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A Shared Mental Model for High-Stakes Simulation Evaluation in Nursing Education

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Nurse educators provide subjective evaluations of student performance in high stakes simulation. Faculty may use nurse educator standards, best practices, rubrics, and their experience to guide these evaluation decisions. The International Nursing Association for Clinical Simulation and Learning (INACSL), provides nurse educators with Standards of Best Practice: Simulation Participant Evaluation (2016). Required elements for high-stakes evaluation using simulation-based experiences include “trained, nonbiased objective raters or evaluators,” “using a comprehensive tool,” and having more than one rater for each participant (INACSL, 2016, p. S27). However, there is variability in the definition of terminology, criteria, and levels of training in using evaluation tools (Kardong-Edgren, Oermann, Rizzolo, & Odom-Maryon, 2017; Oermann, Yarbrough, Saewert, Ard, & Charasika, 2009). Consequently, subjective evaluation of student performance in high stakes simulation, by its definition, is open to bias and the possibility of being unfair.

One strategy to facilitate valid, evidenced-based methods of evaluation is for faculty to develop a shared mental model (SMM). McComb and Simpson (2014) describe a SMM as “individually held knowledge structures that help team members function collaboratively in their environments and are comprised of the attributes of content, similarity, accuracy and dynamics” (p. 1485). A shared mental model would enable faculty to have a more consistent and standard approach for student assessment (Boulet, Jeffries, Hatala, Korndorffer, Feinstein, & Roche, 2011; Kardong-Edgren, et al., 2017), which should lead to more fair and equitable evaluation of student performance. Kardong-Edgren et al. (2017) examine the challenges of inter- and intrarater reliability and developing a SMM and stress the importance of utilizing faculty with “similar values and professional judgment who are willing and capable of basing their judgments on the set criteria” (p.66). They also state “Our findings demonstrate how important this preparatory work is when embarking on legally defensible high-stakes testing,” (Kardong-Edgren et al., 2017, p. 67).

This presentation describes the strategies employed to build a shared mental model for faculty evaluators in simulation performance assessment. A nationwide, experimental study was conducted to test the effectiveness of a training intervention in enhancing intra and inter-rater reliability among nursing faculty evaluating student performance in simulation. The study was an extension of the NLN Project to Explore the Use of Simulation for High Stakes (Rizzolo, Kardong-Edgren, Oermann, & Jeffries, 2015) which evaluated the process and feasibility of using manikin-based high fidelity simulation for high stakes assessment in pre-licensure RN programs. A total of 102 nursing faculty recruited from nursing programs across the nation were randomized into control and intervention groups. Participants used the Creighton Competency Evaluation Instrument (CCEI) to evaluate student performance in the video recorded simulations. Following implementation of a pilot study to refine the full study procedures, researchers formulated shared mental model agreements to more clearly interpret the CCEI criteria and incorporated this information in the training intervention.

This presentation will also share findings from a qualitative analysis conducted to identify themes relative to the elements identified by study participants to support their decision of student competency in the video-recorded high stakes simulation performance. Participants were asked “Do you consider this

student competent to practice nursing?” with ‘yes’ or ‘no’ response options. Two key elements in the student performance that supported this conclusion were then listed. The definition of clinical competency for purposes of the study was the ability to “observe and gather information, recognize deviations from expected patterns, prioritize data, make sense of data, maintain a professional response demeanor, provide clear communication, execute effective interventions, perform nursing skills correctly, evaluate nursing interventions, and self-reflect for performance improvement within a culture of safety” (Hayden, Jeffries, Kardong-Edgren, & Spector, 2011). Performance behaviors that reflect student competency can further enhance the shared mental model in simulation evaluation.

The National League for Nursing (NLN) calls for “fair and equitable testing in relation to high-stakes evaluation” (NLN, 2012, p. 1). As nurse educators strive to provide nursing students with an education that follows national standards, best practice guidelines, and prepares nursing students to practice in their roles as professional nurses, nurse educators must make decisions about student performance. When a SMM is formulated in the context of subjective evaluation, faculty have a clearer understanding of definitions and criteria, and can apply that SMM towards student evaluations in a fair and equitable manner that allows for more consistent evaluations (Kardong-Edgren et al., 2017). The benefit to students is that faculty are more consistent in subjective evaluations. Benefits to faculty are that a shared mental model enhances reliability in evaluation and may provide defensible evaluations in high-stakes situations if students grieve the evaluation or decide to pursue legal action. This study produced important conclusions about building a shared mental model which informs best practices in high stakes assessment.

Title:

A Shared Mental Model for High-Stakes Simulation Evaluation in Nursing Education

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References:

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Abstract Summary:

This presentation describes strategies used to create a shared mental model to enhance reliability in simulation evaluation. A nationwide, experimental study tested the effectiveness of a faculty training intervention in high stakes simulation evaluation. Findings relative to the importance of a shared mental model in performance evaluation will be discussed.

Content Outline:

Content outline:

I. Introduction

- A. Subjectivity in evaluation of student performance in high stakes simulation
- B. Strategy to facilitate more reliable evaluation
 - a. Shared mental model

II. Overview of shared mental model (SMM)

- A. Definition of SMM
- B. Relevance of SMM in evaluation of high stakes simulation

III. Presentation highlights

- A. Description of shared mental model agreements formulated following pilot study and implemented for nationwide experimental study
- B. Presentation of qualitative analysis relative to descriptors of competency and implications for shared mental model

IV. Summary

- A. Benefits of SMM for students relative to fair and equitable testing
- B. Benefits of SMM to faculty relative to more reliable evaluation

C. Implications for building SMM as best practice in high stakes assessment

First Primary Presenting Author

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Professional Experience: 2008 – present: Professor, Department of Nursing, St. Catherine University, St. Paul, MN 1991- present: Faculty in Dept. of Nursing, St. Catherine University Numerous poster and podium presentations at peer-reviewed conferences Interests: Interprofessional education, Program evaluation, Nursing leadership, Simulation in nursing

Author Summary: Dr. Schug teaches concepts such as evidence-based practice, nursing as a profession, nursing interventions, and leadership/management in a baccalaureate nursing program. She has a strong interest in curriculum design, program assessment and evaluation. Her current research has been in the areas of interprofessional education and simulation in nursing education.

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Professional Experience: Ann Holland is a Professor of Nursing at Bethel University in St. Paul, MN. Her academic teaching focuses on adult medical/surgical nursing and leadership development. She worked many years in staff nurse, educator, and manager roles in adult intensive care settings. She has presented nationally on the teaching of race and racism in nursing education, and the use of debriefing to improve learning in simulation. She previously served as Director of Nursing and Academic Dean in an Associate Degree Nursing program.

Author Summary: Dr. Holland is Professor of Nursing at Bethel University in St. Paul, MN. She teaches medical/surgical nursing, leadership, and health policy. She has expertise in clinical teaching and simulation. Dr. Holland has conducted research and presented nationally on topics ranging from the teaching of race and racism in nursing, simulation debriefing, innovations in clinical education, and high-stakes assessment in simulation.

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Author Summary: Dr. Bambini is a Professor at Grand Valley State University. Her research interests include women's health, adolescent health perceptions, and strategies to enhance teaching effectiveness. She chairs the Simulation Advisory Committee for the university, helping faculty to implement simulation. Dr. Bambini is a Certified Nurse Educator (CNE, 2008), Health Information Technology Scholar (HITS), was selected as a Simulation Educator Leader (NLN, 2013), and inducted as a Fellow into the NLN Academy for Nursing Educators (2014).

Fourth Secondary Presenting Author

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Professional Experience: Linda currently teaches a clinical component of a senior nursing course addressing patients with complex issues in a baccalaureate nursing program. She is the simulation coordinator for the nursing department, implementing simulations into all levels of the curriculum and providing seminars to develop faculty in the use of simulation. She coauthored a publication in 2008, "Nursing Students' Thinking During Medication Administration" with the Minnesota Baccalaureate Psychomotor Skills Faculty Group. Previous research includes "Faculty Perceptions of a Faculty Development Workshop on Simulation", and "Nursing Students' Thinking During Medication Administration". And she has presented numerous presentations on simulation at nursing conferences.

Author Summary: Dr. Blazovich is Associate Professor of Nursing and Director of Simulation at St. Catherine University. Simulation was a focus of her doctoral degree and she is skilled in all aspects, including scenario development, facilitation, and debriefing. She introduced simulation to the nursing program in 2007 and has been instrumental in the integration of simulation into all levels of the nursing curriculum. Her work includes research, co-authored articles, and presentations at national and international simulation conferences.

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