

# Chapter 11

## Maximizing Collaborative Learning and Work in Digital Libraries and Repositories: A Conceptual Meta-Case

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### EXECUTIVE SUMMARY

*Digital libraries and repositories aren't often thought of as virtual learning environments. However, in function and designs, they are. A wide range of digital artifacts are archived on both private and public open-source digital libraries and repositories. There are digital collections of texts, maps, photos, sound files, geospatial resources, video, and 3D objects. There are repositories for particular fields of study as well as multi-discipline ones. These may be structured as ontologies or taxonomies in particular knowledge (or cross-discipline) domains. Recently, designers of digital libraries and repositories have been focusing more testing and design on making such spaces usable for collaborative learning and building networks of communities. This chapter will explore how to maximize collaborative learning and work in digital libraries and repositories by applying pedagogical strategies.*

### INTRODUCTION

Digital libraries and repositories have been growing in popularity as virtual learning environments (VLEs) and sites for collaborative learning and work. These resources may manage terabytes of information and make these available anywhere through the Web and even into wi-fi enabled ambient spaces. These are a critical part of the overall information space.

Those working in education and training may benefit from using the built-in tools of various such digital libraries to encourage learner development. These systems sometimes involve tools to promote collaboration. These include embedded workflows, artificial intelligence (AI) and intelligent agency, and other types of collaboration support. A number of pedagogical strategies may enhance the virtual collaborations made possible in contemporary digital libraries. Collaborative assignments may be created for uses with digital libraries and repositories. These include assignments involving co-research,

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informational treasure hunting, informational resource sharing, and the identification of themes and trends in a knowledge domain field. Learners may co-create an emergent curriculum with their work on digital libraries and repositories. Student-created artifacts may be presented to others in digital galleries. New knowledge may potentially be created in such endeavors with digital repositories.

## **BACKGROUND**

Digital libraries and repositories tend to be collections of digital materials. A digital library consists of “collections” of materials usually based around particular topic areas; however, the definitions of “collections” do vary (Krafft, Birkland, & Cramer, 2008, p. 315). A digital repository is a storehouse for various types of digital contents, without an organizing hand through curatorship or content editing.

In the past decade and a half, digital libraries and repositories have grown in importance with the massive proliferation of new knowledge creation. Every 15 minutes, the world churns out the equivalent of the knowledge that took 200 years to create to fill the US Library of Congress in Washington, D.C.: “29 million books and periodicals, 2.7 million recordings, 12 million photographs, 4.8 million maps, and 57 million manuscripts” (Smith, 2005, p. 22).

This new information is predominantly digital: texts, maps, photos, sound files, geospatial resources, emails, weather data, video, 3D, and other objects. There may be live data streams of spatio-temporal information from satellite, infrared cameras, remote sensing, and scanning. Some collections are location-based, and others are distributed and widely dispersed through the Internet and WWW.

## **SETTING THE STAGE**

Some contents in digital libraries and repositories are public and socially relevant; some are private. In the latter set, there are individual repositories of journals, notebooks, and family histories formed over a lifetime of computer usage (Callan, Smeaton, Beaulieu, Borlund, Brusilovsky, Chalmers, Lynch, Riedl, Smyth, Straccia, & Toms, 2003). Such repositories may be subjectively categorized and sufficiently scalable to handle tens of thousands of documents, photos, papers, emails, and books for individual document collections (Janssen, 2004). Private businesses maintain repositories of corporate records, patent specifications, designs and blueprints, computer coding, datasets, and reports. Some repositories are interoperable with a variety of systems and are networked for wider resource offerings; many of these are free and accessible via the WWW and the Internet. Others are proprietary, closed, subscription-only, and accessible only to those who’ve been vetted and approved. Most inaccessible are those that are “dim” or “black” databases for consumption by those with security clearances.

## **Born 0s and 1s**

The information may be “born digital” or purely created in digital form. “Lazy preservation” of website resources aids in website reconstruction and the protection of data in a volatile preservation environment (McCown, Smith, Nelson, & Bollen, 2006, pp. 67 – 74). Electronic records may be digitally archived with full authenticity and integrity “from a recordkeeping system to a preservation system” (Glick, Wilczek, & Dockins, 2006, p. 359). There are endeavors to archive all things digital, too, such as born-digital blogs which are “valuable records of current social and political events” (Hank, Choemprayong, &

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