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Featured Article

# Evaluation of vSIM for Nursing™: A Trial of Innovation

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## KEYWORDS

virtual simulation;  
vSim for nursing;  
nursing;  
gaming;  
medical–surgical;  
virtual reality;  
education;  
pedagogy

## Abstract

**Background:** Virtual simulation is an emerging technology that has been suggested as an effective pedagogical approach to teaching various skills in nursing education. The purpose of this study was to report students' experience with vSim for Nursing™.

**Method:** This study used a descriptive, mixed-methods design with 54 accelerated Bachelor of Science in Nursing students. Students performed in scenarios with a patient who had pneumonia and developed anaphylaxis and a patient who developed cardiac arrest requiring defibrillation. Students were surveyed regarding their satisfaction with the experience.

**Results:** Most students reported that the product was easy to use (20% strongly agree, 78% agree). Nearly, all students recommended the virtual simulation for future use (98%). Several students indicated frustration with real-time features such as handwashing and the inability to multitask.

**Conclusions:** Most students suggested that the virtual simulation was a positive experience. However, this innovative pedagogy warrants more stringent investigation.

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## Background

The National League for Nursing Research Priorities in Nursing Education call for the identification and evaluation of the effectiveness of emerging technologies in the teaching

### Key Points

- vSim for Nursing™ employs a web-based platform to simulate nursing scenarios whereby students have the opportunity to interact with patients and receive direct feedback on their performance.
- Nearly all students (98%) recommended the virtual simulation for future use.
- Virtual simulation has a wide range of applications and warrants further exploration.

of nursing decision-making skills (NLN, 2012). Virtual simulation is an emerging technology that has been suggested to be effective in teaching various skills in nursing education (Caylor, Aebersold, Lapham, & Carlson, 2015; Foronda, Budhathoki, & Salani, 2014a; Foronda, Gattamorta, Snowden, & Bauman, 2014b; McCallum, Ness, & Price, 2011). In the last decade, a variety of virtual simulation products have emerged, and it is predicted that the use of virtual simulation will expand (Foronda & Bauman, 2014). The purpose of this research brief

was to report students' experience with an interactive virtual simulation learning product called vSim for Nursing™.

## Research in Virtual Simulation in Nursing

Searching the Cumulative Index to Nursing and Allied Health Literature database, using keywords of “virtual simulation” and “nursing” from 2010 to 2015, 15 research articles were generated. Of this body of literature, most studies (n = 11) were conducted with nursing students. Two studies evaluated faculty members' perceptions of virtual simulation as a feasible learning tool (Jenson & Forsyth, 2012; Vottero, 2014). Faculty members' perceptions were positive with the virtual reality simulations in teaching skills of IV insertion and medication withdrawal from an electronic medication dispensing system. Two studies examined use of virtual simulation with nurses (Hudson, Taylor, Kozachik, Shaefer, & Wilson, 2015; Kalisch, Aebersold, McLaughlin, Tschannen, & Lane, 2015). The remaining topics ranged from problem-based learning (McElhinney, 2011), teamwork (Caylor et al., 2015; Kalisch et al., 2015), psychiatric nursing (Kidd, Knisley, & Morgan, 2012); communication (Foronda et al., 2014b), decision-making (Hudson et al., 2015), problem-based learning (Hudson et al., 2015; McElhinney, 2011); patient management (Chia, 2013; Josephsen & Butt, 2014), disaster training (Farra, Miller, Timm, & Schafer, 2013; Farra, Smith, Gillespie, Nicely, Ulrich & Hodgson, 2015; Jose & Dufrene, 2014), psychomotor skills (Jenson & Forsyth,

2012; Vottero, 2014), nutritional assessment (Sweigart, Hodson-Carlton, Campbell, & Lutz, 2010) and attitudes toward the poor (Menzel, Willson, & Doolen, 2014). All studies described virtual simulation to be an effective pedagogy; however, several studies indicated that the technology itself could be problematic for the user because of the inability to manipulate the avatars and communicate in a virtual simulation environment (Caylor et al., 2015; Hudson et al., 2015; Kidd et al., 2012; Menzel et al., 2014; Sweigart et al., 2010; Vottero, 2014).

## vSim for Nursing™

vSim for Nursing was developed through a collaboration between Wolters Kluwer Health (Lippincott), Laerdal Medical, and the National League for Nursing. Peer-reviewed, manikin-based simulations were adapted for use in a virtual environment. vSim for Nursing employs a Web-based platform to simulate nursing scenarios whereby students have the opportunity to interact with patients and receive direct feedback on their performance. Scenarios allow students to apply knowledge, make decisions, perform interventions, receive feedback on actions, and repeat the experience as desired. The National League for Nursing conducted a pilot project with selected nursing programs in the 2014 spring semester to evaluate clinical faculty utilization and satisfaction (Forneris & Scroggs, 2014). Faculty perceptions of vSim were positive, and they indicated that vSim offered “more value and utility than other teaching methods” (p. 348). No literature was identified that described students' perceptions of using vSim for Nursing.

## Sample

One-hundred twenty accelerated Bachelor of Science in Nursing (BSN) students participated in the simulations. Fifty-four students completed the voluntary evaluations yielding a response rate of 45%. As the evaluation was part of standard educational practice, demographic data were not collected.

## Methods

This study used a descriptive, mixed-methods approach. Institutional review board approval was obtained. vSim for Nursing was released in the spring of 2014 for pilot testing to the study site free of charge. Although the single-user product was designed to be flexible enough to be completed at home, the vSim experience was performed in the computer laboratory at the school of nursing. As this was the students' first exposure to vSim for Nursing, students were arranged in pairs on one computer to allow for discussion and interactive learning. Students spent approximately 10 minutes completing a tutorial. Faculty members

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