Chapter 5.19
Authentic Cases and Media Triggers for Supporting Problem–Based Learning in Teacher Education

Mike Keppell
The Hong Kong Institute of Education, Hong Kong

ABSTRACT

Within teacher education problem-based learning (PBL) has the potential to enrich teaching and learning across the curriculum. It is suggested that PBL may offer a means of providing authentic scenarios for assisting pre-service teachers before encountering teaching practice. The use of media-based educational triggers and authentic scenarios may form a bridge between their studies and real-world teaching practice. Five media-rich educational triggers are described in early childhood education, physical education, educational technology, project management and inclusive education. Reusable media-based educational triggers may also provide potential resources for other educators within teacher education.

PBL CONTEXT

Problem-based learning (PBL) has a long history in the field of medicine, beginning at MacMaster University in 1968. Although its underpinnings can be traced to Gagné, Bruner and Dewey, PBL began with a questioning of the relevance of medical teaching in order to emphasise the patient as opposed to the science. Barrows suggested that "students were passive and exposed to too much information, little of which seemed relevant to the practice of medicine. They were bored and disenchanted when medical education should have been exciting" (Evensen & Hmelo, 2000, p. vii). Problem-based learning has been closely associated with medical education since this time and many medical schools around the world approach their teaching and learning using principles of

PBL. In general the approach presents students with a problem and requires them to formulate hypotheses, develop questions, gather and interpret data, and communicate their findings to peers and tutors. It is divided into several phases that involve small group work and independent study (Barrows & Tamblyn, 1980; Schmidt, 1993). It is suggested that PBL fosters independent learning, self-directed learning and lifelong learning. More specifically, Barrows (1986) suggested that there are five primary objectives of PBL in medicine which include: "construction of clinically useful knowledge, development of clinical reasoning strategies, development of effective self-directed learning strategies, increased motivation for learning and becoming effective collaborators" (Evensen & Hmelo, 2000, p. 2). The benefits of PBL have been well documented and PBL has become synonymous with medical education.

PRIMARY FOCUS OF PBL

Koschmann (2002) suggests that PBL focuses on three important areas in constructivist education: *student-centred learning, collaboration* and *authentic teaching materials*. Student-centred learning focuses on allowing students to set their own goals and determine the resources and the activities that are required to achieve their goals. It is an umbrella concept which includes case-based learning, goal-based scenarios, learning by design, project-based learning and problem-based learning (Pederson, 2003). Central to each of these approaches is an implied or explicit question which may focus on a problem, a case, an issue or a project. Often the question is provided to the students and is ill-structured in nature, requiring learners to provide "a solution, an opinion, a decision, a plan of action or product" depending on the question to be addressed (Pederson, 2003, p. 1). In medical problem-based learning a problem is presented requiring students to work toward

identifying the key learning issues and then suggesting a plausible diagnosis of a patient.

Collaboration is seen as essential to the process and "at the heart of PBL is the tutorial group" (Hmelo & Evensen, 2000, p. 2). Small groups collaborate with each other guided by a facilitator to discuss the problem. "Before beginning to grapple with the problem as a group, students must get to know each other, establish ground rules, and establish a comfortable climate for collaborative learning" (Hmelo & Evensen, 2000, p. 2). Within this collaborative environment the group extract the key information from the case, generate and evaluate hypotheses, generate learning issues, explain the patient's disease and reflect on what they have learned from the problem (Hmelo & Evensen, 2000).

Authentic learning materials are essential for the PBL process in order to immerse the students within the context. These are also considered to be real-world or authentic learning experiences. They "immerse the learner in the situation requiring him or her to acquire skills or knowledge in order to solve the problem or manipulate the situation" (Jonassen, Mayes & McAleese, 1993, p. 235). For instance, in medical education, media (video, photographs, audio, animations) are sometimes deployed to create educational triggers because it is not always practical to access real patients for undergraduate education. Options include paper-based problems, "trained patient surrogates" (Koschmann, Kelson, Feltovich & Barrows, 1996) and the media-based patient encounters utilised at the University of Melbourne medical school represent an example of this approach (Keppell, Elliott, Kennedy, Elliott, & Harris, 2003). This chapter will focus on the authentic video-triggers created for teacher-education.

TEACHER EDUCATION

PBL is being widely adopted as a powerful teaching and learning strategy in medicine and law.

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