**The Influence of an Undergraduate Problem/Context Based Learning Program on Evolving Professional Nursing Graduate Practice**

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**Abstract**

Graduates' perception of the value of their undergraduate program is a critical component of professional program evaluation and contributes a viewpoint rarely reported in the literature. It has been proposed that Problem Based Learning (PBL) enhances knowledge acquisition, clinical competency and professionalism as a consequence of students assuming the role of registered nurse as they work through real practice situations on a daily basis in the classroom. The purpose of this study was to determine how PBL graduates describe the contribution of the educational experience to their professional practice as nurses. Using focused ethnography, PBL graduates (N=45) participated in the study as individuals or through focus group discussions. Graduates described themselves as: self aware and self directed critical thinkers, patient advocates able to engage in evidence based holistic practice and interdisciplinary team members able to take on leadership roles and handle conflict.

**Introduction**

 According to most professional nursing organizations nursing program graduates should be knowledgeable, competent and professional. The presence of these qualities is reflected in the practice of skilled practitioners who are able to make sound clinical judgements resulting in quality patient care. Since the ultimate aim of any professional education program is to ensure continued improvement in the professional practice of their graduates, nursing education programs are accountable for implementing comprehensive program evaluation. Graduate perceptions of how nursing programs contribute to their professional practice are a critical component of program evaluation and contribute a point of view rarely reported in the literature (Biley & Smith, 1998).

 Problem based learning (PBL) is a major change in educational practice that is having an impact on professional education worldwide (Rideout & Carpio, 2001; Rowan et al., 2007).It has been proposed that when PBL is used as a teaching strategy, knowledge acquisition, clinical competency and professionalism are enhanced by requiring learners to assume the role of registered nurse as they work through scenarios in the classroom (Williams & Day, 2007). However, currently there is limited research supporting the achievement of these outcomes from a graduate nurse perspective. The purpose of this manuscript is to contribute current information related to graduate perceptions of the contribution of PBL to their professional nursing practice.

**Literature Review**

 Tomkins (2001) suggests that health care systems and university nursing graduates will continue to face an era of unprecedented world change. Reflecting on the rapid changes in the health care environment, Valanis (2000) identified the following qualities of a competent 21st century nurse: an independent practitioner who critically reflects on practice; self-directed and actively involved in continuous learning; encourages colleagues to engage in continuous learning; encourages patients/clients to actively engage in self care; manages care across facility boundaries through interdisciplinary collaboration; promotes the health of the community through interdisciplinary collaboration; ensures quality and cost effective care; and exerts leadership in policy development from local to international levels. Therefore it is critical that nursing education programs provide opportunities for future graduates to develop these skills and abilities.

 The philosophy underlying PBL 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 PBL program, students assume the role of a registered nurse as they work in small peer groups to discuss real practice scenarios on a daily basis in the classroom. Although there has been considerable research involving medical graduates from PBL programs (Jones et al., 2002; Koh et al., 2008; Wood, 2008) there has been limited research with nursing graduates. When medical graduates were compared to non-PBL colleagues, PBL graduates indicate that they have developed skills in: communicating effectively, identifying limitations, problem solving, teamwork, evidence based practice, decision making, dealing with uncertainty, self directed learning and using informatics (Jones, McArtle & Paul, 2002; Koh, Khoo, Wong & Koh, 2008; Prince, van Eijs, Boshuizen, van der Vleuten & Sherpbier, 2005); Schmidt, Vermeulen & van der Molen, 2006; Vernon & Blake,1993; Wood, 2008). In the only study of graduate nurses, Uys et al (2004) indicate that when compared to non-PBL graduates, those from PBL nursing programs demonstrated more effective problem solving involving use of higher level communication skills and effective interpersonal skills.

 At this university the faculty have chosen to identify the PBL process as context based learning (CBL). This change of title is based on the belief that nurses not only assist individuals when they experience issues with their health but also engage in practices to help people stay healthy. The nursing program is offered by a large university through a collaboration with three colleges in the northern part of the province. The nursing program has been engaged in CBL since 1997 and began 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. At this early point in time graduates do not have the experience to know how the program will affect their subsequent professional nursing practice. There is published research about how PBL nursing programs affect self directed learning (Williams, 2004) and critical thinking at the point of graduation (Day & Williams, 2002; Tiwari, Lai, So, & Yeun, 2006; Yuan, Williams, & Fan, 2008) and limited research related to employer perceptions about knowledge, competency and professionalism among CBL nursing graduates (Williams & Day, 2009). There is also limited current published information about the contribution of CBL to the evolution of professional nursing practice past graduation. The purpose of this study was to determine how CBL graduates describe the contribution of the CBL educational experience to their professional practice as nurses.

**Method**

*Design*

 The lack of research related to the contribution of CBL to nursing graduate practice over time meant that a qualitative approach was most appropriate. A focused ethnography is a time-limited exploratory study that is topic specific and prioritises one mode of data collection. In this case, a select area of beliefs and norms about how CBL influenced nursing practice was studied for its meaning among a specific group of people, nurses who graduated from a CBL program (Knoblauch, 2005; Nadai & Maeder, 2005; Mueche, 1994). Semi-structured interviews with focus groups or individuals was the primary strategy for data collection (Spradley, 1979; Germain, 2001).

 Purposive and theoretical sampling (Morse, 1995; Sandelowski, 1995)was utilized to seek out a cross sectional sample of participants who could provide the most relevant data with a maximal variation within graduation year sub groups (Germain, 2001; Morse, 1995).Although the literature on the transition of nursing students to professional practice identifies the two and five year time period as particularly important as nurses become socialised into the professional role and become proficient in their clinical skills (Boychuck Duchscher, 2007) the initial recruitment numbers for these years was small so recruitment was opened to all individuals who had graduated from the program since inception. Recruitment was accomplished by: sending out letters to all alumni, advertising in the provincial nursing association magazine, writing a descriptive article for the same magazine, posting advertisements in all local hospitals and community health centers in the northern part of the province where most graduates were employed, and snowball sampling. Most participants were recruited through almost equal response to letters sent out and the article published in the professional magazine.

Each focus group included individuals who graduated from different years. This variation within the focus group participants stimulated discussion and recall of nurses at different points in their professional careers. The focus groups were comprised of anywhere from two to seven members, with the majority having two or three members. To include participants who were not able to attend focus groups, individual interviews through either telephone or e-mail were used. Half of the interested individuals requested an individual interview mainly due to difficulties in scheduling that naturally occurs with individuals who work a variety of shifts. Individual interviews were scheduled at a time and place that was mutually agreeable and the semi-structured question protocol used for the focus groups was replicated.

The interview guide evolved as analysis indicated a story of emerging themes and issues of interest. As the guide evolved, the protocol was altered to initially discuss and verify the emerging story with participants, to identify differences, and then to probe more deeply into specific areas of interest (Germain, 2001). Thus verification occurred iteratively throughout the data collection and analysis process (Morse, Barrett, Mayan, Olson & Spiers, 2002). The protocol was altered to accommodate one overseas participant who participated via e-mail (Speziale & Carpenter, 2007). Approval for the study was granted by the Health Research Ethics Review Committee for the University. The final sample was 45 participants. Eight focus group interviews involving 22 individuals and 23 individual or phone interviews were completed. At that point it was clear that analytical redundancy and saturation had been reached as no new themes were emerging from the data.

*Data analysis*

 Data was analyzed thematically and inductively. A combination of open coding, then constant comparison of codes and collapsing of similar codes was used to reduce the data to a manageable size and to identify major categories and themes (Charmaz & Mitchell, 2001; Speziale & Carpenter, 2007). As each interview was analyzed, emerging categories informed questions for the next interview. Participant recruitment continued until a full description occurred as evidenced by redundancy (Morse et al., 2002). Initially, all team members coded the interviews by hand, and team meetings were held so that similarities and differences in interpretations and coding could be discussed. Despite some minor variations among team members, it was clear that there was consensus on the main themes and categories. Team discussion was used to tease out subtle differences in meaning that were specific to a participant’s individual expertise and experience. For example, after some discussion, the main category of ‘Making sense of CBL’ was divided into two processes: ‘Understanding how to use CBL’ and ‘Valuing CBL’. This differentiation allowed us to understand differences between groups of participant experience. For example, some students could use the CBL processes (ie brainstorming, team work, scenario application) but did not perceive them to be valuable and integral to their learning. Other students quickly learned to use the processes and could also see why and how this approach to learning had advantages over more traditional approaches.

**Findings**

 The majority of the 45 participants (82%) were female. Over one half of the participants were age 26-30 years with the next most common age range being 31-35 years (20%). Most of participants were in staff nurse positions (n=31) while others were nursing instructors (n=19). Although the majority of participants worked full time (n=24), a significant number were employed part time (n=16) with a smaller number working casual (n=5). Most of participants were employed in acute care immediately following graduation (n=32) with a surprising number employed in critical care areas (n=18). Smaller numbers of participants were employed in the community or rural settings ---- out of province. The majority of participants were engaged in some form of continuing education including in-service sessions, certificate programs and workshops. It is encouraging to note that twenty percent of participants were studying in Master degree programs at the time of interview.

 The majority of nursing graduates in the northern part of the province graduated from the CBL collaborative program at the university and after an initial period of transition, could identify how the CBL process contributed to who they had become as professionals. They indicated that they had developed a number of attributes that they valued in their practice as nurses. Three main themes were derived from the graduates’ description of qualities that they attributed to the CBL process: *Self aware and self directed critical thinkers, patient advocates engaged in evidence based holistic practice and interdisciplinary team members able to handle conflict.*

***Self aware/self directed critical thinkers***

 Graduates described themselves as learning to become more self- aware through the CBL process “it first taught you a little bit of self awareness in terms of who you were.” They indicated that as students and graduates they would “seek people out” and ask “can you give me some feedback because I need to know if I am being successful and where I need to improve”.

 Graduates suggested that as CBL graduates they considered themselves as “having a positive attitude and being open to learning – understanding that you don’t know everything, being a lifelong learner and willing to seek out the knowledge to make yourself a better nurse”. The program also helped them learn “where to go look” for information and “how to get it”.

They learned how to “find good information – not just rely on what other people say”.

 Graduates indicated that as a nurse it was essential to think critically. “Critical thinking was a big one – exploring different perspectives of an issue” and “stretching yourself to think beyond what your own opinion is”. Some had seen nurses who “do just what is outlined on their sheet. They are never going to do more – not going to think about their patient in a critical way”. Graduates described themselves as thinking critically about what is going on with their patients because “that is how I was brought up as a nurse”. “When a person is crying and the family comes in it makes it challenging and you have to think critically” about the situation. According to the CBL graduates, it was more likely to be a CBL graduate who asked “what should we do?” and “why do we do it this way?”

***Patient advocates able to engage in evidence based holistic practice***

According to the CBL graduates, being a patient advocate was associated with an awareness of and being able to engage in social and political action within an ever changing health care environment. CBL “taught me how to be an advocate for my patient and stand up for what is right”; “ensuring that patients could make autonomous decisions”. With families it was about “advocating for them to get all the interdisciplinary help they need”. Graduates also indicated that they learned to advocate for themselves “I was a really shy person and --- I grew as a person”.

 Graduates indicated that “it is a huge thing as an RN to keep on top of research and use up to date information”. It was about basing their practice on evidence and not just “relying on what people say”. At least one CBL graduate “learned to love research through the program”. She was “relied on at work because she liked to do research and knew how to get the information and do it fairly quickly”. Others indicated that when they did review the literature and found that they were “doing something in practice that was not consistent with what the research was showing”, they would approach the doctor and say “O’kay, why are we doing it this way? Here’s the research ...”. Graduates indicated that they learned everything about evidence based practice in their program.

 When they were able to advocate for their patients and base their practice on evidence, graduates suggested that they were more likely to engage in holistic practice. Graduates indicated that CBL taught them how to “look at patients holistically” – “how to put the pieces together”. They described themselves as always trying to “be aware of the patient’s overall picture” – not just “looking at what the person is going through because they are in the hospital”.

***Interdisciplinary team members able to take on leadership roles and handle conflict***

 When asked how the CBL program influenced their professional practice, participants often commented on the impact of CBL on their interactions with other members of the health care team. Responses suggested that effective interdisciplinary interactions contributed to better clinical judgement. It is “influenced by the clinicians I work with – all the interdisciplinary team members. This is continually evolving and influenced by a variety of sources.” Participants commented that “teamwork is something that I really learned from CBL”.

 Graduates indicated that they felt comfortable taking on leadership roles within the health care team earlier than some of their traditional program peers. They credited the CBL program for “emphasizing respect, teamwork, strategizing and community building” which “makes better nurses and leaders”. Many of the graduates had “been in charge lots” and had been told that “they were efficient” leaders. One graduate described how she had “put a proposal forward based on statistics and desired outcomes for creating a position” to support a particular program in her area of practice.

 Experience in “accommodating different personalities” that are part of any practice environment was just “part of the CBL process”. Graduates learned how to “give feedback and receive feedback which is difficult for most people”. They also learned to “deal with conflict and difficult situations.” Learning and utilizing conflict resolution skills in the classroom made it easier to “approach that discomfort with coworkers after you graduate.” If they had had “those awkward discussions” in the classroom they were a “bit more comfortable asserting themselves” in professional practice.

 Early program graduates were able to quite readily identify how they perceived that they were different from their counterparts who had graduated from more traditional nursing programs. They suggested that they valued “interdisciplinary practice”, and were willing and able to: “think critically and deal with conflict, advocate for themselves and their patients, take on leadership roles, be self directed with their continuing learning and seek out evidence to support practice”. Graduates were very cognizant of the fact that when they had their uniform on they were “representing all nurses” within the health team.

**Discussion**

 Health care systems and university nursing graduates will continue to face an era of unprecedented world change (Tompkins, 2001). Reflecting on the rapid changes in the health care environment, Valanis (2000) identified the following qualities of a competent 21st century nurse: an independent practitioner who critically reflects on practice; self-directed and actively involved in continuous learning; manages care across facility boundaries through interdisciplinary collaboration; and exerts leadership in policy development from local to international levels. Therefore it is critical that undergraduate nursing education programs provide opportunities for future graduates to develop these skills and abilities. More than a decade ago it was suggested that nursing programs must be radically changed in order to assist graduates to develop the skills and abilities required of a competent practitioner (Glen, 1995). Rideout (1994) advocated the use of student centered pedagogical approaches such as problem based learning to provide nursing learners with the opportunity to develop the skills and qualities associated with proficiency in nursing practice but most nursing programs still offer a traditional subject based curriculum.

 Learners in a PBL undergraduate nursing program acquire knowledge and skill in nursing by encountering authentic professional practice situations as the initial stimulus and focus of their learning activity (Barrows, 1998; Boud, 1998; Williams, 2004). There is some program evaluation data from PBL graduates suggesting that PBL is effective in achieving program outcomes related to knowledge, practice and professionalism (Biley & Smith, 1998; Uys et al, 2004).The current study and results represent the first evidence related to how graduates from Canadian undergraduate PBL/CBL programs describe the contribution of PBL to their clinical practice as graduates and to some extent confirm the findings of Biley and Smith (1998) and Uys, et al. (2004). The sample in this study was self-selected which may inhibit transferability to other settings. However this is the first research on the long term contributions of CBL approaches to nursing education.The majority of participants indicated that “even though they didn’t always like the program when they were experiencing it, once they graduated, they could see the benefits and how it had shaped their practice”. Graduates considered themselves to be reflexive, pro-active nurses who were fully aware of their accountabilities.

Preparation for Practice

 Early CBL graduates found it easier to differentiate themselves from their traditional program counterparts as they were often the newest graduate in any clinical setting into which they were hired. More recent CBL graduates experienced more difficulty in differentiating themselves from their colleagues as there were often large numbers of CBL graduates already working in the same clinical area. Despite this difference there was a great deal of consistency in how all graduates considered themselves prepared for practice following the completion of their CBL program. At the point of graduation the majority of CBL graduates felt prepared and confident to practice as knowledgeable professionals. They generally understood that even though they might not know everything they needed to, they had the skills to be able to find out whatever they did not know. These findings are consistent with those of Biley and Smith (1998). They were also very aware of their own responsibility as professionals and understood that whatever they did as individuals was a reflection on the profession of nursing as a whole. Graduates considered themselves able to think critically and use research evidence to support their actions in providing holistic care to patients and their families, findings that again support those of Biley and Smith. They were willing to take on leadership roles and in some cases were placed in leadership positions very early on in their careers. Graduates considered themselves to be strong advocates for both the patients and themselves, excellent interdisciplinary team players and able to deal with conflict when it arose with both nursing and interdisciplinary colleagues as “they had had an opportunity to develop these abilities through the PBL process”. The students also took a PBL Health Sciences Interdisciplinary course.

Transition to practice

 The CBL program and process encourages students to communicate, negotiate and express their views. They were confident in their thought processes and decision making and generally believed themselves capable of independent functioning. When they graduated, they expected to be able to use these skills and abilities but because they were usually considered to be novice nurses they often felt devalued within the nursing structure. This experience is similar to that expressed by other PBL graduates (Biley & Smith, 1998). Graduates believed that they were prepared to demonstrate reflective practice, hypothesize and generate additional options in any given patient situation, characteristics also identified by Biley and Smith (1998). They also indicated that they were educated to provide wholistic care to their clients and their families. However, in the short staffed reality of the workplace, they found that they started to focus more on the physical needs of the individual and on their ability to complete all the clinical skills required. In this environment, without the support of more experienced graduate nurses, these and other PBL graduates (Biley & Smith, 1998) sometimes believed that their clinical skills might be inadequate. To some extent this was offset by the belief that they were responsible for their own learning and confident that they would be able to continue to learn in relation to any deficits they might have identified.

**Conclusion**

 This study is a response to Biley and Smith’s (1998) challenge to validate the findings of their study using a different setting and higher numbers of PBL graduates. While helping to bridge a gap in the current literature about PBL/CBL this study has confirmed that from the graduates’ perspective their transition into graduate practice is likely not that different from that of graduates from traditional programs. However, once graduates are through the transition period they are able to acknowledge how the CBL program provided them with the opportunity to develop many of the skills and abilities considered necessary for effective professional nursing practice. Since the graduates represent a program that is delivered not only at the university but also at partner colleges through the northern part of the province, it is also clear that the desired outcomes of a CBL program can be accomplished in a variety of settings.

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