

2014 Teaching Innovation Grant Proposal:

Assimilating Low Fidelity Simulation into a Team-based Learning Class for Understanding Complex Obstetrical Concepts

Miami Valley College of Nursing and Health

Multiple Sections of:

NUR 3440: *Critical Reasoning in Nursing Care of Women and the Childbearing Family*

Submitted by:

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I. Description of the Proposed Project

The proposed project is to redesign and deliver a more innovative undergraduate obstetrical (OB) nursing course, NUR 3440 *Critical Reasoning in Nursing Care of Women and the Childbearing Family* for the College of Nursing and Health (CoNH). The course faculty has piloted and adopted the Team-based Learning (TBL) strategy for engaging students in the classroom while improving student accountability and course outcomes with great success. However, despite the development of interactive application exercises such as unfolding case studies, there is an absence of hands on application of knowledge in the classroom for difficult obstetrical concepts. While the students' spend up to eight hours a week in the OB clinical arena, there are times in which patient census is low, organizational policy restricts students' performance of certain procedures, or a patient may refuse to allow a student to partake in a specific skill limiting the hands on experience needed for mastering complex concepts and skills. Although the CoNH has high fidelity simulators, they are impractical to use in a classroom setting and require lab staff to run. Enhancing the TBL classroom with low fidelity simulators will enrich and ensure an in-depth understanding of difficult concepts during faculty-designed team application exercises.

The core faculty in NUR 3440 has remained consistent for the past four academic years and continues to monitor student outcomes in examination of grades, clinical ability, and standardized testing. However, despite improved outcomes in didactic knowledge and standardized specialty exams, students continue to identify a lack of practical skill and knowledge of more complex obstetrical concepts and desire more hands on experience and application in which they are not afforded in the clinical area. Therefore, to improve the overall meaningful experience for the students, it is necessary to retain funding for the resources desired to advance the redesign of NUR 3440. Resources are requested to acquire instructional resources that include low fidelity simulators/models for classroom use in team-based application exercises. The proposed project is well aligned with the CoNH vision to "*lead the transformation of the art and science of nursing through innovative and collaborative education...*"

Project Need

In a landmark collaborative report between the Institute of Medicine (IOM) and Robert Wood Johnson Foundation (RWJF) titled, *The Future of Nursing: Leading Change, Advancing Health*, recommendations were made for the need to assess and transform the nursing profession (National Research Council, 2010). One such recommendation suggests that, "*nurses should practice to the full extent of their education and training*" (National Research Council, 2010, p. 85). In response, the Carnegie Foundation for the Advancement of Teaching conducted a study that examined three dimensions of nursing education and made several recommendations for a "radical transformation" in nursing education (Benner, Sutphen, Leonard, & Day, 2010). One such recommendation for change that is critical to this proposed project is the "*integration of clinical and classroom teaching*" (Benner et. al., 2010, p. 155). Study findings from the Carnegie report suggest that clinical and classroom content are currently sharply divided; this statement can be supported within the CoNH through student course evaluations. Therefore, it is the charge of the OB nursing faculty to have didactic courses that bring complex clinical skills and physiological concepts to "life" within the context of the didactic classroom. In the redesigned NUR 3440 course, true in-depth knowledge and understanding of complex concepts and skills will occur in an environment that is safe, team-based, faculty facilitated and student led. Every traditional undergraduate and accelerated nursing student is required to take this course. The

course is offered in 7-week sprints, twice a semester during Fall and Spring semesters for a total of four individual offerings with an estimated average of 200 students per year.

Course Design

The course is currently designed and being taught using the TBL strategy. Unfolding case studies are currently used to enhance active learning. Studies support the use of simulation as a means of further aiding students' understanding (Benner et. al., 2010). Through teaching we have encountered several concepts that are key to students' understanding that are difficult to conceptualize using unfolding case study application exercises alone. Changing course to design to incorporate active simulation will further student's understanding of these key concepts. Simulation can be a valuable adjunct tool to helping students make the classroom and clinical connection (Benner et al., 2010).

Faculty Background and Resources

The two faculty classroom instructors have been teaching the current course together over the past four years and have over 15 years in teaching experience. The coordinator of the course is a Certified Nurse Midwife with over 20 years of experience in maternity and well woman care, including approximately 1000 deliveries. The other lead faculty has over 20 years of nursing experience in all aspects of obstetrics and maintains a certification in inpatient obstetrics and lactation counseling. In addition, each course faculty member has had training and mentorship in TBL and low fidelity simulation. Furthermore, each faculty member has received teaching excellence awards from the CoNH undergraduate students for classroom and clinical teaching.

II. Project Purpose

Currently the CoNH is not meeting the expected 95th percentile average on the NCLEX licensure examination. The OB faculty has been exploring innovative ways in which to improve student success as students have been asking for more clinical application and interaction in the classroom. A reprieve from "death by PowerPoint" was implemented in NUR 3440 in the fall of 2012 with the use of TBL strategies. Overall students enjoyed the TBL learning strategies and standardized test scores (HESI) improved by 11%. However, there is still a need to narrow the gap between the classroom and clinical for application of difficult concepts found in the real-life obstetrical clinical environment. Nursing students need to understand the "why" behind what we as faculty expect them to "do" if they are to be a competent and safe and a well sought after WSU nursing graduate. Therefore, the purpose of this proposed redesign of NUR 3440 is to afford students the opportunity to develop a rich understanding of complex obstetrical concepts and skills within the context of the classroom with the use of low fidelity simulated team application exercises.

Expected Impact on Student Learning

1. Heightened personal accountability for learning and working in teams.
2. Value-added individual course study and preparation habits.
3. Enhanced communication and collaborative behaviors within the context of a team.
4. Application of content assigned readings and module lectures presented in a safe simulated team-based classroom application exercise.
5. Translation of course content through the use of simulated application exercises and practice of skill acquisition into the clinical experience.

6. Improvement in student-led team decision-making skills for processing and resolving complex obstetrical case exercises to enhance critical reasoning.

III. Core Elements

A. Innovations

The redesigned course will:

1. Provide a safe learning environment that is faculty facilitated and student led in comprehending complex OB concepts with in the context of the didactic classroom with the use of low fidelity simulators and models.
2. Develop student values for self-led learning accountability. This type of learning moves the student towards a sense of personal and team responsibility for learning versus faculty responsibility for all students learning.
3. Effectively establish and reinforce team communication and collaboration to enhance professional capability towards improved patient safety.

B. Learning Outcomes

The core learning objectives for the course include:

1. Apply principles of leadership, quality of care, and patient safety necessary for the nursing care for expanding families.
2. Apply principles of leadership, quality of care, and patient safety necessary for the nursing care for expanding families.
3. Incorporate principles of health promotion and disease prevention in providing nursing care for expanding families.
4. Incorporate professional standards of care and performance in the delivery of nursing care for expanding families.
5. Demonstrate professional competencies in the delivery of holistic, family-centered nursing care for expanding families.

IV. Names of Faculty Involved in the Project and Identification of Contact Person

1. Crystal Hammond, MSN, CNM, RN
Course Coordinator, Co-Lecturer, and Contact Person
2. Dr. Tracy L. Brewer, DNP, RNC-OB, CLC
Co-Lecturer

V. Estimate of the Number of Sections and Students to Be Taught Annually

Two 7-week sessions each semester will be offered during the 2014-2015 academic year and every year thereafter. This results in four sections with approximately 200 students total involved in the course each year.

VI. Assessment Plan

A. Direct and Indirect Measures of Student Learning

1. Scores on content-based iRAT and gRAT's will assess overall course knowledge allowing for immediate student feedback and faculty clarification for student understanding.
2. An individual midterm and comprehensive exam will measure core knowledge of content.

3. Translation of course knowledge and skills into clinical practice will be assessed by clinical faculty evaluation of student competency.
4. Standardized test scores (HESI) conducted at the end of the term.
5. Indirectly end of course student evaluations will be used to explore student feedback for ways to improve the learning environment. In addition, the assessment of TBL survey will be administered to students including evaluation of the use of low fidelity simulation within the context of a TBL classroom.

B. Strategies for Acting upon the Findings and Communication the Results to Faculty

1. The lead course faculty and clinical faculty will have meetings prior to the semester and at the end of the semester for course planning. The two course leads will continue to be in contact weekly to allow all decision-making regarding course occurrences to be team-based. The course coordinator will be in close contact with all clinical faculty for feedback on performance and content knowledge translation of students throughout the semester.
2. The course coordinator will extrapolate course grades (iRATs, gRATs, exams, HESI, and clinical) from Pilot for trending of course outcomes for assessment of student learning. This data will be shared with the Dean and Undergraduate Associate Dean.
3. Lessons learned and implementation of the redesigned course will be presented at a CoNH “lunch and learn.”

VII. Detailed Budget

Item	Description and Justification	Amount
1. Rubbermaid® Commercial Utility Cart with Locking Doors from Amazon	<p><u>Description:</u> Two-shelf durable cart with a sliding drawer beneath the top shelf and two locking doors beneath the bottom shelf.</p> <p><u>Justification:</u> Nursing courses can be in any building across campus. The ability to easily move the simulator/models is vital for protection of the equipment and to reduce faculty injury. In addition, area for storage of additional classroom items is needed and needs to be locked to ensure integrity of expensive equipment and supplies.</p>	\$461
2. Prompt Birthing Simulator-Standard Part# 8001 Items 2-3 are from Limbs and Things	<p><u>Description:</u> Pelvic model with movable legs, realistic bony pelvis, detachable abdominal & perineal skin to enable visualization of internal cardinal movements and fetal position. Base with straps for attaching to a table. In addition, includes fully articulated baby with detachable placenta with cord. Baby has palpable fontanels and suture lines and palpable clavicles and scapulae. Weighs 42.3 pounds and comes with carrying case.</p> <p><u>Justification:</u> This model allows students to have hands on experience to conceptually understand station (engagement of the fetus in the pelvis) and visually view the cardinal movements and the physiology of a potential shoulder dystocia that can occur during the birthing process. The requested simulator has no motor or need for computerized maneuvering of the simulator as the faculty manually operates the simulator. It would not require the presence of CONH lab staff.</p>	\$4981
3. Silicone Oil 50ml bottles (4) part # 10193	<p><u>Description:</u> Silicone oil allows lubrication of the perineum and baby.</p> <p><u>Justification:</u> Only this special silicone oil can be used with the Prompt Birthing Simulator. The silicone oil reduces tearing of the perineal area of the simulator allowing ease of delivery and maintains the integrity of the simulator.</p>	\$52
4. Fetal Monitoring &	<p><u>Description:</u> Includes 4 cervical 3-D model sets that provide realistic simulation for vaginal examinations, labor progress, assessment of dilation &</p>	\$470

Labor Progress Model Set & shipping Part # AT79851 from Childbirth Graphics	effacement, palpation of fetal fontanel, and suture lines, and assessment of the position of the head or buttocks of the baby. Includes a carrying case with lubricant for easy transport. <u>Justification:</u> Students in the clinical setting are not permitted to perform vaginal exams due to hospital policy. Dilation, effacement, and fetal head or buttock positioning are very difficult concepts for students to understand unless they have the opportunity to have hands on experience. The models can be easily transported to the classroom for interactive hands on student experiences.	
TOTAL	All item prices include shipping	\$5,964

VIII. Deliverables

1. Submit a written progress report to funding unit at Wright State University as requested.
2. Participate in a Center for Teaching and Learning (CTL) panel discussion regarding implementation and evaluation of the course redesign. Student outcomes and “lessons learned” will be discussed.
3. Begin teaching redesigned NUR 3440 course Fall semester 2014
4. IRB approval has already been obtained to track student outcomes and administration of the assessment of TBL survey for understanding the impact of TBL strategy. An addendum will be submitted to add further understanding the impact of low fidelity simulation has in a TBL classroom towards understanding and applying complex OB concepts.
5. Abstracts will be submitted to national conferences and publication of the innovative course design and student outcomes will be explored in professional peer-reviewed journals.

IX. Letters of Support and Commitment from the College of Nursing for the Adoption and Regular Offering of the Updated Course

See letters of support for course redesign from Dr. Rosalie Mainous, Dean of the College of Nursing and Health.

References

- Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). *Educating nurses: A call for radical transformation*. San Francisco, CA: Jossey-Bass.
- National Research Council. (2011). *The future of nursing: Leading change, advancing health*. Washington, DC: The National Academies Press.