Radical transformation: Embracing constructivism and pedagogy for an innovative nursing curriculum

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ABSTRACT

To effectively navigate today’s complex and rapidly changing health care environments, nurses require a high level of knowledge, sound psychomotor skills, diverse thinking and reasoning abilities, and a strong professional identity. The evidence showed that programs that offer students focused clinical practice experiences and offer students opportunities to ‘think like a nurse’ enable them to become sound practitioners. Faculty and staff at one mid-sized research-intensive university in Western Canada, engaged in an iterative process of rethink the theoretical and pedagogical underpinnings of a BSN curriculum for educating nurses for the complexity of today’s practice.

Constructivist learning theory was chosen as the main underpinning of the revised curriculum. Furthermore, transformational learning theory guided the selection of several pedagogical approaches utilized throughout the program with the goal of inviting critical reflection and encouraging the development of competent, compassionate, ethical, and professional nurses. Additionally, we employed an innovative approach to clinical practices where the process of learning is both integrated and intentional, and students are mentored to use prior knowledge in their decisions and clinical reasoning.

Introduction

The scope of practice for all nurses has continually advanced over the last several decades (Keeling, 2015). Huston (2013) estimated that the knowledge needed for the practice of nursing doubles every 6 years. To effectively navigate today’s complex and rapidly changing health care environments, nurses require a high level of knowledge, sound psychomotor skills, diverse thinking and reasoning abilities, and a strong professional identity.

Entry-to-practice nursing programs have struggled to include all the essential theory and practice learning experiences while ensuring that students develop into professionals who can apply knowledge and practice safely within the advancing scope of nursing (Wolff, Pesut, & Regan, 2010). Benner, Surphen, Leonard, and Day (2009) found that nurses were “undereducated for the demands of practice” (p. 4). Content laden curricula and practice education models requiring a large number of “random opportunity” practice hours have failed to adequately develop in students the attributes and professional competencies they need to succeed in complex care environments (Ironside, McNelis, & Ebright, 2014; Tanner, 2008). Despite successfully completing these content robust programs (Giddens & Brady, 2007), new graduates continue to describe experiencing stress and challenges as they transition to the workplace (Boychuk Duchscher, 2009; Wolff et al., 2010). Further, Mills et al. (2016) report that worldwide the rates of nurse turnover in the first year of practice range from 17 to 50%.

At one mid-sized research-intensive university in Western Canada, the faculty decided to radically transform baccalaureate nursing education. To achieve this pedagogical shift, we reviewed nursing and health professions education research, consulted with nursing education, nursing practice and pedagogical experts, and engaged in an iterative faculty development process.

In this paper, we illustrate a curriculum framework built on constructivist learning theory as a way to guide course development, learning pathways, and pedagogical approaches in both classroom and
practice. In addition, we will describe an innovative clinical learning model that includes integrative teaching and intentional learning as the foundational approach to clinical practicums. Further, we will share our goal of shifting from using enculturation as an approach to students' development as a professional to explicitly mentoring each student's formation of a professional identity (Benner et al., 2009).

**Background**

The four-year Bachelor of Science in Nursing (BSN) admits approximately 140 students each year. The program has provincial review and approval as well as an academic accreditation. In this full-time program, in each of the eight semesters, students take a full credit load with a combination of lecture courses and nursing practicums.

Prior to 2014, the BSN curriculum was informed by a number of philosophical perspectives and core concepts that were threaded and woven throughout all of the BSN courses. Both faculty and students often failed to identify all of the core concepts, and faculty often struggled to articulate the relationship between the core concepts and the learning outcomes of each course. Moreover, the BSN program evaluation data showed that the growing acuity of patients in the regional and general hospitals was increasing stress levels for clinical teachers, staff nurses, and novice students to problematic levels. The perceived need by all stakeholders to add content to an already full curriculum was an ongoing challenge. Even with close faculty clinical supervision (1 faculty to 6–8 students), second year BSN students' theoretical knowledge and clinical skills were frequently insufficient for the clinical complexity of providing total patient care. With insufficient foundational knowledge to inform clinical judgements and decision-making, many students focused on mastering psychomotor skills to feel more competent in acute care environments. This prioritization displaced a necessary focus on the critical application of knowledge and contributed to a deepening disconnect between theory and practice as students' learning became increasingly siloed.

In this previous curriculum students in years one and two completed several practicums in medical-surgical settings. They were then perceived to be ready to learn and engage in community, mental health, pediatric and perinatal nursing, which also resulted in an extensive break from medical-surgical nursing. They then re-entered the acute care medical and surgical settings in a preceptorship model in their fourth and final year to prepare for a transition to a graduate nurse. This clinical teaching model created a lengthy time period between second year foundational medical surgical practice courses and fourth year higher-level acute-care practice courses. Students reported that this extended time away from acute care settings negatively affected their clinical confidence and perceived competence. In addition, students' early focus on acute care nursing practice, prior to acquiring a broad theoretical foundation for nursing, may have encouraged the focus on skill mastery and decreased their engagement in the community, mental health, pediatric and perinatal nursing curriculum.

**Embracing the journey**

The curriculum review and renewal process began in 2013, the revised curriculum was implemented in 2015, and the first cohort of students completed in June 2019. The first step was to form a steering committee and appoint two faculty members to lead the curriculum transformation process. The review process included a broad environmental scan that included research and scholarly publications, grey literature, program evaluation data, stakeholder surveys and interviews, and visits to other schools of nursing whose publications or websites provided evidence of curriculum innovations.

The second step was to engage faculty and teaching staff in a Delphi technique exercise where the following two main sets of questions were posed: Philosophical: What ideas/concepts are essential to include in a one- or two-page philosophy? What do we aspire to as a program? What do we hope to engender in the students? What fundamental values and beliefs do we hold?

Research: How should we engage nurses in the undergraduate curriculum in research? Should we be aiming for all students to have a research experience or only honors students? What innovative delivery strategies can you envision to ensure that it is truly ‘integrated’ while giving students what they need?

After sharing a summary of the findings from the environmental scan, the Delphi discussions, and several key resources with the faculty and staff, we held a visioning retreat to begin the change process of letting go and envisioning what might be. Successive faculty workshops included having working groups present additional literature reviews, presentations from the university's teaching and learning experts, as well as group work on preliminary curriculum ideas. This process supported faculty through the iterative process of rethinking the theoretical and pedagogical understandings of educating for professional practice while transforming the curriculum framework and content of the BSN curriculum.

**Constructivist learning theory underpins the curriculum framework**

The evidence-informed dialogue and creative collaboration of the review process led to the selection of constructivist learning theory as the main underpinning of the integrative curriculum for competency development (Bruner, 1966; Huber & Hutchings, 2004; Vygotsky, 1978). Vygotsky (1978) a social constructivist, identified the zone of proximal development (ZPD) and defined it as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers” (p.86). Vygotsky described learning as an active, collaborative process which enables learners to construct KSA by aligning new information to prior learning to build deeper understanding. Bruner (1966), explained the concept of the spiral curriculum which involves information and concepts being introduced at a simple level and then revisited throughout a curriculum with increasing complexity. The term scaffolding was first introduced by Wood, Bruner, and Ross (1976) depicting facilitated learning with progression to independence. The metaphor of pedagogical scaffolding is then one of building a curriculum that has teachers facilitating students to move through their ZPDs to reach new potentials and independence (Benko, 2012; Combs, 2018).

These constructivists views informed our definition of scaffolding. Scaffolding for this BSN curriculum has been defined as the breaking of concepts and skills into discrete pieces that are then intentionally structured across and through the curriculum with the recognition that as the learners progress they should be provided with more independence and responsibility in the learning process.

In alignment with a constructivist underpinning, and as depicted in the Curriculum Framework three main curricula structures are used to outline the scaffolding of knowledge, skills, and abilities (KSA) through the curriculum: conceptual course themes, learning pathways, and in four domains of professional practice (see Fig. 1).

Curriculum content is delivered within conceptual themes which are actualized in four course streams: Professional Practice, Relational Practice, Nursing Practice, and Health Sciences. Competency expectations were developed and progressively scaffolded through the four course streams.

Curriculum learning pathways further outline the scaffolding of learning of particular sets of competencies across courses and throughout the four-years of the program. For example, the Medication Administration Learning Pathway identifies the learning outcomes and
assessments for this significant practice skill and depicts the scaffolding of progressively more advanced KSA through the program. These curricula structures guide course development and delivery, providing a visual curriculum map across all courses and program years.

Professional practice competencies are scaffolded across the program within four domains of practice informed by the professional standards set by the provincial regulatory body: ethical practitioner, professional practitioner, critical inquirer, and person-centered practitioner. The program goal of preparing students to acquire the KSA they need to develop a robust professional nursing identity and transform into a professional practitioner are depicted by core competencies in each of the four domains of practice to guide and support both teachers and students in understanding and promoting excellence in student nursing practice. The conceptual model for the revised BSN curriculum framework (see Fig. 2) illustrates the program's goal that each graduate develop the competencies and attributes of a professional nurse through transformative learning within four domains of practice. The building blocks in the model depict the scaffolding of competencies and learning within each domain consistent with the underpinning of constructivism.

Based on findings from the curriculum review, a number of course offerings changed. To support the increasing scope and complexity of nursing practice, the number of health science courses were increased. We also shifted the statistical course and nursing research course from year three to year one to begin developing research KSA earlier and prepare students to use research findings to inform practice throughout the program (Burke et al., 2005). Additionally, we moved both mental health and community health courses from third year into second year and shifted the focus to health protection and health promotion. The earlier introduction of mental health content has equipped students with KSA to care for clients in any setting who may be experiencing mental health challenges. Further the earlier timing of community health has

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**Fig. 1.** Curriculum framework for the BSN program.

**Fig. 2.** Conceptual model of the BSN curriculum framework.
provided students with understanding of transitions and seamless care.

**Transformational approaches guided the choice of pedagogical approaches**

Transformational learning theory (Mezirow, 1997, Mezirow, 2000) guided the selection of several pedagogical approaches utilized throughout the program with the goal of embracing active learning and inviting critical reflection. Mezirow found that teaching and critical reflection could transform what is known and understood, assisting students to grasp new concepts and ideas.

In years one and two, concepts are highly integrated across several concurrent courses to provide students with the opportunity to intentionally build on prior knowledge and develop increased understanding and new perspectives. In years three and four, students are invited to apply knowledge to complex situations using pedagogical approaches such as team-based learning, problem-based learning, case-based learning, and unfolding case studies. Students are challenged to use their growing knowledge and critical thinking skills and progressively develop sound clinical reasoning (Landeen et al., 2016). Critical reflective activities and journaling are core activities throughout the program.

**Innovative clinical learning model: embracing integrated intentional learning**

The hallmark of most nursing programs are the numerous experiential learning opportunities in a variety of practice settings; our revised curriculum offers 12 practicums, with a total of 1400 h of practice in a variety of contexts. We employed an innovative approach to clinical practicums where the process of learning is both integrated and intentional, and students are mentored to use prior knowledge in their decisions and clinical reasoning (Huber & Hutchings, 2004; Nielsen, Noone, & Voss, 2013).

The Innovative Clinical Learning Model (see Fig. 3) was adapted from the Oregon Consortium for Nursing Education (OCNE) (Lasater & Nielsen, 2009; Nielsen et al., 2013). Our model was further informed by OCNE online resources, direct communication with the developer of the model (Nielsen et al., 2013), and relevant literature (Benner et al., 2009; Giddens & Brady, 2007; Gubrud-Howe & Schoessler, 2008; Handwerker, 2012; Huber & Hutchings, 2004; Ironside et al., 2014). An innovative approach to foundational clinical education focuses on learning and knowing in years one and two, prior to expanding the student scope of practice to include taking on the responsibility and accountability of supervised holistic patient care in years three and four.

In the Innovative Clinical Learning Model, clinical teaching begins with an integrated intentional learning approach in years one and two to facilitate the building of foundational KSA in a safe teaching and learning environment, that enables novice student nurses to link theory and evidence with practice. Weekly concepts are strongly integrated across a ‘suite of three courses’: nursing health science, nursing lab seminar and practice, as well as nursing practice. Students explore theory and evidence in lecture, explore practice knowledge through experience with multiple types of simulated practice in the nursing lab, then consolidate the learning as they strive to achieve specific learning outcomes in the practice setting (Benner et al., 2009). Further, the use of an Intentional Learning Activities (ILA) throughout the foundational practice courses provides students with planned learning activities and specific learning outcomes for each clinical practice day, which invites them to apply theory and evidence and engage in critically reflective practice (Rolloff, 2010; Tanner, 2008). In nursing education literature, intentional learning has been identified as a framework to support focused, experiential-based learning opportunities that are aligned with the theoretical content (Gubrud-Howe & Schoessler, 2008). The evidence indicates that programs with focused clinical practice experiences support students to develop the capacity to ‘think like a nurse’ in actual health care settings and become sound practitioners (Gubrud-Howe & Schoessler, 2008; Nielsen et al., 2013; Tanner, 2006). This integrative approach invites students to move from memorization of knowledge to application and critical reflection on practices.

An example of a concept that is integrated across the ‘suite of courses’ in year two of the program is oxygenation. The concept is introduced in the nursing health science course with exemplars of diseases and disorders and built upon in the nursing seminar and lab course with students learning and practicing interventions to assess and support oxygenation. Then in the practice setting, teachers and students use an Intentional Learning Activity to assist in meeting specific learning outcomes and engage in critical reflection. We are also able to coordinate the integration and scaffolding of this particular concept with several other courses, including the pathophysiology and pharmacology courses.

In the final year, students complete two practicums with a preceptor to consolidate their knowledge, practice competencies, and prepare to transition to the role of graduate nurse. In the revised curriculum, fourth year students must take a minimum of one advanced nursing elective and are then able to request one of the two preceptorship practicums in a related area of practice (i.e. mental health, community health, global health, and primary care).

The new practice education model is congruent with constructivist learning theory as concepts and skills have been broken into discrete pieces that are then intentionally scaffolded across the curriculum with the recognition that as the learners progress they should be provided with increasing independence and responsibility in the learning process. Integrated intentional learning in the initial years of the program allows students first to acquire foundational KSA and subsequently advance to a holistic model of practice learning where a practice teacher supports them to assume increasing responsibility in providing care for complex clients.

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**Fig. 3.** Innovative clinical learning model for the BSN program.
Ironside et al. (2014) found that despite the desire to have students develop critically reflective and evidence-informed clinical reasoning, traditional practice models often prioritize task completion. Our new approach to clinical teaching is underpinned by the belief that the quality of practice learning hours is more important than the quantity. Accordingly, in our revised clinical teaching model, we reduced direct acute care medical surgical clinical hours in years one and two where simulation and ILAs were intensively used to augment direct practice experiences. At the same time, we increased direct acute care medical surgical clinical hours in year three, where students take on more complex care across community and hospital settings, and in year four, where students complete 480 h in two preceptorships to consolidate advanced learning and transition to the role of graduate nurse. This change from a traditional practice model, where we allocated large volumes of practice hours to try to provide sufficient “random opportunity” learning in clinical courses in the first 2 years, to one that focused on student-centred learning was embraced by the faculty and students (Gubrud-Howe & Schoessler, 2008; Ironside et al., 2014).

Developing professionals and forming professional identities

Historically, nursing and medical programs have emphasized students’ socialization into their respective profession’s rules, standards, and codes (Crigger & Godfrey, 2014; Wald et al., 2015). However, these and other scholars note that both formal and informal socialization occurs throughout all aspects of students’ educational experiences with mixed results. Learners observe and sometimes adopt problematic ways of thinking and practicing (the hidden curriculum) that compromise professional standards and the quality of care (Benner et al., 2009; Johnson, Cowin, Wilson, & Young, 2012; Kelly, 2019). To enable students to navigate the complexities of today’s health care environments, nursing scholars assert that faculty and students need to explicitly engage in the ongoing work of forming and re-forming robust, morally resilient professional identities (Benner et al., 2009; Crigger & Godfrey, 2014; Johnson et al., 2012; Wald et al., 2015).

Crigger and Godfrey (2014) describe the formation of a professional identity as “a radical change” in one’s sense of self where students come to understand that as members of the nursing profession, they carry “responsibilities to society, recipients of care, other professionals, and to himself or herself” (p. 377). Research suggests that while within the healthcare professions, providers with well-developed professional identities may experience more satisfaction with their work, increased commitment to their professions, and less attrition (Boychuk Duchscher, 2009; Larson, Brady, Engleman, Perkins, & Shultz, 2013).

With these aims in view, we are moving faculty and students away from an approach of en-culturating students into the profession in the revised curriculum. Instead, we explicitly encourage students to actively work towards forming a healthy and thoughtful professional identity ( Larson et al., 2013). In the first term of the BSN program, we invite students to let go of being ‘just a student’ and to consider how they want to be, and what they need to become, as they develop a professional identity. We also introduce experiential learning in mindfulness and relational practice to foster awareness and purposeful care of self and others as important to becoming morally resilient, critically reflective practitioners. In addition, when we use case studies to introduce professional standards and ethics, we challenge students to collaborate, discuss and problem-solve to identify how they might respond in similar scenarios (Handwerker, 2012). Alongside these learning experiences, we scaffold and thread professional practice concepts throughout the 4 years of the program. Some examples of these concepts are relational ethics, ethical decision making, moral resiliency, global citizenship, cultural humility and cultural safety. Accordingly, we delay preceptorship until the final semester of the program, by which time students have usually formed sufficiently strong professional identities to exercise the sound clinical judgment, ethical conduct and skilled competencies of a professional nurse.

Program evaluation

The BSN Program Evaluation Plan includes a systematic approach to collect student, teacher, and community partner feedback. The evaluation plan was adjusted to support additional evaluation of the curriculum revisions throughout the implementation process. The regular review of the curriculum implementation allowed for responsive changes if any challenges needed to be addressed. Throughout the implementation process, term review data were collected for two consecutive cohorts of each year of the program to provide insight into the successes and challenges.

The two main implementation challenges were faculty workload to develop and implement the integrated ‘suites of courses’ and supporting faculty and teaching staff to fully embrace the pedagogical approach of intentional learning in the clinical settings. Feedback from faculty and teaching staff indicated that while most were willing to explore the potential benefits of these pedagogical innovations, they needed professional development to implement this new approach to practice teaching. Furthermore, they needed assurance that this change would prepare students to succeed in clinical practice. Actions to respond to faculty needs and concerns included teaching workload support, individual and group meetings to mentor and troubleshoot, and ongoing professional development for faculty and teaching staff.

During implementation, teachers consistently reported that the students were demonstrating stronger clinical reasoning skills and that intentional learning in years one and two was preparing students well for clinical practice in year 3. Overall, most students agreed (87.6%) that intentional learning in the clinical setting was effective and beneficial. Students liked “having all the classes integrated” as it “helped me solidify and understand it better” (Semester Program Evaluation, 2017, unpublished). Teachers reported that, when compared with the previous curriculum, students have a better understanding of the patients’ health conditions and potential complications and that the intentional learning activities helped students plan and prioritize their nursing care.

The first cohort of students completing the revised curriculum reported some apprehension about being the first students to experience the new curriculum, and expressed concerns that they might not be well prepared for entry-level practice by graduation. These concerns likely arose from the negative discourse among students in the prior cohort, and from some faculty and staff, about the reduction in practice hours in the revised curriculum. However, in the students’ fourth year preceptorships, preceptors and faculty reported that the students’ knowledge and ability to provide safe, high-quality care was strong. Furthermore, preceptors reported that while students were initially less confident in some psychomotor skills, they quickly achieved and demonstrated clinical competence. Moreover, at the conclusion of the program, 89% of students from the first cohort were satisfied with their final practicum experiences and 77.8% reported they were able to meet the competencies required of a new graduate and felt ready to take on the role of a registered nurse (BSN Program Completion Questionnaire, 2019, unpublished). In addition, the performance of the first cohort on the national licencing exam showed slightly improved pass rates from the previous year (94% vs. 91%).

The second cohort of graduates were asked to complete a Graduate Follow-Up Questionnaire one-year post graduation, but the return rate was only 8.6% and therefore, the data has grave limitations. The graduates who did respond are all employed in nursing, and are working 30 or more hours a week. On average, respondents indicated they were able to manage the workload similar to an RN within three to six months of graduating. At the same time, a Workplace Survey provided employers and colleagues working in the local facilities an opportunity to provide feedback about the preparedness of the new graduates. Of the nine completed surveys received, graduates were described by 66% of respondents as consistently being able to apply knowledge, skills and judgment in nursing practice. Respondents also agreed that the graduates were professional, accountable, responsible, and ethical
Conclusion

Today’s dynamic, complex health-care systems demand nursing graduates with a strong knowledge base and the ability to engage in critically reflective, evidence-informed clinical reasoning and safe, ethical clinical decision making. By letting go of traditional teaching approaches that focus on a large number of student practice hours and task completion, nurse educators can embrace pedagogies that better prepare students to develop the competencies required of today’s registered nurses (Irons side et al., 2014). The initial evaluation of the revised BSN curriculum has inspired us to continue refining the integrative curriculum framework and innovative practice education model as we continually adapt to the pressures on contemporary nursing practice. The goal is to ensure that students develop the extensive knowledge, complex competencies and robust, morally resilient professional identities that they require to enter and sustain successful registered nursing careers.

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