Facilitating Problem-Solving and Critical Thinking Using a Comprehensive Pedagogical Approach
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Background and Significance
- Sharp contrast between clinical and theory pedagogy
- AACN call for change to nursing education
- Facilitate Critical thinking/Problem-Solving
- Incorporate situated cognition pedagogy
- Immerse in real-time health practice scenarios
- Scaffolding has shown to Increase ability

Purpose
- Comprehensive approach to facilitate Critical Thinking and Problem-Solving
- Effect of scaffolding on Critical Thinking/ Problem-Solving
- Provide nursing faculty research based information

Design and Methods
- Quasi-experimental, repeated measures design
- IRB-approved; obtained written informed consent
- Four real-life case scenarios solved over the semester
- Solved with scaffolding (question prompts, expert modeling, and group discussion) for Cases #1 – 3 and without scaffolding for Case #4
- Initial and revised solution reports after
- Evaluation of solution reports using modified Critical Thinking rubric (Ralston & Bays, 2010) and a modified Problem-Solving rubric (Tidwell, 2015)

Research Questions
1. Over a semester in a course using a comprehensive approach using scaffolding are there differences in:
   a) Problem Solving as a whole and its components?
   b) Critical Thinking as a whole and its components?
2. To what extent does transfer of skill occur after using a comprehensive, scaffolding approach in:
   a) Problem Solving as a whole and its components?
   b) Critical Thinking as a whole and its components?

Setting and Sample
- Final semester nursing leadership and management course in a prelicensure baccalaureate program
- Three class sections with different instructors
- All enrolled students consented (N=44)
- Missing data for Case #1 = 5 students; Cases #2 and 3 = 1 student, Case #4 = 4 students

Results

QUESTION 1a and b: Case reports demonstrated significant mean differences on Problem-Solving and Critical Thinking Total scores and most of their rubric components

Figure 1: Problem-Solving: Total score comparisons of 4 cases

Figure 2: Critical Thinking: Total score comparisons of 4 cases

QUESTION 1b: Critical Thinking Total means demonstrated a quadratic trend (F=9.12, df=1.34, p=.005), reflecting the dip in Case 2 & 3 mean scores. (Figure 2)

QUESTION 2a and b: Comparison of mean initial and final total scores did not indicate significant occurrence of transfer of abilities after comprehensive approaches were used for Problem-Solving or Critical Thinking as a whole.
- However, for two components of the Problem-Solving rubric there were indications of transfer with significantly higher scores in the fourth case than first case for: Planning to Solve the Problem (p = .001) and Problem Solution (p = .010).

Conclusions and Implications
- There were notable differences in the significant trends for Total Problem Solving (positive linear trend with higher final scores than initial) and Critical (quadratic with higher initial scores than final) scores
- Overall improvements in Problem-Solving but not Critical Thinking
- Low scores on select components (ex: Implications and Consequences) are ripe areas for further targeted solutions.
- May need more than one semester to make a significant difference in Critical Thinking abilities
- Students at the senior level may still be developing critical thinking and problem-solving skills

Strengths & Limitations
- There was high agreement between individual rater scores and all differences were resolved via discussion
- Differences between case scores may be associated with variation between class instructor and/or complexity of the four cases