

Chapter 21

A Low-Cost Learning Object Repository for Egyptian Teachers

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ABSTRACT

Within the last five years, governments and education authorities worldwide have developed and implemented approaches to facilitate access to a wide range of quality digital resources and reduce the costs of production. This chapter reports on a study which invited school teachers and university academics in Egypt, as a developing and Arabic-speaking country, to cooperate in establishing a learning object repository to store, locate, and share quality learning objects for class teaching and e-learning programs. The proposed solution is originally a vendor hosted web-based groupware, file management, and sharing system that meets the basic criteria of instructional learning object repositories called eStudio. Motivators and inhibitors to using the repository, factors that determine locating, using, and sharing learning objects within the repository and their qualities are assessed to help in developing repositories that demonstrate an understanding of the existing needs and the work practices of Egyptian teachers and other user groups.

INTRODUCTION

The main problems that have been facing education authorities in developing countries are over-crowded classrooms, test-driven curriculum focusing on rote memorization of unimportant material, lack of equipment, and a shortage of financial resources (Jarrar and Massialas, 1992; Tawila et al., 2000). In Egypt, there is currently a strong emphasis on systemic reform in educa-

tion at all levels. This development is encouraging stakeholders to collaborate in supporting the achievement of high standards in the schools. Like many education authorities around the world, the Ministry of Education (MOE) has seized on technology as a way to better prepare students and help teachers in achieving their objectives. A special unit within the MOE, called the Technology Development Center, was formed to coordinate the MOE's effort to infuse technology into schools (Warschauer, 2004). According to MOE, infusion of technology implies development in

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improving the performance of students, arranging of information, and increasing the capacities of information exchange.

As a result, teachers face the need to improve learning by providing new means for presenting curriculum materials, illustrate concepts that are less easily explained through traditional media, support new types of learning opportunities, and provide enrichment activities for students whether it is in a classroom or through e-learning environments. One of these new means is learning objects.

Learning objects differ from conventional learning materials in that they use a variety of media sources including text, graphics, audio, and video (Muirhead and Haughey, 2005). Learning objects are essentially the digital resources (e.g., audio, photos, graphics, animations, video, Word/PDF documents, HTML pages, Java applets, and interactive exercises) that are designed to generate and support learning activities and enrich learners' experiences (Richards, et al., 2002).

Within the last five years, institutions and academics have developed approaches to facilitate access to a wide range of learning objects to support teaching across the curriculum. Suthers (2000) believes that this interest is motivated in large part by the desire to be able to find and reuse the work of others. Institutions (such as Institute of Electrical and Electronics Engineers or IEEE) have developed standards for learning object packaging.

Although learning objects could be reused in many instructional contexts, much of this investment is used for specific audiences and remains unknown beyond the immediate developers and consumers (Richards, et al., 2002). Wiley (2002) indicates that learning objects are generally deliverable over the Internet, meaning that teachers can access and use them anywhere and simultaneously (as opposed to traditional media, such as maps or videotapes, which can only exist in one place at a time). Moreover, teachers can collaborate on and benefit immediately from new versions. LORs provide faculty, teachers, curricu-

lum developers, and students with easy access to a large storehouse of learning objects that can be shared and used within and across universities and schools (SREB, 2005).

According to JORUM (2004), it could be argued that a repository, at its core, is only a database of objects, with import and export interfaces. However, there is a distinction to be made in LORs between the database (that holds the metadata and objects) and the tools that are used to interact with this database (by searching, downloading, importing, etc.). A review of existing learning object repositories reveals that a repository is essentially a file storage system that has a form of control over the quality of the files (learning objects) to classify and store them using metadata, a searchable database to categorise and locate learning objects, an easy-to-use mechanism for uploading, updating, retrieving, and exchanging learning objects and an appropriate technical infrastructure, including software (e.g., database, and security system) and hardware (e.g., server and telecommunication capabilities).

PROBLEM OF THE STUDY

Internet databases and search approaches widely used on the Web are proving inadequate for the location of high quality resources appropriate to specific learning contexts, levels, and styles (Richards, McGreal and Friesen, 2002). Research indicates many barriers to the selection of quality online resources that could be avoided through systems that easily encourage teachers to locate, store, share, and manage materials themselves. At the same time, although administrators and teachers are often concerned with the effort, time, and costs required to create and use quality learning materials, there is a lot of duplication in teachers' production of digital learning materials which could be reduced if they work together.

Although LORs are a worldwide phenomenon that have received significant funding and many

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