Improvement in Student Satisfaction and Confidence Levels through Simulation Activities

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Disclosure Slide

- Cynthia L. Cummings EdD, RN & Linda K. Connelly PhD, ARNP
- University of North Florida
- There is no conflict of interest, nor any commercial support for this project.

At the completion of this presentation, the participant will be able to:

- Identify certain components of the Student Satisfaction with Learning Scale, the Self-Confidence in Learning Using Simulations Scale, and the Educational Practices Scale.
- Discuss the importance of student satisfaction and confidence levels as they pertain to student learning outcomes.
Background

- Beginning in December 2013, the adult health faculty wanted to study whether the undergraduate nursing students showed improvement in their satisfaction and confidence levels as they progressed with simulation activities through the curriculum.
- An IRB was obtained to survey the students through voluntary participation. No grade was assigned, they were asked to consent to participate on their own time.
The Survey was made up of 30 questions, containing the following scales:

- **Student Satisfaction with Learning Scale** - 5 items (r=0.94)
- **Self-confidence in Learning Using Simulations Scale** - 8 items (r=0.87)
- **Educational Practices in Simulation Scale** - 16 items (r=0.86 and 0.91)
- One item identifying the level of the student

Approval for use of the survey was obtained through the NLN

### Student Satisfaction and Self-Confidence in Learning

**Instructions:** This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your simulation activity. Each item represents a statement about your attitude toward your satisfaction with learning and self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs. Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

**Mark:**
1. **STRONGLY DISAGREE** with the statement
2. **DISAGREE** with the statement
3. **UNDecided** - you neither agree or disagree with the statement
4. **AGREE** with the statement
5. **STRONGLY AGREE** with the statement

<table>
<thead>
<tr>
<th>Self-confidence</th>
<th>SD</th>
<th>D</th>
<th>UN</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The teaching methods used in this simulation were helpful and effective.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I enjoyed how my instructor taught the simulation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. The teaching materials used in this simulation were motivating and helped me to learn.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. The way my instructor(s) taught the simulation was suitable to the way I learn.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Satisfaction with Current Learning</th>
<th>SD</th>
<th>D</th>
<th>UN</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
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<td>4</td>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

### Educational Practices Questionnaire (Student Version)

Use the following rating system when assessing the educational practices:
1. **Strongly Disagree** with the statement
2. **Disagree** with the statement
3. **Undecided** - you neither agree or disagree with the statement
4. **Agree** with the statement
5. **Strongly Agree** with the statement

**NA** - Not Applicable; the statement does not pertain to the simulation activity performed.

**Rate each item based upon how important that item is to you.**
1. **Not Important**
2. **Somewhat Important**
3. **Neutral**
4. **Important**
5. **Very Important**

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>NA</th>
</tr>
</thead>
</table>
| **Active Learning:**
1. I had the opportunity during the simulation activity to discuss the ideas and concepts taught in the course with the teacher and other students. | 0 | 0 | 0 | 0 | 0 | NA |
2. I actively participated in the debriefing session after the simulation. | 0 | 0 | 0 | 0 | 0 | NA |
3. I had the opportunity to put more thought into my comments during the debriefing session. | 0 | 0 | 0 | 0 | 0 | NA |
4. There were enough opportunities in the simulation to find out if I clearly understood the material. | 0 | 0 | 0 | 0 | 0 | NA |
5. I learned from the comments made by the teacher before, during, or after the simulation. | 0 | 0 | 0 | 0 | 0 | NA |
6. I received cues during the simulation in a timely manner. | 0 | 0 | 0 | 0 | 0 | NA |
7. Had the chance to discuss the simulation objectives with my teacher. | 0 | 0 | 0 | 0 | 0 | NA |
8. Had the opportunity to discuss ideas and concepts taught in the simulation with my instructor. | 0 | 0 | 0 | 0 | 0 | NA |
9. The instructor was able to respond to the individual needs of learners during the simulation. | 0 | 0 | 0 | 0 | 0 | NA |
10. Using simulation activities made my learning time more productive. | 0 | 0 | 0 | 0 | 0 | NA |
Curriculum

- Looked at the difference between the 3rd and 5th semesters, junior and senior years.
- For Simulation Experiences, students have the following:
  - **Junior Year** - second and third semester, students are exposed to simulation through 2 group simulation activities.
    - Pre-simulation activity utilizing the Evolve system. They read the simulation and do a pre-test
    - 3-4 students are in the simulation lab at one time and are assigned roles to perform in care of the patient
    - They participate in a total of 4 simulations.
  - **Senior Year** - 4th and 5th semester, they are exposed to a group simulation in OB and in Pediatrics and then, a group delegation simulation and finally an individual simulation, which is graded and detailed in its complexity
## Mean Results for 8 items

<table>
<thead>
<tr>
<th>Item</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; (n=34)</th>
<th>5&lt;sup&gt;th&lt;/sup&gt; (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item #8 on Survey</td>
<td>3.71</td>
<td>4.5</td>
</tr>
<tr>
<td>Item #9 on Survey</td>
<td>4.29</td>
<td>4.6</td>
</tr>
<tr>
<td>Item #10 on Survey</td>
<td>4.15</td>
<td>4.55</td>
</tr>
<tr>
<td>Item #14 on Survey</td>
<td>4</td>
<td>4.4</td>
</tr>
<tr>
<td>Item #17 on Survey</td>
<td>4.5</td>
<td>4.75</td>
</tr>
<tr>
<td>Item #18 on Survey</td>
<td>4.32</td>
<td>4.5</td>
</tr>
<tr>
<td>Item #19 on Survey</td>
<td>3.97</td>
<td>4.3</td>
</tr>
<tr>
<td>Item #25 on Survey</td>
<td>4.06</td>
<td>4.65</td>
</tr>
</tbody>
</table>
Results

• Looked at all items and compared them using a T test for each item separately.
• We found that 8 items stood out as having a critical value of T, which allowed us to reject the null hypothesis at 53 df and .05 for a one tailed test or a confidence level of 0.95

• Item #8 - 2.0395
• Item #9 - 2.0395
• Item #10 - 2.0227
• Item #14 - 2.0301
• Item #17 - 2.0196
• Item #18 - 2.0227
• Item #19 - 2.0301
• Item #25 - 2.0227
## Critical Values of T scale

<table>
<thead>
<tr>
<th>n - 1</th>
<th>0.900</th>
<th>0.950</th>
<th>0.990</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1.812</td>
<td>2.228</td>
<td>3.169</td>
</tr>
<tr>
<td>20</td>
<td>1.725</td>
<td>2.086</td>
<td>2.845</td>
</tr>
<tr>
<td>30</td>
<td>1.697</td>
<td>2.042</td>
<td>2.750</td>
</tr>
<tr>
<td>40</td>
<td>1.684</td>
<td>2.021</td>
<td>2.704</td>
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<tr>
<td>50</td>
<td>1.676</td>
<td>2.009</td>
<td>2.678</td>
</tr>
<tr>
<td>60</td>
<td>1.671</td>
<td>2.000</td>
<td>2.660</td>
</tr>
<tr>
<td>70</td>
<td>1.667</td>
<td>1.994</td>
<td>2.648</td>
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<tr>
<td>80</td>
<td>1.664</td>
<td>1.990</td>
<td>2.639</td>
</tr>
<tr>
<td>90</td>
<td>1.662</td>
<td>1.987</td>
<td>2.632</td>
</tr>
<tr>
<td>100</td>
<td>1.660</td>
<td>1.984</td>
<td>2.626</td>
</tr>
</tbody>
</table>
Combined item T test

- When the 8 items were combined we found $p < .001$
Items that showed Significance

- I am confident that I am mastering the content of the simulation activity (self-confidence)
- I am confident that this simulation covered critical content necessary for the mastery of medical-surgical content (self-confidence)
- I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting. (self-confidence)
- I know how to use simulation activities to learn critical aspects of these skills (self-confidence)
Items that showed Significance

• I actively participated in the debriefing session after the simulation. (active learning)
• I had the opportunity to put more thought into my comments during the debriefing session. (active learning)
• There were enough opportunities in the simulation to find out if I clearly understand the material. (active learning)
• Using simulation activities made my learning time more productive. (active learning)
Why is self-confidence and active learning important?

- Active learning is vitally important for the student to construct a knowledge base, in addition, this learning must be real-world in order to be assimilated (Vygotsky, 1978)
- Self-Confidence is one’s belief in their ability to succeed, this effects the effort they will put forth when confronted with a task and how long they will persist when confronted with obstacles (Bandura, 1997)
Why is self-confidence and active learning important?

• Simulation has been associated with improved self-confidence in many articles: Gaberson & Oermann, 2010; Swenty & Eggleston, 2010; Pike & O’Donnell, 2009; Tosterud, Hedelin, & Hall-Lord, 2013; Smith & Roehrs, 2009; Thidemann & Soderhamn, 2012; Handley & Dodge, 2013

• Noted that: “Real life simulations allow students the opportunity to practice clinical skills and refine decision making in an effort to develop confidence in their own abilities.”
Nursing Simulation Framework

- Fit our simulations to the framework

What is the future for Simulation Activities

- Presently looking at what new graduates feel are lacking in their preparation and developing scenarios to fill in some of these gaps
- Simulation needs to be as real-world as possible, scenarios should provide insight for the new graduate
- Evaluate if simulated learning transfers to clinical competence
References


