Experience Informs: Spanning Three Decades with the Neuman Systems Model

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Abstract

The efficacy of the Neuman systems model as a guiding framework for curriculum development of a baccalaureate program is examined. Insights from lessons learned provide directions for nursing theory-based curriculum change and program development. Challenges and opportunities during curriculum development are explored. Recommendations and strategies that contribute to consensus building are reported.

Keywords

baccalaureate, curriculum, Neuman systems model

The journey at Indiana University–Purdue University Fort Wayne (IPFW) involving integration of the Neuman systems model (NSM) throughout the curriculum has spanned almost three decades (Beckman, Boxley-Harges, Bruick-Sorge, & Eichenauer, 1998; Beckman, Boxley-Harges, Bruick-Sorge, Harris, et al., 1998; Beckman, Boxley-Harges, Bruick-Sorge, & Salmon, 2007; Beckman, Lowry, & Boxley-Harges, 2011; Lowry, 1998; Neuman, 1989; Neuman & Fawcett, 2002). The associate of science (AS) program was NSM-based, while the bachelor of science completion (RN-BS) program used an eclectic approach to address nursing theory. Curriculum planning commenced in 2004 for transitioning to a 4-year baccalaureate (BS) program.

Foundational questions were generated that required serious examination and study by the entire faculty. Is it best to use one nursing theory or a variety in curriculum development? Are we required to choose a nursing theory? What do accrediting bodies require? What evidence supports a nursing theory-based program? What evidence supports a NSM-based program? How does nursing theory enhance the nursing education process while contributing to knowledge development? What are current trends among nursing programs for use of nursing theory?

One of the first major curriculum challenges dealt with the decision to use, or not use, a nursing theory-based curriculum. Employer feedback confirmed that graduates from the AS program practice holistically and use the NSM as a foundation for organizing care delivery. Research findings revealed that AS alumni continue to internalize NSM concepts, most notably through a holistic assessment of environmental stressors that result in conscious application of preventions as interventions. Receiving full continuing accreditation further validated the nursing theory-based curriculum. Despite the trends in nursing education to eliminate nursing theory-based curricula, ongoing program outcomes provided significant evidence that the right decision was to continue using the NSM as a guiding framework. The feedback loop was informative in making the final decision to use the NSM as the basis of the new program. This article provides direction for NSM-based curriculum change and program development based on lessons learned during this complex and multi-faceted curriculum transition.

Problems

Several problems presented challenges along with opportunities. Perhaps the biggest problem or challenge was achieving *buy-in* to a nursing theory-based curriculum, especially for those faculty less experienced in nursing theory-based curricula. Another major problem was that of faculty dynamics in releasing ownership of existing courses and curricula. A reality facing the curriculum team was that the two programs were to continue during the implementation of the new generic baccalaureate program. Consequently, there would be multiple entry and exit points until the closure of

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the associate program after which there would be only one exit point. Multiple entry points would continue with new students, returning registered nurses (RNs), and returning licensed practical nurses (LPNs) in pursuit of a bachelors degree. Concurrently, during the height of the transition, continuing professional accreditation was an issue. To address the various problems, Neuman-savvy faculty were alert to identify opportunities for demonstrating the value of being nursing theory-based. It should be noted that no new funds were allocated for program transitions or for new program development.

Related Literature

Curriculum development in undergraduate nursing education is a dynamic process and is a reflection of the universality of the educational mission, vision, and faculty imperative. In recent years, the nursing academy has transitioned its approach to curriculum development from a Tylerian, purist theory or model-based educational design to a more integrative theoretical approach utilizing multiple nursing theories and models (Datillo & Brewer, 2007; Webber, 2002). Scholars such as Meleis (2007) advocate diversity of thought using an integrated approach that links theory and practice.

Despite the emerging models, numerous authors promote the use of the NSM model derived curricula (Fawcett, 2005; Lowry, 1998; Lowry, Beckman, Gehrling, & Fawcett, 2007; Neuman & Reed, 2007). According to Lowry (1998) model-derived curricula identify the direction and global context for curriculum development, instructional design, and outcomes evaluation. Efficacy of the NSM in education was supported in two specific 5-year longitudinal studies in AS programs, one being this IPFW program (Lowry, 1998). Findings from both studies reported an increase in internalization and application of the model (Lowry, 1998). Fawcett (2005) completed an extensive analysis of the NSM and found the NSM to be "an exceptionally useful guide for nursing education and nursing practice in various settings" (p. 207). When invited to explain the potential relevance of the NSM in 2050, the authors responded, "The value of the model is its holistic perspective, which is timeless and expansive in being adaptable to all client care situations" (Neuman & Reed, 2007, p. 112). Several NSM Trustees added that "the function of the NSM is to provide a broad perspective of phenomena, an umbrella for the more specific activities undertaken by members of the discipline" (Lowry, et al., 2007, p. 226).

The Lowry-Jopp Neuman Model Evaluation Instrument (revised by Beckman, Boxley-Harges, Bruick-Sorge, & Eichenhauer, 1998) was used by colleagues at Emergis, a mental health system involving multiple acute and long-term care sites in the Netherlands, to determine efficacy of NSM in practice (Merks, 2005). After several years of data collection, Emergis researchers reported findings that support social utility of the NSM in practice and research (Merks, van Tilberg, & Lowry, 2009).

Lowry (2002) surveyed 45 schools that were known to use the NSM as the basis of their curriculum and found that of the 36 respondents, 34 were from the United States and 2 were from Canada. In addition, Lowry (2002) reported that 23 of the programs surveyed use the NSM model in its entirety as a curriculum framework, while the other programs integrate multiple theories and models into their respective curricula.

Nursing education accreditation organizations in the United States, the National League for Nursing Accreditation Commission (NLNAC) and the American Association of Colleges of Nursing Commission on Collegiate Nursing Education (CCNE), have taken the position that each school should develop and adhere to a curriculum that meets stated educational outcomes. Neither require that a specific nursing theory or model be used (National League for Nursing, 2008; American Association of Colleges of Nursing, 2008).

The academic pendulum appears to be swinging to a more integrated approach for curriculum development with an emphasis on the utilization of systems models. On the other hand, there is evidence of less use of nursing theory in the practice setting. For instance, the use of standardized curricular models and academic coalitions such as the Oregon Consortium for Nursing Education (OCNE) are gaining popularity among hospitals and institutions of higher education with scarce nursing faculty resources (Tanner, Gubrud-Howe, & Shores, 2008). The consortium developed a standardized (non-nursing theory) curriculum with new competencies that align with the emerging healthcare needs of Oregon's citizens (Tanner et al., 2008). Hence, to claim that there is a perfect or idealistic model for curriculum development would be academically bold at best.

Challenges

At IPFW the AS program has been NSM-based since 1982; however, the RN-BS program used a more eclectic approach incorporating a variety of nursing theories. Meeting the challenge of separating from these two existing programs was definitely a process, *not a quick fix*. Such a realization is most important when beginning curriculum change so that strategies for change are planned into the process. The AS program would phase out over a 5-year period as students pursuing part-time study may require this amount of time to finish and pre-nursing students were to be accommodated to honor marketing and recruitment claims. Also, the RN-BS students would continue under the curriculum contract that existed when they entered. Since most RN-BS students were pursuing part-time studies, it was more difficult to put an exact time for closure of the existing program. Minimally, it would be several years (estimated 2012) until the existing AS program would close and the RN-BS existing curriculum would conclude. Ultimately, students already in the system could not be abandoned.

First, it is critical to take into account the dynamics that were already in play. Even though the NSM was well-established in the associate program, "revitalization of seasoned faculty is important for maintaining interest, enthusiasm, and consistency" (Lowry, 1998, p.161). Soon after adopting the NSM as the guiding framework for curriculum development, another challenge became evident, that of getting all full-time faculty to agree to the utilization of a nursing model. "Faculty who teach in model-based programs are challenged to accept and maintain dedication to the model" (Lowry, 1998, p. 161). Those faculty who are global, conceptual thinkers must seize opportunities to mentor faculty who are more analytical, concrete thinkers in ways of maintaining dedication to model use. Thus, it is of utmost importance that mentoring of the model use start at the beginning of curriculum change and be ongoing during implementation through evaluation of outcomes. Mentoring must also target part-time clinical faculty to ensure reinforcement of didactic teaching as students learn to apply the model in care delivery. Along with being mentored, faculty need continually to educate themselves on application of the NSM in curriculum and instructional design. Mentoring and being accountable for ongoing education contribute to consensus building among the faculty which is an important factor in curriculum development.

A strategy for consensus building on curriculum foundations must be employed. This can be done with focus groups and then advanced for review and decision-making in the curriculum committee. Intentional application of adult learning principles contributes to effective group work and outcomes (Knowles, 1990). Focus groups encourage mentoring as they necessitate active participation by all faculty members. Starting with a collaborative spirit, such groups also help to set aside historic differences including divisiveness that may exist among faculty in the AS and BS programs.

Focus groups involving the entire faculty were created to work on various aspects of the curriculum. For example, four focus groups formed to write definitions of the four major constructs found in most nursing theories: Health, client, nursing, and environment. Each group had two writers and two or three readers, thus providing a feedback loop on the quality of the definitions. Faculty chose in which group they wanted to work; and interestingly, each group resulted in having both senior and junior faculty. After reviewing Neuman's definitions, the writers adapted these definitions for the conceptual framework. These definitions were the first tangible evidence of faculty progress and may be viewed as a major milestone in consensus building and advancing the goal to embed the NSM into the curriculum (see Neuman, 1989; Neuman & Fawcett, 2002).

The focus group process acted as a catalyst for assisting new faculty to begin embracing the NSM. This proved to be a mentoring strategy, not only for new faculty, but also for established faculty who devalued utilization of nursing theories and were somewhat resistant to change. Faculty less

versed in the NSM became more conversant, which was a great step forward and this was another milestone in the process. The activities of co-writing definitions or evaluating newly written definitions enabled participating faculty to begin *buying into* the model. At this stage, the buy in was for utilization in curriculum development only. Meanwhile, and perhaps more significant, was the non-conscious internalization that was simultaneously taking place.

Examining specific content is imperative and even more challenging in releasing ownership of two separate curriculums and moving away from a medical model focus. Focus groups must also be established to facilitate correlation and placement of content. To facilitate visual examination of content by faculty, the walls of a nursing classroom were covered with boldly-printed outlines of existing course content. Analysis started with the medical-surgical courses. When utilizing this technique, it forced the IPFW faculty to acknowledge that the medical model was alive and well in the curriculum with diseases and body systems highly apparent. For example, not one course listed the sociocultural or spiritual aspects of care; however, it was known that these variables could be found hidden in several courses. During a subsequent meeting a senior faculty member from the RN-BS program challenged the group to demonstrate more clearly the holistic concepts and evidence of utilization of the NSM. This was a true call to action; talk and claims were not enough. Many faculty responded with examples of coverage of key concepts found in the NSM inclusive of holism (client), stressors (environment), nursing care delivery (nursing preventions as interventions). Outcomes less evident were reconstitution and homeostasis or health. The challenge was appropriate and the response was revealing.

In reflection, this may have been a time when leaders could have seized an opportunity to start with the question of where do we want to place primary, secondary, and tertiary prevention as interventions as opposed to the more familiar medical emphasis. The medical-surgical content would have found its way into the nursing model just as thoroughly as required. Faculty needed to switch their thinking to a new paradigm. In a nursing paradigm, the construct of nursing is at the forefront of thinking while health, reconstitution, and system stability would align as the desired outcomes from care delivery.

In this process, the explanations more clearly displayed the knowledge level of the faculty on the NSM and shed light on the need to include more evaluative measures documenting the impact of care on reconstitution and health. To be transparent, faculty needed to start with the NSM and then fill in with specifics when reviewing course content throughout the curriculum. In addition, healthy group dynamics were required to allow for challenging thinking and seeking clarification prior to decision-making. Critical, creative, and reflective thinking throughout the process continued to shed light on how to implement a nursing model in a more transparent manner. As with all working groups faced with needed

change, mature group dynamics was present allowing for debate with responsive and appropriate conflict management strategies. When not addressed, restraining forces put a halt to ideal goal advancement and achievement.

Up to this point, buy-in had increased in the larger curriculum group; however, to maintain dedication to the model, application within courses needed to happen. Individual faculty needed to act on their growing commitment to embed the model within courses as support and encouragement from small group work would be less readily available.

Curriculum Decisions—Impact on Course Development

Since curriculum development directly influences course design, the guiding force for course development must be the model that drives the curriculum. The model must be transparent to students and faculty. Faculty must make explicit that which is implicit through verbal use of NSM language and identification of model use as it is integrated into course content and teaching strategies. The model also needed clearly to build on prior learning from undergraduate general education behavioral science requirements. Brief examples of three courses are described below to provide direction for schools interested in designing NSM-based curriculums.

In a newly designed course, *Informatics in Nursing*, a major assignment required several small groups of students to develop web pages targeting health issues for culturally-diverse populations. NSM concepts such as the sociocultural variable, stressors that have an impact on vulnerable populations, and the need for primary prevention as intervention were mindfully labeled and embedded in this course. Simply stated, transparency of these NSM concepts was needed by instructors and students. For detailed discussion of this and other courses, refer to the fifth edition of the NSM (Neuman & Fawcett, 2011).

Further demonstration of the necessity for transparency of the NSM was identified in an already established elective that became a required course. With increasing emphasis on diversity and cultural competence, *Transcultural Healthcare* was a natural fit for the NSM-based new curriculum. Intentional and strategic integration of the NSM sociocultural variable and NSM language were needed when it became a required course.

Professional Seminar II: Concepts and Trends in Healthcare Delivery, a junior level course, is a third example in which the NSM is highly transparent while introducing other nursing theories. By junior level students have been exposed repeatedly to the NSM with requirements to apply the model in various clinical settings. The NSM is reinforced while other nursing theories are also explored; thus, students are prepared for a more integrated approach to nursing theory application in subsequent courses and ultimately in professional nursing practice.
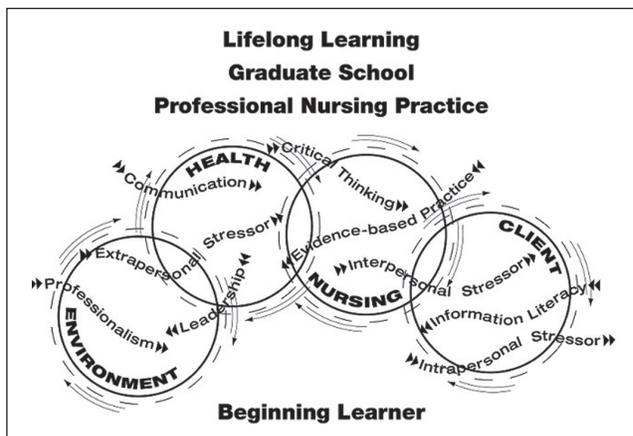

Figure 1. Dynamics of the Neuman systems model-based undergraduate curriculum
Note. The dynamics of the NSM-based curriculum are depicted by arrows which infer ongoing interactions of components of the conceptual framework: Major constructs, core strands, and NSM concepts. Components, interacting randomly, flow in any given order through all levels of the curriculum from beginning learner to graduates prepared for professional practice and graduate studies.

Curriculum Self-Study, Evaluation, and Assessment

A necessary but untimely diversion occurred during the implementation of the new program. A self-study was due in application for continuing professional accreditation of the AS program. A decision was made to apply early for initial accreditation of the new BS program. Focus and dedication to department and program goals had positive results. First, both the associate and baccalaureate programs received continuing accreditation for the full 8 years. Second, faculty from the two programs merged and became one in spirit and ownership of the new program. Third, assessment strategies and developing the master curriculum evaluation plan were integral to each stage of the development of the new theory-based program. Finally, faculty creativity was sparked resulting in an illustration that conveys the dynamic flow and interrelationship among concepts in the NSM-based undergraduate curriculum (Figure 1).

In addition to the curriculum self-study, another assessment initiative was completed that gives credence to the generalizability of the NSM in baccalaureate curricula. The following faculty experience demonstrates the potential for making a curriculum transparent to the power and potential of the NSM. Two faculty were invited to participate in the Geriatric Nurse Education Consortium in 2009 that was sponsored by the American Association of Colleges of Nursing and the John A. Hartford Foundation. The consortium was formed to assure integration of geriatric-specific content throughout the nursing curricula. Thirty-one courses in the nursing curriculum were evaluated using 29 geriatric competencies. Faculty responsible for courses evaluated

each competency as either fully covered, partially covered, or not covered within their courses. The competencies, though not labeled as NSM, did indeed include the five NSM holistic variables. For example, competency 11 states: Prevent or reduce common risk factors that contribute to functional decline, impaired quality of life, and excess disability in older adults. The results of the evaluation were revealing for IPFW faculty with regard to insight and reflection, or the lack thereof, about the presence and integration of the NSM within course specific content. Findings revealed that the NSM holistic variables were present for the older adult client in the new BS program.

Revitalization of Seasoned Faculty

The intense work demanded by implementing a new curriculum while simultaneously writing a self study was a revitalizing force within the faculty. In both of these high profile endeavors, visibility of the NSM became more transparent. Faculty maintained interest and remained true to the model to the best of their ability. Embracing the model is strengthened by ongoing scholarly activities of the faculty in teaching and research. Peer review has been positive and encouraging after presentations at the NSM international biennial symposiums, Sigma Theta Tau International biennial conventions, the Lilly Teaching conferences, and other professional networking venues. Such pursuits of peer review must continue to maintain the integrity of the model in the curriculum. Consultation and professional networking with national and international colleagues further assures integrity of model applications in education, research, and practice. Professional networking yields feedback which further informs these scholars and inspires model users to continue their efforts. Consultation with NSM Trustee experts is highly advised to those who wish to implement the NSM in the curriculum and/or education research. Evidence of consistency and dedication to the model by several faculty over time is well documented in a variety of professional publications, textbooks, and conference proceedings. In turn, these inspired faculty members serve as resources to other faculty and students further generating enthusiasm and interest.

Future Implications

The integrity of the NSM, especially through transparency, must be maintained. Replication of the longitudinal study (Lowry, 1998) in the new program would provide valuable alumni feedback. Ongoing mentoring on the use of the NSM for new faculty and beginning users is necessary to maintain dedication to the model. Publication, professional presentations, and consultation are critical to disseminate findings from these scholarly activities. After 4 years of program implementation, an intense, systematic curriculum review with a thorough evaluation of course

and program outcomes was completed and refinements were made as indicated (see http://new.ipfw.edu/dotAsset/bb420732-b7a6-4b55-8d15-f2234d1a92f4.pdf). The journey continues.

Summary

This article documents the journey of an undergraduate curriculum committee in transition from two programs to a new 4 year BS program based on the NSM. Challenges, barriers, and resolutions were presented. Resources among the faculty and faculty dynamics throughout this journey were examined. For faculty who choose to expand their knowledge on the NSM, clarity continues to result on how to integrate model concepts into courses and the curriculum. The transition to a nursing theory-based curriculum became more smooth and transparent as internalization of the model deepened. A sincere effort by the faculty first to know the NSM, then to use it in didactic and clinical teaching, and finally to evaluate outcomes was critical to maintain the integrity of the model.

Recommendations based on experiences by faculty are presented throughout the paper. Lessons learned indicate a need to be proactive and alert for the pitfalls that arise during curriculum changes, faculty turnover, and rapidly changing healthcare environments. It is important to: maintain dedication to the model, seek curriculum development expertise, make the paradigm shift from medical model to nursing model, align competencies with emerging healthcare needs, promote positive group dynamics, provide mentoring and revitalization, commit to life-long learning, and accomplish professional accreditation (Neuman & Reed, 2007). It was found that in many respects the NSM was the glue that helped bridge faculty from two separate programs to a new BS program.

In conclusion, there is clear evidence that the NSM has social utility for curriculum development. What outcomes of nursing theory-based education can one expect? "Nurses whose practice is guided by an explicit conceptual model will have the knowledge, skills, and practice tools necessary for provision of high touch care in a high tech society and healthcare environment" (Lowry et al., 2007, p. 228). Ultimately, the goal of nursing education is to improve the health of clients. "Those clients who will be searching for primary, secondary, and tertiary prevention as intervention with documented positive outcomes will find what they are looking for when they experience NSM-based care" (Lowry et al., 2007, p. 229). The use of the NSM in academia keeps the science and art of nursing at the forefront of educating future nurses equipped for the delivery of high quality, competent, and personalized care.

Declaration of Conflicting Interests

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