

Enhancing Clinical Reasoning: Teaching Thinking through Debriefing

INACSL “Debra Spunt” Research Mini-Grant Proposal

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Submitted for review and consideration
on behalf of the co-researcher participants

Co-Researcher Participants

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Abstract

How nurses are educated and oriented to thinking in practice is receiving well-deserved attention in the literature. In their recent book, *Educating nurses: A call for radical transformation*, Benner, Sutphen, Leonard, and Day (2010) discuss the need for innovative and transformative strategies that guide nurses in the use of nursing knowledge and science. Novice nurses begin their practice using rule-governed behavior to solve problems and thus are acontextual in their thinking (Benner, Tanner & Chesla, 1996). Educational strategies need to focus on enhancing clinical reasoning through a learner-centered approach that guides thinking through the use of reflection and dialogue to make an inferential link between thinking and doing (Forneris and Peden-McAlpine, 2007, 2009). The use of simulation in nursing education provides opportunities to practice these clinical reasoning skills in a controlled environment (Jeffries, 2007). Debriefing, as a component of simulation, engages the learner in an active approach to link thinking and doing. Using Kristina Dreifuerst's (2010) Debriefing for Meaningful Learning Model (DML), this multi-site study focuses on the debriefing process to enhance clinical reasoning in an attempt replicate Dreifuerst's (2010) findings. Clinical reasoning will be measured through the Health Sciences Reasoning Test (HSRT) in a pre-test, post-test design. Using the National League for Nursing's (NLN) Advancing Care Excellence for Seniors (ACES) Millie Larsen geriatric simulation scenario (Reese, 2010), undergraduate nursing students across four different colleges of nursing will participate in the DML debriefing strategy to determine its impact on clinical reasoning skills.

Significance

Educational strategies need to focus on enhancing clinical reasoning through a learner-centered approach that guides thinking through the use of reflection and dialogue to make an inferential link between thinking and doing (Forneris and Peden-McAlpine, 2007, 2009). Debriefing, as a significant component of simulation, provides the dialogue and reflection necessary to enhance clinical reasoning (Jeffries, 2007; Decker, 2007; Lasater, 2007; Parker & Myrick, 2010; Chronister & Brown, 2011). While debriefing is highly variable, dependent on faculty preparation and training, Kristina Dreifuerst (2010) enhanced clinical reasoning of nursing students through the use of a structured, standardized method of debriefing emphasizing reflection and dialogue. Using Dreifuerst's (2010) Debriefing for Meaningful Learning Model (DML), this study focuses on the debriefing process to enhance clinical reasoning. The implications for practice and education are clear: engage an active learner-centered approach teaching thinking within the context of care. The use of reflection and dialogue to improve thinking and transfer learning to new practice situations is essential to enhance patient care outcomes.

Question

Does the use of the DML debriefing strategy positively impact the development of clinical reasoning skills in undergraduate nursing students?

Methodology

Research Design

A quasi-experimental, pre-test-post-test, repeated measure, research design will be used in this pilot study to evaluate student nurses' clinical reasoning in simulation using the DML model. The first aim of this pilot study will be to test the impact of a faculty-facilitated, guided reflection teaching strategy to enhance students' development of clinical reasoning skills during a geriatric simulation learning experience. Clinical reasoning in a simulated healthcare context will be measured using the HSRT (Facione & Facione, 1996). The second aim of this pilot will be to confirm a multi-site approach with consistency across sites regarding instructions and procedures, obtain a rough estimate of effect size and variability in the measures, and examine the reliability and validity of results.

The study design was adapted, in part, from Dreifuerst's (2010) dissertation research entitled: *Debriefing for meaningful learning: Fostering development of clinical reasoning through simulation*.

This project will be conducted within the following three baccalaureate nursing programs in Minnesota (four sites, one nursing program consisting of a consortium between two academic institutions):

1. Bethel University
2. St. Catherine University
3. Minnesota Intercollegiate Nursing Consortium- St. Olaf and Gustavus Adolphus Colleges

A convenience sample of volunteer baccalaureate nursing students following a first-year nursing curriculum that includes an adult health, medical/surgical course using simulation learning experiences are the purposive, target population for this research. Senior students beginning their last year of nursing courses will be invited to participate. Following approval by the Ethics/IRB Committee of each academic institution, cover letters and consent forms explaining the purpose of the study will be distributed to students during the first week of scheduled classes.

Based on Dreifuerst's study, 74 total subjects are estimated to be necessary a priori according to Lipsey (1990) and confirmed using G-Power analysis (Faul, Erdfelder, Buchner, & Lang, 2009). Therefore, of the students expressing interest in participating, 25 will be randomly selected for inclusion from each nursing program (a total of 75 subjects) for a medium effect size of .50 and 80% power. Investigators are aware that power analysis is not usually performed for pilot studies; however, using this number of subjects will assist in the identification of challenges to the project, including normality of the distribution, which was an issue in Dreifuerst's study.

Study Procedure/ Data Collection and Analysis

The simulation experience involves an unfolding case that is broken into three separate parts. The unfolding clinical situation is based on didactic content covered in each programs' theory courses. The scenario was developed using the NLN's ACES Millie Larsen geriatric simulation (Reese, 2010). The HSRT pre-test will be administered to students participating in the study prior to the simulation experience. Students will participate in Part 1, a 30 minute simulation scenario followed by a 1.5 hour debriefing session using the DML model. After a 3 week period of time, Part 2 of this unfolding simulation will be take place followed again by a 1.5 hour debriefing using the DML model. Part 3 of the unfolding simulation will be administered following another 3 week time period along with another 1.5 hour debriefing using the DML model. These simulation scenarios are specifically scripted to ensure reliability of student cueing and consistency in faculty performance.

Four students will be randomly assigned to roles in each part of the scenario including the primary nurse, secondary nurse (one who is delegated to), safety sentinel, and documenter. When not participating in one of roles of the scenario, the remaining students will contribute as observers. Faculty investigators will play the scripted roles of the family member and the patient.

Following each stage of the simulation, students and faculty investigators will debrief for the allotted 1.5 hours using the DML student worksheet and DML faculty guide. Faculty will undergo orientation with the DML developer ensure reliability of debriefing administration over time. Three weeks after the final simulation experience, the HSRT post-test will be administered. As in Dreifuerst's study, participants will take another version of the HSRT, which is similar but not identical to the first, to eliminate bias due to familiarity with the items. A period of at least two weeks is recommended between pre-test and post-test to avoid a familiarity effect where students choose answers on the post-test based on something they remember from the pre-test (Facione & Facione, 2006).

SPSS parametric statistical testing will be used to analyze HSRT total scores in this study. Data from the pre-test and post-test will be loaded onto a spreadsheet and imported into SPSS for analysis. Participant identification numbers will be removed from the database used for analysis. The research question will be tested using analysis of covariance on the mean scores from the HSRT pre-test and post-test total mean scores as well as the Mann-Whitney-Wilcoxon *W* on sub-scores.

Limitations of the Study

There are several potential study limitations. Although students at each site will have completed a

an adult health, medical/surgical course using simulation learning experiences, each baccalaureate nursing program’s curricular design and associated simulation experiences are unique, which may influence study findings. Selection bias is an additional limitation to this study. Students who volunteer to participate in the study may not be representative of the population from each academic institution. The HSRT was created for the assessment of healthcare professionals and not specific to the discipline of nursing. Furthermore, the test was designed to measure clinical reasoning in healthcare situations over time and may not be specific enough to measure change in clinical reasoning skills over a single semester. A final limitation to the use of this instrument is cost- there is a fee charged per use.

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Outcomes

There are 3 main outcomes:

1. Students will demonstrate a positive change in clinical reasoning skills using the DML model.
2. Findings will support use of the DML model in undergraduate nursing programs.
3. A multi-site research team will confirm the research design for replication in a larger study.

Evaluation

1. Students’ positive change in clinical reasoning skills will be evaluated as evidenced by significant changes in pre-test and post-test scores on the HSRT.
2. Effectiveness of the DML model in undergraduate nursing programs will be evaluated by significant changes in pre-test and post-test scores on the HSRT.
3. Confirmation of the multi-site approach for replication in a larger study will be evaluated by verifying instructions and procedures with the team of investigators, obtaining a rough estimate of the effect size and variability of the measures, and examining the reliability and validity of the results.

Project Description and Timeline

<i>Spring/Summer 2012-Introduction/Organization</i>	Finalize research procedures Obtain IRB approval at all sites Select and organize the NLN ACES simulation unfolding scenarios Obtain HSRT and train research team on use Obtain DML model and train research team on use
<i>Fall 2012 – Data Collection</i>	Recruit subjects and implement study with senior nursing students at multiple sites
<i>Fall 2012/Spring 2013 - Analysis</i>	Analyze and interpret data
<i>Summer 2013 - Dissemination</i>	Disseminate results (publications, presentations, etc.)

Budget

Category: Critical Thinking Resource Insight Assessment Tools	Total Amount
1 - CT Learning Support Resource Pack	Included with package
1 - HSRT Specimen Kit Digital	\$45.00
150 – HSRT test (25 for each nursing program X 2 administrations)	\$1800.00
1 – CT and CR book	Included with package
1 – E-testing system orientation	\$165.00
Orientation costs of faculty to DML by consultant	\$350.00
*Total Amount	\$2360.00
*Costs not covered by the grant will be funded by other sources	

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