

Chapter 5

Instructors' Professional Learning and Implementation of Problem-Based Learning in Higher Education

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ABSTRACT

Contemporary educational reform in North America, as well as other parts of the world, has led to a shift toward conceptualizing assessment, teaching, and learning for the purpose of developing students' competencies (e.g., critical thinking, complex problem-solving, creativity and innovation, collaboration). Both in K–12 schools and higher education, instructors need to adopt innovative pedagogies and assessments to support the fostering of these competencies. In this chapter, the authors report on a mixed-method study where the implementation of problem-based learning (PBL) was used in a preservice teachers' assessment course designed in a teacher preparation program at one western Canadian university. The findings acknowledge that facilitating PBL is a pedagogical shift and requires instructors to revisit their pedagogical practices and assumptions in relation to student learning and teaching. The chapter concludes with three directions for future research.

INTRODUCTION

The role of problem-based learning (PBL) in enhancing the quality of instruction has gained much interest since the beginning of the 21st century. Both K–12 schooling and higher education in the 20th century are characterized by the trend of thinking about assessment, teaching, and learning in terms of accountability due to a heavy influence of standardized testing and behaviorist learning theory (Shepard, 2000). Education reforms in North America and other parts of the world at the turn of the 21st century have

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led to a shift toward conceptualizing assessment, teaching, and learning for the purpose of developing students' competencies (e.g., critical thinking, complex problem-solving, creativity and innovation, collaboration, communication, self-directed learning). Hence, there is a need for teachers in K–12 schools and instructors in higher education institutions to adopt new forms of pedagogy and assessment. One of the new forms of pedagogy is PBL (Koh, 2014; Koh, Lock, Paris, & Niayesh, 2016; Koh & Tan, 2015).

PBL gives students opportunities to develop such soft or transferable skills as problem-solving, critical thinking, collaboration and self-regulated learning. PBL is more than designing quality problems. A challenge is in the facilitation of this form of learning. Instructors may be prone to want to rescue or provide the answers. They may not feel comfort in allowing students to use time to grapple with the issues and test out ideas. Facilitating PBL is a pedagogical shift. It is one where instructors need to revisit their pedagogical practices and assumptions in relation to student learning and teaching.

The purpose of this chapter is fourfold. First, we review PBL literature in terms of what is and the nature of facilitating this approach to learning in higher education. Second, we describe the process of using PBL in the redesign of an assessment course for preservice teachers who were enrolled in a teacher preparation program in a western Canadian university. Third, we use the qualitative findings from our larger mixed-methods study to illuminate the various issues and challenges faced by instructors when implementing PBL in the assessment course. The qualitative findings were derived from our thematic analysis of the focus group interview data collected from instructors and students in the assessment course. Fourth, we end our chapter with recommendations for effective PBL practice in higher education. Strategies for designing educational and professional development programs for instructors to foster a PBL mindset and to develop capacity to facilitate PBL are also included.

BACKGROUND

Problem-Based Learning (PBL)

Problem-based learning is a “pedagogical approach that enables students to learn while engaging actively with meaningful problems. Students are given the opportunities to problem-solve in a collaborative setting, create mental models for learning, and form self-directed learning habits through practices and reflection” (Yew & Goh, 2016, pp. 75-76). PBL is based on a philosophy with a long history and has been promoted by many well-known educational philosophers and researchers (e.g., Bruner, 1959; Dewey, 1944). It is deeply rooted in a social-constructivist learning paradigm that puts students or learners at the center. PBL, as it is known today, originated in Canada in the 1969 in response to the need in medical education at McMaster University, Canada (Barrows, 1996). It has been applied in Canada and globally in many disciplines including architecture, business administration, economics, engineering, geology, nursing, social work, psychology, and education. It is grounded on the notion that learning is “constructive, self-directed, collaborative and contextual” (Dolmans, DeGrave, Wolfhagen, & van der Vleuten, 2005, p. 736).

Barrows and Tamblyn (1980) defined PBL as “the learning that results from the process of working toward the understanding or resolution of a problem. The problem is encountered first in the learning process.” (p. 18). This means the problem serves as the stimulus or the starting point for students' learning of relevant content knowledge and other professional competencies such as critical thinking, creative

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