Adoption of PBL to Online Environments: Student’s Perspectives

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ABSTRACT

This study’s aim is to find out student’s perspectives on online and face-to-face problem-based learning approaches. The study was conducted at the Department of Computer Education and Instructional Technologies, Faculty of Education, Hacettepe University. Participants were 42 freshman students attending the department during fall of 2006-2007. These students were put into two groups—the online problem-based learning group and the face-to-face problem-based learning group. The research was conducted on Mathematics-I while implementing the topic of ‘derivation’. The content analysis statistical technique is used, as well as a questionnaire consisting of open-ended questions, which perform as a data collection tool to find out the views of the students in context to the process.

Keywords: E-Adoption, E-Learning, Learning Approaches, Online Problem-Based Learning, Problem Based Learning

INTRODUCTION

It is a cliché to say that people live in the Information Age. So, we can’t say it. We will say that humanity has never been more in love with information than it is now. Information saturates our personal and our professional lives. It not only affects our experience, it pretty much is our experience. Music is information, language is information, numbers are information, and pictures are information. Information, just as energy and matter, is even considered to be basic element of the universe itself (Stonier, 1996).

With promises of rich information resources readily available, successful use of the World Wide Web within an instructional setting is tied directly to a pedagogical approach that promotes inquiry-based learning (Sammons, 2003; Piccinini & Scollo, 2006). Inquiry-based learning can have many definitions and can be compared directly to other forms of instruction such as problem-based learning (Harrison et al., 2002; Etnon, 2008).

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Learning from problems is a situation of human existence. In our attempts to solve the many problems we come across every day, learning occurs. In looking for offices in an unfamiliar building, or addresses in an unfamiliar town, we finally find our way. In filling out income tax statements, learning occurs, just as in trying to find out why the car won’t start. Although we may not be consciously aware, these problem situations are all learning experiences that are providing us with information and knowledge that we can apply to future problems (Barrows & Tamblyn, 1980).

Researchers have provided a number of definitions regarding problem-based learning. Bubonics (2001) defined problem-based learning as a curricula and learning approach which exposes the students to an ill-structured problem taken from real life and develops the students’ problem solving strategies, knowledge, experiences and skills during the problem-solving process. Cunningham and Corderio (2000) emphasized that the key to problem-based learning is the use of a real-life problem in problem solving process. In addition Duch et al. (2001) stated that problem-based learning is an educational strategy helping the students to construct the questioning and communication skills which they need in their daily lives.

Today, problem-based learning is becoming more widespread all around the world. For instance, 80 percent of the medical faculties in the US use problem-based learning approach (Bubonics, 2002, p. 2). Considering the literature review on problem-based learning, it can be concluded that this approach, appearing as a traditional and campus-based one, is also an approach that works online when integrated with a proper and rational technology (McLinden et al., 2006). Computer and Web in particular are having a strong impact on education. These tools must clearly be regarded as versatile aids rather than as a replacement for face to face teaching methods (Pragnell et al., 2006). Although there is a vast amount of research and literature available on face-to-face problem-based learning (Barrows, 1993; Bubonic, 2001; Duch, 1995; Cunningham & Corderio, 2000; Greening, 1998; Major, 1998; Major & Palmer, 2001; Savery & Duffy, 1996; Savin-Baden & Major, 2004), currently some studies have studied PBL when utilized in the online environment (Sendag & Odabasi, 2009; Chu et al., 2009; Tseng et al., 2007).

Problem-based learning seems to fit into the new technology-based model for higher education. It is adaptable for on-line delivery, benefits from the wealth of information available from the Internet, and requires the communication afforded by email and conferencing tools. Further, problem-based learning supports collaborative learning even at a distance (Orril, 2000). Further, online PBL is sometimes referred to as distributed PBL and is a version of PBL that is useful to learners who are separated from their tutors by distance. Learning is mediated through online technologies within a shared, ‘virtual’ distributed learning environment (Wheeler et al., 2005). While many of current models of online educational approaches focus on teacher-centered learning, Online PBL needs to be focused on team oriented knowledge-building discourse (Savin-Baden & Wilkie, 2006, p. 7).

In literature, many studies have been and are still being conducted on problem-based learning. The studies generally compare problem-based learning environment with traditional educational environments (Deveci, 2002; Katwibun, 2004; Ozel et al., 2005; Gunhan, 2006; Tandogan, 2006; Uslu, 2006; Gulsecen & Kubat, 2006; Tavukcu, 2006; Ciftci et al., 2007; Arici & Kidiman, 2007; Akinoglu & Tandogan, 2007; Gulsum & Sungur, 2007). A small number of the studies on problem-based learning deal with a comparison of online collaborative learning and traditional learning environments (Mayer, 2004; Valaitis et al., 2005; Ozdemir, 2005; Lopez-Ortiz, 2006; Kennedy, 2007). We have been able to find only one research, carried out by Luck and Norton (2004) on the comparison of online problem-based learning and face-to-face problem-based learning approaches. Also, this study was not based on mathematics but on the subject Educational
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