

Chapter LI

Core Topics in Digital Library Education*

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ABSTRACT

This chapter introduces the effort of developing a digital library (DL) curriculum by an interdisciplinary team from Virginia Tech and the University of North Carolina at Chapel Hill. It presents the foundations of the curriculum building, the DL curriculum framework, the DL educational module template, a list of draft modules that are currently developed and evaluated by multiple experts in the area, and more details about the resources used in the draft modules and DL-related workshop topics mapped to the DL curriculum framework. The use of information systems such as DLs is increasing in education and businesses. To better-support their users, DLs must include both a well-organized underlying architecture and a set of services designed to address their potential users' information needs. For this vision of the future to come to fruition, information professionals need to be educated to establish and manage digital libraries. The proposed curriculum framework provides a firm foundation for these important educational activities.

FOUNDATIONS FOR A DIGITAL LIBRARY CURRICULUM PROPOSAL

Modern societies are producing and consuming an enormous amount of information every day. The need for quality organized information has been growing rapidly. Various digital libraries (DLs) (Arms, 2000; Fox & Urs, 2002; Lesk, 1997; Lesk, 2005; Witten & Bainbridge, 2003) have been developed to address this need. However, additional focus on education for people who design and administer digital libraries is needed. We can begin to solve this problem through development of curricular recommendations for digital library education.

Several disciplines have an interest in the development of a graduate-level curriculum for digital library education; hence it can be argued that this effort must be interdisciplinary in order to be successful (Kajberg & Lørring, 2005). In particular, computer science and information and library science have been actively developing courses and programs in this area (Ma, Clegg, & O'Brien, 2006). Efforts to date have been locally-based and dependent upon specific institutional needs. The current effort takes a broader view, in order to develop a curriculum framework that will be useful across institutions and across disciplines. This framework is based on analyses of the ACM/IEEE-CS Computing Curriculum 2001 (Joint Task Force, 2001), the 5S framework for digital libraries (Gonçalves, Fox, Watson, & Kipp, 2004), papers presented at recent DL conferences and published in *D-Lib Magazine* (Pomerantz, Wildemuth, Yang, & Fox, 2006c), the readings assigned in DL-related courses (Pomerantz, Oh, Yang, Fox, & Wildemuth, 2006a), and a survey of digital librarians about their job responsibilities (Choi & Rasmussen, 2006a, 2006b).

Computing Curriculum 2001 as a Starting Point

The ACM/IEEE-CS Computing Curriculum 2001 (CC2001) (Joint Task Force, 2001) covers a

variety of areas in computer science, including information management. In turn, the area of information management includes digital libraries as one of its 14 components (including such areas as information models and systems, database systems, data modeling, transaction processing, information storage and retrieval, and hypertext and hypermedia).

The CC2001 goes on to identify a number of topics that should be included in a course on digital libraries. These topics include: “Digitization, storage and interchange; Digital objects, composites, and packages; Metadata (Daniel & Lagoze, 1997; DCMI 2006, <http://www.dublincore.org>), cataloging, author submission; Naming, repositories (Kahn & Wilensky, 1995), archives; Spaces (conceptual, graphical, 2/3D, VR); Architectures (agents, buses, wrappers/mediators, interoperability); Services (searching, linking, browsing, and so forth); Intellectual property rights management, privacy, protection (watermarking); [and] Archiving and presentation, integrity” (Joint Task Force, 2001, p. 140). This specification of a digital library course served us as an early starting point; these topics were incorporated into our initial curriculum framework, which had 19 topic groups (Pomerantz, Wildemuth, Oh, Yang, & Fox, 2006b).

The 5S Theoretical Framework

The name of the 5S framework (Gonçalves, 2004; Gonçalves et al., 2004; Gonçalves & Fox, 2002; Gorton, 2007; Shen, 2006; Zhu, 2002) comes from the fact that all five elements of this framework—“stream,” “structure,” “space,” “scenario,” and “society”—start with “s.” Informally, these five elements are described as:

1. **Streams:** All types of content, as well as communications and flows over networks or into sensors, or sense perceptions. Examples include: text, video, audio, image. These can be formalized as a sequence (list).

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