

How Problem Based Learning is Useful to Nursing Education?



Nursing

KEYWORDS : Nurses, Nursing, Problem Based Learning, Theories

Mrs.Lakshmi Renganathan

Senior Trainer & Chairperson of Research Committee, Oman Nursing Institute, Muscat

Dr.Salem Al Touby

Dean, Oman Nursing Institute, Muscat

Ms.Zahra Al Jardani

Assistant Tutor, Oman Nursing Institute, Muscat

ABSTRACT

Problem Based Learning (PBL) is one of the innovative teaching techniques becoming popular in nursing education. This article describes history, growth, definition, characteristics, descriptions, model, process, theories, merits and demerits of the PBL. This article further explains how PBL is useful to the nursing curriculum.

History

The emergence of PBL dates back as far as Socrates (469-399BC) who believed that self discovery was the only true way to learn (Magnussen et al., 2000). John Dewey (1890) was the first to introduce this process of problem solving as a learning strategy and he further identified a process of situational problem solving. The historical root of PBL dates back to the mid1960s in the medical school of McMaster University, Hamilton, Canada (Baker, 2000; Rideout & Carpio,2001; Achike.F & Nain.N,2005; Solomon,2010) PBL evolved in McMaster Medical School following the work of Barrows and Tamblyn (1986) which investigated medical students reasoning abilities.

Growth

After McMaster initiated forty years ago the PBL was slowly adopted at many medical schools in slow process from 1970s to 1980s (Peters, 2000). From 1980s onward, rapid growth was seen due to its perceived appropriateness for addressing the theory-practice gap (Dyke,2001).Today, almost every country of the world is implementing or planning to implement PBL in university curricula (Chen-Jung et al., 2003, Schuh et al., 2001). Although PBL's origin is in medical education, literature has proved that its use and implementation has spread worldwide in other higher educational disciplines such as nursing, pharmacy, veterinary medicine and public health (Baker, 2000; Norman & Schmidt, 2000). Schools of architecture, business, law, engineering, forestry, police science, social work, elementary schools and secondary school education and many other professional fields have also adopted this strategy (Alexander et al., 2000; Chen-Jung et al., 2003; Nandi,2000; Baker,2000; Wilkie, 2000; Rideout & Carpio,2001). PBL has gained great acceptance as an effective approach in health educational disciplines over the past four decades (Phipps, 2010).

Definition

Barrows and Tamblyn (1986) defines "PBL is learning that utilizes problem scenarios to encourage students' engagement in the learning process". Howard Barrows who is considered one of the PBL's founding fathers has described PBL as a process where students encounter a problem and identify learning needs with application of newly learned knowledge to the problem (Barrows, 1986). Recently, Solomon (2010) has described PBL as "an educational process where learning is centered around problems as opposed to discrete, subject-related courses".

Akinsolo (2005) has defines the 'problem' as "a set of phenomena and events that can be perceived in reality". Moreover, the 'problem' is regarded by Phipps (2010) as "enigma to denote a puzzle that can be solved by fitting the right pieces together".

As noted from the definitions, there is a greater emphasis on the term 'problem' in PBL starts with a problem or query. Unlike other conventional approaches of learning, learners in PBL gain the knowledge after working on solving a problem (Rideout & Carpio, 2001).

Characteristics

Student centered approach with the emphasis on self-directed learning is one of the important characteristics of PBL (Gwele, 2005). Moreover, the student centeredness element of PBL depicts 'adult learning' principles. In addition to that the learners take responsibility of their learning reflecting real life experiences which lays foundation for life-long learning. Motivation is another characteristic of PBL (Rideout & Carpio, 2001) this entails that learning is student initiated where learners are active processors of information (Haith-Cooper, 2000; Wilkie, 2000). A further characteristic of PBL is that the teacher assumes the role of 'facilitator' who leads, observes and guides the whole process of learning (Savin Baden & Major, 2004; Phipps, 2010; Solomon, 2010). It could be argued that facilitator expertise in content and process is paramount for the success of the PBL process and for high quality achievements of learning.

Models

The most common types or models that are mentioned in the literature are the 'pure' model and the 'hybrid' model (Wilkie, 2000; Rideout & Carpio, 2001; Savin-Baden, 2004; Savin-Baden & Major, 2004). The pure model proposes that the whole curriculum is PBL where students meet in small groups and do not receive lectures or tutorials. In contrast, the hybrid model contains fixed sessions such as lectures and PBL is used an additional instructional method (Savin-Baden, 2004). Moreover, a debate has also arisen about what counts as PBL curriculum and what does not. Savin Baden and Wilkie (2004) have categorized PBL under two camps. One of which is the 'integrated curriculum' which comprises that PBL is the philosophy of the whole curriculum and an approach to curriculum design as well as an approach to learning where learning will be driven by one problem at a time (King,S, 2004). The other category considers PBL as an instructional strategy used by lectures within a subject or as a component of a programme or module mixed with other approaches (Savin Baden, 2004) and is sometimes also called hybrid curriculum (Rideout & Carpio,2001). It could be implied that teachers understanding of the types and models of PBL is important for curriculum development and for structuring of a new curriculum.

Process

PBL has been implemented differently. However, the early version described by Barrows and Tamblyn (1980) remains the most

commonly used. Firstly, students work in small groups in a poorly defined situation that stimulates real life experiences (Rideout & Carpio, 2001 and Phipps, 2010; Waffa G.M.A and Nahed A.M.S, 2010). The situation is presented in a form of scenario (Rideout & Carpio 2001 and Solomon, 2010). Once presented with the problem, students elicit issues and then generate hypotheses or questions based on existing knowledge (Phipps, 2010). After that they independently search for solutions or answers and either work individually or in groups. After completion of research, students should meet in order to apply the gained knowledge to solve the current situation by critical discussion in a group (Rideout & Carpio 2001 and Solomon, 2010). After debating the acquired knowledge; it will be applied to the specific situation. The process ends by reflection on the content and process of learning. It is important that facilitators, especially novices, develop proper and thorough understanding about the process of PBL in order to achieve the results and to manage problems that might occur. The growth of PBL modules and curricula throughout many health care disciplines has increased dramatically over recent years (Calislea.C and T.Ibbotson, 2005).

Theories underpinning PBL

PBL is an approach that entails a whole range of theories (Savin-Baden & Major, 2004). Understanding the philosophy and theories underpinning PBL is crucial to the effective use of PBL for both students and teachers. The literature has incorporated more than one theory in support of PBL. A major theoretical perspective that underpins PBL is 'constructivist learning theory' which is rooted in the work of Lev Vygotsky (Baker, 2000; Rideout & Carpio, 2001; Savin-Baden & Major, 2004; Gwele, 2005). A fundamental principle of 'constructivism' is to 'construct' new knowledge using cognitive skills based on individual experience (Crooks et al., 2001; Rideout & Carpio, 2001; Young & Maxwell 2007; and Kala et al., 2010) which is important to create a collaborative learning environment (Donnelly, 2004).

Furthermore, literature indicates that PBL is highly supported by 'adult educational theory' (Crooks et al., 2001; Rideout, 2001; Phipps, 2010) which is also called androgogy (Savin-Baden & Major, 2004). This theory entails that adult learners trust their ability to identify learning needs with value of prior knowledge while other participants' knowledge is valued as well (Crooks et al., 2001; Rideout, 2001; Mauffette et al., 2004).

In addition to that, PBL's self directed learning activities reflect the theory of 'intrinsic motivation' whereby learners actively participate in the learning, therefore enhancing the learning outcomes (Rideout & Carpio, 2001; Savin-Baden & Wilkie, 2004; Haith-Cooper, 2000).

PBL is very much supported by a process-based approach where the process of learning is well defined and is considered fundamental to all learning experiences (Akinsola, 2005) which is underpinned by 'experimentalism', values learners' experiences which are presented in a form of a scenario or a problem (Knight, 2001 and Gwele,2005).

Solomon (2010) suggests that the 'contextual learning theory' is another common theory that supports PBL strongly. It postulates that learners learn in a meaningful context (Akinsola, 2005). It is believed that 'deep approach' learners develop meaningful awareness of a topic while 'surface approach' learners tend to memorize knowledge in intent to pass exams only (Mauffette et al., 2004; Savin-Baden & Major,2004; Uys,2005). Moreover, this theory demands working in a collaborative environment emphasizing 'cooperative learning theory' (Solomon, 2010; Zahra, 2012). All these theoretical perspectives are very important for nursing curriculum hence there is no doubt that PBL could be one of the most useful teaching learning techniques in the nursing curricula.

Merits and Demerits

Although there are few demerits the merits adding more weight to the PBL. This are the reasons that the PBL seem to be more useful for nursing education (Haobin Yuan et al., 2008)

Merits

- Being motivated to learn
- Enhancing problem -solving
- Improving critical thinking
- Developing effective communication
- Developing effective group collaboration
- Enhancing self-directed learning
- Increasing Social and emotional benefits
- Improving knowledge retention
- Developing good decision making
- Closing the theory and practice gap

Demerits

- Time -consuming
- Catching the key points with difficulty
- Feeling too stressed
- Knowing less from text book
- Experiencing a heavy workload
- Having insufficient time to complete the task
- Less role for the teachers

Nursing and PBL

Curriculum development in nursing and midwifery education aims to prepare students to become competent practitioners. A quest for an effective learning approach in the preparation of nurses as knowledgeable doers, critical thinkers and life-long learners fired interest and enthusiasm in problem based learning. PBL has been adopted by a number of nursing and midwifery faculties in Australia, USS, Canada and Britain (Jonston.A and Tinning,R, 2001). This helps in bridging the nursing theory and practice gap. The nurse educators must utilize the principles of adult learning while providing orientation and continuous education process from planning, goal setting, and implementation through to evaluation (Bentley, 2001). More recently the attention has been drawn towards the presentation of knowledge in relation to clinical problems. Decision making, problem solving exercise the students employ in the classroom may provide an accurate indication of how they perform in the clinical world. This can be enhanced by implementing the PBL approach both in classroom and clinical practice (Bastable,2003). In PBL, learning is continuous and builds on experience and exposure to real life problems, starting in the classroom and extending to the clinical setting (Salem, 2005).

Conclusion

Educationalists and nurse educators are responsible to produce competent and professional nurses who are aware of the skills of inquiry and critical thinking. Moving from traditional to a new transformative approach to learning is not an easy task; however it is necessary, according to Gwele (2005), that traditionalists be convinced about the benefits of such new innovation with evidence-based arguments. Pastirik (2006) and Lin et al., (2010) point out that PBL has been increasingly accepted as a learner-centered teaching method. There is a growing literature regarding the benefits and challenges of PBL. Although, as many authors observe that PBL has been perceived positively in many studies, it has been regarded as a matter of debate which could be due to improper training and orientation regarding its use. Although PBL may respond effectively to the change required for the nursing profession to promote evidence-based practice, its implementation is not easy and requires facilitating factors. A major implementation issue is the preparation of students and nurse educators for this new approach in order to get the best of it.

REFERENCE

- Achike.F and Nain.N (2005). "Promoting problem based learning(PBL) in nursing education: A Malaysian experience", *Nurse Education in Practice*, 5, 302-311. | | Akinsola, H.Y. (2005), A problem based learning curriculum. Curriculum development in nursing process and innovation, ed L.R Uys and N.S Gwele, Routledge, New York, 112-127. | | Alexander,J, McDaniel,G, Baldwin M, and Money.B. (2002). Promoting applying and evaluating problem based learning in the undergraduate nursing curriculum. *Nursing Education Perspectives*,23(5),248-54. | | Baker,C.M.(2000). Problem-based learning for nursing: Integrating lessons from other disciplines with nursing experiences. *Journal of Professional Nursing*, 6(6) 258-266. | | Barrows H.S (1986). A taxonomy of problem based learning methods, *Medical Education*, 20, 481-86. | | Barrows,H.S and Tamblyn,R.M. (1986). Problem based learning. An approach to medical education. 20, 481-86. | | Bastable S.(2001). Nurse as educator: Principles of teaching and learning for nursing practice. Boston: Jones and Barlett. | Bentley.G (2001). Problem based learning: In a J.Lowenstein &M.J Bradshaw (eds), Fuszard's innovative teaching strategies in nursing, Gaithersburg MD Aspen .3rd ed, 83-106. | Carlislea.C and T.Ibbotson. (2005). Introducing problem based learning into research methods teaching: Student and facilitator evaluation. *Nurse Education Today*,25, 527-541. | Chen-Jung,T, Jui-Hung,V, and Shoh-Liang,C (2003). Using the problem based learning to enhance student's key competencies. *Journal of American Academy of Business*, 2(2), 454-461. | Crooks.D, Lunny-child,O, Patterson,C, and LeGris,J. (2001). Facilitating self directed learning, *Transforming nursing education through problem based learning*, ed Rideout, Jones and Barlett Publishers, Sudbury, 51-74. | Dewey John (1890). The logic of verification. *Open Court*,4, 2225-8. | Donnelly,R (2004). Investigating the effectiveness of teaching online learning in a problem based learning online environment, *Challenging research into problem based learning*, M.Savin-Baden & K.Wilkie, Open University Press, Baerksire, 50-64. | Dyke.P. (2001). A randomized trial of problem-based learning approach for teaching epidemiology, *Academic Medicine*. 76, 373-378. | Gwele,N.S., 2005. Curriculum development in nursing process and innovation, New York, pg 1-19. | | Haith-Cooper,M. (2000). Problem based learning within health professional education: what is the role of the lecturer? Ed L.R. Uys and N.S. Gwele, Routledge, New York, 82-97. | Haobin Yuan et al., (2008). Improvement of Nursing student's critical thinking skills Through Problem Based Learning in the People's Republic of China: A quasi- experimental study. *Nursing and Health Sciences*, 10, 70-76. | | Jonston.A and Tinning,R (2001). Meeting the challenge of problem based learning: developing the facilitators. *Nursing Education Today*, 21, 161-169. | Kala.S.Isaramalais,S.&Pothong,A.(2010). Electronic learning and constructivism: a model for nursing education. *Nurse Education Today*,30, 61-66. | | King,S. (2004). The emotional dimension of collaborative change to problem based learning: the staff experience: Challenging research into Problem based learning, Ed M.Savin-Baden & K.Wilkie, Open Univeristy Press, Berkshire 103-115. | | Knight,P.T. (2001). Complexity and curriculum: a process approach to curriculum making, *Teaching in Higher Education*, 6(3), 371-83. | Lin C.F, Lu M.S, Chung,C.C, and Yang.C.M. (2010). A comparison of problem based learning and conventional teaching in nursing ethics education, *Nursing Ethics*. 17(3), 373-382. | Magnuseen L, Ishida D and Itano J, (2000).The impact of the use of inquiry -based learning as a teaching methodology on the development of critical thinking. *Journal of Nursing Education*. 39(8), 360-366. | Nandi P (2000). Undergraduate medical education: Comparison of problem based learning and conventional teaching, *Hong Kong Medical Journal*, 6, 301-306. | | Norman G and Schmidt,H (2000). Effectiveness of problem based learning curricula: Theory, practice and paper darts. *Medical Education*, 34, 721-28. | | Pastirick .P.J.(2006). Using problem based learning in large classroom, *Nurse Education in Practice*, 6(5), 261-267. | | Peters A (2000). Long term outcomes of the new pathway program at Harvard Medical School: a randomized controlled trial. *Academic Medicine*. 75,470-79 | | Phipps, F.M.(2010). Evidenced-based midwifery applications in context, Oxford,pg 81-93. | Rideout,E.&Carpio,B.(2001). Transforming nursing education through problem based learning, Rideout Jones and Barlett Publishers, Sudbury, 21-50. | | Salem Al Touby (2005), Problem Based Learning, *Nursing Education Oman Issue*(2), pg 12-17. | | Savin-Baden.M. Major. C.H. (2004).The foundations of problem-based learning. Open University Press. | | Schuh,K, Bussey,L, Thomas.A (2001). Implementation of a problem based approach in an undergraduate cognitive neuroscience course. *College Teaching*, 10, 153-164. | | Solomon, P. (2010). Problem -based learning: Innovative teaching strategies in nursing and related health professions. M.J.Bradshaw &A.J.Lowenstein, 5th ed, Jones and Bartlett Publishers. Inc, pg. 137-145 | | Uys.L.R (2005). A case base curriculum; Curriculum development in nursing process and innovation. *Assessment and Evaluation in Higher Education*, 32(1), 79-87. | | Wafaa Gameel.M.A. & Nahed A M S.(2010). Effect of Problem-Based Learning on Nursing students approaches to learning and their self directed learning abilities. *International Journal of Academic Research*, 2(4),188-195. | | Wilkie,K. (2000). The nature of problem based learning.S.Glen & K.Wilkie,Mcmillan, London, pg.11-34. | | Young .L.E Maxwell,B., 2007. Teaching nursing: Developing a student centered learning Environment, Lippincott Williams and Wilkins, Philadelphia.Pg 8-19. | | Zahra Al Jardani, (2012).An exploration of nurse educators' perception of problem based learning as a potential teaching and learning strategy for pre registration Omani nursing Students. Msc Dissertation (Health care Education), Glasgow Caledonian University. |