

Chapter 5.12

E–Learning for ICT Group Work in a Blended Learning Environment

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ABSTRACT

How does e-learning support group work in university information and communication technology (ICT) education within a blended learning environment? While face-to-face interaction was possible for on-campus student group work, distance education students could only perform their group work online. This research adopted a qualitative case study approach. It explored the e-learning use by students in a core subject 'Software Development' in a Bachelor of ICT program with three group work assessments. The findings indicate that, while technology could effectively help students to collaborate in their group work and assessment tasks, some technological features in the learning management system are highly subject to constant enhancement, due to the nature of the subject requirements and the need to facilitate frequent technology-mediated interactions in some situations. A model of group work collaboration is developed to explain the need for a new design and development of features in e-learning tools.

INTRODUCTION

The research in this paper explores the use of e-learning for ICT student group work in a university's blended learning environment. In particular, it focuses on investigating, by means

of a case study, how e-learning can support the learning and teaching of undergraduate students in seven different campus locations and in distance education mode. E-learning is a form of educational technology such as learning management systems (LMS) like Moodle, Web-CT, Blackboard and Sakai. Blended learning in this article refers

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to a study environment where face-to-face and technology-mediated interaction happen to members in learning and teaching, whereby students are enrolled in both on-campus and/or distance education mode. Many higher education institutions have now moved to e-learning with a web presence of their LMS (Teo & Gay, 2006). In the early days, LMS generally allowed asynchronous e-learning with communication being highly unidirectional (Papachristos et al., 2010). To facilitate collaboration in learning and teaching, many LMSs have tools that enable interaction and communications. Current e-learning allows bidirectional communications, with features like shared learning and teaching materials, collection of online assignments for marking, group email services, assignment results management, learning lessons/modules and online quizzes. In the presence of web 2.0 technology, LMSs are more advanced, with synchronous e-learning features such as chat rooms, wikis, blogs and threaded discussion forums (Oravec, 2003; O'Neil, Singh, & O'Donoghue, 2004; Soon & Sarrafzadeh, 2010a, 2010b). The recent LMSs include evaluation or feedback systems, plagiarism detection software, class announcements, embedded external websites, personalised group work calendar, etc. as additional useful tools.

Blended learning has been defined in different ways by various scholars. Bliuca et al. (2007) describe blended learning as learning activities that involve a systematic combination of face-to-face and technology-mediated interactions between students, teachers and learning resources. Driscoll (2002) and Kerres and De Witt (2003) highlight some different meanings of 'blended learning' as: (1) combining different Web-based technologies; (2) combining different pedagogical approaches; (3) combining any form of instructional technology with instructor-led training; and/or (4) combining instructional technology with actual job tasks to improve learning transfer. In this research article, blended learning refers to the face-to-face and technology-mediated (or online) learning

interaction with peers, teachers and resources in a learning and teaching environment where students are enrolled in both on-campus education and/or distance education mode.

The research content and context posed in a research question 'How is e-learning used in information and communication technology (ICT) education in a university that offers blended learning?' is a new phenomenon. To examine this unfamiliar or unknown content and context, a case study research method was employed. Data were collected from a sample of undergraduate students in seven different campus locations, and a cohort of distance education students, all of whom were involved in the same core subject in a Bachelor of ICT program that comprised three group work assessments (i.e. there were no individual assignments). The analysis results indicate that, while technology could effectively help students to collaborate in their group assessment tasks, some technological features in the learning management system are highly subject to constant enhancement. The need for constant enhancement was due to the nature of the subject requirements with group work involvement and the need for more frequent peer interactions. A model of group work collaboration is developed to explain the need for a new design and development of additional features in e-learning tools.

This paper adopts the following structure. The next section is an overview of the research context about the kinds of ICT students involved in the researched e-learning context. In a broad sense, it explains the nature of ICT discipline and the way knowledge is learned and gained. In a narrow sense, it provides specific details about the types of student learning activities and how students usually learn in the ICT discipline. A 'Literature Review' section follows from which some derived research questions were obtained. Using the framework of these questions, the following section 'Research Method' addresses what to do to resolve the research problems and how to achieve it. It also discusses the data that

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