USING LEARNING OBJECTIVES TO DETERMINE LEVEL OF FIDELITY COMPARED TO TRADITIONAL CLINICAL EXPERIENCES FOR THE STUDENTS’ PERCEIVED LEARNING EFFECTIVENESS

TERESA GORE, PHD, DNP, FNP-BC, NP-C, CHSE-A ASSOC. PROFESSOR AND DIRECTOR EXPERIENTIAL LEARNING
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ANCC

Continuing Nursing Education

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DISCLOSURES

Conflict of Interest

• Teresa Gore is the President of INACSL, co-developer of the INACSL-CAE Healthcare Simulation Fellowship, and co-developer of SLS Simulation for Leadership
• 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 90% of session
• Complete evaluation
OBJECTIVES

Upon completion of this presentation, participants will be able to:

1. Provide background information on comparison of simulation learning and traditional clinical learning and the Clinical Learning Environments Comparison Survey (CLECS)

2. Describe the two simulation experiences and traditional learning experiences used in the study

3. Discuss the results and impact on current BSN learning
FIRST AND FIFTH SEMESTERS

FIRST SEMESTER

Students enrolled in Fundamental/Assessment course and clinical: Completed eight weeks of lecture and practice in the lab setting

Students randomized into nine clinical groups: seven groups of eight students and two groups of seven students

Students randomly assigned within groups as a pair to care for one simulated patient

Mock Hospital simulation Week 9

Traditional Clinical Experience Weeks 10-15

Completion of the CLECS

FIFTH SEMESTER

Fifth Semester Senior Leadership Course Cohort

Advanced Mock Hospital Leadership Clinical

Traditional Inpatient Leadership Clinical

Complete CLECS

Preceptorship

Traditional Inpatient Leadership Clinical

Advanced Mock Hospital Leadership Clinical
RESEARCH QUESTIONS

1. What is the relationship between first semester students’ perceived learning effectiveness on communication and teaching-learning dyad for an initial inpatient care medium-fidelity manikin and mid-level environmental fidelity simulation, and traditional clinical experience?

2. What is the relationship between first semester students’ perceived learning effectiveness on communication and teaching-learning dyad for an initial inpatient care medium-fidelity manikin and mid-level environmental fidelity simulation, and traditional clinical experience?

3. What is the relationship between students’ perceived learning effectiveness on communication, nursing leadership, teaching-learning dyad, and sum total score in simulation, and traditional clinical experience?
Kolb’s Experiential Learning Theory

Concrete Experience (doing/having an experience)

Reflective Observation (reviewing/reflecting on the experience)

Abstract Conceptualization (concluding/learning from the experience)

Active Experimentation (planning/trying out what you have learned)

REVIEW OF LITERATURE

National Council of State Boards of Nursing (NCSBN) National Simulation Study

- Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014

The International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice: Simulation

- INACSL, 2013

Students prefer high fidelity

REVIEW OF LITERATURE

Simulation can improve:

• Knowledge
  • Gates, Parr, & Hughen, 2012; Howard, Ross, Mitchell, & Nelson, 2010; Lapkin et al., 2010; Tiffen, Corbridge, Shen, & Robinson, 2010

• Competence
  • Butler, Veltre, & Brady, 2009; McGaghie, Issenberg, Petrusa, & Scalese, 2009

• Self-efficacy
  • Kameg, Howard, Clochesy, Mitchell, & Suresky, 2010

• Confidence
  • Arnold et al., 2013; Cooper et al., 2011; Tiffen, et al., 2010; Wang, Fitzpatrick, & Petrini, 2013
REVIEW OF LITERATURE

Other studies state no change in knowledge measured on tests after higher levels of fidelity


Dearth of studies comparing simulation to traditional clinical experiences

• Gore, Leighton, Sanderson, & Wang, 2014
STUDY

Purpose: to explore the relationship of students’ perceived learning effectiveness of:

- different levels of fidelity simulation based on the learning objectives
- traditional clinical experiences based on the learning objectives.

Explore the relationship between students’ perceived effectiveness of simulation and traditional clinical experiences.

Convenience sampling for a descriptive correlational design for a cross-sectional study
A 29-item side-by-side comparison of students’ perceived learning needs in the traditional clinical environment and the simulated clinical environment.

Sum score for perceived learning along with six subscales: communication, nursing process, holism, critical thinking, self-efficacy, and teaching-learning dyad (Leighton, 2007).

After exploratory factor analysis with principal component extraction and an oblique rotation:

- Nursing Leadership (18 items)
- Communication (6 items)
- Teaching-Learning Dyad (5 items)
Reliabilities for Each Subscale in CLECS (Cronbach’s Alpha)

<table>
<thead>
<tr>
<th>CLECS Subscales</th>
<th>Traditional Clinical Environment</th>
<th>Simulated Clinical Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Leadership (18 items)</td>
<td>.933</td>
<td>.942</td>
</tr>
<tr>
<td>Communication (6 items)</td>
<td>.828</td>
<td>.898</td>
</tr>
<tr>
<td>Teaching-Learning Dyad (5 items)</td>
<td>.830</td>
<td>.862</td>
</tr>
<tr>
<td>Overall Scale</td>
<td>.923</td>
<td>.935</td>
</tr>
</tbody>
</table>
# RESULTS

<table>
<thead>
<tr>
<th>CLECS Subscales</th>
<th>Traditional Clinical Environment</th>
<th>Simulated Clinical Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Semester</td>
<td>5&lt;sup&gt;th&lt;/sup&gt; Semester</td>
</tr>
<tr>
<td>Nursing Leadership (Possible 0-72)</td>
<td>$M$ (SD)</td>
<td>$M$ (SD)</td>
</tr>
<tr>
<td></td>
<td>53.03 (8.15)</td>
<td>54.03 (8.34)</td>
</tr>
<tr>
<td>Communication (Possible 0-20)</td>
<td>14.59 (4.79)</td>
<td>14.77 (5.29)</td>
</tr>
<tr>
<td>Teaching-Learning Dyad (Possible 0-24)</td>
<td>21.26 (2.59)</td>
<td>20.62 (2.72)</td>
</tr>
<tr>
<td>Total (Possible 0-116)</td>
<td>88.88 (13.05)</td>
<td>89.41 (13.30)</td>
</tr>
</tbody>
</table>
**RESEARCH QUESTION 1**

*First Semester Students Pair-Sample t-Test on CLECS between Traditional and Simulated Clinical Environments*

<table>
<thead>
<tr>
<th>CLECS Subscales</th>
<th>Pair-Samples t-Test (df=102)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$t$</td>
</tr>
<tr>
<td>Nursing Leadership</td>
<td>0.92</td>
</tr>
<tr>
<td>Communication</td>
<td>-1.59</td>
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<tr>
<td>Teaching-Learning</td>
<td>-0.58</td>
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<tr>
<td>Dyad</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-0.43</td>
</tr>
</tbody>
</table>

**Note:** *Statistical significance $p < 0.05$*
**RESEARCH QUESTION 2**

*Fifth Semester Students Pair-Sample t-Test on CLECS between Traditional and Simulated Clinical Environments*

<table>
<thead>
<tr>
<th>CLECS Subscales</th>
<th>Pair-Samples t-Test (df=154)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
</tr>
<tr>
<td>Nursing Leadership</td>
<td>0.69</td>
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<tr>
<td>Communication</td>
<td>-4.51</td>
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<tr>
<td>Teaching-Learning Dyad</td>
<td>1.33</td>
</tr>
<tr>
<td>Total</td>
<td>-1.71</td>
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</table>

Note: * Statistical significance $p < 0.05$
RESEARCH QUESTION 3

Comparison of First and Fifth Semester Students in Traditional and Simulated Clinical Environments on the CLECS

<table>
<thead>
<tr>
<th>CLECS Subscales</th>
<th>Factor</th>
<th>F</th>
<th>p</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td>$1^{st}$ vs. $5^{th}$</td>
<td>0.43</td>
<td>.52</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>Traditional vs. Simulation</td>
<td>17.15</td>
<td>&lt;.001*</td>
<td>.063</td>
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<tr>
<td></td>
<td>Interaction</td>
<td>4.00</td>
<td>.046*</td>
<td>.015</td>
</tr>
<tr>
<td></td>
<td>$1^{st}$ vs. $5^{th}$</td>
<td>0.81</td>
<td>.37</td>
<td>.003</td>
</tr>
<tr>
<td><strong>Nursing Leadership</strong></td>
<td>Traditional vs. Simulation</td>
<td>1.17</td>
<td>.28</td>
<td>.005</td>
</tr>
<tr>
<td></td>
<td>Interaction</td>
<td>0.019</td>
<td>.89</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>$1^{st}$ vs. $5^{th}$</td>
<td>2.05</td>
<td>.15</td>
<td>.008</td>
</tr>
<tr>
<td><strong>Teaching-Learning</strong></td>
<td>Traditional vs. Simulation</td>
<td>0.27</td>
<td>.60</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Interaction</td>
<td>1.68</td>
<td>.20</td>
<td>.007</td>
</tr>
<tr>
<td></td>
<td>$1^{st}$ vs. $5^{th}$</td>
<td>0.001</td>
<td>.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Dyad</strong></td>
<td>Traditional vs. Simulation</td>
<td>2.09</td>
<td>.15</td>
<td>.008</td>
</tr>
<tr>
<td></td>
<td>Interaction</td>
<td>.70</td>
<td>.41</td>
<td>.003</td>
</tr>
</tbody>
</table>

Note: * Statistical significance p < 0.05
COMMUNICATION
CONCLUSIONS

• Results revealed that by designing a simulation to meet the learning objectives, not just the fidelity level of the simulation, students perceived the learning experience as equitable to the traditional learning experiences.

• The participating students preferred to communicate with human patients and not manikins, especially in the lower level of fidelity simulation.
IMPLICATIONS

- Alternative for traditional clinical experiences of nursing students
- Potentially change the way nursing students are educated
- Provide empirical evidence for simulation as an equal clinical experiences as the traditional clinical experiences if the appropriate level of fidelity is used to meet the learning objectives
CONTACT

Teresa Gore, PhD, DNP, FNP-BC, NP-C, CHSE-A
University of South Florida College of Nursing
Associate Professor and Director Experiential Learning

tgore@health.usf.edu

USF HEALTH

USF College of Nursing
12901 Bruce B. Downs Blvd, MDC 22
Tampa, Florida 33612-4766
www.health.usf.edu/nursing

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