulation-Based Education in Nursing

The general concept of simulation involves the use of realistic artificial environments to replicate real-life situations. Simulation-based education provides students, educators, and patients with opportunities to engage in realistic medical practices in a controlled environment[7]. The controlled environment enables learners to acquire knowledge and skills without putting real patients at risk. Simulation can take different forms, namely:

Low-fidelity simulation: This type of simulation involves relatively simple models or task trainers and is mostly used to practice a particular skill. Examples of low-fidelity simulations include intramuscular injection skills, urinary catheterization, cleansing skills, and injection skills. Low-fidelity simulation is appropriate for practicing psychomotor skills[8].

High-fidelity simulation: This type of simulation mostly uses manikins and other computer technologies to simulate actual clinical cases. Some of the advanced manikins are able to mimic human body functions such as the heart rate, breathing, blood pressure, oxygen saturation, and pupil response. High-fidelity simulation can be used to demonstrate procedures and promote learning, communication, and team-building[9].

Standardized patients: These are real patients who have been trained to portray specific symptoms and behaviors. Standardized patients can be used to practice communication, health assessment, counseling, cultural competence, and education[10].

Virtual simulation: This type of simulation-based education mostly uses computers and other digital technologies to allow learners to assess and manage the simulated patients.

Hybrid or multimodal simulation: This type of simulation involves combining two or more types of simulation. For instance, a standard patient can be used in combination with a task trainer[11].

One of the significant advantages of using simulation to teach nursing students is that it helps them apply theoretical knowledge to actual clinical practices. The students are able to use the knowledge gained from the classrooms and textbooks to manage realistic patient scenarios. For instance, the student may have learned the theory of breathing and respiration. The lesson can be reinforced through simulation of an emergency scenario whereby the patient is not able to breathe properly. The student is then challenged to apply the theoretical knowledge to identify the cause of the emergency, assess the patient's condition, identify the appropriate interventions such as oxygen therapy, and then communicate the information. Similarly, students can learn clinical skills, procedures, and decision-making processes by engaging in such simulation scenarios[12].

Clinical reasoning is a complex process whereby nurses identify patients' health problems and come up with appropriate interventions to address the problems. Clinical reasoning plays a significant role in nursing practice because it enables nurses to critically analyze patient cues, interpret and utilize all clinical information relevant to the situation, recognize patients' health needs, take appropriate action, and evaluate the outcomes of the interventions[13]. Nurses often engage in clinical reasoning when addressing emergency situations and performing procedures. Clinical reasoning can be developed using simulation-based education. Students can develop clinical reasoning skills by identifying the appropriate actions to take when presented with different patient scenarios. For instance, the instructor may present an emergency scenario such as a patient's blood pressure dropping rapidly. The student will engage in clinical reasoning to identify what the drop in

blood pressure means and what actions to take. Through clinical reasoning, the student will also be able to determine the most appropriate intervention based on the situation[14].

Psychomotor skills are essential in nursing practice; they involve the ability to perform procedures such as inserting a urinary catheter or passing a nasal gastric tube. Psychomotor skills can be learned through simulation-based education. Simulation provides an opportunity for students to engage in skill acquisition, practice, and retention before actual practice[15]. The students are also able to utilize the time and resources to perfect their skills. Simulated practice allows students to repeatedly perform nursing procedures before they engage in actual practice. For instance, skills such as IV medication administration, urinary catheterization, dressing, injections, airway management, CPR, or patient transfer can be mastered using the simulation-based practice. As a result, such activities as medication administration become routine and automatic to the students[16].

Confidence is a key determinant of clinical skills performance. Lack of confidence and clinical anxiety can arise due to the stress of working with real patients. In addition, students often acquire knowledge and skills through simulation-based education, thus reducing anxiety associated with working with real patients. One way of building confidence among students is by ensuring that they master the required psychomotor skills using simulation. This way, they become confident about actual practice. It is also essential that confidence is not mistaken for competence. The confidence of the student should be reinforced through simulation-based education that allows them to gain the necessary competence[17].

Simulation-based education can enhance the level of confidence of students, which ultimately impacts patient safety. Through simulation, students can develop and master psychomotor skills, thus ensuring that they provide appropriate care to patients. In addition, the students can acquire the competence to handle emergency situations by engaging in simulation of emergency scenarios. For instance, students can be made to repeatedly practice managing anaphylaxis, sepsis, hypoglycemia, and cardiac arrest. Such a practice ensures that the students are able to provide appropriate care to patients presenting with similar problems[18].

Healthcare settings require effective collaboration among various health professionals to ensure patient safety and quality care. Interprofessional collaboration promotes positive patient outcomes, reduces professional isolation, and enhances job satisfaction. However, nursing education and other health-related studies are primarily aimed at training students within their professional fields without emphasizing the need for interprofessional education. Simulations offer a great opportunity for interprofessional education by allowing students from different health fields to engage in collaborative opportunities. For instance, a simulation activity can mimic an emergency situation in the Intensive Care Unit and involve students from medicine, nursing, and pharmacy. The activity can also help students develop collaborative communication skills, teamwork skills, and leadership skills. By engaging in such simulation activities, students will be better prepared for effective interprofessional collaboration during actual practice[19].

Debriefing Following Simulation-Based Education

Debriefing is one of the most important components of simulation-based education; it provides an opportunity for students to reflect on what happened during simulation. Through debriefing, students can connect the simulation experience to the relevant learning objectives. Debriefing can also help learners reinforce newly acquired knowledge and skills before they engage in actual practice. Debriefing should be individualized, involve open communication, and be learner centered. It is important that students are allowed to discuss their mistakes and concerns without fear of being criticized or stigmatized[20]. A good debriefing process should involve discussion of three key learning areas, namely cognitive, psychomotor, and affective. After participating in a simulated scenario, the instructors should facilitate a debriefing discussion focusing on the following areas:

1. Cognitive: What did the students know or did not know?
2. Psychomotor: What did the students do right or wrong?
3. Affective: What did the students feel?

By highlighting the above three areas, instructors can help students connect the experience to learning concepts and reinforce their knowledge.

The Role of the Nurse Educator

The role of the nurse educator in simulation-based education can be emphasized in such activities as developing learning objectives, selecting learning strategies, developing scenarios, preparing students for simulation, facilitating the simulation, and debriefing. The nurse educator also has a role to play in assessing and reviewing the learning experience. In addition to preparing and facilitating the simulation, the nurse educator should provide feedback to the students after the simulation. The nurse educator must also understand how to apply the simulation to the broader context of clinical practice. The nurse educator should also have the relevant competencies, which can be gained through faculty development programs on simulation-based education. These programs can equip the nurse educators with the following competencies: facilitating simulation scenarios, developing learning materials, engaging in debriefing discussions and assessments, and understanding the role of simulation in supporting learning[21].

Professional identity involves an individual's perception of himself/herself and how he/she views his/her role in society. The nursing profession demands highly professional individuals who uphold professional and ethical standards when delivering care to patients. Nursing education should involve activities that encourage students to develop professional values and attitudes, such as accountability, integrity, advocacy, respect, and confidentiality. Simulation-based education can be used to encourage the development of professional identity by allowing students to engage in realistic scenarios that encourage professional attitudes. For instance, the students can use the simulation laboratory to practice communication skills with patients and their families, maintain patient confidentiality, and respect patients' cultural beliefs[22].

Developing Competence in Clinical Skills Through Simulation-Based Education

Simulation-based education can be utilized at different stages of nursing education to help students develop clinical skills progressively:

Pre-Clinical Skills: These are fundamental nursing skills that are performed regularly and consistently in the nursing practice. Some of the pre-clinical skills that can be developed using simulation-based education include assessing vital signs, hand washing, infection control measures, positioning patients, communicating effectively, documentation skills, and basic nursing procedures.

Core Skills: The core skills are more advanced than the pre-clinical skills and can be mastered using a variety of simulation methods. Some of the core skills that can be developed using simulation-based education include medication administration, wound management, family planning, maternal and child health care, medical-surgical nursing, mental health nursing, and patient education[23].

Advanced Skills: The advanced skills are complex and require intensive practice before they can be mastered. The advanced skills that can be developed using simulation-based education include emergency care, critical care, sepsis, CPR, obstetrics, post-abortion care, management of post-partum hemorrhage, management of deteriorating patients, and ethical decision-making[24].

Using Simulation to Bridge the Gap

Simulation-based education can be used to provide nursing students with the opportunity to gain the competence needed for actual practice. The use of simulation can help bridge the theory-practice gap by allowing students to develop the skills needed to provide appropriate care to patients. The nurse educators should ensure that the learning objectives are consistent with the intended educational outcomes. The student nurses should gain confidence in their ability to provide appropriate care and understand the responsibility involved in nursing practice[25].

Conclusion

The theory-practice gap can have several adverse effects on nursing practice. It can reduce the confidence levels of nurses, which ultimately affects the quality of care delivered to patients. The theory-practice gap can also have negative implications for patient safety. This article discussed the different ways through which the gap can be bridged, with a focus on the potential of using simulation-based education. The article highlighted the definition and scope of the theory-practice gap, as well as the different types of simulation that can be used in nursing education. The role of debriefing and instructors was also emphasized in the discussion of how simulation-based education can be used to bridge the gap. It was noted that simulation-based education promotes competence by providing students with multiple opportunities to acquire and perfect their skills. It allows the students to gain confidence through repeated practice and enables them to make appropriate decisions when faced with emergency situations. The article highlighted the importance of investing in simulation-based education, which will enable student nurses to acquire competence and deliver high-quality patient care when they graduate.

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