Chapter XXIV
Effective Use of Learning Objects in Class Environments

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ABSTRACT

This chapter provides a model to analyse the effectiveness and efficiency of Learning Objects being used in primary and secondary schools by considering their place within that educational environment, paying particular attention to the manner in which they, like any resource, can aid or occlude productive interactions between teachers and students. It draws from a study of Australian and New Zealand schools that piloted the first release of Learning Objects from the Le@rning Federation. The chapter considers the place of Learning Objects within the overall systemic school environment, and in this environment, examines the individual classroom as the combination of tensions between the teacher's needs, the students' needs, and the potential available within the existing infrastructure. Within this framework, the chapter discusses the ways in which these three components interact during teacher selection of Learning Objects, students' accession of Learning Objects in the classroom, and the use of the Learning Objects by students. It concludes by suggesting how students' construction of knowledge can be enhanced through merging the capabilities of the resource with the needs of students and teachers.

INTRODUCTION

The Le@rning Federation began in 2001 as a collaboration between the state, territory, and federal governments of Australia and New Zealand. At the time of writing, it has placed 5,000 digital learning resources online, including a wide range of Learning Objects relevant to Literacy, Numeracy, Science, Studies of Australia, Languages other than English, and Innovation, Enterprise, and Creativity. The scale of government commitment meant that the first round of Learning Objects made available to teachers on the Internet during 2003 were a critical testing ground for this technology. At the same time, extensive guidelines were put in place to ensure that all offerings would be accessible, usable, and have educational integrity with a learner focus, as outlined in the specifications for developers (The Learning Federation, 2002, 2006). Underlying this project was a definition of a Learning Object as

- One or more files or "chunks" of material, which might consist of graphics, text, audio, animation, calculator or interactive notebook, designed to be used as a standalone learning experience
- Reusable—a single learning object may be used in multiple contexts for multiple purposes such as across curriculum areas, year levels, different locales, and cultures
- Usable as a component of a topic or unit of work alongside other digital and nondigital resources and tools
- Accessible from the World Wide Web and is referenced, located, and accessed by its metadata descriptors
- A product that can be identified, stored, and tracked using a content or learning management system (Lake, Phillips, Lowe, Cummings, Schibeci, & Miller, 2004, p. 1).

BACKGROUND

Duval, Hodgins, Rahak, and Robson (2004) noted that "few papers [about Learning Objects] included clear guidelines or methodologies, or analysed in any detail what had worked and how or why it worked" (p. 338). This chapter will consolidate the results of an Australasian study into the impact, application and effectiveness of Learning Objects developed for primary and secondary classroom teaching and learning (Lake et al., 2004; Schibeci, Lake, Phillips, Lowe, Cummings, & Miller, 2006).

The study arose from the early stages of a major government initiative to develop online digital content, and involved case studies of 20 classrooms in 14 schools in Australia and New Zealand.

The four main data collection activities were student observation, student interviews, student surveys, and teacher interviews and observation.

Researchers visited schools in pairs. They spent between 1 and 5 hours in each classroom. Students were observed using the learning object and then about half (based on parental permission) were interviewed. Teachers were also interviewed during or after the lesson. Surveys were administered to students and teachers. In several cases the teacher selected students according to characteristics they felt made them of special interest (for example, cultural background, non-English-speaking background, ADHD, reading or mathematics difficulties). The researchers made no representations in this area. Researchers observed students using a learning object in the context of a normal lesson and did not provide assistance unless students had significant difficulties getting the learning object to operate and directly requested assistance from the researcher. All classroom activity was tape-recorded and transcribed for later analysis.

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