SIMULATION RESEARCH: INFORMING BEST PRACTICES IN NURSING EDUCATION

STTI International Nursing Research Research Congress
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Disclosures

• Dr. Forneris’ study was supported in part by a grant to the National League for Nursing (NLN) from Laerdal Medical and Wolters-Kluwer Health

• Dr. Forneris is an employee of the NLN, Washington, DC, USA

• Dr. Neal and Dr. Tiffany – no disclosures
Symposium Objectives

• Discuss findings of simulation research that are informing nursing education to use simulation active teaching strategies.

• Discuss faculty development initiatives to support the changing faculty role with emerging simulation best practices.

• Discuss how to transfer active learning principles from reflective debriefing for use across the curriculum to achieve learning outcomes.
Integrating Virtual Simulation into the Curriculum: An Exploratory Study

Susan Gross Forneris, PhD, RN, CNE, CHSE-A
National League for Nursing
Goals of the Exploratory Study

- Integrate vSim for Nursing into nursing curriculum for one semester
- Evaluate the effectiveness of vSim for Nursing as an active learning teaching strategy
- Create a faculty implementation guide as a means of faculty development in the use of a virtual simulation teaching strategy
Focused Areas of Exploration

- **Utility as a teaching tool**
- **Classroom Approaches**
  - Flipping the Classroom
  - Classroom Group Debriefing
  - Small Group Concept Mapping
- **Coursework**
- **Targeted Lab Activity**
- **Remediation**
Findings

Summarizes the evaluation of the vSim scoring features by faculty who participated in the pilot study.

<table>
<thead>
<tr>
<th>Scoring</th>
<th>Strongly Agree</th>
<th>Strongly Agree to Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully explains how students’ scores are computed</td>
<td>6%</td>
<td>76%</td>
</tr>
<tr>
<td>Provides scores that accurately reflect student performance</td>
<td>17%</td>
<td>83%</td>
</tr>
<tr>
<td>Fully explains the weighting of factors that affect student scores</td>
<td>20%</td>
<td>87%</td>
</tr>
<tr>
<td>Provides student scores that are easily interpreted</td>
<td>22%</td>
<td>89%</td>
</tr>
</tbody>
</table>
Findings

Content Quality:

- Accurately depicts actual clinical scenarios: 33% Strongly Agree, 94% Strongly Agree/Agree combined
- Accurately represents the current nursing practice environment: 24% Strongly Agree, 94% Strongly Agree/Agree combined
- Information is consistent with other course materials we use: 24% Strongly Agree, 100% Strongly Agree/Agree combined
- Offers an adequate range of scenarios: 17% Strongly Agree, 83% Strongly Agree/Agree combined
Findings

Primary Learning Objective:

- Improve clinical reasoning and ability to prioritize: 67%
- Deepen understanding of nursing concepts: 17%
- Evaluate clinical skills: 11%
- Other: 6%
Findings

Substitute for other Teaching Methods:

Always/Often Use vSIM as a Substitute for Other Teaching Methods: Pilot vs. Future

- Classroom teaching: 31% (Pilot) vs. 41% (Future)
- Actual clinical experiences: 25% (Pilot) vs. 41% (Future)
- Standardized patients: 19% (Pilot) vs. 27% (Future)
- Training manikins: 12% (Pilot) vs. 25% (Future)
- Simulation labs: 12% (Pilot) vs. 35% (Future)
Classroom Approaches

Using Story...Virtual Flipped Classroom

Role modeling critical thinking...virtually
Using story...

Simulation Concept mapping...virtually!

Classroom Approaches
Classroom Approaches

Using story...

Differentiating low acuity – high frequency from high acuity low frequency

- Pediatric Case 3: Sabina Vasquez (Core)
- Pediatric Case 4: Sabina Vasquez (Complex)
- Maternity Case 1: Olivia Jones (Core)
- Maternity Case 2: Olivia Jones (Complex)
Classroom Approaches

Using story... Delegation and Supervision... virtually

Mona Hernandez
Diagnosis: Pneumonia
Location: Medical Unit 1600
Report from day shift nurse;
Situation: Mona Hernandez is a 72-year-old Hispanic female who was admitted

Sherman "Red" Yoder
Report from home health nursing manager:
Red is a 60-year-old farmer and war veteran who lives by himself, 20 miles from the nearest city. He has been a resident for 10 years but his son and daughter-in-law, Jon and Judi, live nearby. He was diagnosed with type 2 diabetes about six months ago and recently began taking insulin.

We [nurses from the home health agency] have been asked to see him to evaluate a wound caused by walking into farm equipment. He was treated recently about three weeks ago and has been continuing it by soaking his foot in water.

His daughter-in-law, Judi, expressed concerns about his ability to manage diabetes well-care, and he has opened that she can be present for the conversation. We hope he return independent, alert, and orientated. He does himself in town at least once a week and spends a lot of time on his computer.

Carl Shapiro
Diagnosis: Acute Myocardial Infarction
Location: Telemetry Unit
Carl Shapiro is a 54-year-old male who travels frequently.
He was seen in the Emergency Department at 1:30 p.m. for complaints of chest pain, diaphoresis, and shortness of breath. He was treated in the Emergency Department with aspirin and two doses of sublingual nitroglycerin.

Chest pain improved with nitroglycerin administration. IV infusion of normal saline was started in the Emergency Department and is running at 25 ml/hour.

Mary Richards
Diagnosis: Congestive Heart Failure
Location: Cardiology Unit 2200
SRAA report from ED nurse;
Situation: I have taken care of Mrs. Richards in the emergency department and would like to give you a report on her. Mrs. Richards is an 82-year-old African American female who was brought to the emergency department by her son this evening when he found her confused and complaining of trouble with her vision.

Mrs. Richards has been ill for several days with complaints of nausea, dizziness, and weakness.

Background: Mrs. Richards has a history of hypertension, diagnosed 40 years ago, and heart failure, diagnosed 10 years ago. Her current medications include furosemide, amiodipine, and digoxin.
Faculty Development

vSim for Nursing
Implementation Guide for Faculty

Developed by the National League for Nursing
Using Simulation to Enhance Clinical Reasoning During Medication Administration: A Multi-Site Qualitative Study

Dr. Diana Odland Neal
Using Virtual Simulation to Enhance Student Learning: A Case-Based Approach

Dr. Jone Tiffany
Objectives

- Discuss the use of virtual role-play simulation to increase cultural sensitivity in healthcare professionals.
- Examine future implications for the educational uses of virtual world environments for healthcare professionals.
“Ugly in a World Where You Can Choose to be Beautiful”: Teaching and Learning About Diversity via Virtual Worlds
Inclusivity Assignment
## Field Study Experience Objectives:
1. Describe the nature of values and values systems and their influence on behavior applied in a variety of settings.
2. Identify personal and professional values that influence the decision-making process when interacting with diverse clients and students.
3. Synthesize the literature and the SL field study experience into an action plan for how to ensure inclusivity in nursing practice and education.

Note: Nurse educator students in this course have had significant readings and class discussions regarding inclusivity prior to participating in this culminating course activity. This experience is preceded by an orientation to Second Life® using online tutorials and a face-to-face classroom session. The avatars used in this field study experience were created specifically for this assignment.

### Part I: Meet Your Avatar
A photo and biography of an avatar representing a marginalized person is provided to each student.

Upon meeting your assigned avatar, write a 2-3 page reflection paper that addresses the following questions:
1. How do you feel about being assigned this avatar?
2. What are your initial reactions after reviewing this avatar’s photo and biography?
3. What are your isms or biases with regards to people who reflect this avatar?

### Part II: Virtual Field Study Activities
You have been provided with a variety of social networking site landmarks in SL that are outside of Nightingale Isle. Sign into SL as your assigned avatar and go into these sites acting as if you are this person. You may not change the assigned avatar in any way. You are not to divulge that you are a student engaged in a project. Plan on spending at least ten hours in SL.

### Part III: Synthesis Paper
Upon completion of the activities within SL, write a 4-5 page paper incorporating the following:
1. What attitudes, biases, and isms did you bring with you into the sites you visited as your assigned avatar? How did this affect your interactions with other avatars in SL?
2. How were you treated by other avatars in SL? How did you feel about that?
3. If you had been able to change your assigned avatar before visiting SL social networking sites, what changes would you have made to increase your level of comfort?
4. Integrating course concepts and personal lessons learned during this assignment, explain how you might use and apply this knowledge in the nurse educator role.
5. How do you anticipate your nursing practice will change after completing this field experience and course?

### Part IV: Class Presentation
Prepare a 3 slide presentation on your experiences in SL that integrates related course concepts. Include 1) a summary of your experience in SL; 2) integration of the SL field study experience with course readings and discussion; and 3) a discussion of how you will use what you have learned to create an inclusive nursing education environment (give specific examples). These slides will be presented during the last night of class.

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*Figure 3 Inclusivity field study experience in Second Life®.*
Examples of Diverse Avatars that can be purchased in SL marketplace.

- Huang in London style
- Complete Avatar Rapper
- Palmira Complete avatar
- The Older Man Skin & Shape Set
- Brian The New Yorker
As the students ventured out into the virtual world of Second Life, they took the avatar stories with them and played them out with other avatars they met. As the stories became more and more real to the students, they elicited some interesting responses.
Abukar Kariunga

"Being treated like this in real life would have a negative impact on how I viewed myself."

"My fear of others thinking I was a terrorist might have been my own bias."

"Other Avatars wouldn’t come close to me."

"I think I have a better idea of what being a minority is like."

"I still bring my own personality to my avatar - A bit of projection?"

"I was nervously excited to get started."
Cody Wheelwright

“I found my inner voice... I felt empowered to do things I wouldn’t do in real life.”

“How I thought I would be treated affected the way I interacted with others.”

“Through this I gained an appreciation for my biases and prejudices.”

“Homophobia... Why were other male avatars afraid I was hitting on them?”

“If I had a choice I would lose the wheelchair.”

“Other Avatars wouldn’t come close to me.”
“I thought since I was a millennial I would love this.....I didn’t.”

“I encountered the micro-aggression of disability blindness.”

“I found I judged people because of their appearance...that surprised me.”

“Doing this assignment made me realize that I have biases about certain age groups that are not true.”

“People learn in different ways, and it is important to include a variety of techniques.”
**Destiny Endersleigh**

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<thead>
<tr>
<th>Quote 1</th>
<th>Quote 2</th>
<th>Quote 3</th>
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<tbody>
<tr>
<td>“I thought since I was a millennial I would love this.....I didn’t.”</td>
<td>“Other avatars made rude comments about my clothes asking me if I got them at a thrift shop?”</td>
<td>“I would have been more comfortable if I looked like myself.”</td>
</tr>
<tr>
<td>“After completing this assignment, I have noticed the lack of inclusivity in my place of work.”</td>
<td>“When I was at the beach I was told that I wouldn’t get any darker if I sat in the sun.”</td>
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Javan Soulstar

“I didn’t interact with others because I was afraid how they would react to me.”

“I projected my own biases on my avatar. I thought people who think badly of me because of how I looked.”

“I didn’t want the homeless avatar to hang out with me.”
“When I encountered other avatars in my travels, they ignored me and moved away from me.”

“I thought other avatars would judge me because of my size. So, I stayed to the outside of the social places.”

“If I had a choice I would have made my avatar slimmer.”

“Initially, I was worried I would project my feelings of insecurity on my avatar.”
“I was confident that my avatar would be an outcast and be ignored.”

“When I met my avatar I was mortified. I didn’t want to be an old woman.”

“Other avatars didn’t understand why I would choose to be old when I could be young and beautiful.”
“At first I was nervous to play a homeless person. I was amazed at how some people reacted to my avatar.”

“I found that he was either ignored/taunted or pitied.”

“Why would I want to be a homeless man when I could choose to be anyone out in Second Life.”

“As a virtual person, you can create all of your attributes and even your personality to some extent.”

“One avatar listened intently to my story, and then offered support, money, and words of wisdom.”
Publications About This Research

Featured Article

Teaching/Learning in Second Life: Perspectives of Future Nurse-Educators

Jone Tiffany, DNP, RNC, Barbara A. Hoglund, EdD, FNP-C
Bethel University, Department of Nursing, St. Paul, MN 55112, USA

Abstract

Background: Innovative teaching/learning strategies that simulate real world situations are needed. The virtual world of Second Life (SL) provides an opportunity for nurse educators to develop meaningful, simulated learning experiences that are transferable to the real world of nursing practice.

Methods: Students enrolled in a graduate nursing education course were invited to complete pre- and post-activity surveys regarding perceptions and experience related to using SL as a teaching/learning strategy.

Results: The simulated role-play experience in SL helped 18 of 22 students to apply concepts regarding the lived experience of marginalized persons. Students described a meaningful learning experience; 11 reported a sense of presence and connectedness. Barriers and challenges related to user self-efficacy, and communication within the virtual world were identified.

Conclusion: With careful planning, the use of SL as an innovative teaching/learning strategy for nursing education was validated.

Key words: Second Life; online virtual world; virtual reality; simulation; virtual reality; nursing education; innovative teaching/learning strategies; teaching/learning; computer self-efficacy.

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Nurse-educators are facing unparalleled challenges to address the changing demographics and learning styles of today’s learners and the ever-evolving, complex requirements of the practice environment. In addition, many of today’s traditional-aged college students have been raised in a multi-cultural, multi-faceted, global world. This generation has grown up with technology in all areas of life. Communication, music, entertainment, and education (Massaro, Sutphen, Leonard, & Day, 2000; Billing, 2007). These factors, coupled with the knowledge explosion and complexity of new information technologies, have nurse-educators reevaluating the relevance of current teaching strategies. Innovative educational strategies are needed to better prepare nurses to succeed in complex health care environments where quality and safety are paramount.

Virtual reality software and environments such as Second Life (SL), Linden Labs, San Francisco, CA) hold potential as one of the solutions by providing an innovative and interactive platform for educational experiences that simulate real world situations. This platform offers opportunities to utilize the virtual world to expose nursing students to learning in a new way. The purpose of this small, exploratory study was to trial the use of SL with graduate nurse-educator students, and to obtain insights regarding this innovative teaching/learning methodology.

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Using Virtual Simulation to Teach Inclusivity: A Case Study

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Abstract

Background: The topics of inclusivity, diversity, and cultural awareness are difficult to adequately explore in a traditional classroom setting. The use of the virtual platform of Second Life® afforded a unique opportunity to use virtual role-play simulation to experience what it is like to walk in another's shoes.

Method: Fifteen graduate nurse educator students enrolled in a course titled "Inclusivity in Nursing Education" were randomly assigned a customized avatar, representing a marginalized person for use in a role-play simulation in the virtual world of Second Life®. Two written assignments regarding the learning experience were evaluated using a qualitative analysis.

Results: Students indicated that they increased their own capacity to understand, appreciate, and relate to people different from themselves.

Conclusion: Although future research is needed to determine the full extent to which virtual platforms can be used effectively for nursing education, this case study demonstrated that virtual learning regarding complex topics can take place in the virtual world.

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To facilitate safe and effective nursing practice, nurse educators strive to develop curricula that facilitate an appreciation and understanding of diversity and helps nursing students learn to understand patient cultural frames of reference from their own lens (Pyburn, R. A., 2013). Because inclusivity and cultural competency are difficult topics to address in the classroom and nursing students have varied clinical experiences that expose them to these concepts, an innovative approach to address these concerns was needed. This article describes the use of Second Life® (SL) as an interactive learning environment and how SL facilitated graduate nursing student exploration of concepts related to cultural awareness, inclusivity, diversity, personal bias, and their related practice of nursing. The results of this qualitative analysis and two written student assignments are presented.

Theoretical Underpinnings

Nursing education is moving from traditional pedagogical to the use of constructivist pedagogy, which shifts the role of...
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