

Chapter 2

Development of Problem–Based Learning (PBL)

ABSTRACT

This chapter starts with a basic definition of PBL that leads a review of a history of PBL. The review involves both a global view and a local view in China. It then describes how learning activity happens in PBL and introduces main characteristics of PBL. This motivates a theoretical reflection on why PBL works well in preparing qualified young generation for dealing with challenges of complexity in future professional practice. This chapter will close its discussion on why and how PBL should be considered as a good strategy in Chinese universities.

INTRODUCTION

What is PBL? Briefly, it is a student-centered educational model. Theoretically, it reflects social theories of learning. In practice, student learning centers on a complex problem that does not have a single correct answer (Zhou, 2016a). Students work in collaborative groups to identify what they need to learn in order to solve a problem. They engage in self-directed learning experience and then they apply their new knowledge to the problem and reflect on what they learned and the effectiveness of the strategies employed (Zhou, 2017).

In PBL, curricula are organized to support the development of disciplinary patterns of discourse and representations of a domain, emphasizing the importance of formulating and evaluating, questions, problems, arguments, and

DOI: 10.4018/978-1-7998-3527-1.ch002

explanations (Hmelo-Silver, 2004). Teachers facilitate knowledge construction as students are guided through their problem-solving processes; in other words, they behave as learning experts in sharing learning experience with students and act to facilitate the learning process rather than only to provide knowledge. Meanwhile, PBL advocates experienced-based education (Hmelo-Silver, 2004): it provides students with guided experience in learning through solving complex, real-world problems, and therefore it helps students to: a) construct an extensive and flexible knowledge based, b) develop effective problem-solving skills, c) develop self-directed, lifelong learning skills, d) become effective collaborators, and e) become intrinsically motivated to learn.

In addition, the rapid development of Information and Communication Technology (ICT) in the 21st century is demanding swift action to engage students to participate in the mainstream of development. The Web 2.0 era that encouraged the sharing of information, discussion, and video applications virtually, certainly adds to the treasures of germination and dissemination of knowledge all over the world (Daud & Zakaria, 2012). With the emergence of online learning and e-learning initiatives, there has been shaped two major trajectories of the use of technology in PBL: a) distance learning, and b) use of multimedia (Castell, 2011; Purushothaman & Zhou, 2014). However, studies (Tan, 2009; Verstegen et al., 2016; Zhou & Purushothaman, 2017) have emphasized that to genuinely support PBL, e-learning tools and facilities should support or at least not hinder the PBL principles and processes such as activation of prior knowledge, elaboration, structuring, and restructuring of information, collaborative learning, learning in context, and self-directed learning, etc.

This means, digital tools should be elements to be integrated into PBL environment that also reflects requirements of improvement of digital skills and literacy among students as well as teaching staff (Tan, 2009; Zhou, 2017). We are calling for a kind of ‘intermediating hybrids’ - the use of interdisciplinary, and multi-perspectival explorations of curriculum design is one of keys to foster creative talents in China.

HISTORY OF PBL

History of PBL calls us to look back its development in medical school. This was due to a concern with rigidity and over-emphasis on memorizing of large volumes of information in medical education. In Canada, as early as in 1899, Sir William Osler recommended abolishing lectures and allowing

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