**The Influence of Undergraduate Education on Professional Practice Transition**

**Introduction**

The ability of nursing graduates to confidently engage in safe, ethical and legal practice in a variety of practice environments is often referred to as graduate competence. However, uncertainty in relation to beginning professional practice is to be expected and often lasts for as long as one year following initial employment. This decreased level of confidence has often been attributed to a gap between theory and practice within current nursing education programs and the requirement for immediate theory integration within current fast paced graduate practice settings. The challenge for nurse educators is to determine whether some nursing curricula and teaching methods are more effective than others in preparing graduates for practice in rapidly changing health care environments. It has been suggested that Problem/Context Based Learning nursing education might facilitate the ease of transition from student to competent practitioner.

**Background**

In Canada, each provincial nursing association identifies the competencies that make up the standards of practice for registered graduates to ensure safe, competent, ethical nursing practice (CARNA, 2009). New graduates are expected to meet these standards regardless of the role in which they are employed but there is often a tension between the urgent expectations of the practice setting and the transition time new graduates need to move from the student role into the graduate nurse role (Romyn et. al, 2009). New graduates are expected to quickly assume responsibilities on units that have high acuity, high patient-to-nurse ratios, reduced lengths of stay, complex technology, and staff shortages (Deasy, Doody, & Tuohy, 2011; Dyess & Sherman, 2009; Pellico, Brewer, & Kovner, 2009; Scott, Englke, & Swanson, 2008). Transition to the workforce is described by graduates as “stressful, draining, demanding, both physically and emotionally, and personally challenging” but also “rewarding” when they are welcomed and supported (Parker, Giles, Lantry, & McMillan, 2012, p. 2). Student transition to the graduate role is widely discussed in the literature with suggestions for improvement from both new and experienced graduates that include both curricular improvements and workplace improvements (Lofmark, Smide, & Wikblad, 2006; Dyess & Sherman, 2009; Ross & Clifford, 2002).

Curricular related suggestions to improve student to graduate transition include: promoting a stronger foundation in anatomy, physiology, pathophysiology, lab values, and assessments (Romyn et. al, 2009); using active engagement learning such as simulation (Clark & Springer, 2012; Newton & McKenna, 2007); educating students more about teaching, planning and prioritizing (Lofmark, Smide, & Wikblad, 2006); increasing the number of acute care experiences in nursing programs (Romyn et. al, 2009); making the final year of a nursing program relevant and practical (Ross & Clifford, 2002) with longer final clinical practicums (Newton & McKenna, 2007); and improving the communication between education and service (Romyn et. al, 2009; Ross & Clifford, 2003).

Suggested workplace related improvements for graduate transition include: paid undergraduate student employment, and/or employment for academic credit (Deasy, Doody, & Tuohy, 2011; appropriate clinical settings with patient allocation suitable for a beginning skill set (Phillips, Kenny, Esterman, & Smith, 2013); formal preceptor or mentor positions (Clark & Springer, 2012; Dyess & Sherman, 2009; Romyn, et. al, 2009); extended and comprehensive orientations for new graduates (Deasy, Doody, & Tuohy, 2011; Dyess & Sherman, 2009; Pellico, Brewer, & Kovner, 2009); the implementation of transition to practice modules (Clark & Springer, 2012); a strong clinical educator presence (Romyn et. al, 2009); use of simulation for skill acquisition (Romyn et. al, 2009); regular and constructive feedback (Deasy, Doody, & Tuohy, 2011; Parker et al., 2012); Romyn et. al, 2009); internships (Deasy, Doody, & Tuohy, 2011; Scott, Englke, & Swanson, 2008); and consistent support in the workplace by both co-workers and managers (Parker et al., 2012; Phillips et al., 2013). Scott, Englke, and Swanson (2008) found that it is essential that service areas support new graduates with standardized transition-to-work programs in order to enhance job satisfaction and reduce turnover.

Problem/Context (CBL) based learning is a major change in educational practice that is having a significant impact in professional education worldwide (Newman, 2004; Williams et al, 2012).The philosophy underlying CBL is that transformational learning for students needs to be based on active, realistic experiences that engage students in self-directed inquiry and critical thinking. In a CBL program, students assume the role of a registered nurse as they work through real practice scenarios on a daily basis in the classroom. In each academic term students discuss four or five scenarios based on real patient situations. The scenarios represent nursing and health across age, gender, a range of acute and chronic health situations involving individual/family/ community.

The faculty and collaborating college partners at this particular university have been engaged in CBL since 1997 and started collecting program completion information with the first cohort of students in 2001. This annual data collection provides information about the program and often includes comments on program strength and areas for improvement. However at this early point in their career graduates do not yet have the experience to know how the program will affect their actual transition to professional nursing practice. A grant from the university provided an opportunity for the current research to be conducted on the influence of CBL education on the development of the professional competence during transition to graduate practice.

There is published research about how CBL nursing programs affect self-directed learning (Williams, 2004) and critical thinking at the point of graduation (Day & Williams, 2002; Tiwari et al., 2006; Yuan, Williams & Fan, 2008) and limited research related to employer perceptions about knowledge, competency and professionalism among CBL nursing graduates(Williams & Day, 2002) as well as the contribution of CBL to the evolution of professional nursing practice following graduation (Williams et al., 2012). Applin et al. (2011) compared the competence of CBL and non-CBL graduates with six months of experience following graduation and found no differences on entry to practice competencies. CBL graduates did associate their abilities to think critically and engage in self-directed evidence based practice with their CBL program. It is possible that for a new graduate differences in perceived competency might not yet be apparent due to the lack of practice experience. Subsequent to Applin’s study the Provincial Nursing Association revised the required clinical practice standards to include clearer articulation of competencies related toevidenced based rationale, critical thinking and aspects of self-directed learning (CARNA, 2009). These are competencies often associated more with CBL than non CBL programs. The revised standards have been in effect for three years so it is timely to once again compare CBL and non-CBL graduates using the newly revised standards and a longer initial time frame in practice.

Educational practice should be self-directed, contextualized and transformational. It is possible that the norms, values, knowledge, and practices of CBL graduates are distinct from non-CBL graduates. Clinical practice in nursing evolves from both educational preparation and the culture of the practice setting. CBL graduates often express concern about whether or not they are as well prepared as their traditional program graduate colleagues for transition to graduate practice. This research is fundamental to supporting CBL as a teaching practice and reassuring students by identifying how CBL contributes to transition to and competence in nursing practice. The purpose of this study is examine whether a CBL approach to undergraduate nursing education has an equivalent or greater impact on self-reported competence and transition to practice as a registered nurse than a non CBL approach at one to two years post-graduation.

**Method**

This comparative descriptive study involved the use of a web-based survey administered to a convenience sample of all graduates from the five baccalaureate programs in one western Canadian province. The sample consisted of all four year baccalaureate plus two year after degree graduates from seven nursing programs in the province who had graduated within the last two years. Cohen’s (1997) power analysis was used to estimate the required sample size. For a medium effect a sample size of 128 graduate graduates was required (n=64) for each group of PBL and non PBL graduates. Completed surveys (n=163) returned from PBL graduates (n=70) and non PBL graduates (n=93) met this requirement.

The provincial nursing association provided email addresses for all individuals who met the criteria for the study and had also indicated their consent to be contacted for participation in research as part of the annual registration process. An invitation letter including a link to the electronic survey was sent to all potential participants, and a reminder letter was sent out two weeks following the first invitation. Completed questionnaires were assigned a code number however, no identifying information, such as name, address or contact details were attached to the survey responses.

The Graduate Competency Questionnaire consisted of 26 competencies based on the current Nursing Practice Standards approved by the provincial association in the areas of professional responsibility, knowledge based practice, ethical practice and provision of service to the public (Table 2). For each competency, respondents were asked to rate their self-assessed level of competence on a Visual Analogue Scale (from 10 “very high” to 0 “very low”), and the frequency of the use of that competency in their current primary position on a 4 point Likert-type scale (1=seldom used, 2=used occasionally, 3=used frequently, and 4=used constantly). For specific competencies, respondents were asked to provide a short example that demonstrated how they met the competency in the last month. The survey also included questions about general socio-demographic and work-related information including age, gender, years of nursing experience, site of nursing program, current primary clinical specialty, job title, and employment status (part-time, full-time, casual, or unemployed). Approval for the study was granted by the Health Research Ethics Review Committee for the University.

Descriptive statistics were reported for all variables as a mean and standard deviation for continuous variables and frequency/percentage for categorical variables. General socio-demographic and work-related characteristics were compared between the CBL and non-CBL groups using the chi-square test for categorical variables and t test for continuous variables. To examine the differences in the competency level of each participant and the frequency of employing each competency between the CBL and non-CBL groups, t-test and chi-square test were used. The independent associations between CBL status and competency level were established by using multiple linear regression models with the competency level as the main outcome in each of the models and CBL status as the main explanatory variable, while adjusting for age, sex, and years of nursing experience. Logistic regression models were used to examine the independent associations between frequency of employing a competency categorized as often (constantly and frequently combined) vs. not often (occasionally and seldom combined) and CBL status, while also adjusting for age, sex, and years of nursing experience. For each analysis, the null hypothesis was evaluated at a 2-sided significance level of .05. All analyses were performed using STATA 11.1 [[10](#_ENREF_10)].

**Results**

CBL status was available for 163 respondents so these participants were the only ones included in the study. Both CBL and non CBL graduates were mainly female (94.3%), with an average age of 30.1 (SD=7.4) and an average of 1.6 years (SD=0.5) of nursing experience. This means that graduates were approximately 26 years of age when they started their programs and would be considered mature students. This finding reflects the current national trend that more nursing students already have a degree or some courses towards a degree when they begin their nursing programs (CIHI, 2005). Participants worked mainly in medical (20%), surgical (12%), and pediatric (11%) areas with smaller numbers in emergency, psychiatry, and oncology (Table 1). The majority of the graduates were staff nurses (93.7%) with a few patient coordinators (2.3%), managers (1.1%), researchers (2.3%), or instructors (0.6%). The majority of participants worked full-time (48.8%) while 36.4% were part-time and 12.5% worked on a casual basis. Seventy (42.9%) of the participants were PBL graduates and the remaining (57.1%) were graduates of non-PBL programs. Although nursing experience was significantly different between PBL (1.7 years) and non-PBL graduates (1.5 years), other socio-demographics characteristics did not vary (Table 1).

*Comparison of competence*

The mean level for all graduates for assessing their practice in relation to the various competencies on a ten point scale was 8.1 with a low of 5.3 for “*supporting, facilitating or participating in nursing relevant research*” and a high of 9.4 for “*practicing with honesty, integrity and respect, and complying with the code of ethics*” (Table 2). Overall, the assessed level of competence for all competencies was relatively high and similar in both groups.

This similarity was also reflected in the frequency with which graduates employed various competencies in their current practice where *“facilitating/participating in research, reporting unskilled practice, and participating in quality improvement”* were reportedly used less frequently than *“accountability; honesty, integrity and respect/code of ethics; and therapeutic professional relationships”* for both CBL and non CBL graduates. Generally the non-PBL graduates reported a higher frequency of applying these competencies than the PBL graduates. However these differences were statistically non-significant in both unadjusted bivariate analysis and in adjusted logistic regression models for all competencies, except for “*using communication and team building skills to enhance client care*”. For this competency a non-PBL graduate was 3.2 times more likely to often apply this competency than a PBL graduate (95% CI: 1.01, 10.20).

*Enhancing Competencies*

All graduates indicated a need to enhance all of the competencies. This need was the highest for “*supporting decisions with evidence-based rationale*” (85%), and the lowest for “*practicing with honesty, integrity and respect, and complying with the code of ethics*” (32.3%). Other competencies that most graduates indicated a need to enhance were: “*questioning policies and procedures inconsistent with therapeutic patient/client outcomes, best practices and safety standards*” (83.4%), “*demonstrating critical thinking in collecting and interpreting data, planning, implementing and evaluating all aspects of nursing care*” (83.2%), and “*striving to acquire knowledge and skills to provide competent, evidence-based nursing practice*” (82.2%). The competencies that were reported as requiring the least amount of enhancement were: “*ensuring fitness to practice*” (39.2%), and “*assuming responsibility for ensuring that their relationships with clients are therapeutic and professional*” (34.4%). Although overall, the non-CBL graduates reported practicing their competencies at a higher level and more frequently than CBL graduates, they also indicated the need to enhance the competencies more than the CBL graduates. However, the differences between the groups were statistically non-significant for all competencies.

All graduates indicated that “more general nursing experience” was the best approach to enhance most of the competencies that could be developed with practice and experience including being accountable and responsible for therapeutic/professional relationships, exercising reasonable judgment and ensuring timely and accurate documentation. Other approaches such as “more education” and “access to up to date resources and policies” were identified as enhancing competencies that require knowledge and acquisition of specific information including current legislation, standards, policies relevant to the profession or practice setting, and familiarity with the most current evidence to support practice. For more complex competencies (*practicing competently; assessing one’s practice and taking the necessary steps to improve personal competence; and engagement in research*), graduates indicated the need for more education, more general nursing practice and more experience/opportunities in particular practice roles to enhance the competencies.

**Discussion**

Scopes of practice of health care professionals are constantly evolving as the needs of health care systems evolve. Competent practitioners in any nursing role must be able to manage care within interdisciplinary models, exert leadership, critically reflect on their practice and engage in ongoing education. It is therefore imperative that undergraduate nursing programs provide opportunities within the program for future graduates to develop these skills and abilities. It is also important to be able to reassure students within non-traditional nursing programs that their particular program does indeed prepare them to meet entry to practice competencies at least was well if not better than traditional nursing education programs. While Casey, Fink, Krugman and Propst (2004) suggest that the transition from student to graduate can take up to one year after being hired, Hoffart, Waddell and Young (2011) suggest that transition can continue up to two years into practice and that was confirmed in this study.

Transition from the role of student to that of graduate nurse is both exciting and challenging for new graduates. It is quite common for students to feel insecure about their competence and ability to assume the role of graduate nurse. Doody, Tuaohy and Deasy (2012) found that final year nursing students reported competence in managing workloads, prioritizing care, interpersonal skills, decision making and providing health information but were not confident about their knowledge and expected the transition to graduate practice to be problematic. However, they did expect to be supported and receive constructive feedback from their colleagues during the transition period. Applin (2011) compared a single cohort of CBL and non-CBL graduates at an early point of six months after graduation and found no difference in reported competence across the standards of professionalism, provision of service, knowledge and ethical practice. When Williams et al. (2012) studied only CBL graduates they found that the graduates surmised that their transition to graduate practice was not much different from that of graduates from traditional programs. The findings of this study reinforce those of both Williams (2012) and Applin (2011) even though the length of time as a graduate nurse was extended to a maximum of two years post-graduation.

In the current study some interesting findings emerged related to enhancing individual competencies. For example: the need to *“enhance supporting decisions with evidence based rationale”* is perplexing from CBL graduates as they are required to bring examples of evidence based rationale to their tutorial discussions while they are students. It is also interesting that CBL graduates reported a need to enhance their ability to question inconsistencies since they often do question each other as students especially around questions of policy and procedure. It could be recent graduates find it more challenging to question more experienced peers when they are working with them as colleagues. Another requirement for tutorial is for each student include current evidence based research as part of their discussion with peers. While this is a requirement for tutorial, it could be that students might benefit from more clinical tutor facilitation in reinforcing and transferring this skill to their practice in the clinical area while they are still students. Then perhaps over time as they adjust to the pace of graduate practice they will regain the confidence that they display at students in facilitating evidence based practice. However as Andrews and Ford (2013) indicate, even clinical tutors require ongoing professional development in bridging their own gap between theory, evidence and practice before being able to assist students.

It is reassuring that all graduates feel confident in practicing with honesty, integrity, and respect; ensuring individual fitness to practice and engaging in professional, therapeutic relationships. The finding that CBL graduates were less likely to report high level competency may be a reflection of their own level of self-awareness. Evaluation through both self and peer critique is a major focus in the CBL program and is practiced at regular intervals in both tutorial and clinical courses so students are cognizant about how they can improve their knowledge, skill and practice.

It is not surprising that all graduates in this study perceive that they practice competently. The professional association sets the program standards for all nursing programs in the province. The standards are reflected in nursing practice competencies identified by the association as outcomes for all nursing programs in the province. In the CBL program, all evaluation forms for clinical practice reflect the nursing practice competencies.

When Ramritu and Barnard (2001) explored conceptions of competence among new graduates more than a decade ago they found that new graduates described competence as still evolving. This included competence related to knowledge and clinical skills, safe practice, limited independence, using resources, managing time and workload, and ethical practice. New graduates also confirmed a need for support and assistance from employers during this time More recently, first year graduates still describe their transition experience as frustrating and overwhelming (Thomas, Bertram & Allen, 2012). In the same study quality of orientation and competent preceptors were identified as key strategies to retaining new graduates. Graduates in this study identified more education as the best approach to enhancing competencies related to evidence based practice but general nursing experience as the most beneficial in enhancing accountability, exercising reasonable judgment and timely documentation.

Typically nursing programs have a final term of clinical practice with a preceptor. The role of preceptor during the final clinical practicum in nursing programs has been identified as essential in preparing graduates for clinical learning that is foundational not only to the transition process (Kaihlanen, Lakanmaa & Salminen, 2013) but also to ongoing professional growth. The presence of a preceptorship for all current study participants may also contribute to the lack of differences between graduates of traditional and CBL programs.

Following an integrative review of the literature, Rush, Adamack, Gordon, Lilly and Janke (2013) suggest six to nine month transition programs that include opportunities for peer connection through an extended preceptorship while still in the undergraduate program and formal mentorship following graduation. Common elements of transition programs include: a specific resource person, formal education and peer support opportunities on clinical units with a healthy work environment. The presence of such programs could result in cost benefits through improved graduate nurse satisfaction, increased competency and longer term retention.

**Study Limitations**

A limitation in using an e-mail survey is often the smaller number of potential individuals who actually complete and return the survey. However, based on the total sample size analysis calculation of 128 graduates (with 64 from each group), the total sample size of 163 graduates with more than 64 for each group who completed the survey was adequate enough to establish an overall moderate effect for the study. Although the sample was one of convenience, there is no clear indication about how the sample could have been biased. Using general competencies may not be the best way to determine differences between graduates of PBL/CBL programs and those from traditional programs as all new graduates are expected to meet these minimal competencies. Perhaps assessment of critical thinking, self-directed learning, leadership and use of evidence to support practice, all emphasized outcomes of PBL/CBL programs, would result in more differentiation among new graduates.

**Conclusion**

Since that was no significant difference in the transition experience of CBL and non-CBL graduates as determined through self- perceived competency, it is clear that both approaches to undergraduate education prepare graduates to successfully transition into professional nursing practice. These findings should provide faculty and students engaged in CBL or contemplating a move to a PBL/CBL curriculum with reassurance that graduates will graduate as competent as they might from a more traditional program. With a well-planned curriculum PBL/CBL students and faculty can be reassured that graduates will graduate as competent as they might from a more traditional program. It is also evident that graduates from both CBL and non CBL programs could benefit from more formal agency specific orientation and transition programs once they are employed in their first registered graduate nurse position. **References**

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