

Chapter III

Digital Learning Objects and Metadata

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ABSTRACT

This chapter describes a learning object repository case study undertaken at the Waikato Institute of Technology, Hamilton, New Zealand, during 2005 to 2006. The project, known as the open source learning object repository (OSLOR), involved establishing a functional learning object repository, using open source software, able to be populated with digital resources from across the various education communities. Input from librarians was deemed a critical success factor; high quality metadata determine the searchability, durability, and ultimate value of the repository. The metadata application profile developed was specific to a learning object repository but was also designed to be both reducible and extensible. It was also interoperable to ensure future viability. Close consultation with the National Library of New Zealand was an additional prerequisite. The author hopes the decisions underpinning the application profile design will inform others involved in describing digital resources for a specific community.

BACKGROUND

The Centre for Learning Technologies at the Waikato Institute of Technology, Hamilton, New Zealand, successfully attracted external government funding 2005/06 to lead a multiinstitutional project, including five Institutes of Technology and Polytechnics (ITPs) and one private training establishment, to establish a learning object repository suitable for deployment across the

primary to tertiary education sectors in New Zealand. Such a repository would be capable of creating communities of practice around the submission and reuse of digital learning objects related to curriculum areas.

The open source repository software EPrints (EPrints, 2007) was chosen for deployment. EPrints had good potential for integration with the learning management system in operation, Moodle (Moodle, 2007), and had the capacity to

support the translation of the interface into multiple languages, in this case the Pasifika languages of Maori, Tongan, and Samoan. The open source learning management system Moodle, already in widespread use across the secondary and tertiary education sectors in New Zealand, was utilised for front-end access to the open source learning object repository (OSLOR). The library was approached to provide a metadata application profile suited to the specific requirements of the repository, resources, and the environment.

DEVELOPMENT OF LEARNING OBJECT REPOSITORIES

The exponential growth of repositories for the controlled storage of digitally-created resources has resulted from the need to link communities of practice or interest with resources within a contextual dimension. The increasing use of information technologies to create new learning resources, to manage existing learning resources, and to aggregate learning content from a wide variety of academic and publishing sources has completely altered expectations for teaching and learning. Around the world, academic institutions, professional associations, and corporations are striving to make better use of networks and databases to efficiently and effectively achieve learning and professional development goals. One of the ways they have chosen to pursue these goals is to make learning resources readily accessible to educators and learners through learning object repositories (CANARIE, 2002, p. 5).

The fundamental purpose of learning object repositories is to support teaching and learning through the storage, retrieval capabilities, and maintenance of learning objects. Object repositories are seen as key enablers for bringing increased value to learning resources by providing opportunities for reuse, repurposing, or reengineering to suit a variety of purposes and end user needs. Creating learning resources in object formats is

seen as a way to bring about increased flexibility, customisation, ease of update, searchability, and manageability to rich stores of content and learning resources that are available from publishers or that have been created by faculty members or teachers (CANARIE, 2002, p. 5).

A distinguishing feature of repositories is their architecture, including a tailored user interface, and the manner of incorporating structure and organisation around the information that is contained to facilitate the location and use or reuse of such material. From research undertaken for the Australian Flexible Learning Network, Higgs, Meredith, and Hand (2003, p. 60) suggest that in order to provide access to learning objects, a repository must include a series of functionalities that include searching, quality control, maintaining, gathering from other repositories, and publishing (i.e., providing metadata to other repositories).

Early repository development concentrated on building intrainstitutional models, a “silo” trend that quickly extended into collaborative, international projects designed to allow aggregated collections with multisearching capabilities. The initial intraorganisational repositories were regarded as useful in promoting sharing and reuse within the organisation. At the same time, far-sighted educationalists warned of their limited potential that ran the risk of becoming closed systems (Downes, 2001). Network initiatives were made possible through the application of interoperable metadata that permitted cross-repository searching.

The online repositories or collections of learning objects that support higher education needs is a targeted growth area currently showing almost limitless potential. A quick scan of the repository environment reveals a few well-established players:

- ARIADNE Foundation runs a network of knowledge pool systems and has contributed to the development of several standards

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