Chapter 3
Learning 2.0: Using Web 2.0 Technologies for Learning in an Engineering Course

Thomas Connolly
University of the West of Scotland, UK

Carole Gould
University of the West of Scotland, UK

Gavin Baxter
University of the West of Scotland, UK

Tom Hainey
University of the West of Scotland, UK

ABSTRACT
Technology, and in particular the Web, have had a significant impact in all aspects of society including education and training with institutions investing heavily in technologies such as Learning Management Systems (LMS), ePortfolios and more recently, Web 2.0 technologies, such as blogs, wikis and forums. The advantages that these technologies provide have meant that online learning, or eLearning, is now supplementing and, in some cases, replacing traditional (face-to-face) approaches to teaching and learning. However, there is less evidence of the uptake of these technologies within vocational training. The aims of this chapter is to give greater insight into the potential use of educational technologies within vocational training, demonstrate that eLearning can be well suited to the hands-on nature of vocational training, stimulate further research into this area and lay foundations for a model to aid successful implementation. This chapter discusses the implementation of eLearning within a vocational training course for the engineering industry and provides early empirical evidence from the use of Web 2.0 technologies provided by the chosen LMS.

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## INTRODUCTION

There has been considerable research into the perceived benefits of eLearning and Learning Management Systems (LMS) within education and it is clear that LMS now play a pivotal role in the delivery of eLearning within many educational institutions. The research literature cites many advantages of eLearning, particularly the convenience and flexibility offered by the (asynchronous) ‘anytime, anywhere, anyplace’ education. However, much less research has been carried out into the use of educational technologies and tools within vocational training environments. The purpose of this chapter is to discuss the impact on learning with the introduction of a LMS into a vocational engineering course. This chapter discusses the pilot implementation of Web 2.0 tools within an LMS and aims to answer a number of questions:

(i) Can technology supplement the hands-on nature of vocational training?
(ii) Can the use of wikis and forums aid vocational training?
(iii) Can the pilot be considered a success?

Much of the research in this area has been mainly anecdotal and has not considered the different nature of vocational training with most of the research focusing on the traditional educational environment. This chapter utilises both qualitative and quantitative surveys on the views of trainees and instructors and aims to identify the areas within the training programme where the LMS could be utilised further to aid learning. It also considers the areas where the use of the LMS has not been as successful as anticipated and the reasons for this. The next section of this chapter discusses the literature on LMS, the use of Web 2.0 technologies within education, and ePortfolios. The subsequent sections introduce the research rationale, the case study and an empirical analysis of the pilot implementation. The chapter concludes with a discussion of the findings and provides some recommendations for the implementation of eLearning within vocational training.

## PREVIOUS RESEARCH

eLearning can be defined as “… any use of Web and Internet technologies to create learning experiences” (Horton, 2003, pp. 13). eLearning is essentially an evolved form of distance education, which Connolly and Stansfield (2007a) describe through a six-generation model, as depicted in Figure 1. The first generation (the ‘correspondence model’) was provided mostly through paper-based instruction, characterized by the mass production of educational materials. The difficulty with correspondence education has been the infrequent and inefficient form of communication between the instructor and the learners. Further, it was difficult to arrange for peer interaction in correspondence based distance education. The second generation (the ‘multimedia model’) was provided through integrated multimedia such as delivering courses via television or introducing material like audio and video tapes, computer-based learning (CBL) in addition to printed material. The third generation was provided through two-way communications media such as audio/video-conferencing and broadcast technology. The fourth generation of distance education (the first generation of eLearning) is defined as mainly passive use of the Internet, consisting primarily of conversion of course material to an online format, low-fidelity streamed audio/video, and basic mentoring using email. However, the educational philosophy still belongs to the pre-Internet era. The fifth generation of distance education (the second generation of eLearning) uses more advanced technologies consisting of high-bandwidth access, rich streaming media, online assessment (eAssessment) and LMS that provide access to course material, communication facilities, and learner services. The sixth generation of distance education (the third