

Chapter LVII

Computational Sense for Digital Librarians

Michael B. Twidale

University of Illinois, USA

David M. Nichols

University of Waikato, New Zealand

ABSTRACT

This chapter discusses the role of technology in digital library education. It explores how elements of computer science and library science can be blended to produce an appropriate “computational sense” for future digital librarians. Elements of this approach include: metacognitive skills in learning about new computational resources, fluency in tailoring applications and a view of computing applications as codesigned artifacts that can evolve in response to the changing needs of users. The development of spreadsheets is used as an example of technological development that was well-designed to support both ease of use and incremental skill acquisition. The discussion in this chapter aims to inform the development of digital library software tools—particularly those used in educational contexts.

INTRODUCTION

The rapid progress of digital library technology from research to implementation has created a force for change in the curricula of library schools. The education of future librarians has always had to adapt to new technologies but the pace, complexity and implications of digital libraries (DL) pose considerable challenges. In this chapter

we explore how we might successfully blend elements of computer science and library science to produce effective educational experiences for the digital librarians of tomorrow. We first outline the background to current digital librarian education and then propose the concept of *computational sense* as an appropriate meeting point for these two disciplines.

BACKGROUND

There is an ongoing debate on what it means to be a digital librarian (Coleman, 2005; Marion, 2001; Mostafa, Brancolini, Smith, & Mischo 2005; Pomerantz, Oh, Yang, Fox, & Wildemuth, 2006a; Pomerantz, Wildemuth, Yang, & Fox, 2006b). It is similar to being a traditional librarian in terms of ethos and applicability of core guiding theories, including access, cataloguing, collection development and teaching people both search skills and general information literacy. It can be viewed as simply integrating a set of digital information resources into access services provided around preexisting paper-based resources. However, it also requires additional technical skills, extending the librarian's role into new areas. For example, DL creation can be more akin to publishing than collection development, involving aspects of editing, revision and aligning to data and metadata standards.

The topic of digital librarianship is subject to rapid change (Pomerantz et al., 2006b), as it is partially defined by the availability and functionality of appropriate software. The ease of building a digital library or an institutional repository has been radically changed over the past decade by the emergence of software such as Greenstone (Witten & Bainbridge, 2003) and DSpace (Tansley, Smith, & Walker, 2005). For example, courses presented in library schools are often based around similar material presented in tutorials at digital library conferences. Education based around digital library software inevitably brings with it techniques and concepts from computer science; especially as most of these courses combine theory and practice (Ma, Clegg, & O'Brien, 2006). The practically-oriented *How to Build a Digital Library* (Witten & Bainbridge, 2003), is the most-assigned book on DL syllabi (Pomerantz et al., 2006a). The interdisciplinary nature of the topic is also highlighted by the appearance of digital library courses in computer science curricula (Pomerantz, Oh, Wildemuth,

Yang, & Fox, 2007; Yang, Fox, Wildemuth, Pomerantz, & Oh, 2006).

Issues that can cause problems for library students vary from the basic (such as selecting the appropriate software version, downloading and installing) to advanced topics involving customization and extensibility (Nichols, Bainbridge, Downie, & Twidale, 2006). A recent survey on the issue of interface customization in Greenstone 2 included these responses: "I spent far more time trying to customize our interface than I did adding content to our library," "interface design is currently geared very much toward programmers," and "format statements are overly complex for most librarians" (Nichols, Bainbridge, & Twidale, 2007).

Within library and information science, the discussion of the integration of digital libraries into existing curricula can also be considered a part of a larger ongoing exploration of how to integrate librarianship and information science. This is particularly challenging as the latter may or may not be viewed as incorporating diverse topics such as the design of novel information retrieval systems, knowledge management, medical informatics, cultural informatics and the preservation of different kinds of media. The integration of these topics as well as the integration of systems centric, information-centric and user-centric approaches to analysis and design ensure that there is often considerable diversity in the approaches to what is taught and how, and a near-constant debate about LIS curriculum development (Kajberg & Lørring, 2005).

This background suggests that careful consideration is needed to understand the interactions between digital library education, software and computer science.

COMPUTATIONAL SENSE

As libraries have become more computerised, librarians have had to learn more and more

8 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/computational-sense-digital-librarians/19920

Related Content

ICT Readiness of Higher Institution Libraries in Nigeria

Pereware A. Tiemoand Nelson Edewor (2011). *International Journal of Digital Library Systems* (pp. 29-38).

www.irma-international.org/article/ict-readiness-higher-institution-libraries/59886

ShodhGangotri: The Pulse of Indian Research

Naseehath S. (2020). *Handbook of Research on Digital Content Management and Development in Modern Libraries* (pp. 263-275).

www.irma-international.org/chapter/shodhgangotri/245008

Implementation of Next Generation Digital Libraries

Ee-Peng Limand San-Yih Hwang (2005). *Design and Usability of Digital Libraries: Case Studies in the Asia Pacific* (pp. 97-110).

www.irma-international.org/chapter/implementation-next-generation-digital-libraries/8134

Logical Structure Recovery in Scholarly Articles with Rich Document Features

Minh-Thang Luong, Thuy Dung Nguyenand Min-Yen Kan (2010). *International Journal of Digital Library Systems* (pp. 1-23).

www.irma-international.org/article/logical-structure-recovery-scholarly-articles/48200

Sampling the Web as Training Data for Text Classification

Wei-Yen Day, Chun-Yi Chi, Ruey-Cheng Chenand Pu-Jen Cheng (2010). *International Journal of Digital Library Systems* (pp. 24-42).

www.irma-international.org/article/sampling-web-training-data-text/48201