Improvement in Student Satisfaction and Confidence Levels through Simulation Activities

Cynthia L. Cummings, RN, MS, EdD
Linda K. Connelly, PhD, ARNP

University of North Florida

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.

Survey

- 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

- Jeffries, P. R., & Rizzolo, M. A. (2006). High fidelity simulation: Factors correlated with nursing student satisfaction. NLN publications

Survey

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

Satisfaction with Current Learning	SD	D	UN	A	SA
1. The teaching methods used in this simulation were helpful and effective.	O 1	O 2	O 3	O 4	O 5
2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.	O 1	O 2	O 3	O 4	O 5
3. I enjoyed how my instructor taught the simulation.	O 1	O 2	O 3	O 4	O 5
4. The teaching materials used in this simulation were motivating and helped me to learn.	O 1	O 2	O 3	O 4	O 5
5. The way my instructor(s) taught the simulation was suitable to the way I learn.	O 1	O 2	O 3	O 4	O 5
Self-confidence in Learning	**SD**	**D**	**UN**	**A**	**SA**
6. I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	O 1	O 2	O 3	O 4	O 5
7. I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.	O 1	O 2	O 3	O 4	O 5
8. 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	O 1	O 2	O 3	O 4	O 5
9. My instructors used helpful resources to teach the simulation.	O 1	O 2	O 3	O 4	O 5
10. It is my responsibility as the student to learn what I need to know from this simulation activity.	O 1	O 2	O 3	O 4	O 5
11. I know how to get help when I do not understand the concepts covered in the simulation.	O 1	O 2	O 3	O 4	O 5
12. I know how to use simulation activities to learn critical aspects of these skills.	O 1	O 2	O 3	O 4	O 5
13. It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time..	O 1	O 2	O 3	O 4	O 5

UNF IRB Number: 470234-3
Approval Date: 09-05-2013
Expiration Date: Exempt - None
Processed on behalf of UNF's IRB KLC

Revised December 22, 2004

UNF IRB Number: 470234-3
Approval Date: 09-05-2013
Expiration Date: Exempt - None
Processed on behalf of UNF's IRB KLC

Educational Practices Questionnaire (Student Version)

In order to measure if the best practices are being used in your simulation, please complete the survey below as you perceive it. There are no right or wrong answers, only your perceived amount of agreement or disagreement. Please use the following code to answer the questions.

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

Item	1	2	3	4	5	NA	1	2	3	4	5
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.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
2. I actively participated in the debriefing session after the simulation.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
3. I had the opportunity to put more thought into my comments during the debriefing session.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
4. There were enough opportunities in the simulation to find out if I clearly understand the material.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
5. I learned from the comments made by the teacher before, during, or after the simulation.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
6. I received cues during the simulation in a timely manner.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
7. I had the chance to discuss the simulation objectives with my teacher.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
8. I had the opportunity to discuss ideas and concepts taught in the simulation with my instructor.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
9. The instructor was able to respond to the individual needs of learners during the simulation.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5
10. Using simulation activities made my learning time more productive.	O 1	O 2	O 3	O 4	O 5	O NA	O 1	O 2	O 3	O 4	O 5

Revised December 22, 2004

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

Item	3rd (n=34)	5th (n=20)
Item #8 on Survey	• 3.71	4.5
Item #9 on Survey	• 4.29	4.6
Item #10 on Survey	• 4.15	4.55
Item #14 on Survey	• 4	4.4
Item # 17 on Survey	• 4.5	4.75
Item #18 on Survey	• 4.32	4.5
Item #19 on Survey	• 3.97	4.3
Item #25 on Survey	• 4.06	4.65

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

	Critical Values (t*)		
	Confidence Level		
n − 1	0.900	0.950	0.990
10	1.812	2.228	3.169
20	1.725	2.086	2.845
30	1.697	2.042	2.750
40	1.684	2.021	2.704
50	1.676	2.009	2.678
60	1.671	2.000	2.660
70	1.667	1.994	2.648
80	1.664	1.990	2.639
90	1.662	1.987	2.632
100	1.660	1.984	2.626

Combined item T test

- When the 8 items were combined we found p<.001

T-Test

[DataSet1] C:\Users\n00037004\Documents\Simulation\Averages on 8 questions for 3rd to 5th semester.sav

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	8	4.1250	.24571	.08687
VAR00002	8	4.5313	.14126	.04994

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
VAR00001	47.485	7	.000	4.12500	3.9196	4.3304
VAR00002	90.726	7	.000	4.53125	4.4132	4.6493

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 skils and refine decision making in an effort to develop confidence in their own abilities."

Nursing Simulation Framework

- Fit our simulations to the framework
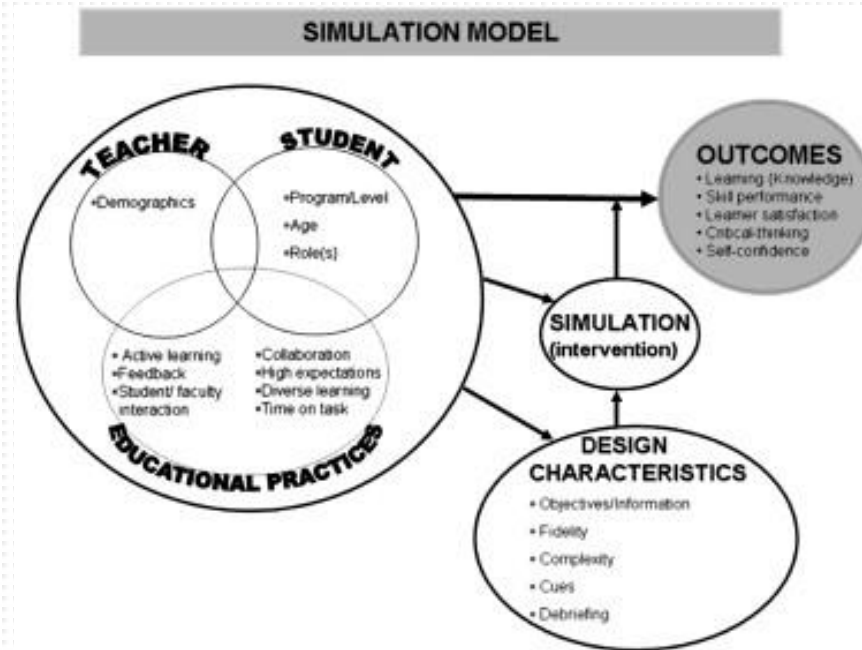
Jeffries. P. R. (2012). Simulation in nursing education: From conceptualization to evaluation. (2nd ed.) NLN publications.

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

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Worth.

Gaberson,K, & Oermann, M.H. (2010).*Clinical teaching strategies in nursing* 3rd ed. New York: Springer.

Handley, R. & Doege, N. (2013). Can simulated clinical practice learning improve clinical competence? *British Journal of Nursing, 22,9, 529-535*.

Jeffries. P. R. (2012). Simulation in nursing education: From conceptualization to evaluation. (2nd ed.) NLN publications.

Jeffries, P. R., & Rizzolo, M. A. (2006). High fidelity simulation: factors correlated with nursing student satisfaction and self-confidence. NLN publications.

Oermann, M.H., Poole-Dawkins K., Alvarez, M.T., Foster, B.B., & O'Sullivan, R. (2010). Manager's perspectives of new graduates of accelerated nursing programs: How do they compare with other graduates? *Journal of Continuing Education,* 41(9):394-400.

Pike, T., & O'Donnell, V. (2010). The impact of clinical simulation on learner self-efficacy in pre-registration nursing education. *Nurse Education Today, 30,* 405-410.

Swenty, C. F., & Eggleston, B. M. (2010). The evaluation of simulation in a baccalaureate nursing program. *Clinical Simulation in Nursing, doi: 10.1013/jecns.2010.02.006.*

Thidemann, I. J., & Soderhamn, O. (2013). High-fidelity simulation among bachelor students in Simulation groups and use of different roles. Nurse Education Today, 33, 1599-1604.

Tosterud, R., Hedelin, B., Hall-Lord, M. (2013). Nursing students' perceptions of high an dlow fidelity simulation used as learning methods. *Nursing Education in Practice, 13, 262-270.*

Vygotsky, L. S. (1978). Mind in society. Cambridge, MA: Harvard University Press.