Chapter 14
E-Learning Challenges for Polytechnic Institutions: Bringing E-Mobility to Hands-on Learning

Martha Burkle
SAIT Polytechnic, Canada

ABSTRACT

Mobile technology use is a major issue in higher education institutions, and one that is increasing daily. While the new generation of students (the “digital natives”) move across programs and courses, their learning expectations have started to emerge. It is with these expectations and needs in mind that educators around the world are recognizing the advantages of using mobile technologies to engage with students and make learning a more collaborative, interactive activity that can be engaged in at anytime, anywhere. Using a case study approach, this chapter explores the challenges of transforming static curricula into a mobile experience, and the ways in which these challenges were overcome within a polytechnic institution where hands-on learning takes place inside the classroom or the lab. In addition to presenting a literature review on the use of mobile technologies for teaching and learning, and an analysis of the relevance of connectivism theory to analyze students learning in the digital age, this chapter also includes an analysis of student surveys and interviews, as well as further opportunities for research.

INTRODUCTION

As 21st century students have started to arrive at colleges and universities, educators around the world have started to question whether their educational institutions are ready to respond to student needs and expectations. The reason for this hesitation is clear: these students are carrying with them an entirely different approach to learning, entertainment and life in general. The large majority of students in today’s classrooms are the first generation to grow up with such a vast array of information technologies. They have spent their entire lives surrounded by and using computers, video games, digital music players, video cameras, cell phones, and all the other toys and tools of the digital age.
As such, they are known as the Net Generation, or Net Gen-ers.

This chapter is about the learning desires and expectations that the Net Generation are bringing with them when they start higher education. It is also about the possibilities that mobile technologies offer to transform teaching and learning according to the Net Gen desires and expectations. In particular, the video iPod is analyzed in detail through a case study that involves a polytechnic institution using video iPods with students in the Avionics Program.

The main objectives of this chapter are to:

1. Present and analyze learning expectations of the Net Generation of students.
2. Discuss the need to transform curricula and content from a static to a mobile experience.
3. Analyze the challenges to the role of the instructor (from a ‘knowledge holder’ to a ‘facilitator’) that the use of mobile technologies brings with it.
4. Present research about student use of mobile technologies for accessing lab procedures, and for interacting with other students (in a collaborative way) and with the instructor. This is done with a case study of SAIT Polytechnic in Calgary, Alberta, Canada.
5. Examine and discuss student learning transformation since the introduction of mobile technologies into teaching and learning.
6. Point out further research in the topic.

In a framework that looks at the future role of mobile technologies to enhance education, this chapter discusses the way in which video iPods are transforming the ways in which students learn, as well as the ways in which this learning has been able to incorporate elements of fun and play while enhancing the acquisition of skills and hands-on learning.
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