Problem-based learning and clinical practice: The nurse practitioners' perspective

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S U M M A R Y

This paper reports the findings of a phenomenological study which explored the lived experience of the nurse practitioner (NP) who had been educated through a problem-based learning (PBL) approach and the meaning of that education on the NPs current clinical practice. This was accomplished through the use of in-depth interviews to gather information from 13 practicing NPs. It was found that information obtained in the PBL classroom could be directly applied to professional practice providing the NP with the skills needed for clinical decision making with a holistic viewpoint and satisfaction in clinical practice. The analysis both supports and challenges the current research on perceptions, experiences, satisfaction, and outcomes related to PBL.

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Background

Primary health care needs are shifting from the treatment of acute illness to the management of chronic conditions. These chronic conditions are the leading cause of illness, disability, and death, and account for the majority of health care resources used today (Institute of Medicine (IOM), 2003). The increased demand for accountability in the primary care of chronic disease, along with the increased emphasis on health promotion, is spearheading the need to educate well prepared primary care nurse practitioners (NPs). In order to succeed in this environment, NPs must continue to acquire knowledge, make appropriate and cost-effective clinical decisions through efficient problem-solving, and be self-directed in managing and monitoring self-learning. An instructional approach that can be used to prepare NPs for the ever-changing practice arena is problem-based learning (PBL). PBL has gained attention in medical education in recent years, and since NP education is based on principles similar to those of medical education, the value of PBL in NP education merits investigation.

Problem-based learning as we know it was first introduced in 1969 in Canada’s McMaster University Medical School by neurologist Howard Barrows (Barrows and Tamblyn, 1980). PBL refers to students’ learning through active participation in a small group to analyze, synthesize, and manage patient health problems (Barrows and Tamblyn, 1980). The fundamental principle underlying PBL is that learning is based on experiences that mirror real life situations.

Research has shown that information learned in this manner (PBL) is retained longer and that students develop skills in self-directed learning which enable them to adapt to a changing practice environment. PBL appears to have considerable potential and possibly beneficial effects on education for the purpose of professional practice. However, despite a well-rounded evaluation, the empirical evidence is still limited in knowing how well graduates of a PBL program perform once in professional practice, specifically the NP.

The current bodies of PBL research in the medical and nursing education fields include faculty and student perceptions, experiences, and satisfaction with the PBL model. Although there is research in the area of educating student NPs (Edwards et al., 1999; Miller, 2003; Valaitis et al., 2005) and anecdotal literature on the use of PBL in educating the NP (Rounds and Rappaport, 2008; Zunkel et al., 2004), a literature search in the Cumulative Index of Nursing and Allied Health Literature (CINAHL); MEDLINE, Education Research Index Catalog (ERIC); and OVIDSP revealed no outcome research that documented the effectiveness (or lack thereof) of PBL once the NP enters professional practice.

There is however, a small body of literature that reports outcome measures post PBL as an instructional strategy in the medical and undergraduate nursing realms. In the medical field a study by Mennin et al. (1996) found that PBL graduates, believed they were well prepared for practice due to the PBL format in their undergraduate medical education. Schmidt et al. (2006) performed a comparison study of competencies acquired by graduates of a PBL and a conventional medical school to determine long-term effects of PBL learning. It was found that the PBL group believed they had much better interpersonal skills, were better problem solvers, were self-directed and were able to plan and work more efficiently. A study performed in Wales by Biley and Smith (1998) provides insight on the graduate registered nurse’s (RN) prospective post PBL. The researchers found that the RN students who were educated through PBL felt inadequate in the clinical realm upon entering

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professional practice. However, despite these differences they felt they were better able to adapt and continue to learn. A comparative, qualitative evaluation performed in South Africa described and evaluated practice characteristics of graduates from PBL and conventional programs, as described by the graduates and their supervisors. It was found through the levels of practice (novice to expert) that respondents from all programs described incidents in practice at a novice level. However, respondents from PBL programs described high-level incidents (expert). This seemed to indicate a tendency toward higher levels of functioning in the PBL graduates (Uys et al., 2004).

Although the research shows that PBL can be an adequate format to educate and graduate well-informed healthcare professionals, it continues to lack proof of the final product, the practicing nurse, specifically the NP. The purpose of this study was to explore the lived experiences of practicing NPs educated by a PBL instructional approach and to investigate the meaning PBL brought to their current clinical practice.

Methodology

The research questions called for a qualitative, phenomenological exploration of the lived experiences and the depiction of personal meaning. Phenomenology is the study of lived experiences and the ways in which those experiences are understood in the development of a worldwide view. Phenomenology is often utilized when a topic has not been researched as is the case with the practicing NP who has been educated through the instructional strategy of PBL. Often within the paradigm of phenomenology there is confusion between terminology and the distinction of phenomenology as a philosophy, method, or analytical tool, all of which adds to tensions and contradictions in qualitative inquiry (Gergen and Gergen, 2000).

This study was most closely informed by the works of Heidegger and therefore utilized an interpretive approach. It was the author’s intent, as it is in interpretive phenomenology, to go further than the description of the event, and instead seek to identify the meanings that may have been otherwise concealed by focusing on the description of the phenomenon alone. Using this methodology, “reality” was constructed by the researcher on the basis of the interpretations of data with the help of participants who have provided the data in the study (van Manen, 1997).

The main questions guiding this study were: How does the NP in practice make meaning of his/her PBL experience? How does the NP in practice make meaning of his/her PBL education in his/her current clinical practice? What particular aspects of PBL does he/she perceive to have contributed most to his/her development as a practicing NP?

Sample

The snowball effect was utilized to identify programs. Programs needed to meet the following criteria; programs had to be accredited through the Commission on Collegiate Nursing Education; the program curricula had to utilize the PBL approach for 50% or more of the curriculum, based on credit hours and; the programs needed to be in existence prior to 1999 so representation of how PBL continues or does not continue to make meaning in practice could occur. Only two universities within the United States were found to meet the criteria. This study utilized a purposeful, criterion-referenced sampling methodology. Graduates from 1999 and prior were determined and letters were sent directly from the programs to the potential participants. A total of 202 invitational letters were sent to potential participants. From those 202 invitational letters 22 responded and 13 respondents met the criteria to participate in the study. Nine of the potential participants were no longer in practice therefore not meeting the criteria.

Data collection

Data was gathered by conducting in-depth, individual interviews, both face to face and via telephone. Prior to the initial interviews a pilot study was conducted to assist in determining how future respondents may interpret the questions and how well the questions elicited the information requested. From the pilot study interview questions were then restructured. An interview guide was utilized, using open-ended, semi-structured questions in order to focus on key areas, yet allowing for flexibility. Interviews were conducted until theoretical saturation was reached with a sample size of 13. With permission of the participants, interviews were taped and transcribed.

Scientific rigour

 Rigour of the data was aimed for by performing member checks twice. Transcripts and biographical information were reviewed by respective participants for accuracy. The researcher shared her impressions of findings from the data analysis to make sure participants were comfortable with the presentation of the data, to determine if participant’s experiences were recognizable in the interpretation, and to allow participants to feel secure that their identity remained confidential.

Ethical considerations

Within the United States ethical approval is required when working with human subjects at any level. This is carried out through “Institutional Review Boards” within institutions. Ethical approval was sought from each participating institution involved in the study prior to contacting potential participants. Participation was voluntary and participants were made fully aware of the nature of the project and informed consent was obtained prior to the initial interview. Participants were informed of their rights to withdraw at any point from the research and were informed that data were confidential and that individual responses would not be possible to trace in presentation of the findings.

Data analysis

Data from interviews were analyzed using the constant comparative method of data analysis to determine key themes and patterns. Themes and patterns were then coded and compared to integrate as many categories as possible. Categories were added, deleted, and refined as additional information became available through the clarification process and follow-up interviews.

Findings

At the time of data collection the 13 female participants were practicing as NPs. The participants were Caucasian with a mean age of 47 (range 35–55 years), and a mean of seven years in practice as an NP. All participants were nationally certified in the specialty area of family practice. All participants were exposed at one time or another to lecture-based education, while 25% were also exposed to some form of distance education. The participant’s individual PBL experience and current clinical practice were varied in terms of how they described what their PBL experience meant to them and what they identified to be important to practice as individual NPs. The following categories of data illustrate the phenomenon of the lived experience of being educated through PBL to
obtain certification as a nurse practitioner as well as the meaning
PBL has in clinical practice of the NP.
Education was included in the research analysis because to understand how practice is reflective of education the participant must discuss education within the context of practice. Therefore within the meaning of education are the categories referred to as carry over and shades of gray. Throughout the interview process, participants understood that the patterns learned within the PBL approach were similar if not identical to those used in the practice (carry over) setting. However, this only became apparent once they entered practice. Shades of gray illustrates that often there was doubt about what they were learning and if they were learning enough to be able to practice upon graduation. Often the participants felt frustration and at times anger because of not knowing what they needed to know. One respondent best described it as the following:

“I really felt that I would learn everything I needed to know. I thought everything was going to be black and white and I was disappointed to find that at times there was no black and white and everything was a shade of gray.”

Participants questioned their knowledge base even into their clinical practice and often felt as if they had not learned enough. However, in the meaning to practice, the participants felt confident that if they did not know or understand something, PBL provided them with the skills to find that answer.

In meaning to practice there were three categories presented. The first category, all-encompassing, involves seeing the whole patient and getting the whole story. The data support that the PBL approach encouraged and re-emphasized that the practitioner take all accounts of the patient’s life into consideration when diagnosing, treating and managing the client’s illness in the primary care practice of the nurse practitioner. As described by one respondent:

“Its problem based but it is case-based learning and you are really looking at the whole picture. You look at the whole story and try to figure out what are the relevant pieces for this particular patient including social, financial, physical, mental and spiritual.”

The second category of meaning to practice was presented as freedom. Freedom was first noted in the language participants used to describe how their practice is influenced by the PBL approach, independent, self-directed, comfortable and without fear. The data demonstrated that participants are capable of practicing in independent, autonomous positions and are comfortable in those positions because of the skills they were equipped with to find answers to their questions. The respondents attributed these feelings to the fact that the process of their PBL education gave them the skills and tools to be able to seek out answers through various forms of resources, as well as giving them the ability to think critically and independently as one respondent explains:

“In practice I feel stronger in the ability to pursue a broader knowledge base independently and am much less reliant on others to guide me. I believe it (PBL) strengthens the NP’s ability to practice autonomously.”

Skillful in finding resources has increased their confidence, taught them to tolerate not knowing, and showed them how to find answers by being thorough and asking for assistance. It should also be noted that the NPs in this study realized, upon entering practice, that the patterns learned within the PBL approach were similar if not identical to those used in their individual practicing settings.

The third category of meaning is presented as the journey and entails characteristics of how the participant gets from one place to another in the care of the patient. The participants discussed how the journey of clinical decision making (CDM) unfolds by utilizing steps in a particular order to work through a problem. This involves prioritizing problems of the patient for the patient’s health and well-being; searching and probing for information which further provokes levels of curiosity to learn more not only about the patient but also about the disease process itself; and arriving at the final destination, the actual outcome of the patient’s treatment and management through evidence-based practice. As described by one respondent:

“I think that PBL strengthens your ability to examine and analyze the latest evidence for yourself on the latest thing, being able to use resources, and being able to always evaluate the latest information and how to analyze information for the problem you are presented with.”

Discussion
From this research we are able to acknowledge that students, although negative at first with the experience of PBL, view the approach positively in the area of practice and describe an array of benefits that derive from its use. PBL was shown in this research to be an effective approach in preparing nursing professionals as inquiring, reflective, knowledgeable, and collaborative in their fields of study. The respondents of this study viewed PBL as an appealing form of higher education through the expression of the overall experiential nature of PBL, the flexibility of learning, the push to be self-directed and the practical use upon entering practice.

Berkson (1993), who reviewed the literature prior to 1993 on medical students and PBL, also found that the PBL experience is a stressful one. This is somewhat different than what is reported in the current medical literature on perceptions, experiences and satisfaction with the PBL approach (Doig and Werner, 2000; Libberman et al., 1997; McGrew et al., 1999; Vasconez et al., 1993) where medical students reported positive experiences even from the initial experience (Kalaian and Mullan, 1996). In the undergraduate nursing realm, White et al. (1999) reported that nursing students found PBL more challenging and more oriented to those experiences and knowledge the adult learner brings to the classroom. White et al. (1999) also found that information obtained in the classroom could be directly applied to professional practice. Having that familiarity in practice and being comfortable in that process contributes further to the level of satisfaction the practitioner has in practice. These findings were also similar to a study performed by Mennin et al. (1996) and in Schmidt et al. (2006) works, where satisfaction levels of physicians in practice who had graduated from a PBL approach were compared with those of graduates from a conventional track of medical education. The PBL graduates were found to have an increased satisfaction with the profession and felt well prepared for practice due to their PBL format in their undergraduate medical education. Research by Mennin et al. (1996), Schmidt et al. (2006), and White et al. (1999) support the themes echoed by the respondents of this study in that PBL is similar to those experiences in practice and that satisfaction with current practice is enhanced.

The general literature on satisfaction, perceptions and experiences with PBL ends all too soon with the conclusion of the healthcare providers education, particularly in nursing. This research demonstrates that the overall positive nature of PBL continues into the practice arena and continues to be the framework of practice years later, by providing the skills to perform as a competent primary care provider.

Although not measured quantitatively in this research study, the study does support the literature in the area of PBL and clinical decision making (CDM) (Albanese and Mitchell, 1993; Blake and...
Parkison, 1999; Distlehorst and Robbs, 1998; Richards et al., 1996; Vernon and Blake, 1993) by further verifying, through perceptions, that PBL supports and provides the practitioner with the skills to practice CDM. The respondents of this study were able to articulate that this is accomplished by presenting CDM in a similar manner in the classroom as it eventually presents in the practice setting.

A contribution to the research literature not addressed in either the medical or nursing literature on the PBL approach, is the reference to treating the patient holistically in practice. It was found that the approach of PBL lends itself to teaching the holistic process of the journey (CDM) by re-emphasizing and enhancing the aspect that each patient is different and that the person must be viewed as a whole. The respondent’s best described this as care, which is all-encompassing. The participants expressed the importance of not just seeking to find the disease process, but to include the whole person or human being who is experiencing the disease. It was also evident that the participants felt that to adequately treat a patient one must look at the entire story and see beyond the disease process to provide holistic care. The importance of mentioning this for this research is that the aspect of holistic care for nursing does not appear to be lost in the PBL approach, but rather is stressed and acknowledged throughout the process.

The respondents of this study expressed self-directed learning (SDL) and life-long learning (LLL) as outcomes of the PBL experience and that those outcomes then carried over into their current clinical practice. As Williams (2001, p. 96) notes, nurses need to be able to manage and monitor their own learning, meaning that professional nurses engaged in continuous learning should have the ability to be self-directed. Self-directed learning was apparent for the respondents early on in their PBL experience and often was frustrating. However, the respondents are now able to recognize that their resourcefulness, confidence and independence in their current practice are skills they have acquired from the PBL approach. This self direction in seeking and finding became the learning process for the respondents and still continues today when they are unsure how to solve a problem, thus leading to the aspect of LLL. Therefore results of this study support the relevant medical literature on SDL and LLL (Albanese and Mitchell, 1993; Berkson, 1993; Doig and Werner, 2000; Schmidt et al., 2006; Vernon and Blake, 1993) by confirming that PBL instills the traits of SDL and LLL in those participants of the PBL approach.

Limitations

Methodological limitations to this study included the data collection technique of interviewing: the degree of truthfulness and cooperation found in the interviewee; the time taken to analyze data because of the subjectivity of the research process; and the quality of the data due to the subjective nature of the research process (Patton, 2002). However, the use of open-ended interview questions and the collection of data until saturation assisted in providing extensive and rich data, leading to the discovery of themes related to the meaning of PBL in the participant’s education and clinical practice.

Conclusions

The respondents of this study found PBL motivated learning, encouraged teamwork, and enabled them to view the process of CDM as holistic. These implications are an important aspect to the education of the NP. By having these skills and traits, the NP student is able to move into the ever-changing practice of health care with bolstered confidence in their resourcefulness and knowledge base. This research provides perspectives on the knowledge development that occurs in taking part in a PBL activity and its long-term impact on the practice of the professional.

Generalization of this study is limited because the sample consisted of only female graduates from two nurse practitioner programs within the United States. Further verification should be undertaken to support the belief that PBL is an effective instructional approach in the education of the NP. It is also recommended that groups of NP graduates from the PBL approach be compared to those of the lecture-based approach to determine if there is a difference in the satisfaction, perception, experiences and outcomes for those graduates now in practice. An evaluation of clients, coworkers, and employer’s satisfaction level of graduate NPs from the PBL approach to those of NPs from the traditional lecture method would be mandatory. A study comparing actual patient outcomes of graduate NPs from the PBL approach and graduate NPs from the lecture-based approach would be a worthy investigation to determine if patient outcomes are in any way affected by the practitioners’ educational background.

This research has assisted in bridging the gap in the existing literature concerning PBL and NPs, in practice. Obviously this study represents the perceptions of only one group of NPs, but it is a start in uncovering the PBL graduate’s own perceptions of their educational and practice experience once educated through a PBL approach.

References

Institute of Medicine (IOM) of the National Academics, 2003. Health Professions Education: A Bridge to Quality. Washington, DC.


