

## Chapter 45

# Building Open–Source Resources for Online Learning in a Higher Education Environment

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### ABSTRACT

*Faculty, administrators, and staff at institutions of higher education are singularly well poised to create open-source digital learning contents. Creating open-source digital learning contents seems to fit with a university's mission and the education paradigm of sharing knowledge and training up others to move a domain field forward. Indeed, they have contributed to many open-source endeavors. While individual open-source development endeavors may require a relatively light investment by colleges and universities, the work of building open-source resources involves significant planning in order to support the endeavor in an organized way on a campus. This chapter introduces some of the known challenges and methods to building open-source resources for online learning in the higher education environment in the US.*

### INTRODUCTION

In a university environment, the faculty, administrators, and staff seem especially well-poised to create open-source resources for online learning. After all, many are working in the cutting-edge expressions of their respective fields; many are engaged in online learning with live learners, and most have some motivations in the higher education reward structure to create open-source learning contents (as part of their social contribution and publicity related to academic work—for

tenure and reputation). And indeed, some faculty and staff have contributed to the open-source venues and distribution channels. Some universities have open-courseware endeavors to collect faculty work; prepare the contents by removing proprietary video, images, and articles; and publish the curriculums in zipped format for open use. Repositories (digital collections) and referatories (collections of site links with metadata) host a variety of open-source learning objects. Many academic journals and electronic book (e-book) publications are hosted by open-source publish-

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ers (or hybrid commercial/open-source ones). Open-source encyclopedias offer direct access to various open-source digital goods. Video, slideshow, image, and other content-type sharing sites enable open-source content creators to share their creations.

Open-source licensing tools (so-called public and viral licenses) are used in search engines along with the substantive words of the search for released objects. Open-source contents are harnessed for massive open online courses (MOOCs) which involve a range of learners who share their co-learning with each other and take responsibility for their own and others' learning. Some faculty and staff host their own sites with open-source downloadable contents. Universities have released open-source learning/course management systems, repository software, open-source publishing software, game authoring tools, and a variety of apps.

The cost-benefit considerations for open-source are affected by a range of considerations. Universities often consider such publications positive for public relations. The acts of sharing contents with learners everywhere resonate well with new-generation learners because of their culture of Web 2.0 sharing and ideals (Oreg & Nov, 2008). For others, publishing broadly to benefit the world assuages some of the guilt of those who live and work in relatively wealthier countries; it's part of the new *noblesse oblige* where "privilege entails to responsibility." Leaders in work places may affect the workplace culture towards open-source sharing by tying material rewards to open-source content creation.

There may be purely selfish considerations for open-source publishing and distribution for many. Those who contribute open-source work *gratis* on the front end may benefit from heightened workplace credibility in terms of longer-term benefits. J. Lerner, P.A. Pathak, and J. Tirole (2006) note:

Economic theory suggests that long-term incentives are stronger under three conditions:

1. The more visible the performance to the relevant audience (peers, labor market, and venture capital community);
2. The higher the impact of effort on performance;
3. The more informative the performance about talent... (p. 114).

Strategic complementarities may mean that high performance in the open-source arena may translate to future job opportunities, constructive collaborations, and other positional goods in the work place like increased social status. Some are calling for contributions to open-source projects to be considered scholarly contributions that are listed in performance reviews (Hafer & Kirkpatrick, 2009). Publicity from such endeavors may also lead to positive chatter.

The nature of digital learning objects also militates against excessive protectionism. After all, all informational contents will date out. Various learning objects will be supplanted by those with more updated information or better designs or higher usability. In many cases, the usefulness of an information object is only for a time.

While traditionalist proprietary approaches emphasize protectionism of all intellectual property (IP), the truth is that not all IP has direct financial value. C. Anderson (2009) suggests that the economy itself has shifted with a new price on numerous goods: free. He carries the argument of how knowledge and experiential digital objects are essentially non-rivalous digital goods, with the major investment occurring only with the first object, and the virtually zero cost of replicability across multiple platforms and online spaces. Multiple uses by multiple individuals can be achieved without much in the way of cost. M.A. Lemley (2004) suggests that free-riding is not an accurate term to describe the uses of others' digital contents in the sense that there are "positive externalities" to the larger society from such sharing, not negative ones. This feature of digital resources enables broad sharing without added

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