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Small Academic Libraries' Participation in Digital Library Projects

Sharon L. Porter

Eastern Oregon University

Abstract

Small academic libraries do not have the specialized staff, large budgets, or technological strength that large research institutions' libraries who have served as pioneers in the digital library field possess. This study examined the progress of small academic libraries, as classified by the Carnegie Foundation, in replicating the success of large digital libraries. I examined 312 small academic library web sites to determine the presence of digital projects, collaborative activities, software, and funding sources. Digital libraries (defined as projects using a search engine to return a results list) represented a low percentage of the digital projects created. In small academic libraries, the projects were financed by the institution itself with few collaborative efforts lending support for digital library development. Local subject content was reflected in a majority of the digital library projects, reflecting an acceptance of a cultural caretaking role by small academic libraries. Future study is recommended to determine the relevance of collaboration in increasing digital library creation in small academic libraries.

Small Academic Libraries' Participation in Digital Library Projects

In constructing a digital oral history project at our small academic library and writing two grant proposals for digital library projects, I became aware of the difficulties in finding funding, managing a project with few staff members, and acquiring the technology to make a digital library possible on a small scale. I began to search for models for funding, construction, and collaboration to help guide our efforts at Eastern Oregon University. Library literature pays much attention to large-scale digital library projects. Because of their extensive infrastructure, higher levels of monetary support, and technology expertise, studies of large institutions provide essential information for the development of best practices in digital libraries. Conversely, an examination of Academic Search Premier, Emerald Library Suite, and Library Literature databases revealed little about small academic libraries' progress in creating digital libraries beyond a few case studies of digital projects. This present study takes a snapshot of existing digital projects to determine smaller academic libraries' progress in developing digital libraries. Digital libraries are defined in this study as those digital projects using keywords and a search engine to return records from a collection database.

Large-scale development of digital libraries is expensive. Professional literature to this point has focused on the pioneering activities receiving substantial grant money. In 1994, the Digital Library Initiative sponsored by the National Science Foundation forged an innovative digital community of the University of Illinois at Urbana-Champaign, Carnegie Mellon, Stanford University, University of California at Berkeley, University of California at Santa Barbara, and the University of Michigan (A. P. Wilson, 2004). When Digital Library 2 (DL2) was funded in 1999, the National Library of Medicine, Library of Congress, National Endowment for the Humanities, National Archives and Records Administration, the Smithsonian, the Institute of

Museum and Library Services, Stanford University, Columbia University, Harvard University, Indiana University, Tufts University, Michigan State University, University of Arizona, and the University of Hawaii were added to the list of institutions funded for multi-year, large-scale research projects (Chen, 2004).

To emulate large-scale projects, small academic libraries must address scalability in staffing, technology support, and infrastructure in order to manage digital library projects. At the National Initiative for a Networked Cultural Heritage (NINCH) Conference in 2002, topics addressed success on a small scale and included production capacity, technological architecture, and the ability to join forces in powerful collaborations. Sessions at the conference highlighted that, without the deep technical expertise found in larger institutions, digital library projects at small academic institutions go unfunded because funding agencies do not trust the abilities of smaller libraries to successfully bring a project to fruition (National Initiative for a Networked Cultural Heritage, 2002). A study by the METRO group in New York City examined strategies to maximize small numbers of personnel and create digital projects within a limited budget. This study indicated that only 10% of digital projects were funded by foundation monies and Federal grants (Lopatin, 2006).

The existing theories in supporting small libraries' efforts in producing digital libraries revolve around the desirability of collaboration and technological simplicity. Liu (2004) found in his study of digitization practices in the United States that a major issue concerns maximizing the opportunities for shared collections with collaboration and consortiums. Collaboration provides access to a sufficient range and number of items to create an economy of scale (Liu, 2004). Case studies of the Southern Oregon Digital Archives and the University of California Image Service

Demonstrator Project are examples of successful collaboration projects with outside agencies and a consortium of ten campus libraries, respectively (Burns, 2005; Face & Hollens, 2004). Software used for large-scale projects requiring programmers, database experts, and network managers is eschewed in favor of software that has been made easier for smaller projects. In Jonathan Weber's discussion of digital libraries "on a shoestring," software used for blogging can be employed for making a small digital library. The commandeering of popular content management systems like Drupal and Mambo can also be used for digital library projects. Open source software Greenstone and DSpace have been developed to be easy to install and configure in a basic way to create digital projects (Weber, 2006). Simple and customizable software allows small libraries to mount digital libraries without needing expensive software and specialized technical staff.

Since this literature survey revealed few articles describing the status of small libraries' participation in digital library projects, questions still remain. Issues that need to be studied in small academic libraries are:

- the role of collaboration in the development of digital libraries
- the software currently used in developing digital libraries
- the content scope of the digital collections
- the financial support that makes digital libraries successful

More studies and surveys conducted in this research area will generate implementation ideas and focus on the special needs of small academic libraries in their quest for more resources to build digital libraries.

With further study, planning timelines for digital libraries and ways to generate collaborative projects will be shared in the literature. Wilson remarks in his study of managing a

digital collection in a small library that the issues facing small institutions resemble those of the larger institutions (Wilson, 2003). The literature needs to reflect how scalability applies to smaller academic libraries. Small academic libraries have a mandate to preserve local culture as discussed in the writings of Chen, Lopatin, and Spence (Chen, 2004; Lopatin, 2006; Spence, 2005). More investigation must occur to generate more funding, re-assign existing personnel, and employ simple technology to support growth for smaller digital projects that describe local content.

This present study was necessary to highlight the progress of small academic libraries in developing digital projects. Producers of digital libraries are motivated by the desire to increase access to their collection and to preserve local artifacts. Dissemination of information celebrating local culture offers continuing value for learning, teaching, and research. The development of software and infrastructure makes the internet a venue for small academic libraries delivering local content as responsible stewards, along with collaborative partners, of knowledge assets (Chen, 2004). Knowing what scope of collection content is being collected is essential to know to increase collaborative efforts with like-minded groups. The selection of materials for digital libraries was discussed in a case study by Crane, Frick, and Rouner (2005). They emphasized that policy is vital in collection development and that often institutions choose previously-acquired special collections as their primary focus for digitization. Partners can be identified for united efforts by defining areas for collection. In Witten's book on building digital libraries, he posits that taking control of collections and disseminating information preserves the history of that content and creates more demand for information technology in that community. Empowerment blossoms from effective human development and participating in an information

society keeps intellectual property where it belongs, “in the hands of those who produce it” (Witten, 2002, p.23).

This present study clarifies the successful components that small libraries have in place to produce digital libraries. In this study I examined a sample of 312 websites from small academic libraries to determine the elements evident in their digital projects. The role of collaboration, the examination of software used, and policies that have been written will aid in guiding other modest projects to successful ends. Examining funding sources to determine what agencies funded small academic libraries' projects will be useful to other institutions desiring financial support. This study also advises the scope of the content that is chosen for digital collections.

Method

Participants

With a total number of 647 schools matching the Carnegie classification of *small*, regardless of setting (residential, nonresidential, or highly residential), the sample size was 312 with a confidence interval of ± 4 of a confidence level of 95% (Carnegie Foundation for the Advancement of Teaching, 2006). The academic libraries to be examined were then identified using a random number generator (Creative Research Systems, 2003).

Procedure

Before the sampled websites were examined, the term *digital library* was distinguished from similar concepts of *digital project* and *digital collection*. After studying many definitions of the term digital library, I determined the crucial element in recognizing a digital library was the ability to search within the collection using keywords and other metadata. In this narrow definition of a digital library, a digital project was designated a digital library if a search engine was used to return result items from the collection. A *web page* was defined as being an online

collection or collection-focus presentation with no search capability, and *finding aids* were lists of online references to physical objects in an archive or special collection (Chowdhury & Chowdhury, 2003, p.7; Lesk, 2005, p.2; Witten, 2002, p.6).

I constructed a Microsoft Access database populated with the names and cities of the sampled institutions to track the elements present in the small academic library websites. The fields in the database were: *number of collections*, *digital library* (Y or N), *project* (Y or N), *finding aid* (Y or N), *number of items in the collection*, *personnel number*, *equipment costs*, *policy* (Y or N), *evaluation plan* (Y or N), *dissemination plan* (Y or N), *sustainability plan* (Y or N), *collaboration*, *grants*, *source of grants*, *gifts*, and *content*. When examining the websites in the sample, I examined each web site for the existence of digital collections. I determined if the digital collection I found was a digital library, finding aid, or a web page and then noted the subject content of those collections. If available, I recorded funding amounts and sources, staffing allocations, and the technology used for the projects. Collaborative relationships were noted as well as the presence of policy statements, evaluation, dissemination, and sustainability plans. In the case of digital collections resulting from a large collaboration with major funding by a statewide or regional government source, I counted projects directly attributed to the sample institution, if noted. Variables that were not controlled were funding sources not noted, staffing levels not identified, or procedural information not found on the websites.

After examining all 312 sample websites, I entered the data into the Microsoft Access database for analysis. By constructing queries of the database, I totaled all the records for the fields: digital libraries; digital projects; and finding aids. I then generated reports to display the data. I analyzed the grants and source of grants fields for common funding sources. I reviewed all the planning document fields and noted the contents. I examined subject content fields for

their relationship to the institution and I determined the scope as local, regional, state, or national/international. I examined the software field for commonality of software titles.

Results

After running the database query *Summary of Participation*, the results showed that 56.73% (177) academic libraries had completed a digital project of some kind: a digital library; web page; or finding aid. Of the digital projects that were present, the query *Digital Projects* found that 52 academic libraries had digital libraries, 75 libraries had web pages, and 49 libraries had finding aids. There were 1,056 digital projects reported. The percentage of the type of digital project completed was 14% (148) digital libraries, 28.69% (303) web page projects, and 57.29% (605) projects were finding aids.

Using the query *Monies*, revealed that 5.12% (16) small academic libraries received gifts for funding their projects and 7.69% (24) small academic libraries received grant monies to fund their digital projects. Of the sampled small academic libraries, 10.89% (34) used some type of monetary support for their digital projects. These results are based on numbers reported on the websites and do not reflect underreported financial support. Grant sources most often reported in support of small academic libraries in digital projects were: the National Endowment for the Humanities (NEH); the Andrew W. Mellon Foundation; Lilly Endowment, Inc.; the National Historical Publications and Records Commission (NHPRC); and Library Services and Technology Act (LSTA) grants to state libraries. Gifts were given by private sources and Friends of the Library groups.

When using the query *Collaboration*, I found that 5.77% (18) of small academic libraries were involved in collaborative projects when developing their digital projects. Again, upon

examination of the sampled websites, it was not always clear from the narrative and project notes the specific contribution of the sampled institution.

Software reported as being used in the development of digital projects from small academic libraries was: CONTENTdm in 12 projects; DSpace in four projects; Greenstone in two projects; with ePrints, ETD, Iserv, and JAlbum also mentioned.

Digital library policies were evident in 4.51% (8) of small academic library projects. I counted all policies that included evaluation, sustainability, or dissemination plans for digital projects. I did not count general policies on collection acquisition.

Local content was reflected in 75% of the digital library projects completed by small academic libraries as shown in Figure 1. Local subject content was reflected in 111 digital libraries, 14 digital libraries contained regional subject content, six digital libraries contained state subject content, and 17 digital libraries from small academic libraries contained national/international subject content.

Discussion

Over half of the sampled small academic libraries show evidence of a digital presence in delivering information about archives and special collections. Examination of the components that lead to success informs future projects. One of the components is financial support. From the information available to this study, most digital projects are currently produced without the benefit of grants or gifts. Most small academic libraries use institutional monies to support digital projects by using existing personnel. Perhaps small academic libraries are shifting duties or re-evaluating duties to allow staff time to create digital projects.

Open source software is a popular choice among creators of digital libraries. If institutions are relying on existing budgets to plan and create digital projects, money for software

is probably also being purchased with existing budgets. However, CONTENTdm is the tool that most creators of digital libraries reported using. There may be a correlation between purchased software and larger projects with grant or gift monies that provide for software purchase. This present study did not find for that correlation.

The original question regarding the level of technology and small libraries' progress in creating digital libraries has been answered by an examination of the data. Small academic libraries have produced more web pages than digital libraries to display special collections and archive items than they have produced digital libraries. This may be due to the more technical demands of producing a digital library rather than web pages or finding aids. Web pages and finding aids are a level of technical attainment more likely supported with small staffs and budgets. The technology infrastructure required to create finding aids and web pages would already be in place for small libraries that have a web presence. Database experts, network managers, and programmers are often necessary to create digital library data collections, maintaining them, and ensure that the software components are all working together to produce a result list from a keyword search. To pull together that level of expertise, small academic libraries would have to plan staffing changes and rearrange budget priorities to allow time to write grants or solicit gifts to elevate the library to a higher level of technical production. It should be noted, that in this present study, monies may have been under-reported by the sampled institutions.

Only 5.77% (18) of the sampled libraries noted a collaborative role in their digital project efforts. Forming an alliance through collaboration would aid the small academic library in securing the technological firepower and staff time to create more technologically complex digital libraries. Division of labor, a larger collection of items, and more staffing would assist in

developing more sophisticated collection databases and user interfaces. I discovered in this present study that collaboration was not often noted and when noted, the role the particular institution played in the collaboration was not defined. From this incomplete set of data, I cannot reach a conclusion about collaboration and the specific contribution it makes to the creation of digital libraries. However, I would infer that collaboration is a major factor in the forward movement of small academic libraries' involvement in digital libraries.

Expecting to find a great deal of information about the procedures and planning for digital projects, the low percentage of policy statements found on the sampled websites was disappointing. Policies about how the academic library planned to sustain the digital project and disseminate information about the project would extend the knowledge for other libraries conducting research for their own planning. Information about the academic library's plans for evaluation of the final project with continuing plans for improvements would help other institutions learn current practice methods. Evaluation of a digital project would also lead to a schedule of continued monitoring and adjusting as users reported efficiencies and deficiencies of the digital project. Small academic libraries planning digital projects would benefit from reviewing other institution's records of the creation of digital projects. It is important to make sure these plans are posted when the project is launched online because the end of the project is not the most efficient time to backtrack all the steps it took to arrive at the finished product. In addition, energy dissipates at the end of any project that takes such time and effort from small staffs on a tight budgets who are already taxed for resources.

As I expected, small academic libraries are acting as stewards of local artifacts and collections more than all the other scoped categories. This speaks to the relationship of the academic library to its local community. The local academic library is most able to carry local

history in perpetuity and of all the local institutions available, have the expert staff and infrastructure to bring a project to fruition. Usually, small academic libraries begin digital projects with collections that are already identified (Witten, 2002). It is a natural progression to bring them to a wider audience by making the items available digitally. I would infer that the wider the scope of the content the more apt the project is a result of a collaborative effort. Many of the collaborative efforts were statewide or at least regionally-organized projects. The LSTA grants often supported statewide digital libraries through state library grants.

Digital projects are largely being produced with institutional funds and existing staff and technology. Digital libraries have not been produced as often as web pages and finding aids to disseminate information about special collections and archives. In this present study of the progress of small academic libraries in creating digital libraries, local content is the focal point of most of the digital libraries. Small academic libraries are seen as the institutional caretakers of local artifacts. Collaboration with other institutions could be a significant factor in small academic libraries' progress in the development of digital libraries. Further study in the relationship of collaborative efforts to the production of digital libraries needs to be conducted to isolate that factor's relationship to success. An investigation into the lack of online policy statements is necessary as well. The essential learning piece of how a library proposes to sustain and disseminate information about a digital project is largely missing from the projects online today. In order to learn from each other, this writing needs to be present, if not within each project, at the very least published separately in a professional journal or online venue. This present study marks the status of small academic libraries in the production of digital libraries. By creating with local content, documenting the process, using open source software, and

seeking collaborative partners, growth in digital library production will be attained by small academic libraries.

References

- Burns, M. (2005). Start small, think big: digital collaboration at the University of California [Electronic Version]. *VRA Bulletin*, 31, 10-16.
- Carnegie Foundation for the Advancement of Teaching (2006). Classifications. Retrieved September 17, 2007 from <http://www.carnegiefoundation.org/classification/index.asp?key=790>
- Chen, H. (2004). Digital library research in the US: an overview with a knowledge management perspective [Electronic Version]. *Program: electronic library and information systems*, 38, 157-167.
- Chowdhury, G. G., & Chowdhury, S. (2003). *Introduction to digital libraries*. London: Facet.
- Crane, G. R., Frick, R., & Rouner, A. (2005). Strategies for building successful digital initiatives at small to medium-sized institutions [Powerpoint presentation]. Orlando, Florida.
- Creative Research Systems. (2003). The survey system; sample size calculator. from <http://www.surveysystem.com/sscalc.htm>
- Face, M. J. C., & Hollens, D. (2004). A digital library to serve a nation: the bioregion and First Nations Collections of the Southern Digital Archives [Electronic Version]. *Reference and User Services Quarterly*, 44, 116-121.
- Liu, Y. Q. (2004). Best practices, standards and techniques for digitizing library materials: a snapshot of library digitization practices in the USA [Electronic Version]. *Online Information Review*, 28, 338-345.
- Lopatin, L. (2006). Library digitization projects, issues, and guidelines: a survey of the literature [Electronic Version]. *Library Hi Tech*, 24, 273-289.

Lesk, M. (2005). *Understanding digital libraries* (2nd ed.). New York: Morgan Kaufmann Publishers.

National Initiative for a Networked Cultural Heritage. (2002). Building and sustaining digital collections: models for libraries and museums. Retrieved September 21, 2007, from <http://www.clir.org/pubs/reports/pub100/pub100.pdf>

Spence, J. (2005). Small organisations and cultural institutions - a digital future? [Electronic Version]. *Program: electronic library and information systems*, 39, 366-380.

Weber, J. (2006). Shoestring digital library [Electronic Version]. *Library Journal*, 131, 30-31.

Wilson, A. P. (2004). *Library web sites: creating online collections and services*. Retrieved September 23, 2007, from NetLibrary database.

Wilson, W. (2003). Building and managing a digital collection in a small library [Electronic Version]. *North Carolina Libraries*, 61, 88-97.

Witten, I. (2002). *How to build a digital library*. New York: Elsevier Science, Inc.

Figure Caption

Figure 1. Content scope of digital libraries created by small academic libraries.

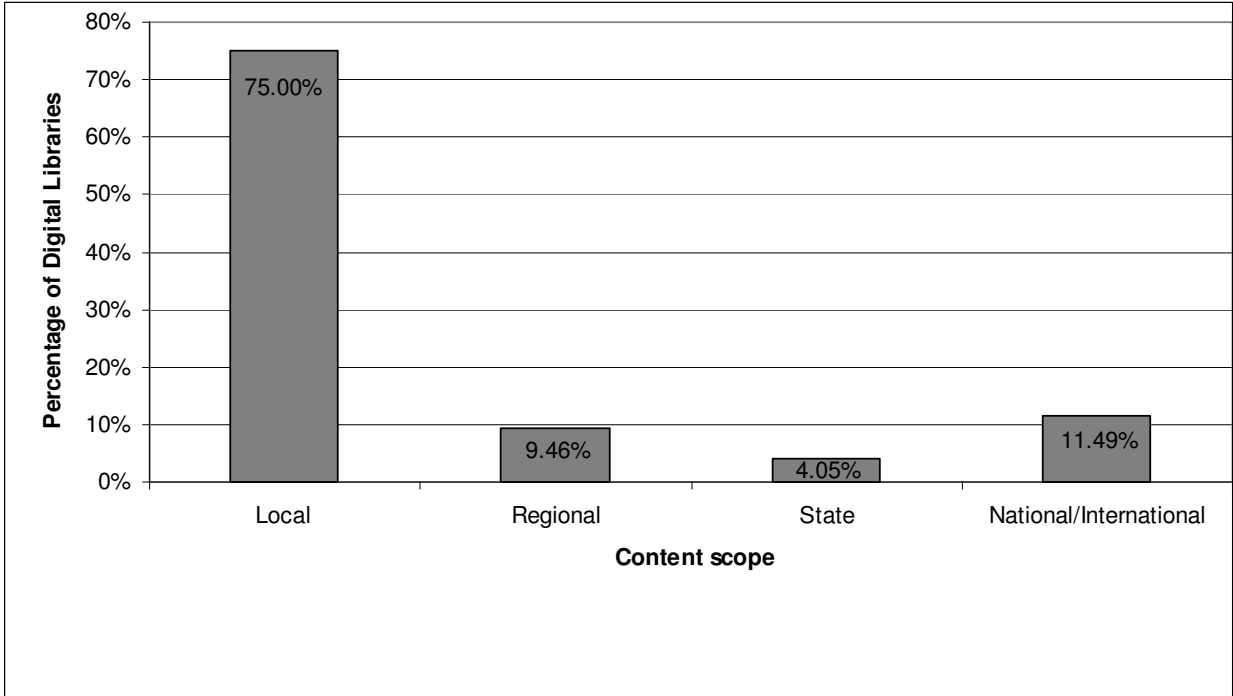


Figure 1.