STUDENT LEARNING OUTCOMES AND PERCEPTIONS OF USING VSIM FOR NURSING™: A MIXED-METHODS STUDY

CYNTHIA FORONDA, PHD, RN, CNE, CHSE, ANEF
SANDRA SWOBODA, RN, MS, FCCM
NANCY SULLIVAN, DNP, RN
EMMA KAMAU, MSN, CVRN, BS
KRYSIA HUDSON, DNP, RN, BC
International Nursing Association for Clinical Simulation & Learning is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center’s Commission on Accreditation.
DISCLOSURES

Conflict of Interest

• Dr. Foronda and Dr. Hudson serve as paid consultants for Wolters Kluwer.
• Sandy Swoboda, Emma Kamau, and Nancy Sullivan report no conflict of interest.
• The product described in the study was provided at no cost.
• Julia Greenawalt (INACSL Conference Administrator & Nurse Planner) reports no conflict of interest.
• Leann Horsley (INACSL Lead Nurse Planner) reports no conflict of interest.

Successful Completion

• Attend 100% of session
• Complete online evaluation
LEARNING OUTCOMES

Upon completion of this educational activity, participants will be able to:

1. Describe the student learning outcomes fostered by vSim for Nursing.

2. Analyze how vSim for Nursing can best be incorporated into the curriculum.

3. Determine how to align use of virtual simulation with students’ learning preferences
VSIM FOR NURSING™

- Developed in collaboration with the National League for Nursing, Wolters Kluwer Health, and Laerdal

- Adapts mannequin-based scenarios to a Web-based learning environment.

VIRTUAL SIMULATION

• Emerging pedagogy

• We define virtual simulation as “clinical simulation offered in a digital learning environment including single or multiuser platforms”

• Only scratched the surface in terms of knowledge
BACKGROUND

Virtual simulation has been used successfully in nursing education to teach:

- Communication
- Disaster Management
- Art of instruction
- Teamwork
- EBP

CliniSpace. Used by permission of Innovation in Learning, Inc. 2017.
Use of virtual simulation was associated with

- a decreased time to skill achievement (Farra, et al. 2015),
- increased retention of material over time (Farra, Miller, Timm, & Schafer, 2013),
- and was described by students as “fun” and “better than reading” (Foronda, et al., 2016).
BACKGROUND

Student nurses have expressed

• a positive attitude towards virtual simulation, (Caylor et al., 2015; Farra, Miller, Timm, & Schafer, 2013; Kidd, Knisley, & Morgan, 2012);

• and technical issues can present and be problematic (Foronda et al., 2016; Kidd et al., 2012).
PURPOSE

• Little is known about use of vSim for Nursing.

• The purpose of this study was to explore the perceived learning outcomes of pre-licensure nursing students who used vSim for Nursing.
SAMPLE

• 99 pre-licensure, accelerated Bachelor of Science in Nursing (BSN) students attending Johns Hopkins University
SIMULATION

- Pneumonia into anaphylaxis
- Sudden cardiac arrest
- Students worked in pairs in the computer lab
- Each simulation was repeated twice
- Debriefing for Meaningful Learning (Dreifuerst, 2012)
- Entire simulation lasted 1 hour and 45 minutes
METHODS

• Mixed methods design (descriptive and content analysis)
• Anonymous surveys
• IRB approved
• Quantitative data were analyzed using Stata, version 10, (StataCorp, College Station, Texas).
• Qualitative data were analyzed using content analysis (Sandelowski, 2012) by two nurse researchers independently.
SURVEYS

• Developed by two nurse researchers
• Yes/No Questions
• Likert-style questions (1-strongly agree to 5- strongly disagree)
• Ranking questions
• Open ended questions
• List type questions
  • “List two or three key points that you learned through the virtual simulation.”
  • “What were your top three interventions for this patient?”
QUANTITATIVE RESULTS

VSIM EASY TO NAVIGATE?

RELEVANT TO YOU AS A NURSE?
QUANTITATIVE RESULTS

EFFECTIVE TO ENHANCE LEARNING

- Yes
  - 77%

RECOMMEND USE IN FUTURE

- Yes
  - 78%
RESULTS

List Top 3 Interventions

- Give meds
- Provide O2
- Call a Code
- Stop Meds
- Check VS
- SBAR
- Reposition
QUANTITATIVE RESULTS

• When asked if one would choose the wrong intervention on purpose just to see what would happen, 94% indicated “no” and 6% indicated “yes”.

STUDENT RESPONSE: WHERE DOES VSIM FIT INTO CURRICULUM?

Ranked Percentage

- Instead of Manikin sim
- Homework
- Part of Sim Day
- For Supplemental Study Material
- In lieu of case study to enhance lecture
- Make up for Missed Clinical

@INACSL | #INACSL17
QUALITATIVE FINDINGS

Three themes emerged from the data regarding the students’ key points of learning:

• Assessment

• Prioritization

• Emergency management
ASSESSMENT

• “IV patency”,
• “Vital signs/carotid pulse”,
• “Recognizing early decline”,
• “Allergic reactions”, and
• “Paying attention to all symptoms”.

@INACSL | #INACSL17
PRIORITIZATION

- Prioritize orders,
- Prioritize medications,
- Steps to treat anaphylaxis, and
- Cardiac arrest interventions.
EMERGENCY MANAGEMENT

Emergency management included interventions and critical thinking required to navigate a code.

Subthemes

• Performing cardiac arrest interventions,
• Anaphylaxis/respiratory interventions,
• Medication administration,
• Reading orders, and
• Calling the provider for help.
• “Helpful to learn skills without worrying.”
CHALLENGES

• 7% of students expressed frustration with navigation issues.
• Difficulty with “how to navigate the system” and
• “Knowing where the computer buttons are located.”
DISCUSSION

The study results suggested that key points of student learning were medication administration (52%) and respiratory interventions (44%). Students expressed achieving learning outcomes of assessment, prioritization, and emergency management.

Students may feel a need to react by giving medications.

Reinforce both non-pharmaceutical interventions and pharmaceutical interventions.
DISCUSSION

Students felt virtual simulation would be best used as a clinical makeup (51%). Virtual simulation does not count for actual simulation time.

Future research: Compare student learning outcomes achieved from virtual simulation to that of mannequin-based simulation.

If outcomes are comparable, it would be plausible that governing bodies such as the State Board of Nursing would amend simulation policy accordingly.
DISCUSSION

Students did not prefer to use virtual simulation as study material or homework.

Almost 1/3 of students felt virtual simulation would be best used in lieu of a case study or to enhance lecture.

Only 5% of students indicated that virtual simulation should be used instead of mannequin-based simulation – they value psychomotor skills.
LIMITATIONS

• Single site
• Demographic information was not gathered
• Pairs rather than independently
• Worked in computer lab rather than home
• Debriefing time was short
CONCLUSION

The data may serve to guide nurse educators into more strategically placing virtual simulation exercises within the curriculum.

In planning virtual simulations, nurse educators should consider what learning outcomes virtual simulation fosters and ensure they are congruent with the learning objectives.

Aligning the application of virtual simulation with student learning preferences may enhance the learning experience.


REFERENCES


CONTACTS

Cynthia Foronda, PhD, RN, CNE, CHSE, ANEF

c.foronda@miami.edu

Sandra Swoboda, RN, MS, FCCM

sswoboda@jhmi.edu

Krysia Hudson, DNP, RN, BC

khudson2@jhu.edu