

Chapter 7

Deploying Digital Educational Resources with Free and Open Source Technologies

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ABSTRACT

Digital educational resources are an increasingly visible and important component of the online learning environment. Concurrently, many organizations are faced with limited financial resources with which to provide their materials to the learners. In order to continue delivering materials but reduce the total cost of delivery organizations can implement free and open source technologies for digital educational resource deployment. Open source software and free online services, properly employed, can enhance organizational effectiveness while also reducing organizational expense.

BACKGROUND

As education of all types, traditional, blended, and fully online, incorporates more digital resources into the learning environment the need for efficient and effective distribution of these resources to learners becomes increasingly important. This need for improved and expanded resource provision is, unfortunately, coupled with decreasing availability of funds for many educational organizations not only in the United

States but also around the world. Compounding the financial exigencies faced by organizations are increasing financial pressures on consumers of educational products.

One potential solution to many of these issues is the use of open technologies. Many people recognize that open source software is available for free, but to be open source a program has to not only be distributed without license fees but also make its source code, the programming that makes the application function, freely available

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(Bessen, 2005). Bretthauer (2002) explains that, “Since 1998, the open source movement has become a revolution in software development. However, the ‘revolution’ in this rapidly changing field can actually trace its roots back at least 30 years” (p 5). The growth of open source does seem to be accelerating. Fitzgerald (2006) stated that, “Indeed, a type of Moore’s Law effect seems to be taking place as the amount of open source software available increases dramatically every 12 months or so” (p 587).

Paudel et. al. (2010) explore the value of open source technologies to developing economies, highlighting their value based on total cost of ownership, quality, and freedom. They also cite education specifically, saying that, “Education is one field where the institutions can use Open Source software to directly save money, which can be further spent on fields like research” (Paudel, Harlalka, & Shrestha, 2010, p 8). Tong (2004) explores a list of reasons that free and open source software is used in education: lower costs, reliability, performance and security, build long-term capacity, open philosophy, encourage innovations, alternative to illegal copying, possibility of localization, and learning from source code.

Open source certainly has a valuable place in the educational community and as a resource is growing and changing as quickly as education. Both are rooted in the rapidly expanding accessibility of affordable technology and Internet access that is driving so many other factors in society. Bringing the two together to support digital media deployment is simply the next step in a long progression of technology integration into the educational environment.

INTRODUCTION

This chapter will focus on ways in which digital resources can be deployed to learners via free and open source technologies. Open source software products have been available for many years and

digital media tools have grown in both availability and sophistication. Because of this growth the creation of digital learning objects has become more accessible. Such objects, however, only have value if they are used for an educational purpose.

There are many ways in which digital media can be disseminated today through free and open source resources. Open source learning management systems (LMSs) provide organizations with opportunities to post digital media online in an instructional format without the burden of paying high license and support fees to commercial LMSs. These open source LMS solutions provide an outlet to the digital media creation process that begins with the software used to create the digital media objects. An LMS not only gives educators the opportunity to disseminate their educational media, but also multiple methods to provide learners with inputs and active discussion of the material.

To share materials with a broader audience, including other educators, there are the still-emerging practices of OpenCourseWare (OCW) and open educational resources (OER). OCW is the sharing of course information, ranging from just a syllabus and notes to full video-captured lectures, freely to anyone with an Internet connection. OER is a similar practice, although OER sharing often involves just particular educational objects independent of an overall course design. Both practices offer learners access to materials for their own improvement, but the more important contribution may be as a base for other educators to create their own courses.

By providing base materials for other instructional environments OCW and OER take digital media objects and utilize them for both local and global audiences. As such, learning objects created locally with open source software, and possibly used locally in an open source LMS, can be freely available to the whole world. From start to finish, this process gives educators the opportunity to share material at every level with free solutions.

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