



Improving New Graduate Nurse Competency: A Research Study to Examine the Effects of Didactic and Simulation Learning on Critical Thinking Ability-Preliminary Results

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Introduction

- New graduate nurses are expected to be clinically competent in *critical thinking* (CT) to solve patient problems .
- However, employers report 35% of new graduate nurses lack initial competency which may take as long as 6 months to 2 years to develop.
- Strategies to promote CT in new graduates may be effective in filling the gap between new nurse and competent new nurse.
- A quasi experimental study to examine the effects of didactic and simulation education on CT in new graduate nurses is being conducted.
- This is a preliminary examination of research in progress which could contribute to the much sought-after CT knowledge base.

Setting and Cohort 1 Sample (n = 27)

Setting:
 A larger tertiary care medical center, northeast United States.
Sample:
 The convenience sample consisted of 27 newly employed volunteer graduate nurses from diploma, ADN, and BSN programs.

Sample Demographics	
Mean Age in Years	26.48 (SD 8.07, median 22, range 21-52)
Gender	96.3% female
Ethnicity	96.3% Caucasian, nonHispanic 3.7% Asian/Pacific Islander
Nursing education	59.3% Baccalaureate 25.9% Associate Degree 14.8% Diploma
Other College Degree	14.8 % Associate Degree 11.1% Baccalaureate
Mean prior Simulation Experience in hours (n = 26)	9.98 (SD 19.13 , median 5, range 0-100)
Mean prior CT training in hours (n = 25)	19.68 (SD 19.13 , median 43.85, range 0-200)

Method

Quasi experimental pre-test/post test research design of nonequivalent groups using two cohorts, 3 months apart, participating in a hospital clinical orientation program, which includes classroom and simulation training.

Both groups participated in a standard new graduate 6 week orientation program which included one week of classroom topics followed by hospital clinical orientation with a preceptor.

The experimental group, in addition to the standard orientation, had an additional 45 minutes class explaining nine principles of CT. Participants were given cards that contained the basic principles of critical thinking for the clinical area. One high fidelity simulation of scenarios likely to be found in subjects' practice setting is given in groups of 8. For each simulation 10 standard questions are asked during simulation to stimulate CT.

Critical Thinking Comments and Behaviors:

- That's an interesting question. Let's explore this.
- How did you come to that conclusion? Walk me through your thinking on this.
- What other ways might also work?
- Do you have a different idea how to do this?
- What are some possible outcomes of that approach?

Validation Remarks to Promote Patient Participation

- Let's think about this together for a minute.
- This is what I'm thinking, what do you think?
- What is your most important concern right now?
- How is all of this affecting you?

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Front & back of critical thinking card given to experimental group for use in clinical orientation.

STANDARD SIMULATION CRITICAL THINKING QUESTIONS
 Dear Simulation Educator:
 The following questions are questions that must be used during each simulation in this study to insure that the treatment for each simulation group is the same. We need to be sure that each group receives a single standard of critical thinking training imbedded in the simulation scenario. Therefore, during the simulation please make sure that each of the following questions are included. While teaching, ask learners the following:
 1. Explain why your answer is right or wrong.
 2. Are you taking everything into account?
 3. Can you think of another approach?
 4. Are you missing anything?
 5. What is your evaluation of the information?
 6. Are you asking all the questions you should be asking?
 7. Do you see any patterns here?
 8. Was all the important information gathered?
 9. What is the evidence to support your conclusion?
 10. What do you think will be the consequences of that decision?

Standard questions asked by facilitator during CT simulation sessions

Instruments

California Critical Thinking Skills Test – CCTST-2000. General critical thinking ability. Valid and reliable.

Researcher made Perception of Critical Thinking Ability Scale (α = .73, n = 26).

Code Number [] [] [] [] [] [] [] [] [] []

Study: Using Simulation to Promote Critical Thinking Skills in New Graduate Nurses
 PERCEPTION OF CRITICAL THINKING ABILITY SCALE
 The following questions ask what you think of your critical thinking ability. The scale is '0' to '10', zero is low and ten is high. Please circle the numeral which represents your self-rating score on each question. Your answers are confidential. Please answer to the best of your ability. Try not to leave any blanks!

Thank you for your participation!

Item	LOW	HIGH
1. I feel that I can accurately recognize a clinical patient problem.	0 1 2 3 4 5 6 7 8 9 10	
2. I feel that I easily synthesize patient clinical data.	0 1 2 3 4 5 6 7 8 9 10	
3. I feel that I do the right things for patients for the right reasons.	0 1 2 3 4 5 6 7 8 9 10	
4. I feel I know when a patient is in trouble.	0 1 2 3 4 5 6 7 8 9 10	
5. I have enough nursing knowledge to solve patient problems.	0 1 2 3 4 5 6 7 8 9 10	
6. I have enough technical skills to be able to solve patient problems.	0 1 2 3 4 5 6 7 8 9 10	
7. I have enough intellectual ability to do critical thinking about patient problems.	0 1 2 3 4 5 6 7 8 9 10	
8. I can figure out what is most important right now when solving a patient problem.	0 1 2 3 4 5 6 7 8 9 10	
9. I can easily figure out the important information from the less important information.	0 1 2 3 4 5 6 7 8 9 10	
10. When I need to act, I know what to do next.	0 1 2 3 4 5 6 7 8 9 10	
11. When I think about doing a task, I think about why I am doing it.	0 1 2 3 4 5 6 7 8 9 10	
12. When I have a clinical problem to solve, I gather facts first.	0 1 2 3 4 5 6 7 8 9 10	
13. When I have a clinical problem to solve, I think about alternative solutions.	0 1 2 3 4 5 6 7 8 9 10	
14. When I have a clinical problem to solve, I act first and evaluate my action later.	0 1 2 3 4 5 6 7 8 9 10	
15. When I have a clinical problem to solve, I think about the consequences of my solutions.	0 1 2 3 4 5 6 7 8 9 10	
16. When a patient has a problem, I usually finish whatever I am doing first.	0 1 2 3 4 5 6 7 8 9 10	
17. When I have a clinical problem to solve, I do not consult with my peers.	0 1 2 3 4 5 6 7 8 9 10	
18. When I have a clinical problem to solve, I consult with experienced nurses.	0 1 2 3 4 5 6 7 8 9 10	
19. When another nurse consults with me, I am happy to help with problem solving.	0 1 2 3 4 5 6 7 8 9 10	
20. When I have a clinical problem to solve, I usually find it hard to make a decision.	0 1 2 3 4 5 6 7 8 9 10	

Preliminary Data

Education, as measured by degrees, was the only demographic variable that significantly associated with perceptions of CT (Spearman's rho = .411, p = .037, n = 26).

However there was a significant correlation depending on type of other degree, Associate Degree (AD) significantly correlating with self perception of critical thinking ability (AD rho = .046, p = .04; Baccalaureate Degree (BD) rho = .113, p = .584).

No other demographic variables correlated with perception of critical thinking ability.

- ### Participant Take-Home Points after Critical Thinking Simulation Sessions
1. "Ask questions."
 2. "When you run out of ideas, consult someone else to help."
 3. "Ask good questions."
 4. "Critical thinking is a vital part of nursing care."
 5. "Think outside the box, rule out everything, don't just jump to conclusions."
 6. "Don't focus on one idea when gathering and assessing data."
 7. Be thorough with the assessment and consider all possibilities for the problem."
 8. "How little I know."
 9. "I know nothing. 😊"
 10. "Ask for help if not sure what to do."
 11. "Ask the right questions. Always be thinking about what changes could mean."
 12. "Talk out loud to explore all options."
 13. "Practice, practice always."
 14. "Think critically."
 15. "Learning to think about all the possibilities."
 16. "Looking at the 'big picture'—could this be something else?"
 17. "The benefits of collaborating with another nurse in order to avoid missing valuable clues or overlooking pertinent data."

Discussion

In this preliminary review of the data, self perception of CT ability only associates with having a previous college degree. Multiple degrees could mean older age, but age did not associate with self perception of CT ability. Therefore, it may be that despite the difficulties in defining and teaching CT, some learning about the process occurs in academic settings. A previous Associate Degree had greater association than a baccalaureate degree.

Examining post intervention changes in CT self perception ability and general CT ability and comparing results with a control group may help in understanding development of CT ability in clinical settings.. Further analysis is necessary in this study among related demographic variables and self perception, and general CT ability.

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