Preface

Over the past several decades, there has been an evolutionary change in the world of libraries from mostly print-based collections to today’s current environment in which the phrase digital library is no longer new, but rather is synonymous with the library itself. Scholars no longer debate the various meanings of the concept “digital library” as practitioners routinely work in environments that have seen radical transformations in the nature of traditional library functions resulting from developments in digital technology. Within the academic universe, the subject of “digital libraries” has been the topic of much disciplinary-based discussion within the boundaries of library science, computer science, and engineering, each contributing a valuable piece to what is now recognized as a hybrid area of academic study, perhaps better characterized as “digital library systems.” Digital library systems as such transcend the technologies that have so radically transformed the creation, organization, preservation, management, and use of information to encompass the larger sphere of digital library users, content, and evaluation—all within a social, political, and economic environment. In such a context, we believe that a better understanding of the evolving problems of digital libraries and their users will take place under the spotlight of practical and real world experience rather than solely that of theoretical scholarly debate. The chapters in this volume bring together academics and practicing professionals to address recent developments in the design, construction, and evaluation of digital libraries in a variety of library environments. Throughout, the emphasis is on practical strategies and lessons learned from real world case studies, with strong representation from the international community.

PURPOSE

In this volume, we have put together diverse writings of designers, content builders, and evaluation specialists in the digital libraries arena in order for scholars and practitioners to have a unified and better understanding of this multifaceted topic area. This work will inform both theory and practice, with the following objectives:

- To present a critical analysis of the subject in such a way as to assist faculty and practicing librarians.
- To present case studies displaying innovation and creative use of technology in libraries in and outside of the United States.
- To bring to the attention of scholars and practitioners some of the global perspectives on digital libraries represented in these practical case studies.
- To synthesize current approaches to the evaluation of digital libraries, from both user- and system-oriented approaches.
ORGANIZATION OF THIS BOOK

Section 1 contains chapters addressing issues related to content management infrastructure design. We start with an excellent chapter written by Candela, Castelli, Manghi, and Pagano. It discusses the design of digital library infrastructure built on service-oriented technologies, to offer an environment where organizations can share and exchange their data and service resources to grow in synergy, exploiting an economy of scale approach. Chapter 2 is a case study reporting the activities, findings, and lessons learned during a project that replaced a digital asset management system at the University of North Texas Libraries with an open source system. The new design decouples the application development framework from the backend infrastructure, effectively relieving the development and growth constraints inherent in the old system. Expert users participated in an iterative approach used to prototype, develop, and test the interface. The resulting system promoted productivity gains by enabling programming staff to work in parallel from specialized areas of expertise. In Chapter 3, aiming for a robust metadata infrastructure for digital library, Lee and Tyson investigate the problem of de-contextualization and reveal how metadata schemes may cause loss of contextualization in semantic meaning of digitized primary resources.

Chapters in Section 2 move away from content management and infrastructure issues to explore methods for designing effective access, novel preservation methods, and expanded library services in newer digital library environments. In Chapter 5, Amin, Ramly, and Gerbic bring the reader’s attention to the changing nature of academic library services in the current digital library environment. Specifically, they describe how traditional academic library services in the Open University Malaysia have been expanded to include digital library services within the context of blended learning environments. Also, writing from the perspective of academic libraries, Lonbom addresses problems and opportunities associated with connecting sight-impaired users with the world of increasingly available image databases, in this case, art images. This chapter reports on a project in the use of audio descriptions to accompany images from Illinois State University’s International Collection of Child Art. Also dealing directly with the design of more effective access to materials in digital databases is the chapter by Harrison, who describes experiences with the creation of novel search access methods to information retrieval systems in the pharmaceutical realm. Rounding out this section, the chapter by Weiss presents an overall discussion of the planning, design, and implementation of a large-scale fossil digitization program at Fort Hays State University, Hays, Kansas. This chapter provides the reader with important insights into the collaborative activities that were necessary between members of the Forsyth Library and the Sternberg Museum of Natural History in order to make this project successful.

Section 3 takes a look at the importance of developing appropriate methods for the evaluation of digital libraries. While evaluation methodology has always been an important subject in the assessment of traditional libraries and information retrieval systems, the digital library arena creates its own set of unique challenges for the design of appropriate evaluation metrics. The chapters in this section approach this from several perspectives. Joo and Xie begin with a description of key differences between traditional and digital libraries, arguing that the methods traditionally used to evaluate libraries must not be simply transferred to digital libraries. In order to develop appropriate relevant constructs and concepts for digital library evaluation, they use the technique of document analysis. Eighty-five relevant articles and five websites were reviewed to generate the evaluation constructs and criteria. The findings consist of ten constructs, including: collection, information organization, interface design, system performance, effects on users, user engagement, services, preservation, sustainability/administration, and context of use with associated criteria for each dimension. Taking a different perspective to the specification of evaluation principles for digital libraries, Petras, Stiller, and Gade focus on the cultural heritage domain,
noting that cultural heritage information systems can be evaluated from a system-centric or a user-centric perspective. Their chapter discusses evaluation methods in cultural heritage collections and their distinctive features, interaction patterns, and challenges. The authors then illustrate these state-of-the-art methods with examples from Europeana, the European portal for access to digital library, museum, and archive collections, and other projects from within the cultural heritage domain. The final chapter in this section, by Li, takes yet another angle on the subject of evaluation in digital libraries. This chapter focuses explicitly on the cognitive dimension of users’ experiences with digital libraries as the focus of investigation. The author proposes the technique of cognitive task analysis as relevant to the evaluation of digital libraries, based on its applicability for understanding iterative and formative processes. After presenting the theoretical framework and features of cognitive task analysis, the procedure of carrying out this type of evaluation is detailed. This chapter concludes with a discussion of future directions for digital library usability evaluation, especially for the purpose of iterative design processes.

The final section of this book looks at the larger social environment in which digital libraries are created and some aspects of the relationship between this context and the processes of digital library construction and use. Tobar, writing in the first chapter of this section, takes a decidedly political stance on what digital libraries are, directing our attention away from the purely academic or scholarly notion of these new library forms and arguing instead that digital libraries can be “of the people” and “for the people.” The author documents her activities in the creation of a digital oral history archive documenting the Welfare Rights Initiative (WRI), a grassroots student activist and community leadership training organization located at Hunter College. The WRI was founded to aid student welfare recipients in becoming agents of social change and to actively involve them with policymaking. From this perspective, the digital library is conceptualized as a political tool that can be instrumental in social change. Perry and Valero give a detailed account of their lessons learned as educators teaching digital imaging techniques to Master’s students in Library Studies, from the perspective of using digital imaging to foster experiential learning. Here, the digital library is understand to provide an opportunity for change in educational practices. Finally, in this section, Sofronijevic discusses the digital library within a larger context of communication and collaboration enhanced by Web 2.0 technology. He discusses the process of “intrapreneurship,” which is the practice of applying entrepreneurial skills and approaches within an organization such as the library. This concept is currently utilized in many industries, but so far, rarely in librarianship, and the author argues for its usefulness there as well.

TARGET AUDIENCE

We have targeted this book to faculty, students, professionals, and researchers working in the field of digital libraries and electronic archives. It is our hope that the chapters contained in this volume will provide a valuable reference for all of those seeking a better understanding of the changing landscape of digital library environments.

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