



Next Generation NCLEX® and Virtual Simulation

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Purpose: This paper proposes to discuss the challenges facing nurse educators related to the development of the Next Generation NCLEX® (NGN), as well as the clinical judgment needed by nurses and nursing students. One method of improving/developing clinical judgment in nursing is by adopting virtual simulation methods. This paper will present research on the effectiveness of virtual simulation, Kaplan Nursing's methods for addressing clinical judgment needs (Next Generation NCLEX®), and a new product designed to provide virtual simulation lessons and evaluation for undergraduate nursing students

Introduction

The ultimate goal for nursing educators and nursing practitioners is the same: improved outcomes in care. The quality and safety of client care depend on the nursing care delivered. Novice nurses are often called upon to make clinical decisions without the benefit of adequate experience. Saintsing, Gibson, and Pennington (2011) report that 80 percent of nursing employers are dissatisfied with novice nurses' clinical decision-making abilities.

Literature Review

Models for clinical decision-making describe the process nurses use to make decisions. Clinical decision-making is a complex skill that involves combining knowledge, skill, experience, and intuition (Duff, Miller, & Bruce, 2016). The National Council of State Boards of Nursing (NCSBN) has proposed a decision-making model called Nursing Clinical Judgment (NCJ) (Dickison, Luo, Kim, & Woo, 2016). In fact, the NCSBN is conducting a study to construct a tool to

measure a higher-order cognitive construct in nursing licensure candidates. This study has led to the Next Generation NCLEX® (NGN), which is being done to assess potential changes to the NCLEX® (NCSBN, 2018).

As a result of this research, the NCSBN has developed a conceptual model to synthesize the assessment of their NCJ cognitive task model. This cognitive task model involves the following steps:

- **Recognizing cues**
- **Analyzing cues**
- **Prioritizing hypotheses**
- **Taking action**
- **Generating solutions**
- **Evaluating outcomes**

A second example of a clinical decision-making model is the Kaplan Decision Tree (KDT), which is utilized in the Kaplan Nursing course that students take in preparation for the NCLEX®. The steps of the KDT mirror the steps of the NCSBN Nursing Clinical Judgment model (Figure 1). The KDT provides an algorithm for nursing students to utilize in answering NCLEX RN®-style test items:

- **What is the topic of the test item? (Recognizing cues)**
- **Does the nurse need more assessment information? (Analyzing cues)**
- **Does the nurse need to implement an action? (Taking action and Generating solutions)**
- **Does Maslow's hierarchy of needs apply to the answer, or are ABCs (airway, breathing, circulation) relevant? (Prioritizing hypotheses)**
- **Do the outcomes make sense? (Evaluating outcomes)**

"Cue recognition is the foundation of all decision-making and is built through knowledge that is gained in nursing school. Some of these factors can be taught or tested to improve decision-making (e.g., cue recognition, hypothesis updating, task complexity)" (Muntean, 2012, p. 3). It, therefore, stands to reason that nursing

**The Kaplan
Decision Tree
mirrors the
NCSBN model**



education learning activities should incorporate multiple opportunities and methodologies for the development of nursing clinical judgment.

Figure 1

NCSBN Clinical Judgment Task Model						
Layer 0	Client Needs				Clinical Decisions	
Layer 1	Clinical Judgment					
Layer 2	Form Hypotheses		Take Actions		Evaluate Outcomes	
Layer 3	Recognize cues	Analyze cues	Prioritize hypotheses	Generate solutions	Evaluate Outcome Satisfied/Not Satisfied	
Layer 4 <i>Context Layer</i>	Identify cues based on environmental & individual factors	List probable client problems based on analysis and knowledge of the condition	Consider available resources and consequences of decision	Apply knowledge of treatment and intervention	Evaluate outcome based on observation and experience	
Expected Response	Recognize abnormal findings and relevant historical data	Identify priority problems	Rate potential problems and select one with the highest priority	Rate potential actions and select one best suited for the specific case	Select next action based on nurse satisfaction, client response, desired outcome achieved	
Kaplan's Decision Tree Framework						
Steps	1	2	3	4	5	
Directions	Identify the topic of the question by interpreting the information in the stem and choices of the question using learned content knowledge.	Identify choices as assessments or implementations. Using the knowledge of the condition as described in the stem, identify the likely problems and then identify the priority problem.	Does Maslow apply? Rate the potential choices and select one with the highest priority.	Are all the answers physical? Apply knowledge of ABCs to evaluate hypotheses.	What is the outcome (client response) to the nurses' action? Has the desired outcome been achieved?	

Virtual simulation is just one method of helping educators teach nursing clinical judgment. Nursing and medical educators both utilize simulation to provide clinical practice opportunities in a safe environment. Simulation has been shown to increase patient safety and improve clinical judgment and it can also act as an adjunct in teaching/evaluating clinical skills (Bearnson & Wiker, 2005). In the Carnegie report, Benner, Sutphen, Leonard, and Day (2009) noted the need to use simulation as a bridge between theory and practice in educating nurses of the future. The NCSBN conducted and published their landmark study on the use of simulation in nursing education in 2014, and since that time, numerous undergraduate programs in nursing have been using and adopting simulation in their clinical-education requirements. The Liaw, Chan, Chen, Hooi, and Siau (2014) study did not show that “virtual patient simulation was superior to mannequin-based simulation, both simulations have demonstrated to be effective refresher learning strategies for improving nursing students' clinical performance.” However, a strong case for virtual simulation can be made when considering the cost savings, flexibility, and ease of use of virtual simulation over manikin



simulation. The virtual simulation provides the student with guidance on “what to do” for a client before learning “how to do it.”

Tschannen, Aebersold, McLaughlin, Bowen, and Fairchild’s (2012) research on the use of virtual simulations for baccalaureate nursing students provides additional evidence to support virtual simulation in nursing education. Their study showed that the addition of virtual simulation improved student performance and added greater access to practice tools, due to lower cost than high-fidelity simulators and the convenience of distance technology (Internet). Practice opportunities for nontechnical skills such as clinical judgment, teamwork, communication, and leadership skills were also available through the simulations.

Similar successful results were discussed in Georg and Zary’s study (2014), which showed the development of students’ clinical-reasoning skills and clinical data gathering with the utilization of virtual patients. Duff, Miller, and Bruce (2016) identified that Online Virtual Simulation (OVS) can support the acquisition of diagnostic-reasoning skills (clinical judgment) and is comparable to traditional simulation. Deliberate practice using OVS is particularly enhanced when effective and real-time expert feedback is provided during the formative process. Improved learner satisfaction was also noted in this study because the OVS provided more realistic practice than standard patients or manikins, timely feedback, the students felt more engaged and enjoyed the “safe environment,” and it was easier for them to practice from any location.

American Sentinel University (2016) reported that the top five reasons simulation is better than reality in healthcare education are as follows:

- 1. Failure without consequences:** Learning takes place in a safe setting without the risk of embarrassment, feeling rushed, or negative client outcomes.
- 2. The same experience, every time:** Virtual simulation provides a controlled environment, allowing each student to experience the same or a similar scenario. Depending on the case, the student may have the opportunity to experience nontechnical skills like communication, collaboration, and decision-making.

**Virtual
simulation
improves
student
performance**



- 3. Safe for patients and learners:** Students can complete clinical hours for course requirements in a safe setting without in-person oversight by the instructor.
- 4. Enhanced critical thinking:** Simulation allows the student to practice decision-making and identifying gaps in performance.
- 5. Standardized assessment:** Instructors have the ability to evaluate each student based on the same experience. This consistency enables objective assessments.

Results

The opportunity to use virtual simulation in an educational setting provides multiple benefits for students, faculty, and clients. The call for the transformation of nursing education and the evidence in the literature have led Kaplan Nursing to develop an innovative solution that will play an important role in nursing education and care delivery. For the purposes of this discussion, we will define simulation as “a technique, not technology, to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner” (Gaba, 2004, p. 1).

Kaplan and i-Human Patients have teamed up to provide undergraduate nursing virtual simulations to meet the goals of nursing education and practice. We will do this by following the clinical judgment model theorized by both the NCSBN and the Kaplan Decision Tree:

- **Virtual simulation cases will be available as learning or evaluative exercises.**
- **Students will be presented with a client scenario that includes all applicable data (electronic health record information) to support the client presentation.**
- **Upon review of the situation, the student will obtain a history and physical on the client.**
- **The student will be able to obtain actual physical findings through appropriate use of physical assessment techniques (heart sounds, lung sounds, etc.).**

**Benefits for
students,
faculty, and
clients**



- **Using cue recognition, the student will identify the priority problems for this client and compare their answers with those of an expert nurse. This immediate feedback will guide the student through the remainder of the simulation.**
- **Multiple-choice items will provide additional feedback on the student's progress within the case.**
- **Upon identifying the client's problems, the student will be able to analyze the findings and establish a priority of care needed, generate solutions, and identify actions to take in caring for the client.**
- **The final step will involve evaluating, documentation, and reporting outcomes.**
- **Throughout the simulation, the student will receive measurable feedback from the expert. At the conclusion of the case, the student will be able to identify gaps in knowledge, action, and analysis.**
- **The faculty will be able to evaluate the student's performance and effectiveness on the simulation.**

Conclusion

Kaplan Nursing looks forward to collecting evidence to support the inclusion of virtual simulation within the undergraduate nursing curriculum. The implementation of this new product, plus integration within the current Kaplan suite of resources, will provide continued benefit for faculty and students in their quest for success in nursing school and on the NCLEX-RN®.

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