

Shifting Perceptions within Online Problem-Based Learning

Roisin Donnelly

Dublin Institute of Technology, Ireland

Timo Portimojärvi

University of Tampere, Finland

INTRODUCTION

This article is aimed at supporting academic staff in universities and colleges who have begun or are considering introducing online problem-based learning (OPBL) for students' learning. OPBL is a promising combination of pedagogical innovations and technological solutions that support and enhance each other. In this article, we will examine the perceptions present in higher education today that are connected with the development within the research fields of e-learning and problem-based learning. This article is based on the recent and extensive emergence of literature on online learning, and the success of problem-based learning (PBL). Traditionally, PBL has usually been conducted in a face-to-face setting. Whilst there is a growing research-base in the area (Donnelly, 2005; Koschmann, 2002; Portimojärvi, 2006; Uden, 2005; Valaitis, Sword, Jones, & Hodges, 2005), it is fair to say that less is still known about the use of PBL in the electronic-based distance-education "virtual classroom."

In this article, we delineate the field of OPBL, with a particular emphasis on the interlocking of theory and practice. This will be supported by illustrations of OPBL from the perspectives of both tutors and students on two current modules in higher education. A first section in the article will explain the main concepts of PBL and explore the implications that recent information and communication technologies (ICTS) have on to it. Then the key differences between the traditional and online environment of PBL will be specified. The article will continue with a consideration of suitable technologies and media choices available in a rapidly changing field today. Following on from this will be a presentation of two case studies on implementing online PBL in both a blended and a distance-learning environment. Finally, the article will conclude with a summary of

the theoretical and empirical aspects of this field, and a contemplation of implications for the future.

BACKGROUND: FROM FACE-TO-FACE TO ONLINE PBL

Problem-based learning (PBL) is a comprehensive approach to learning environments, curriculum, learning, studying, and teaching. It is grounded in experiential, collaborative, contextual, and constructive theories of learning, and it has clear points of convergence with processes of everyday learning and action. PBL can be used in many formats, such as small-group tutorials, problem-based lectures, large-group case method discussion, and problem-based laboratories (Kaufman, 1995). However, it is used most commonly in small groups with a facilitator. There have been oft-cited multipurposes to PBL, with these mainly being cognitive effects on students' learning: increased retention and higher comprehension of knowledge (Albanese & Mitchell, 1993), and in the literature, there are examples that PBL is a valid and valuable means of increasing student learning in any online class where higher-order learning is desirable (Ronteltap & Eurelings, 2002). Further benefits of online PBL are the development of self-directed learning skills, and the enhancement of students' intrinsic interest in the subject matter, and improved interpersonal skills and teamwork.

The main concept of PBL is that learning starts from problems that arise from realities of working life or other realities of the field. Problem-based learning involves strategic alignment of the curriculum, not just a change in the method of teaching. It is vital that the culture of the educational institution, the ways of action, and the tools in use are congruent with each other. Descriptions of learning, collaboration and tutoring do not transform into the practices of action, if

practitioners do not have suitable tools or techniques for this. Methods of learning, assessing, and working that emphasise group- and student-centred learning-related ways of assessment are difficult to apply if the set of values and the culture of an institution do not support these (Bielaczyc 2001; Poikela & Poikela 2005). Beginning in the 1960s with a rather pragmatic origin, PBL has spreaded out in different variations throughout the world, yet arguably still preserving its foundations (Boud & Feletti 1997; Uden 2005). The interest in the effects of PBL has produced three meta-analysis (Albanese & Mitchell, 1993; Dochy, Segers, Van den Bossche, & Gijbels, 2003; Vernon & Blake, 1993), which all have similar conclusions on positive effect of PBL on skills but not significant difference on knowledge when compared to traditional curriculum. Continuous theoretical attempts to come to a deep understanding of the area and develop it further have created a need for negotiation in specific aspects. PBL is often seen as group-intensive, experience-based, sociocultural, and context-related, or as more traditional, student-centered, and a constructivist form of learning (Alanko-Turunen, 2005; Wertch, 2002). Despite the broad acceptance of a general description of PBL and its associated outcomes, Maudsley (1999) and Savin-Baden (2003) point out the enormous variance in the way PBL is conveyed and practiced. Savin-Baden suggests that the differences within the community of problem-based learning is essentially rhetorical rather than a fracture in pedagogy.

MAIN FOCUS: WHAT IS ONLINE PBL

The change in education and working practice and tools over the last 10 years has been truly remarkable. The old dichotomy of traditional face-to-face and distance education is becoming obsolete in both arenas as more diverse mixed-mode forms of education and training delivery emerge. In today's so-called "knowledge society," where there now exists new technologies and new structures for knowledge construction, new challenges emerge.

There have been several attempts to define terms for the combination of e-learning and PBL, but an established one is still in development. Definitions such as distributed PBL (Koschmann, 2002) or computer-mediated PBL (Dennis, 2003) are connected with research traditions of computer-supported collabora-

tive learning (CSCL) and computer-mediated communication. Savin-Baden and Howell-Major (2004) have suggested that the term computer-mediated PBL has been used initially to define any form of PBL that utilizes computers in some way. However, this is seen as problematic since it offers little indication about the ways in which computers are being used, the areas of student interaction, the quality of the learning materials, or the extent to which any of these integrate with PBL. In this article we use OPBL to describe our combination of these traditions and to describe the ways of using technology and PBL processes together.

The learning groups in PBL can benefit from "blending" virtual and physical resources, examples of which include combinations of technology-based materials and traditional print materials. The fact that the Internet is a complex repository containing a huge maze of information from a variety of sources has impacted on the PBL landscape in that it has become a prominent source of information for multidisciplinary groups. The use of online communication technologies also provide many ways in which distance educators can facilitate flexible tutorial support to groups of students (Fox, 2005).

In addition, a number of researchers have drawn attention to the need for online group work as part of the formation of graduates, given the recognized importance of having the ability to work in groups in the workplace. Working in a dispersed organization requires open communication, mutual trust, and shared processes and virtual tools (Vartiainen, et al., 2003).

What is the Main Difference between Online and f2f PBL?

There are several core differences between how traditional and online PBL is delivered, primarily around the area of flexibility. Engaging learners from different locations in working together could benefit the PBL group through their offering of multiple perspectives to the problem. Ongoing group work could also be better ensured even if some of its members are temporarily unavailable. A further consideration that is especially important in distance education is that of student motivation. Brown and Voltz (2005) found that distance-learning students displayed high levels of motivation and engagement because of the immediate and rich feedback provided by activity. Arguably this needs to be balanced against a need by some learners

9 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/shifting-perceptions-within-online-problem/12003

Related Content

The Influence of Self-Efficacies on Readers' Intention to Use E-Reading Devices: An Empirical Study

Bor-Yuan Tsai and Jung-Nan Yen (2014). *International Journal of Distance Education Technologies* (pp. 41-61).

www.irma-international.org/article/the-influence-of-self-efficacies-on-readers-intention-to-use-e-reading-devices/117181/

Diffusion of Computers in Schools

Petek Askar and Yasemin Kocak-Usluel (2005). *Encyclopedia of Distance Learning* (pp. 568-572).

www.irma-international.org/chapter/diffusion-computers-schools/12160/

A System for Governmental Virtual Institutions based on Ontologies and Interaction Protocols

Cláudia J. Abrão de Araújo and Flávio S. Corrêa da Silva (2012). *International Journal of Distance Education Technologies* (pp. 82-95).

www.irma-international.org/article/system-governmental-virtual-institutions-based/73936/

Web-Based Appreciation and Peer-Assessment for Visual-Art Education

Kuan-Cheng Lin, Shu-Huey Yang, Jason C. Hung and Ding-Ming Wang (2006). *International Journal of Distance Education Technologies* (pp. 5-14).

www.irma-international.org/article/web-based-appreciation-peer-assessment/1687/

The Next Generation of E-Learning: Strategies for Media Rich Online Teaching and Engaged Learning

Chye Seng Lee, Daniel TiongHok Tan and Wee Sen Goh (2004). *International Journal of Distance Education Technologies* (pp. 1-17).

www.irma-international.org/article/next-generation-learning/1637/