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Changing What's Possible

The Relationship of Self-Efficacy and Psychomotor Skill Competency

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Conflict of Interest Disclosures

Melanie Cason is the Clinical Simulation Program Coordinator at the Medical University of South Carolina Medical Center and has no financial or commercial relationships to disclose.



Background

Prepared for safe practice

90% Nursing academic leaders

10% Hospital nurse executives

Gap in literature regarding new graduates self-efficacy and actual performance of psychomotor skills.

(Berkow, Virkstis, Stewart, & Conway, 2009).



Research Question

What is the relationship between new nursing graduates' perceived self-efficacy and the actual level of psychomotor skill competency in the context of a patient care scenario using high fidelity simulation?

Specific Aims:

To assess the new graduates' beliefs in their abilities.

To measure in an objective and standardized method demonstrated abilities.

To determine if self-efficacy and abilities correlate.



Framing the Study

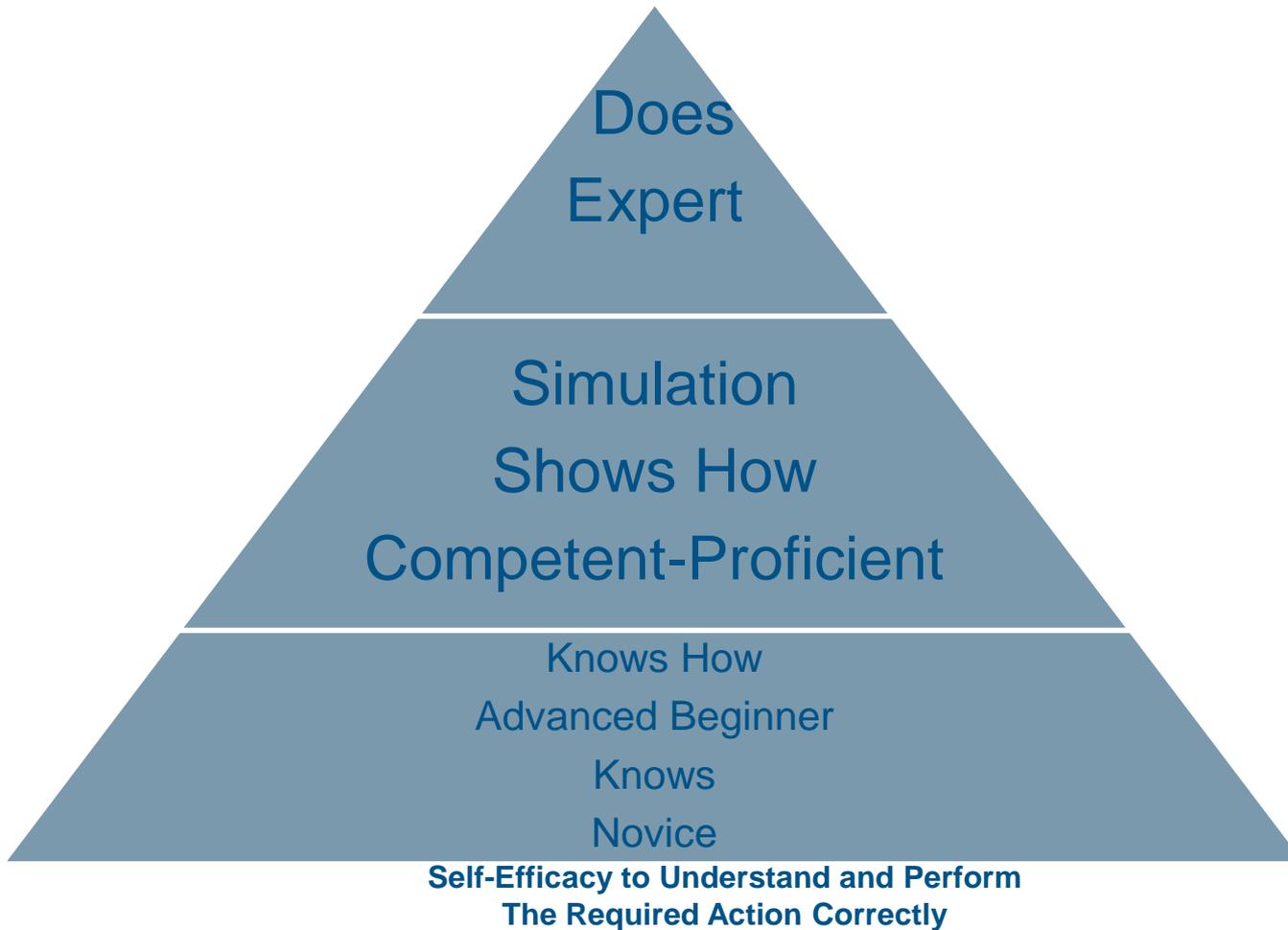
Benner's Novice to Expert Model

Miller's Pyramid of Clinical Competency

Bandura's Self-Efficacy Theory



Conceptual Framework—Integrated Benner-Miller Framework
for Simulation Evaluation with Bandura's Self Efficacy as
Underpinning



Methodology and Research Design

- * Quantitative descriptive correlational design to examine the relationship between new nursing graduate self-efficacy and psychomotor skill competency.
- *Clinical Competency Questionnaire
- *Programmed standardized simulation with embedded steps for urinary catheterization
- *Creighton-Competency Evaluation Instrument rating as competent or not competent with supporting evidence from simulation measurement.

Research Design = Descriptive Correlational

Descriptive

Demographics

Experience in healthcare

Gender

Highest level of nursing
education

Age range

Frequency of simulation
use in undergraduate
program

Correlational

Appropriate
nonparametric statistical
analysis

Spearman's
correlational coefficient
(r_s)

Point biserial correlation



Clinical Competency Questionnaire (CCQ) for Self-Efficacy Determinations

All items are ranked on the following scale:

1. Do not have a clue
2. Know in theory, but not confident at all in practice
3. Know in theory, can perform some parts in practice independently, and need supervision to be readily available
4. Know in theory, competent in practice, need contactable sources of supervision.
5. Know in theory, competent in practice without supervision

(Liou & Cheng, 2014)



Skill Competence: Core nursing skills (12 items)

- 29. Changing intravenous fluid bottle or bag
- 30. Administering intravenous medications
- 31. Administering intramuscular medications
- 32. Performing subcutaneous injection
- 33. Administering oral medications
- 34. Performing urinary catheter insertion and care**
- 35. Performing sterile technique
- 36. Performing enema
- 37. Performing upper airway suction
- 38. Performing tracheotomy care
- 39. Performing nasogastric tube feeding and care
- 40. Performing wound dressing care

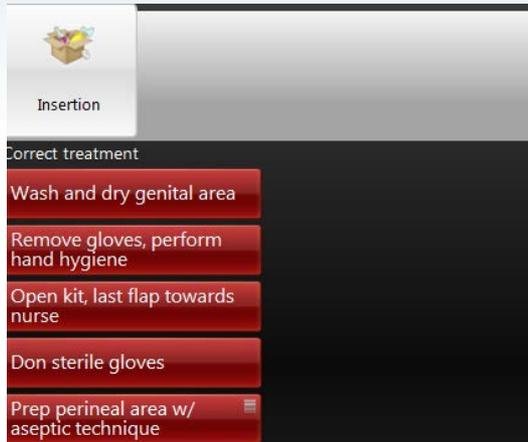




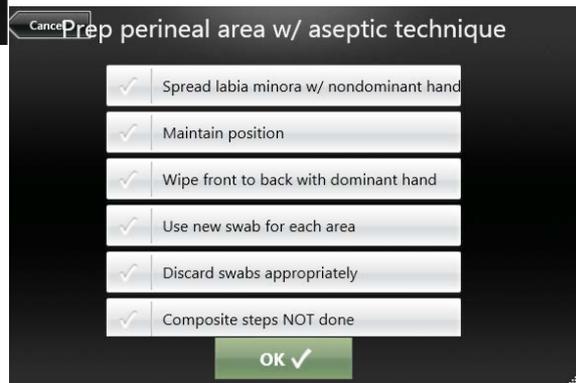
The Patient

Pre-programmed to talk, become increasingly confused, and unable to void.





Procedural steps embedded within the programmed scenario tested for interrater validity and reliability.



Major Findings—Descriptive

Experience = Less than 50%

Gender = primarily female at 89.4 %

Highest Level of Nursing Education = Majority Baccalaureate 61%

Age ranged from 18-54, with the majority in the 25-34 age range

The highest use of simulation in nursing courses occurred in every clinical course for 57.4%

Sub-research questions

What is the new nursing graduate's level of psychomotor skills competency in the context of a patient care scenario using high fidelity simulation?

| Procedural Steps | Did not perform N (%) | Performed N (%) |
|--------------------|--------------------------|--------------------|
| Prewash | 19 (40%) | 28 (60%) |
| Hand Hygiene | 1 (2%) | 46 (98%) |
| Open Sterile Kit | 8 (17%) | 39 (83%) |
| Don Sterile Gloves | 7 (15%) | 40 (85%) |
| Spread Labia | 4 (9%) | 43 (91%) |
| Maintain position | 15 (32%) | 32 (68%) |
| Wipe front to back | 1 (2%) | 46 (98%) |
| Used new swabs | 2 (4%) | 45 (96%) |
| Discarded swabs | 1 (2%) | 46 (98%) |
| Prep aseptically | 18 (38%) | 29 (62%) |



Sub-research question

What is the new nursing graduate's perceived level of self-efficacy in performance of psychomotor skills?

| CCQ Self-Efficacy Rating | N (%) |
|--|--------|
| Know in theory, not confident in practice | 1(2) |
| Know in theory, can perform some independently, need supervision readily available | 10(21) |
| Know in theory, competent in practice, need contactable sources of supervision | 14(30) |
| Know in theory, competent in practice without supervision | 22(47) |



Correlational—Spearman's Correlation Coefficient

| Measurements | | Correlation coefficient | <i>p</i> |
|--------------------------------------|--|-------------------------|----------|
| Competency Score and Self-Assessment | | .138 | .352 |
| | | | |
| Correct Items and Self-Assessment | | .232 | .117 |
| | | | |
| Correct Items and Competency Score | | .859** | .000 |
| | | | |

Note. Level of significance .05 (2-tailed), Degrees of freedom (*df*) = *N* - 2

** Correlation is significant at the 0.01 level (2-tailed).

Point biserial correlation

$$r(45) = .157, p > .05$$

The point-biserial correlation coefficient indicates a non-significant correlation between self-efficacy scores for urinary catheterization and competency rating,

This result supports the null hypothesis that there is no relationship between self-efficacy and psychomotor skills competency of the new nursing graduate.



Recommendations

- * More studies to evaluate the relationship of self-efficacy categories of behavioral and psychomotor skill abilities.
- * Standardize simulation programming to allow for expansion of evaluation for evidence and outcomes.
- * Increase the use of simulation for evaluating psychomotor skills of new nursing graduates with high fidelity simulation.
- * Expand to a multi-site study of new nursing graduates to increase sample size for improved reliability and validity.
- * Incorporate the use of individual evaluation in the context of a patient care simulation prior to graduation.
- * Further research using a mixed methods design to increase understanding of the self-efficacy level and processing after simulation evaluation.



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