Innovations of Problem Solving Strategies and Nursing Diagnosis Skills in the Thai Clinical Setting: A Review of the Literature

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Abstract

Although the nursing professional context literature report that effective problem solving strategies (PSS) and nursing diagnosis skills (NDS) was first introduced to the health professional developments, but there is little evidence available about the innovations of developing nurse practitioners' in the Thai clinical setting. The problem generates how to facilitate nurses think critically, analyze and effective systematic solve the problems, find, evaluate and use appropriate learning resources, work collaboratively, demonstrate effective performance skills, and foster life-long learning. This review of the literature aims to explore nurses' integrated the learning experience during clinical setting through applying problem-based learning (PBL) as the educational intervention. Researchers have adopted on the PBL contextualizing into nurses practice in this review. The 3C3R PBL problem design model (Hung, 2006) modified as a conceptual framework and a nine-step problem solving process (Lee & Brysiewicz, 2009) was presented to guide for systematically designing optimal PBL problems. The hybrid PSS and NDS clinical setting model is established. The paper implicated that its innovation could improve nurses problem solving and care planning skills in the clinical setting. In conclusion, problem-solving strategies merged into nursing diagnosis designed are discussed.

Keywords: *Problem solving strategies, Nursing diagnosis, Professional context, Clinical setting*

1. Introduction

The innovations need for Problem-solving Strategies (PSS) and Nursing Diagnosis Skills (NDS) in nursing clinical setting has been accentuated in support to the rapidly changing health professional developments (Lee & Brysiewicz, 2009; Klunklin, et al., 2011). Currently, nurses can diagnose and treat conditions pertinent of caregiving requires knowledge, skills and expertise to effective practice is the problem-solving performance (Taylor, 1997; 2000). In Thai clinical setting, patients' problems constantly arise, so nursing practitioners' gain potentially transferable to employ the complex mental process of problem-solving in addressing clinical problems. In fact, they needed encourage that technological competency as caring in nursing is grounded in the viewpoint that health care technologies (Kongsuwan & Locsin, 2011).

In order to accomplish the clinical context, they must encounter current situations that need the development of innovative solutions to complex problems. It is the most important that nursing practitioners apply an educational intervention in which PSS and NDS were

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generated. McEwen and Brown (2002) argued nurses receive data from multiple sources over a period of time. As client information is proposed in the clinical setting, nurses distinguish relevant and irrelevant data. It has affected that skills required for problem-solving and those in nursing care planning was to deal with NDS.

For the aim of this review the PSS reveal PBL proposed by Hung (2006) as the 3C3R PBL problem design model, and a nine-step problem solving process NDS implemented by Lee and Brysiewicz (2009), which features the following as well as develop professionally. Both PSS and NDS are providing essential in nursing clinical setting to facilitate the application of theory to practice and guide nurses in the knowledge acquisition of crucial reasoning and practical skills. Moreover, this review obtains to answer the following questions:

1. Are the 3C3R PBL model and a nine-step problem solving process utilized or applied as a strategy for training in the clinical setting?
2. What facilitates the implementation of these in the clinical setting?

This review of the literature aims to explore nurses' integrated learning during clinical setting through applying problem-based learning (PBL) as the educational intervention, caregiving knowledge, skills and expertise and central to demonstrate is the ability to problem solving as a continuous improvement method.

2. Literature Review

2.1 Traditional and PBL Nursing Paradigms

There are intensive claims of innovative educational interventions in contemporary nursing practitioners', the traditional model called *"Nursing Process"* modes of practicing and norms shaped by dominant medical and masculine characteristics persist (Clark, 2005). There is a diversity and change to liberate nurses from traditional, authoritative medical models of practicing because these traditional models have diminished and de-valued performances about nursing's core commitment to humanism, holism and caring (Bevis & Watson, 2000). Clark (2005, p. 8) challenges nurse educators to develop a partnership-based model by ''re-working the nursing pedagogy and enacting innovations to bring the educational system into a place of balance between our masculine and feminine traits''.

PBL is a utilize method of learning grounded in the epistemology belief that nurses can and should be active involvement in their practicing (Morrison, 2004; Lee et al., 2003). McMaster University's medical education program pioneered the use of PBL in the 1960s and since that time, medicine and nursing education programs around the world have adopted this learning approach. In nurses practicing continue to employ this approach as a response to an ever-growing health knowledge base, a shift to team focused workplaces and developing life-long practitioners (Achike & Nain, 2005; Morrison, 2004; Morales-Mann & Kaitell, 2001).

2.2 PBL in the PSS and NDS

The use of genuine or 'real life' are scenarios to stimulate brainstorming, decision-making, critical discussion and clinical situations. Patient histories are derived from the practice setting and developed into practicing scenarios by nurses' ward in collaboration with the clinicians involved in the care of the patient. This collaborative process is an excellent example of the nursing profession coming together and addressing the theory practice gap in a meaningful way that benefits the nursing practitioners. Thus, PBL has capacity to unify theory and practice. This has long been recognized as a significant challenge because the dissonance between the two domains has been viewed as a contributing factor in the difficulties experienced by nurses in transition between the practice in the clinical settings.

In the PSS, nurses collaborate with a forward planning exercise or skill involving cognitive processes, where a nursing concept adopted from PBL approaches was integrated into nursing process. The challenge is the decision-making process about what to solve, how to solve, and how to 'be the professional' in the scenario presented in the clinical setting. For tutors to effectively guide nurses through the process of problem-solving, they need skills to facilitate positive group dynamics (Haith-Cooper, 2000; Dochy et al., 2003). The process of practicing in the PBL is as important as the content, because the decision-making process demands nurses aware to think critically as a group. Wray et al. (2004, p. 2) describes this learning as deep where students ''actively participate in seeking the whole picture [and] engage in reflective and exploratory ways in order to make sense of new ideas and experiences''.

The PBL in NDS encourages nursing practitioners to develop and strengthen their psychomotor, problem-solving and decision-making skills (Johnston & Tinning, 2001; Morales-Mann & Kaitell, 2001). Their nursing diagnoses and nursing interventions as well as their nursing care plan. The NDS is a systematic method of delivering individualized nursing care consisting of patient assessment, identification of health problems, application of nursing care to solve these problems and evaluation of the outcomes. Therefore, clinical skills training and life-long learning complement the PBL innovations and nurses transform these experiences into practice to improve clinical practice shifts in the acute hospital and community areas. PBL is vital in facilitating this link and clinicians are encouraged to adopt a PBL approach in the nurses' performance continuous improvement.

3. Establishing Potentially in Nurses Clinical Setting through the Hybrid Model

3.1 The 3C3R PBL Model for Problem-solving Strategies

Recently, Problem-based learning (PBL) has been successfully implemented in the medical field, nursing education, and higher education settings over the past fifty years. The outcomes of PBL implementation have shown that it is an effective instructional pedagogy that inherently engages students in active, meaningful learning, resulting in deeper understanding and longer retention (Gallagher & Stepien, 1996; Hung, Bailey, & Jonassen, 2003). Because of the PBL utilize are rather general and, therefore, inadequate in providing educators and practitioners with the conceptual framework needed to design effective PBL problems (Klunklin, et al., 2011).

Drummond-Young and Mohide (2001) proposed an eight-step PBL problem development process specifically designed for nursing education, which unfortunately rendered the process too domain specific to be used in a wider range of contexts. They function as a content and knowledge organizer, learning environment contextualizer, thinking/reasoning stimulator, and learning motivator. Unquestionably, the design of problems plays a key role in determining the success of PBL courses and curricula (Lee, 1999; Trafton & Midgett, 2001).

The 3C3R PBL problem design model is a systematic method specifically designed to guide instructional designers and educators to design effective PBL problems for all levels of learners, thereby strengthening the characteristics of PBL and alleviating implementation issues revealed in previous research on PBL. The 3C3R model consists of two classes of components: core components and processing components as shown in Figure 1.

As figure 1, core components include content, context, and connection, and are used to support content/concept learning; processing components, composed of researching, reasoning, and reflecting, concern the learners' cognitive processes of learning and problem-solving skills. The core components of the 3C3R model—content, context, and connection—

are primarily concerned with the issues of appropriateness and sufficiency of content knowledge, knowledge contextualization, and knowledge integration.

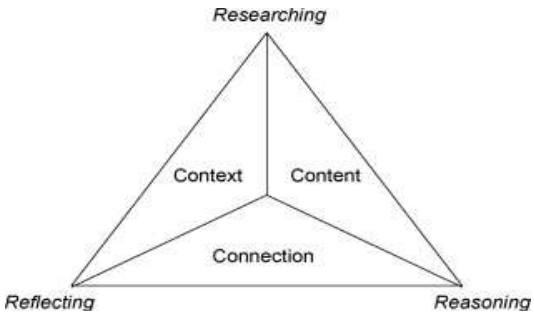

Figure 1 The 3C3R PBL Model

3.2 Are the 3C3R PBL model and a nine-step problem solving process utilized or applied as a strategy for training in the clinical setting?

The rationale of 3C3R PBL model applied the following six stages as integral to PBL in nursing clinical setting on PSS:

1. The 3C3R PBL model as a continuous improvement method structures knowledge in a clinical content.
2. Integrating theory from science as context.
3. A clinical reasoning process develops problem-solving skills via NDS including were: identify faulty symptoms, hypothesis generation, questioning, analysis, problem synthesis and decision making as connection.
4. Nurses understand the first stage of the problem-solving regardless the researching problem.
5. Nurses are self-directed in searching for solutions to prove or disprove the hypothesis, and autonomously indentify their own performance. Knowledge acquired from researching related information and the development of the nurses' problem-solving skills as reasoning.
6. The 3C3R PBL model can generate knowledge abstraction, summary, and self-evaluation is three main metacognitive activities designed to help nurses achieve optimal performance outcomes.

Consequently, the 3C3R PBL model could be generated; Lee and Brysiewicz (2009) have been designing to inform nurses of the systematic problem solving process in NDS. Then, a new facilitate included to a nine-step process that was to be used in all implements. The nine steps included were:

Step 1: Present a brief description of the patient structures knowledge in a clinical content.
Step 2: Nurses pose hypotheses about what the possible problems are for this patient based on the context.
Step 3: Nurses to explore for data based on these hypotheses develops PSS via NDS.
Step 4: Facilitate formulation of a revised problem list. This may require nurses additional data that was not requested and sharing with member what hypotheses she had for this patient.
Step 5: Nurses determined a final problem list. These should be in the form of NDS, including possible diagnoses and risk diagnoses.
Step 6: Determine if nurses need additional important information; for example,

1. Is she able to determine a list of diagnoses that she can support with data?
2. Does the group have any idea of what PSS and NDS interventions/nursing actions might be effective to reduce or eliminate the problems?
3. What evidence do they have for this?

These describe an opportunity to get the group problem solving using information that they have learned from a variety of disciplines.

Step 7: Present list of interventions and rationale for them. Nurses can then question about these actions. The question has investigated "What evidence do you have that this nursing action decreases the problem you have identified in your nursing diagnosis?"

Step 8: Determine what data you would need to collect to see if the solution was reduced or eliminated? How will you determine if the patient is ready for discharge? What can you do to ensure that the patient is ready for discharge?

Step 9: In what other clinical situations might this information be solution? Identify related diagnoses and whether or not nursing actions identified would be useful in these cases.

3.3 What facilitates the implementation of these in the clinical setting?

The hybrid PSS and NDS clinical setting model is established as shown in Figure 2. To illustrate this hybrid model, first examine in Figure 2. The PSS model is on the left and the NDS on the right. Researchers identify one of the open categories as the core category that is central to a theory. Then, this core category becomes the centerpoint of the hybrid paradigm. Examining, there are six categories of information (Achike & Nain, 2005; Morrison, 2004; Morales-Mann & Kaitell, 2001):

1. *Brief description*–step 1
2. *Hypotheses*–step 2-3
3. *Facilitate formulation*–step 4-5
4. *Intervening conditions*–step 6-7
5. *Strategies*–step 8
6. *Consequences*–step 9

In addition, viewing this coding paradigm from left to right that the 3C3R PBL model influence the brief description, the hypotheses and the facilitate formulation and intervening conditions influence the strategies, and the strategies influence the consequences. In selective coding is the process of integrating and refining the theory.

4. Discussion and Implication

The aim of the paper was to explore nurses' integrated learning during clinical setting through applying problem-based learning (PBL) as the educational intervention, caregiving knowledge, skills and expertise and central to demonstrate is the ability to problem solving. When designing the hybrid PSS and NDS clinical setting model as shown in Figure 2, two types of reflective processes, formative and summative, could be considered. A formative reflective process should occur throughout the PBL course along with the processes of researching and reasoning. On the other hand, nurses should evaluate and reflect on their problem-solving and nursing diagnosis and adjust their strategies accordingly during the period of time upon case(s).

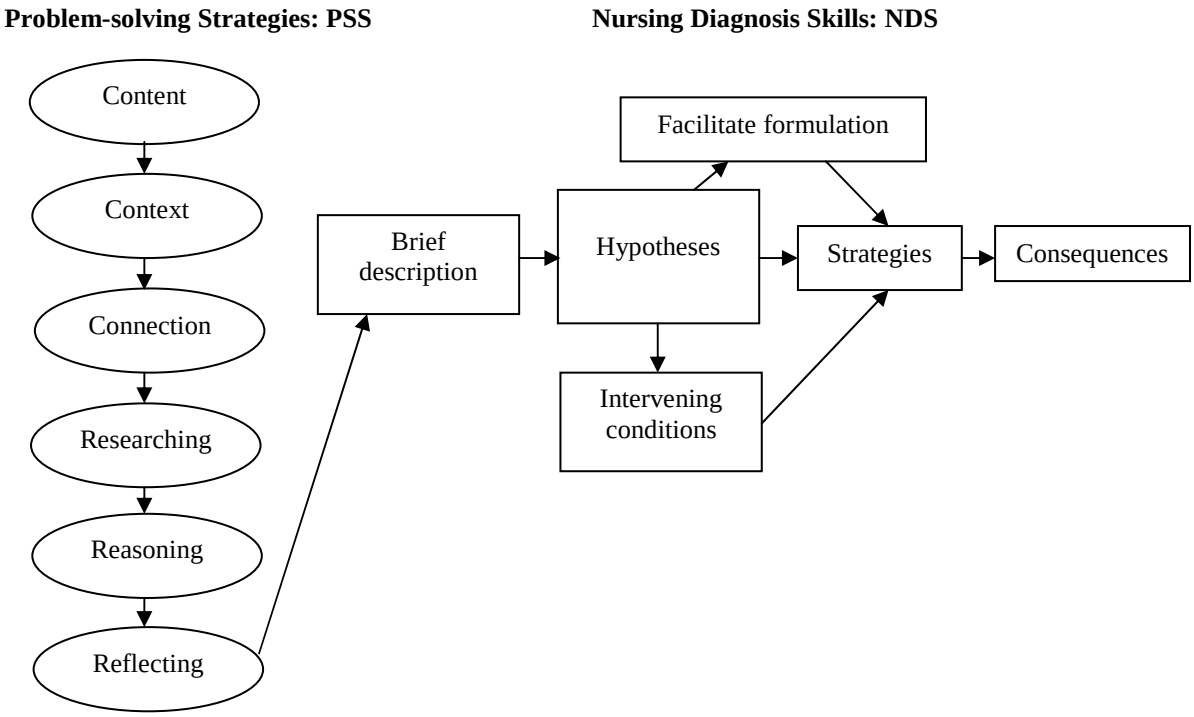

Figure 2 The hybrid PSS and NDS clinical setting model

The formative reflective process provides nurses with opportunities to assess their own practicing during the PBL in terms of whether (1) they acquire the breadth of knowledge that the PBL problem is designed to cover; (2) the depth of their focus on the topic is adequate; (3) their research methods are effective and efficient; (4) their reasoning processes are logical and effective; (5) they integrate their knowledge conceptually; and (6) their problem-solving strategies are effective (Morrison, 2004).

In reviewing the facilitation of nurses' reflection processes, Hung, Bailey, and Jonassen (2003) found that to optimize and maximize the effects of PBL, the quality of the problems is vital (Klunklin, et al., 2011). The finding is needed to evaluate and validate the 3C3R model in terms of its comprehensiveness and conceptual soundness in guiding instructional designers and educators to design effective PSS and NDS model in clinical setting (Bevis & Watson, 2000). Investigation of the impact of the core and processing components of PBL problems on nurses' knowledge acquisition and construction as well as their reasoning and problem-solving skills is also needed in future studies.

5. Conclusion

This paper argued that the hybrid PSS and NDS model to facilitate practicing in the clinical setting for nursing practitioners. Researchers have employed current of examples from the workplace to illustrate strategies that have potentially to improve continuously. However, the literature reviewed established that while the hybrid PSS and NDS model is difficulty understood by nurses. The review reveals a limitation of evidence implementing the

3C3R PBL model and a nine-step problem-solving process as a strategy for real-world practicing health professional nurses in the clinical setting.

The review has existing new features only theoretical perspectives. As whole as, there is no suggestion of a current situation in specific-domain the application of them in the clinical setting. Thus findings of the review focus on enhance a new paradigm and perspectives with generate idea in the PBL literature, and should apply and support further empirical research into the PBL clinical practice within professional clinical setting education and training.

6. Suggestion

Further research into how nurse solve problems in different clinical setting contexts to be conducted in the quantitative (i.e., investigate, examine the effects; correlation, Structural Equation Modelling, Confirmable Factor Analysis, etc.) and qualitative (i.e., in-depth interview, on-site observation, phenomenon, grounded-theory, etc.) research methodology. Additionally, empirical research is fostered regarding the cognitive science and competency of the performance continuous improvement as requirement.

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