

Sherrie A. Bowser. Digitization in Small Cultural Heritage Repositories: Interviews with NC ECHO EZ Digitization Starter Grant Recipients. A Master's Paper for the M.S. in L.S degree. April, 2006. 55 pages. Advisor: Timothy Pyatt

There is scant literature available that specifically addresses digitization efforts in small cultural heritage institutions. However, even without this specific guidance these institutions are creating digital projects whether by grassroots efforts, collaborations with other institutions, or through participation in regional or statewide digital initiatives. Due to the many factors involved with digitization, (costs, technology, staff time, access, and preservation issues) small cultural heritage institutions encounter many issues and challenges. This study was devised to discover the common practices and obstacles encountered by NC ECHO Digitization Starter Grant award recipients' cultural heritage institutions during digitization, in the hopes of improving digitization guidelines by making them more responsive the current practice of digitization as experienced by these institutions.

Headings:

Archival materials-digitization

Library materials-digitization

Libraries-North Carolina-special collections-digitization

DIGITIZATION IN SMALL CULTURAL HERITAGE REPOSITORIES:
INTERVIEWS WITH NC ECHO EZ DIGITIZATION STARTER GRANT
RECIPIENTS.

by
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Introduction

“Digital imaging is hot,” announced Paul Conway in the Northeast Document Conservation Center’s Handbook for Digital Projects, in 1999, and his proclamation still stands.¹ Indeed, high profile and large-scale digitization projects such as the Library of Congress’ American Memory Project and those undertaken by Cornell University Library have increased the awareness of digitization, producing an enticing mixture of technology, worldwide access to historical materials, and public outreach. In the ensuing excitement, coupled with money available through federal and state grants, many libraries, museums, and other cultural institutions are investing their scant resources into digitization.²

In its simplest form digitization is the process of converting analog (human readable) objects into digital (machine only readable) objects, and is a process that is achievable through increasingly ubiquitous and cheaper technologies such as digital cameras, scanners, and computers. Converting cultural heritage objects, items such as manuscripts, photographs, ephemera, city directories, sound recordings, papyri, or governmental papers, into a digital format allows for an evolution within an institution’s

¹ Paul Conway, “The Relevance of Preservation in a Digital World,” Preservation of Library and Archival Materials: A Manual, ed. Sherelyn Ogden. 3rd Rev. ed. Andover, MA: Northeast Document Conservation Center, 1999, 21Feb. 2005 <<http://www.nedcc.org/plam3/tleaf55.htm>>.

² Rachael Bradley, “Digital Authenticity and Integrity: Digital Cultural Heritage Documents as Research Resources,” portal: Libraries and the Academy 5.2 (2005): 165-175. Project Muse. UNC-CH Davis Lib., 11 October 2005. and Stuart D. Lee, “Digitization: Is It Worth It?” Computers in Libraries (May 2001), ProQuest, NCLive. UNC-CH Health Sciences Lib., 15 October 2005.

curatorial methods permitting potential increases in access and an additional preservation tool.³ Museums, archives, and public libraries, collectively addressed in this paper as cultural heritage institutions, can create, through digitization, web exhibits that bring together previously disparate or multiple format materials, placing them within a context that was previously unachievable due to geographical distance or the physical condition of the artifact. Digitization also promotes preservation of an institution's assets by providing access to patrons through a digital copy while limiting damage due to handling of the original.

While the technology behind digitization is growing increasingly easier to implement due to emerging standards and cheaper high-resolution equipment, there are many more issues to consider when deciding whether to implement a digitization project than ownership of a digital camera and flatbed scanner. Digitization projects are costly and time-consuming enterprises.⁴ For cultural heritage institutions to receive the maximum return from their investment they must also take into account during the planning phase of a digital project: the needs of their users; the inherent value of their documents to their local community and global researchers; legal restrictions; the technical infrastructure needed to support the project; along with management and delivery of content.⁵

³ Penelope Kelly, "Managing Digitization Projects in a Small Museum," MA project, U. of Oregon, 2005, 15 October 2005 <<https://scholarsbank.uoregon.edu/dspace/handle/1794/937>>.

⁴ Humanities Advanced Technology and Information Institute (HATII), University Glasgow, and the National Initiative for a Networked Cultural Heritage (NINCH), "Preservation," The NINCH Guide to Good Practice in the Digital Representation and Management of Cultural Heritage Material March 2003, 15 Feb. 2006 <<http://www.nyu.edu/its/humanities/ninchguide/XIV/>>. Although the cost can vary widely depending upon the project's scope and the end use of the digital object.

⁵ Anne R. Kenney, Oya Y. Rieger, and Richard Entlich, Moving Theory into Practice –

This type of planning can be hard to do in a time of stagnant resources or skeleton staffing that is common in smaller institutions. Fortunately, small cultural heritage institutions are finding help from an increasing number of statewide and regional digital projects that have developed to further local digitization efforts.⁶ These statewide or regional organizations offer smaller cultural heritage institutions the resources needed to become involved in the digitization arena by providing educational support, standard procedures for technical and workflow considerations, and in some cases even funding.

North Carolina Exploring Cultural Heritage Online (NC ECHO) is one such statewide institution seeking to “create a digital project with state-wide infrastructure through federated relationships with partner institutions.”⁷ Founded in 1999, NC ECHO has created a centralized access point through the development of a web portal to the state’s cultural heritage agencies from Marvin Johnson’s Gourd Museum operated in Angier, North Carolina to the University of North Carolina at Chapel Hill’s highly regarded digital collection, Documenting the American South.⁸ However, the web portal is just one of NC ECHO’s multi-tiered set of goals. The other goals of the organization include: a comprehensive state-wide survey of all of North Carolina’s cultural heritage institutions, providing opportunities for continuing education for state cultural heritage

Digital Imaging Tutorial, 20 Feb. 2003, Cornell University Library, 3 October 2005
<<http://www.library.cornell.edu/preservation/tutorial/contents.html>>.

⁶ A list of statewide and regional digitization projects can be found at
<<http://www.mtsu.edu/~kmiddlet/stateportals.html>>.

⁷ Katherine Wisser, “Meeting metadata challenges in the consortial environment: Metadata coordination for the North Carolina Exploring Cultural Heritage Online,” Library Hi Tech 23.2 (2005): par. 1. Emerald UNC-CH Davis Lib., 1 March 2006.
The NC ECHO website can be found at <<http://www.ncecho.org/>>.

⁸ Marvin Johnson’s Gourd Museum <<http://www.twincreek.com/gourds/museum.htm>> and Documenting the American South <<http://docsouth.unc.edu/>>.

professionals, development of online tools and aids for digitization efforts, and a grant program with the dual aim of producing online content and promoting digitization skills in local cultural heritage repositories.⁹

The primary focus of this paper will be on NC ECHO's grant programs and specifically their EZ Digitization Starter Grant. This grant, funded by the Library Services and Technology Act (LSTA) grant program and managed by the State Library of North Carolina, is designed to give small museums, archives, and public libraries the boost they need to develop an internal capacity to digitize materials with the goal that these initial projects will eventually evolve into sustainable digitization programs.¹⁰ The purpose of this research paper is to assess the state of digitization in small cultural heritage repositories in North Carolina. Through interviews with past recipients of NC ECHO's EZ Digitization Starter Grant, we will see what types of planning they underwent, what resources they consumed (monetary and personnel), the sustainability issues considered, and how useful the statewide organization NC ECHO was to their project.

2. Literature Review

The conversion of an institution's cultural heritage objects to digital surrogates accessible to the world at large has become a symbol of institutional evolution. Although research value of the collection remains a prime motivation for digitization, many cultural heritage institutions also find themselves digitizing collections because they fear

⁹ Wisser, "Metadata challenges." par.1.

¹⁰ Kevin B. Cherry, "NC ECHO: More Than a Web Portal: A Comprehensive Access to Special Collections and Digitization Program," North Carolina Libraries (Online) 62.4, (2004) Library Literature and Information Science, Wilson Web, UNC-CH Davis Lib, 19 February 2006.

falling behind the larger repositories or because of the readily available grant funding.¹¹ Digitization also offers the benefit, in this age of interconnectivity and instantaneous access to information, of being a valuable public relations tool.

In his book Managing Historical Records Programs, Bruce Dearstyne said, “the Web *may well become* the first place to look for access to research information.”¹²

Published in 2000, it now seems safe to amend Dearstyne’s statement to “the Web *has become* the first place to look for access to research information,” especially for the younger generations.¹³ Web presence has come to be expected of organizations and institutions, based upon the prevailing tendency of the population to believe that everything is or at least should be available through the web.¹⁴ This current attitude is offered by Bhatnager as one of the disadvantages of digitization. According to Bhatnager, by increasing the ease of access to collections through the production of digital collections, cultural heritage institutions are creating high end-user expectations and feeding into the belief that everything is available online.¹⁵

¹¹ Matthew Kern, “Digital Neighborhoods: An Analysis of Local History Materials in the Digital World,” Master’s paper. U. of North Carolina at Chapel Hill, 2002, 17. and Lee 30.

¹² Bruce Dearstyne, Managing Historical Records Programs (Walnut Creek: AltaMira Press, 2000) 157. Emphasis added.

¹³ Cathy De Rosa, Joanne Cantrell, Diane Cellentani, et al., Perceptions of Librarians and Information Resources: A Report to the OCLC Membership (Dublin, OH: OCLC Online Computer Library Center, 2005): 29.

¹⁴ OCLC Marketing Staff, “2004 Information Format Trends: Content, Not Containers,” OCLC (2004): 5; 7, 7 April 2006 <<http://www.oclc.org/reports/2004format.htm>>

¹⁵ Anjana Bhatnagar, “Digitization in Academic Libraries,” Information Studies 12.1 (2006): 5.2.5, Library Literature and Information Science, Wilson Web, UNC-CH Health Sciences Lib., 16 March 2006.

2.1. Motivations for Digitization

Access has been a much-touted motivation for digitization. Digitization of an item offers many advantages, including simultaneous access to a resource, remote delivery of information directly to the end-user, flexibility in format, and 24/7 availability.¹⁶ It also allows for the enhancement of a physical object: photo editing software can augment a heavily scratched photo, while utilization of optical character recognition (OCR) software makes full-text searching possible. Digitization has also been promoted to funders as beneficial to the ever-popular K-12 audience. Abby Smith, in her article “Why Digitize,” talks about the advantageous effects of special collections for teachers and students:

Among the most valuable types of materials to digitize from a classroom perspective are those from the special collections of research institutions, including rare books, manuscripts, musical scores and performances, photographs and graphic materials, and moving images. Often these items are extremely rare, fragile, or, in fact, unique, and gaining access to them is very difficult. Digitizing these types of primary source materials offers teachers at all levels previously unheard-of opportunities to expose their students to the raw materials of history.¹⁷

Each institution has its gems, or as Smith puts it, their “raw materials of history,” from Duke University’s papyri collection to Concord’s Drum Legends Museum collection of drum kits, (including Gene Krupa’s) but should access alone to an underutilized collection be the motivator behind a digital project? The Society of American Archivists (SAA) took a position in 1997, stating: “it is a rare collection of digital files indeed that can justify the cost of a comprehensive migration strategy without factoring in the larger intellectual context of related digital files stored elsewhere and their combined uses for

¹⁶ Bhatnagar 5.1.

¹⁷ Abby Smith, *Why Digitize?* (Washington, DC: Council on Library and Information Resources, February 1999) <<http://www.clir.org/pubs/abstract/pub80.html>>.

research and scholarship.”¹⁸ Even though some of the costs surrounding digitization have decreased in the past decade, such as scanners, workstation equipment, and storage space, other costs such as personnel and long-term digital information preservation are either rising or not fully known.¹⁹

Digitization projects require significant time commitment from the staff. The physical act of scanning, usually the most time-consuming portion, is tedious and repetitive, and due to the variety of formats and conditions of the physical items housed in archival and special collections automation, is often not possible. As a result of the staff time and money involved, the economic viability of digital conversion projects is linked to their longevity.²⁰ The longevity of the product, in turn, is linked to the software and machines on which it resides, which are plagued by short media lives as new versions and developments are rapidly and continuously produced. Although there are strategies available to promote digital longevity, such as refreshing, emulation, and migration, they are not 100% proven to ensure the continued existence, accessibility, and authenticity of the information.²¹

¹⁸ The Society of American Archivists, “The Preservation of Digitized Reproductions,” (approved by the Society of American Archivists Council, June 9, 1997), <<http://www.archivists.org/statements/digitize.asp>>.

¹⁹ Shelby Sanett, “Toward Developing a Framework of Cost Elements for Preserving Authentic Electronic Records into Perpetuity,” *College and Research Libraries* 63.5 (2002): 389.

²⁰ Stephen Chapman and Anne R. Kenney, “Digital Conversion of Research Library Materials: A case for full information capture,” *D-Lib Magazine* (October 1996), Jan. 26, 2006 <<http://www.dlib.org/dlib/october96/cornell/10chapman.html>>.

²¹ Sanett, “Toward Developing a Framework” 389.

In 2004, the Association of Research Libraries (ARL) issued a statement supporting digitization as a reformatting strategy for preservation.²² In light of the issues listed above involving digitization and preservation, most archivists and special collections managers would be hesitant to take such a strong position supporting digitization as preservation. However, preservation is often another for implementing a digitization project. The main argument for digitization as preservation is that by having a digital surrogate of an object a repository can decrease access to that physical object, thereby limiting the risks involved with unnecessary handling and permitting the physical object to be stored in appropriate and secure archival storage areas.²³ Critics of this viewpoint contend that although improved access through digitization would appear to create an expectation that a reduction would occur in requests to see the physical item, early indications have shown that instead of decreasing demand the availability of digital surrogates creates fresh demand for the physical object.²⁴

In a 2002 article, Peter Astle and Adrienne Muir present their findings from a study of 20 United Kingdom public libraries and archives, investigating the institutions' awareness level of issues surrounding digital preservation and to what extent they have created policies to address these issues. What they found was a sharp disconnect in the practitioners' "mindset" that failed to make a link between digitization and preservation. When questioned about the preservation issue listed above of restricting public access to

²² Kathleen Arthur and others, "Recognizing Digitization as a Preservation Reformatting Method," (prepared for the ARL Preservation of Research Library Materials Committee, June 2004), 15 March 2006 <http://www.arl.org/preserv/digit_final.html>.

²³ Peter J. Astle and Adrienne Muir, "Digitization and preservation in public libraries and archives," *Journal of Librarianship and Information Science* 34. 2 (June 2002): 69.

²⁴ Astle and Muir 69.

the physical item once a digital surrogate is available, over half of the institutions (15 of 20) reported no formal policy for access restriction.²⁵ Given that preservation was ranked only behind access as a selection criterion, these results are leading Astle and Muir to observe “a lack of consistency between project objectives and outcomes regarding preservation.”²⁶ Following up on the preservation theme, the authors then asked if the institutions had a formal preservation policy and if it included digital preservation. Only 30% of the respondents had a formal preservation policy, but all of those policies excluded digitization. Another 30% of the respondents reported that a preservation plan was in progress but it was not possible to extract from the collected data the stage of the planning or whether the future plan would include digitization.²⁷

The other issue associated with digitization and preservation is long-term preservation of the created digital objects. Mentioned earlier in the literature review, digital objects are highly susceptible to obsolescence: access and performance can be impaired in as little as 5-10 years. Currently, there are strategies to promote digital longevity, such as refreshing, emulation, and migration, but they are not 100% proven to ensure the continued existence, accessibility, and authenticity of the information. Astle and Muir make the assumption that migration is the only realistic long-term digital preservation strategy for libraries and archives, so their long-term preservation questions center around migration. When asked if their library had a strategy in place to ensure the timely transfer (migration) of their digital files to another system in the event of changing

²⁵ Astle and Muir 76.

²⁶ Astle and Muir 76.

²⁷ Astle and Muir 76.

standards or technologies, 90% of the respondents said no.²⁸ The authors conclude that since 90% of the respondents do not have a migration strategy in place, long-term preservation was not even considered during the project planning or implementation phase. 40% of the respondents reported that they had a strategy in development, but that leaves 50% of the institutions with digital content possibly being “overtaken by events” given the rapid rate of technological advances.²⁹ To further test their participants’ assumptions regarding digital preservation, the authors asked their participants to estimate “How long before migration is likely to be necessary?” Given the responses recorded for the previous question, the majority response of 60% reporting “I don’t know” is not surprising. The remaining estimations were 25% for 3-5 years, 10% for 5-10 years, and 5% for 0-2 years. These numbers indicate a general lack of awareness concerning migration and possibly about digital preservation as a whole. One unquestioning respondent put their faith totally in the system, stating “The system is allegedly foolproof – we rely on the software company to take care of this.”³⁰

The notion that preservation is a major benefit resulting from digitization is one that does not appear to have been borne out in this study. Digitization had no definitive impact upon the demand for access to the original material. Four institutions reported that the demand remained the same, while the remaining institutions were divided between increase in demand, decrease in demand, and “Don’t Know”.³¹ Imposition of

²⁸ Astle and Muir 76.

²⁹ Astle and Muir 76.

³⁰ Astle and Muir 77.

³¹ Astle and Muir 75.

access restrictions, the other means by which digitization is reported to improve preservation, was not adopted by the majority of institutions in this study.³²

Abby Smith in her Council on Library and Information Resources report, “Why Digitize?,” warns of the “illusory” benefits of digitization based upon misconceptions surrounding the capability of the technology.³³ Her focus in this statement is mainly upon digitization’s cost, but as can be seen from the laissez-faire implementation of policies regarding access restrictions and preservation strategies in the Astle and Muir study, it can also be applied to the motivations for digitization. There seems to be a “build it and they will come” mentality or a “build it and the benefits will accrue” mentality contained within digitization. Creation of a sophisticated awareness of the capabilities of digitization is dependent upon continuing research into the issues surrounding digitization, (access, preservation, costs, benefits, legal concerns, standards and best practice guidelines) the dissemination of that research, and the practical hands-on experience of implementing a digitization project.

2.2. Digitization Costs

Funding for digitization projects, whether the end objective is access or preservation, is rarely written as a line item in an institution’s budget. Instead, most projects are funded through grants. Worldwide, funding agencies are promoting digital imaging and preservation as a major research topic, but so far the areas predominating in research have been the development of software and hardware to support the implementation of digital preservation, with little attention being paid to the funding of

³² Astle and Muir 78.

³³ Smith par. 3.

these projects.³⁴ There is danger in overlooking this area because although digitization is often perceived as expensive it is also, according to Abby Smith, frequently perceived as providing benefits that can be “illusory” due to raised expectations about the capability of the technology to reduce costs and improve efficiency.³⁵ And a misstep in evaluating the reality of the financial situation, warns Smith, could result in putting at “risk the collections and services libraries have provided for decades.”³⁶

Truthfully, the cost of digitization depends upon many factors, and therefore does not lend itself easily to generalizations. Britain’s Higher Education Digitisation Service (HEDS) has established three threads to quickly answer why the prices for digitization cannot be easily determined. The three threads answer “it depends” questions and look at: an institution’s desire for implementation of the information content of the originals; the institution’s balance between costs, technology and benefit goals, and most importantly, the nature of the original material.³⁷ As these factors will vary from institution to institution, it is imperative for intelligent planning to occur so that institutions, whether large or small, have a methodology in place to determine a realistic idea of costs.³⁸ The methodology needs to take into account the three HEDS questions above while also accounting for the key costs already identified with digitization such as

³⁴ Shelby Sanett, “Cost to Preserve Authentic Electronic Records in Perpetuity: Comparing Costs across Cost Models and Cost Frameworks,” *RLG DigiNews* 7.3 (August 15, 2003), 15 November 2005 <http://www.rlg.org/preserv/diginews/v7_n4_feature2.html>.

³⁵ Smith par. 3.

³⁶ Smith par. 3

³⁷ Simon Tanner and Joanne Lomax Smith, “Digitisation: How Much Does It Really Cost?” *Paper for the Digital Resources for the Humanities 1999 Conference, September 12-15, 1999* <<http://heds.herts.ac.uk/resources/papers/drh99.pdf>>.

³⁸ Sanett, “The Cost to Preserve” par. 15.

data creation, data selection and evaluation, data management, resource disclosure, data use, data preservation, and rights management.³⁹

There are cost models that have been developed over the past few years for the preservation of electronic materials that consider a variety of ways to determine the direct and indirect costs. These models look at digitization from an assortment of angles, including Tony Hendley's costs related to the lifecycle of records, the costs associated with a particular project as developed by Shelby Sanett, and models that identify elements of the digital preservation process as discussed by Kelly Russell and Ellis Weinberger.⁴⁰ There are a variety of cost models because no one method of cost analysis meets the needs of all institutions.⁴¹ A good cost analysis plan will begin by determining the institution's main objectives. From there the costs incurred will be balanced against the benefits accrued, and analyzed against the mission of the institution. This is essential because the data collected can answer questions concerning "appropriateness of cost," although the answer to this question always depends on *who* is doing the judging.⁴² Typical questions concerning appropriateness of cost include determining whether an institution should undertake a digitization project or program in the first place. Cost analysis can also help discover whether there are alternative (i.e. cheaper) processes, or it

³⁹ Sanett, "Toward Developing a Framework" 390.

⁴⁰ Sanett, "The Cost to Preserve" par.4.
For examples see Tony Hendley, "Comparison of Methods and Cost of Digital Preservation" <<http://www.ukoln.ac.uk/services/elib/papers/tavistock/hendley/hendley.html>>; Shelby Sanett, "Toward Developing a Framework of Cost Elements for Preserving Authentic Electronic Records into Perpetuity," College & Research Libraries 63.5 (September 2002): 388-404; and Kelly Russell and Ellis Weinberger, "Cost Elements of Digital Preservation," <<http://www.leeds.ac.uk/cedars/documents/CIW01r.html>>.

⁴¹ Martin M. Cummings, "Cost Analysis: Methods and Realities," Library Administration and Management 3 (Fall 1989): 181-183.

⁴² Cummings 181-183.

may identify effective procedures.⁴³ A point to remember when considering the costs of a digitization project is that “digitized collections typically represent less than 1% of total holdings.” Therefore their creation and maintenance costs will be disproportionate to the resources devoted to the maintenance of the rest of the collection, and cultural heritage institutions must decide on a case-by-case basis if that is a suitable situation for their institution.⁴⁴

2.3. Project Planning

Given the many components of a digitization project, (costs, technology, staff time, access, and preservation issues) comprehensive project planning is essential to the success of the project. Digitization projects, like the institutions that create them, come in all shapes and sizes, with different users and resources at their disposal, so there is no one-size-fits-all project plan. But by making sure that the digital project is situated within the goals and missions of the institution and by laying out a clear project focus and goals, arrival at a desired destination is more assured.⁴⁵

Ideally, the planning of a digitization project should begin with the considerations of the users and the material(s) to be digitized. Identification of current and potential users will inform and help determine many aspects of an institution’s project plan including selection of materials, the standards to which the material is digitized, and the design of the online presence. The materials selected will also influence aspects of the project plan. For example, items that are fragile may not be suitable for vendor

⁴³ Cummings 181-183.

⁴⁴Astle and Muir 74.

⁴⁵ Katherine Wisser, ed., NC ECHO Guidelines for Digitization, (2005 ed.), 9-10.
<<http://www.ncecho.org/Guide/toc.htm>>

outsourcing, may be susceptible to bright lights emitted from certain scanners, or adversely affected by the physical handling required during the scanning process.

Questions that need to be addressed during this initial planning period include:

- Are scholars now consulting the proposed source materials?
- Are the materials being used as much as they might be?
- Is the current access to the proposed materials so difficult that digitization will create a new audience?
- Does the physical condition of the original materials limit their use?
- Will digitization address the needs of local students and scholars?
- Will the materials be a mixture of formats (such as manuscripts, maps, photographs, etc.)?
- Will items require special treatment or handling?
- Will the material be digitized from the original or from a surrogate (e.g., a photograph of the object or photocopy of the fragile manuscript)?
- How much time will be involved in physical preparation of the material to be digitized?⁴⁶

Once the audience and the material have been identified, the focus of the planning should then turn toward digital production, scanning, and providing metadata.

Digitization has come to an age where standards and best practice guidelines for scanning procedures and metadata creation have been established by the large institutional pioneers of the mid-1990s. Although now defunct, the National Initiative for a Networked Cultural Heritage's best practice guidelines The NINCH Guide to Good Practice in the Digital Representation and Management of Cultural Heritage Materials (2003) is still an important resource that lists technological and management work flow standards.⁴⁷ Cornell University Library, another digitization pioneer, has developed a web-based best practices tutorial called Moving Theory into Practice – Digital Imaging

⁴⁶ Dan Hazen, Jeffrey Horrell, and Jan Merrill-Oldham, Selecting Research Collections for Digitization, (Washington, DC: Council on Library and Information Resources, August 1998) <<http://www.clir.org/pubs/abstract/pub74.html>>. and Wisser, NC ECHO Guidelines 11.

⁴⁷ NINCH <<http://www.nyu.edu/its/humanities/ninchguide/>>.

Tutorial.⁴⁸ These resources offer smaller cultural heritage institutions the chance to become involved in the digitization arena by piggybacking upon the experience of previous initiatives. Smaller institutions can then avoid the costly expenditures associated with the trial and error phase that accompanies new technologies.

However, these standards and best practice guidelines were developed with ideal circumstances and configurations in mind, and therefore may not address specifically the varied needs and interests of small cultural heritage institutions. The problem then becomes downsizing the scope and scale of the ideal project presented in the best practice guidelines and standards to a workflow that is practicable for a smaller institution, while keeping in mind that the aim for any institution is to strive for the highest level of quality that the institution can afford.⁴⁹ Another problem with digitization best practice guides and standards is that due to the rapid pace of technology development they tend to adjust frequently, and this is when statewide and regional digital projects such as NC ECHO are particularly helpful.⁵⁰ The local nature of regional and statewide projects allows them to be more in tune with the needs of their participating institutions, and they can therefore serve as an interpreter between the constantly changing standards and their constituents by tailoring their continuing education offerings, project specifications, and funding opportunities.

⁴⁸ Available at <<http://www.library.cornell.edu/preservation/tutorial/>>.

⁴⁹ Wisser, [NC ECHO Guidelines](#) 33.

⁵⁰ Wisser, [NC ECHO Guidelines](#) 13.

2.4. North Carolina Exploring Cultural Heritage Online (NC ECHO)

One example of tailoring programming to meet the needs of the constituent is NC ECHO's sponsorship of the EZ Digitization Starter Grant. The Starter Grant is specifically designed to give small museums, archives, and public libraries the boost they need to develop an internal capacity to digitize materials by providing funding for the purchase of equipment.⁵¹ The target library for this program is one whose staff has little or no digitization experience, lacks some or all of the necessary equipment, and has unique materials that have previously been arranged, described, or cataloged, and are adequately stored.⁵² Grant recipients of the EZ Digitization Starter Grant are required prior to implementing the grant to attend an intensive, week-long NC ECHO Digitization Institute sponsored by the State Library. This digitization "boot camp" exposes one staff member from grant recipient institutions to a complete overview of the process of digitization – project planning, basic scanning techniques, metadata creation, copyright, web design, and creation of online context.⁵³ Besides supporting the success of the EZ Digitization Starter Grant program, the Digitization Institute also supports another goal of NC ECHO by providing an opportunity for continuing education for state cultural heritage professionals. The funds provided under the Starter grant, up to \$8000, are solely for the purchase of equipment and supplies to support digitization.⁵⁴ With these

⁵¹ Cherry par. 16.

⁵² "NC ECHO EZ Digitization Starter Grant 2006-2007 Information & Guidelines" 2006-2007 LSTA Grant Program, LSTA State Library of North Carolina, Dec.28, 2005, 20 March 2005 <<http://statelibrary.dcr.state.nc.us/lsta/2006-2007Grants.htm#Applications>>.

⁵³ "NC ECHO Continuing Education Initiatives," NC ECHO, October 28, 2005, NC ECHO, 22 March 2006 <http://www.ncecho.org/conted/continuing_education_template.asp>.

⁵⁴ NC ECHO, "Digitization Starter Grant Information & Guidelines" 1.1.

funds the recipients are expected to create a digital project, composed from materials already owned by the cultural heritage institution, and make it available over the Internet.⁵⁵

Not only does NC ECHO offer the EZ Digitization Starter Grant and the Digitization Institute to get inexperienced institutions involved and up to speed in the digital arena, but it has also published the NC ECHO Guidelines for Digitization that breaks down the process of a digitization project step-by-step. Through its multi-tiered goals of encouraging continuing education for professionals, providing online aids and tools, creating an online portal, and providing funds through its grant program, NC ECHO has provided a gathering place for North Carolina cultural heritage institutions.

There is scant literature available that specifically addresses digitization efforts in small cultural heritage institutions. However, even without this specific guidance these institutions are creating digital projects whether by grassroots efforts, collaborations with other institutions, or through participation in regional or statewide digital initiatives. Due to the many factors involved with digitization, (costs, technology, staff time, access, and preservation issues) small cultural heritage institutions encounter many issues and challenges. This study was devised to discover the common practices and obstacles encountered by NC ECHO EZ Digitization Starter Grant award recipients' cultural heritage institutions during digitization, in the hopes of improving digitization guidelines by making them more responsive to the current practice of digitization as experienced by these institutions.

⁵⁵ NC ECHO, "Digitization Starter Grant Information & Guidelines" 1.1.

3. Methodology

In order to discover the common practices and obstacles experienced by small cultural heritage institutions, five practicing archivists who had recently completed a digitization project were interviewed: Janet Edgerton of North Carolina Museum of Natural Sciences, Arthur Erickson of Greensboro Public Library, Gwendolyn Erickson of Guilford College, Pam Price of Albemarle Regional Library, and Ted Waller of Meredith College. All five of these institutions were NC ECHO EZ Digitization Starter Grant recipients from the award year of 2004-2005. The assumption made by this study is that due to the targeted nature of the guidelines for the EZ Digitization Starter Grant (staff with little or no digitization experience and lacking some or all of the necessary equipment) the recipients of the grant would most likely be small to mid-sized institutions.

E-mail invitations to participate in the study were sent to grant recipients from the award years 2003-2004 and 2004-2005 with the thought being that these institutions would have completed the project outlined in their grant, would have a physical product available to view, and would have had time to reflect upon the process. In total eight invitations were sent, three to the 2003-2004 award cycle recipients and five to the 2004-2005 award cycle recipients. Seven responses were received: six acceptances and one who declined to participate. The first five respondents were chosen. Due to the limited time frame of this study five interviews were deemed as the most that could be accomplished. They were conducted in person at a location of the participant's choosing, most often at their institution. The interview questions were divided into six main categories: motivation, project planning, costs, sustainability and evaluation, support, and

future plans, the goal being to achieve an overall description of their digitization procedures and processes. The interview schedule, recruitment letter, and consent form may be found in appendices A-C of this report.

4. Interview Results

The materials digitized consist of a variety of formats representing a unique collection from each of the participating institutions, including a collection of 100 dolls collectively created by each graduating class over the years (Meredith College), photographs capturing the “collective visual memory” of more than 100 years of life in rural northeastern North Carolina (Albemarle Regional Library), archival materials covering the life and career of Greensboro native and author O. Henry, (Greensboro Public Library), correspondence from the John B. Crenshaw Papers concerning the experience of North Carolina Friends (Quakers) during the Civil War, and the acquisition of whale skeleton nicknamed “Trouble” (H.H. Brimley Library at the North Carolina Museum of Natural Sciences).⁵⁶ The participants’ responses to the interview questions concerning the digitization process are summarized and presented below around the themes of motivation, project planning, costs, sustainability and evaluation, support, and future plans.

4.1. Cultural Heritage Institution’s Motivation(s) for Digitization

The prime motivation that is typically cited for digitization projects is increased access, and it rang true for this study as well, as three of the institutions interviewed quoted access as a motivation. Pam Price (Albemarle Regional Library) believed that

⁵⁶ Meredith College’s Margaret Bright Doll Collection available at <http://www.meredith.edu/library/archives/dolls/doll_main.htm> and Albemarle Regional Library’s Paul Ronald Jenkins Photograph Collection available at <<http://www.albemarle-regional.lib.nc.us/specialcollections/digitizationprojectshomepage.htm>> For a more detailed description of each project consult Appendix D.

publication of the collection was important because it would allow more people to use the materials.⁵⁷ Gwen Gosney Erickson (Guilford College) intentionally picked a collection in “fairly high demand” that she wanted to disseminate to a wider audience.⁵⁸ The other motivation that received a majority, three out of five mentions, was public relations. Arthur Erickson (Greensboro Public Library) spoke of the enthusiasm of his library director for digital projects, saying: “she recognizes the public relations value of them.”⁵⁹ He extrapolates that the library director “recognizes the fact that city councils and other funding types look happily upon this sort of thing,” and while he concludes that neither the director nor the funding bodies particularly understand the process or issues surrounding digitization, they understand its “political nature” and recognize its “clout.” Arthur Erickson also made the observation that the very idea of providing access to materials online and thereby to the world at large speaks “very strongly to the idealistic, information for all” strain that runs through a segment of librarianship, and is one that also appeals to his library director, illustrating the almost symbiotic relationship between public relations and access.

Ted Waller (Meredith College) also received endorsement for the digitization project from his library director. He admits that they initiated the project in a “backwards” manner by hearing about the grant first and then creating a project to fulfill

⁵⁷ This and all other statements attributed to Pam Price, Systems Administrator, Albemarle Regional Library, are from a personal interview, 15 March 2006.

⁵⁸ This and all other statements attributed to Gwen Gosney Erickson, Librarian, Friends Historical Collection, Hege Library, Guilford College, are from an interview, 24 March 2006.

⁵⁹ This and all other statements attributed to Arthur Erickson, Genealogy Librarian, Greensboro Public Library, are from a personal interview, 17 March 2006.

the grant requirements, since as the director said, “the money is out there.”⁶⁰ Luckily, Waller had an idea that had originated a couple of years before when he was attending an NC ECHO county show and tell of local cultural heritage institutions. The response and enthusiasm exhibited by the audience to Meredith College’s doll collection made him consider putting photographs on the web, but when the digitization grant came along everything “fell into place” as all the facts pointed to undertaking this project.

The EZ Digitization Starter Grant comes with the stipulation that it only provides money for equipment creating another incentive for institutions to apply. Arthur Erickson and his co-grant recipient were personally motivated to come up with a project that would justify the purchase of a microfilm scanner for their department. They developed a project to digitize the archival materials of Greensboro native and short story author William Sydney Porter, a nationally prominent author of the early 20th century, known more commonly as O. Henry. They worked collectively with the Greensboro Historical Museum, the *Greensboro News and Record*, and with other holders of O. Henry materials to create a comprehensive web portal.

Another oft-touted motivation for digitization is preservation, achieved by reducing access to the physical item once the digital surrogate has been created or through the long-term preservation of the digital object itself. Surprisingly, preservation was only specifically mentioned as a motivation by two of the five institutions. The study by Astle and Muir described in the literature review found that preservation was second only to access as a selection criteria for digitization. In this study access tied with

⁶⁰ This and all other statements attributed to Ted Waller, Technical Services Librarian, Meredith College, are from a personal interview, 29 March 2006.

public relations, a criterion that was not even listed in the Astle and Muir study.⁶¹ Of course, the scope of this project is much too limited to make any definitive judgments, but it is interesting to note the impact of public relations as a motivator for these institutions' digitization projects.

The Astle and Muir study also points out that even though preservation was listed as a motivator, the institutions rarely followed through with formal written access restriction policies or migration strategies.⁶² This appears to remain true for the institutions in this study. No repository indicated a formal written policy to reduce access to an object once it had been digitized. Janet Edgerton was the only interviewee to specifically point out that the informal practice would be to encourage preservation by access restriction promoting online use as a first step, and granting researchers librarian-mediated access to the physical material when warranted by the circumstances.⁶³ Just as no formal preservation policies followed digitization, no formal preliminary needs assessment (survey of researchers' needs or cost-benefit analysis) was done prior to the project. When questioned about conducting a needs assessment most institutions cited anecdotal evidence such as "notice of local increased interest," popularity or multi-generational interest in an object, or the intense interest of hobbyists. Gwen Gosney Erickson was the only participant to state that she based the need for the project on an empirical method by consulting the user records of the archive. In selecting the

⁶¹ Astle and Muir 73.

⁶² Astle and Muir 75-76.

⁶³ This and all other statements attributed to Janet Edgerton, Chief Librarian H.H. Brimley Library, North Carolina Museum of Natural Sciences, are from a personal interview, 16 March 2006. By "informal" I refer to a practice that is not committed to a formal written policy. When the staff size of an institution is limited to one or two persons, as is the case in the majority of the organizations interviewed a formal written policy may seem unnecessary; however, the commitment of a policy to writing helps establish consistency in implementation and in times of staff transitions.

collection to be digitized she chose a collection that the records showed had received multiple uses over the recent years. She also partly based her decision on hearing from various interested parties.

4.2. Project Planning

Because the NC ECHO EZ Digitization Starter Grant was developed with institutions that have little or no digitization experience in mind, one of the grant's conditions is that recipients must attend NC ECHO's Digitization Institute. The institute is a week long workshop that breaks down the planning for a digitization project, covering basics such as scanning techniques, metadata creation, copyright, web design, and creation of online content. Participants in the study were asked if they had attended the Digitization Institute before or after the receipt of the grant to see if the timing of attendance at the Institute affected project planning.

All five of the institutions attended the Digitization Institute before they received the grant. When asked if the Institute was helpful in preparing them for the project, the response was overwhelmingly affirmative. Pam Price describes the Institute as being "extremely helpful," opening her eyes to all the factors that are involved in complying with standards and learning "how to do it right." Gwen Gosney Erickson talks about the benefits of attending the Institute as a solo archivist. "It gave me concentrated time to think about digitization issues," she said, adding: "it was nice to get away and be able to bounce ideas off of colleagues."

Some of the grant recipients had attended the Digitization Institute a couple of years before beginning the project. Although they found it helpful by the time they had begun their latest project, the knowledge and experience gained from the Digitization

Institute had little direct influence because they were using different technologies and production methods. Repositories in this situation often found themselves starting from scratch. The largest library surveyed (Greensboro Public Library) already had experience with digitization, as their representative at the Digitization Institute had previously attended workshops on the subject of digitization and was familiar with the factors involved.

NC ECHO recommends that the scope of an institution's first digitization project be kept small. Digitizing everything should not be a goal; instead they recommend "undertaking an achievable digital project that will serve as a foundation for a digital program."⁶⁴ Time is a major component of a digitization project, and since the grant cycle for the Starter Grant is only a year, the time frame can be tight if too much is taken on. Two of the five institutions identified their project's scope as being slightly ambitious. However, both of these project managers alluded that the problem does not lie with the number of items digitized but with the "various things that need to be done to present these materials."⁶⁵ At the time of this study, 10 months after the final funds were to be expended and 7 months after the final report was due to the State Library, three of the five projects do not have an online product accessible to the public.⁶⁶

The hindrance in the production appears to be located within Information Technology (IT) services. Cultural heritage repositories that rely on external or

⁶⁴ Wisser, NC ECHO Guidelines 33.

⁶⁵ Gwen Gosney Erickson interview.

⁶⁶ All funds expended by June 30, 2005 and Final report due to the State Library September 30, 2005. "NC ECHO EZ Digitization Starter Grant 2004-2005 Information & Guidelines," 2004-2005 LSTA Grant Program LSTA, State Library of North Carolina, Jan. 20, 2006, 20 March 2006 <<http://statelibrary.dcr.state.nc.us/lsta/2004-2005Grants.htm>>.

institutional IT departments are dependent upon the webmaster's schedule. Janet Edgerton relates that in advance they knew it would be difficult finding the time to get the IT people involved, as there is only one webmaster for the entire museum. Currently she is hoping to have a product accessible online this summer. Arthur Erickson and colleagues also experienced a problem in uploading their digital project (the O. Henry portal) due to an impending change in Greensboro's web interface. Since the Greensboro Public Library is operated as a department within the city of Greensboro, during the grant cycle year the city decided to implement a uniform web interface for all city departments. The final decision about the look of the interface was delayed for a full year; during that time the library webmaster declined to put new content on the library webpage because it was not worth the effort, since the entire interface was facing impending change. In the intervening time, one of the librarians for the O. Henry portal created a portal, but it is not live because it does not comply with the new city standards.

The institutions that did not have to contend with levels of bureaucracy and external IT services for web design have their projects online and accessible to the public. Not surprisingly these are the two repositories (Albemarle Regional Library and Meredith College) that when asked what was easy about the entire digitization process cited web site development. Workflow was also viewed as easy by the majority of the institutions. Janet Edgerton appreciated the straightforward language of the grant application especially, as she was a first-time grant writer.

The aspects of the digitization project that the repositories listed as hard or troublesome harken back to the complications described above of coordinating IT services. The initial establishment of workflow procedures also presented early

stumbling blocks for institutions, but once the procedures were ironed out workflow became one of the easier components. Ted Waller spent two to three months organizing the technical production aspects of the Meredith College class doll collection. The Meredith College exhibit is unique in that the images of the dolls can be viewed from 360 degrees.⁶⁷ The technical details required to produce the images necessary for the full 360-degree viewpoint took a great amount of trial and error, as additional supplies such as a turntable, specific photographic lighting, tripod, and remote shutter had to be purchased. Procedures also had to be developed concerning backdrops, creating a stable perpendicular position for the dolls, and coordinating transportation of the dolls from their exhibit to the project room.

Despite these hardships two of the interviewees reported that it was the challenge of the project and the opportunity to do something new and unique that they most enjoyed. Ted Waller commented that the digitization project was something “new for us... that we hadn’t done before, which I always like because it stimulates the work environment.” Both he and his staff learned a great deal during the project and were gratified by the overwhelming positive response and the knowledge that all the hard work paid off. Janet Edgerton appreciated the availability of the NC ECHO staff for metadata consultation and general support the most. The major component of the project that was disliked by all the interviewees was the fact that funds from NC ECHO’s EZ Digitization Starter Grant could not be used to pay for staff time, nor to hire additional help. All institutions mentioned the time constraints of taking on a digital project while still performing their regular duties. For Gwen Gosney Erickson this was the aspect that she

⁶⁷ For the Meredith College virtual reality doll production procedure see http://www.meredith.edu/library/archives/dolls/doll_project_procedure.htm/

was most averse to, stating “I disliked that I could not focus on [the project] the way that I would have liked due to other demands on my time.”

Unforeseen events always crop up. Initial technical difficulties, as experienced by Ted Waller, or an effective moratorium placed upon the creation of new web content, as experienced by Greensboro Public Library, are examples of common stumbling blocks that may appear out of nowhere. Other surprises whether of the good kind or the problematic, can occur in the form of volunteers. The schools (Meredith College and Guilford College) had a distinct advantage over the libraries and museum in that they had a pool of relatively low-wage workers from which they could derive additional help. Gwen Gosney Erickson of Guilford College was able to employ a student intern and other students who genuinely got excited about the project. In fact, the student intern applied to graduate school to focus on public history as a result of the experience.

The H.H. Brimley Library at the North Carolina Museum of Natural Sciences had a different experience with volunteers. They had anticipated using volunteer labor, but the plan never materialized. Janet Edgerton believes it is because the digitization process never got to a point of assembly-line production. So many issues and complications came up involving the workings of the scanner (whether or not it wanted to work that day) or the NC ECHO guidelines for master scans, access images, and thumbnails. She relates, “We changed our minds so many times that Margaret and I didn’t feel like we could give up control” to the volunteers because “we didn’t understand well enough ourselves what we were asking so it would be hard to sit [the volunteers] down and say ‘do this’.”

4.3. Digitization Costs

The cost of digitization depends on many factors, but since the EZ Digitization Starter Grant provides up to \$8,000 for the furnishing of equipment, the actual costs of the digitization were not an issue for the five cultural heritage repositories. All of the institutions were fully funded by the NC ECHO grant, although the North Carolina Museum of Natural Science did supplement incidental office supplies and IT supplies and services for their project. The up to \$8,000 award was found to be adequate across the board, allowing the repositories to purchase the “best equipment that they could.” Ted Waller relates that NC ECHO encouraged him not only to acquire the best equipment possible but to also purchase “everything that [he] could possibly need.” After beginning the project, he discovered that it required some supplemental materials such as a camera bag, light bulbs, and camera shutter release. All of these items were added to the grant budget and covered by NC ECHO.

Problems with acquiring equipment occurred when the institutions had to work within their own institutional bureaucracy. Arthur Erickson encountered this problem in purchasing a microfilm scanner with NC ECHO funds. The grant team at Greensboro Public Library found themselves completely isolated from the money funded by NC ECHO. The Greensboro Public Library is viewed as a city department within the city of Greensboro, and therefore all money received through the grant was “viewed as city money” and handled by the city purchasing office. The purchase was sent out to bid and it was six months later when the library finally received the microfilm scanner. The scanner purchased by the city of Greensboro was virtually what Arthur Erickson had requested, although not exactly the same machine; it was \$225 cheaper. This extra \$225

then created problems with NC ECHO compliance because “they don’t like excess money” and “they don’t like amendments,” so he had to find a way to spend the extra \$225 by securing cooperation from both NC ECHO and the city of Greensboro. Arthur Erickson estimates he spent approximately 20 hours resolving that issue, meaning that the majority of his man hours spent on this project were involved in the settlement of how to spend \$225.

Janet Edgerton of the H.H. Brimley Library at the North Carolina Museum of Natural Sciences experienced a similar although less complicated variety of bureaucratic procedures. She also had all the funds necessary to purchase the desired quality of equipment, but by the time the different levels of approval within her institution were navigated and signed off on the machines that they had initially requested were no longer available. So they ended up purchasing different machines of similar quality.

The actual costs of the digitization (computers, scanners, cameras) were well covered by the up to \$8,000 allocation of the EZ Digitization Starter Grant; however the human labor hours are not covered by the grant. When asked if their perceptions concerning costs were in line with their expenditures, and what they wished they had known about digitization costs before going into the project, the majority answer was that the time expended by the staff was a concern. Gwen Gosney Erickson felt that the vast amount of time needed for supervision and final implementation of the project was not presented in the grant application, and since the grant did not fund any additional staffing, this created a time crunch in the normal workflow of day-to-day operations. Such conditions have the potential to place the cultural heritage institutions in a position where some aspect or aspects of the operation will need to be scaled back, whether it is the

digital project itself or the day-to-day operations including public services, preservation, or processing.

4.4. Sustainability and Evaluation

NC ECHO advocates that the creation of digital surrogates in no way alleviates the need for traditional preservation strategies performed on the physical object. Instead, the creation of digital objects only presents a new arena ripe with additional preservation concerns.⁶⁸ A digital medium's longevity is linked to various factors including the type of media it is stored on, (CD, DVD, tape, etc.), the frequency and manner in which it is handled, and its storage conditions. It is important to remember that due to rapidly changing media formats and technologies no digital format is permanent or archival.⁶⁹

NC ECHO recommends the following storage standards:

- Master files stored on CD-R
- CD names are simple date/time stamps (e.g., 19990412_1628)
- ISO 9660 standard is used as strictly as possible⁷⁰

All the institutions had created master images and backed up their projects to CDs. Two institutions (Guilford College and Albemarle Regional Library) mentioned that their back-up CDs were stored or soon to be stored in a media safe. Three of the five repositories acknowledged the need for long-term preservation of the digital formats, but Pam Price of Albemarle Regional Library was the only one to indicate that they have in place a plan to migrate master images as the technologies change. Ted Waller and Janet Edgerton have the development of a long-term digital preservation policy on their future

⁶⁸ Wisser, NC ECHO Guidelines 71.

⁶⁹ Wisser, NC ECHO Guidelines 76.

⁷⁰ Wisser, NC ECHO Guidelines 80.

project lists. Ted Waller comments, “Certainly with the investment of time and money we put into this we would want to [develop a long-range preservation policy for digital objects].” However he cites time as the major factor as to why this has not yet been completed. “This was the big project for a year,” he said, “and when it was completed we were ready and we needed to move on to some other things.”

Evaluation is often the final step in a digitization program. It is a chance to reflect about the process of the project, what went well, and what processes and procedures could have been more efficient. It is also a time to present your final product to its audience, and receive their reaction. As mentioned earlier three of the five institutions do not currently have a digital product that is accessible to the public, so they have yet to perform an evaluation. The two cultural heritage repositories that do have a live and accessible site are Albemarle Regional Library and Meredith College.

Pam Price created a web survey to accompany the online presentation of the Paul Ronald Jenkins Photograph Collection.⁷¹ Composed of 15 questions, the survey mixes radio buttons with comment boxes aimed at ascertaining viewers’ reasons for and frequency of visits, and their opinions about the content, design, and usability of the website. They have received approximately 40 responses, all positive, including some responses from residents of other states, including a response from a New Jersey couple who had grown up in Murfreesboro and was thrilled to stumble over the library’s digital representation of the town’s history. Ted Waller did not conduct a survey, but instead relied upon web statistics to evaluate the response to Meredith College’s Margaret Bright Doll Collection. The web statistic software allows them to track users when they come to

⁷¹ Survey – Paul Ronald Jenkins online photograph collection available at <<http://www.albemarle-regional.lib.nc.us/specialcollections/jenkinsphotographs/prjsurvey2.htm>>

the library website, logging number of uses, path of entry, and even the search terms utilized. What he has discovered is that a wide range of search strings will lead individuals to the doll collection page. This has boosted the visibility of the entire archival website; pages that are totally unrelated to the doll collection have experienced a spike in hits. They are receiving double or even triple the amount of views as individuals gain access to the doll collection and continue to explore other pages.

4.5. Support

It is important when entering into a long-term project to have the support of the parent institution. Grant projects are time- and resource-intensive, and the executors of the grant need all the support they can garner. While the support for the attainment of the grant was widespread among all the repositories, the actual involvement of other library individuals in the application of the grant was limited.⁷² Gwen Gosney Erickson echoes a similar sentiment, stating “yes, all were very supportive of the grant... except for the fact that I am in an environment where everyone is so overworked it is difficult to clear space to focus on the grant project.” She latter goes on to say “I don’t think I realized how hard it would be to juggle everything.”

The institutions also had another support mechanism that they could call upon when they needed help or direction, NC ECHO. Most of the institutions used this service at some point during the process whether it was to resolve a question involving mechanics, to receive help with adding supplemental items to the budget, or figuring out how to spend \$225. Whatever the question, all of the repositories responded that NC ECHO was at all times supportive and helpful. Ted Waller summed up the

⁷² Arthur Erickson interview.

overwhelming response of the repositories by stating, “We are very fortunate to have that group here.”

This overarching appreciation for NC ECHO notwithstanding, the participants still had some suggestions that NC ECHO could implement to make the process easier. Ted Waller wanted to see NC ECHO expand what is covered by the grant to include staffing costs. He relates that “small colleges, especially, have a hard time finding people with the expertise, skills, or ability to learn the skills” necessary to do something that is really innovative. Speaking from the perspective of a librarian, Arthur Erickson feels that although NC ECHO’s requirements follow archival doctrine, its emphasis on the purchase of high end, state-of-the-art equipment to produce state-of-the-art images is misplaced, and that a “mediocre machine” can provide a pretty good image, resulting in an acceptable project. Janet Edgerton would like to see NC ECHO offer more guidance or structure regarding the mechanics of the digitization workflow. She would also like to see them set a clearer list of requirements for the outcome of the final project, stating “I am not sure how I know if I have met their requirements.”

4.6. Project’s Effect on the Cultural Heritage Repository Institution and Future Plans for Digitization

The equipment that was purchased for the grant project continues to have an impact on the institutions. Janet Edgerton relates that the library has now become the de facto scanning lab for the museum, and Gwen Gosney Erickson reports that the acquired equipment has been useful for other departmental needs. The two institutions that have a public-accessible project point to the positive feedback that the projects have received both from their colleagues and from the community.

Plans for future digitization projects vary from institution to institution. Most of the repositories want to improve upon and/or expand their current project, but for the majority these modifications had to be put on hold while they caught up on activities that received scant attention during the digitization project. Albemarle Regional Library is the only institution that currently has a volunteer working on the preparation for the expansion of their project. Ted Waller has no immediate plans to add to Meredith College's digital offerings, but admits that "nowadays you have to be thinking about [digitization] all the time because they are so useful to have." Janet Edgerton would like to continue offering digitization of archival materials for other popular museum exhibits, and the Greensboro Public Library has written digitization into its short-term and long-term departmental library work plan.

5. Analysis and Conclusions

Digitization literature, best practice guidelines, standards, and online tutorials have allowed smaller cultural heritage institutions to "piggyback" on the experience of larger institutions.⁷³ However, the digitization workflows, adherence to standards, and best practice guidelines advanced by the literature often do not address the specific constraints faced by smaller institutions, such as limited budgets, overworked staff, inadequate equipment, or lack of the necessary technical skills. Through programs such as NC ECHO, small cultural heritage institutions are getting the opportunity to develop in-house digitization operations. By interviewing past recipients of the NC ECHO EZ Digitization Starter Grant, this study was devised to discover the common practices and obstacles encountered by award recipients during digitization in the hopes of improving

⁷³ For examples of best practice guidelines and digitization tutorials see The National Initiative for Networked Cultural Heritage <<http://www.nyu.edu/its/humanities/ninchguide/>> and Cornell's *Moving Theory Into Practice* available at <<http://www.library.cornell.edu/preservation/tutorial/>>.

digitization guidelines by making them more responsive to the current practice of digitization as experienced by these institutions.

A problem expressed by all the digitization managers interviewed was that the Starter Grant did not provide funding for staff. The average number of permanent staff members assigned to the digital project at each institution was two. Some projects were able to secure supplementary help in the form of student interns or volunteers, but in most cases the projects were executed by pairs who were still responsible for their full time duties. In the case of Greensboro Public Library, Arthur Erickson estimates that 300-400 hours were spent on the project, and at a “salary of \$30,000 a year that is real money” provided by the institution.⁷⁴ The scanning for the O. Henry portal was incorporated into the normal workflow by spending a couple of hours each day scanning objects during the down shifts. Erickson admits that if they had not been working on the digitization project then they would have been working on something else.

Should NC ECHO’s EZ Digitization Starter Grant provide funding for staffing?

A discussion about whether or not NC ECHO should provide staff funding must be balanced with the knowledge that NC ECHO is supported by the Institute of Museum and Library Services (IMLS) under the provisions of the federal Library Services and Technology Act (LSTA), as administered by the State Library of North Carolina, and may not have any control over this issue. The Starter Grant has been specifically designed to be an entry level step into digitization, imparting hands-on experience and providing equipment for the digital production. Is NC ECHO’s stance of not funding staffing costs for the EZ Digitization Starter Grant a way to fully implement a learning

⁷⁴ The total hours working on the project were shared by two individuals although the division of time was not equal between the two individuals.

experience? Ted Waller brought up a similar query when asked what aspect of the project he disliked. He was most averse to the fact that NC ECHO did not pay for staffing, stating “I don’t know whether this is NC ECHO’s way of trying to make sure the recipients are invested in their project.” However, the five cultural institutions that have completed NC ECHO’s Starter Grant are now eligible to apply for the next tier of funding offered by NC ECHO, the Digitization Grant that supplies an award amount up to \$50,000 for a single library and \$75,000 for a collaborative project and covers staff costs.⁷⁵

For small cultural heritage institutions the adoption of virtually any activity becomes an exercise in give and take. The development of a long-term preservation plan for the digital assets recently created by Meredith College and the H.H. Brimley Library at the North Carolina Museum of Natural Sciences, although recognized as important has been placed on hold as the institutions are trying to catch up on activities that developed or were delayed during the year-long digital production. Time is a big issue for smaller institutions. Gwen Gosney Erickson was appreciative of the Digitization Institute because although she believes that she could have “picked up many of the things covered on [her] own” she did not think she “would have been able to find the time or focus to give to this without getting away from the office.” Plus as a solo librarian, at the time, she found it beneficial to bounce ideas off of colleagues.

The notion of time also became a factor in the completion of the project. At the writing of this study three of the five institutions do not have a publicly accessible digital project. The issues surrounding the delays are various, involving institutional

⁷⁵ “Grant Program,” NC ECHO Oct. 28, 2005, 4 April 2005
<<http://www.ncecho.org/grantinfo.asp>>.

bureaucracy, reliance upon external or institutional IT services for creation of web content, and change in technologies since the draft of the original grant.⁷⁶ However, the two institutions that have a completed, accessible project also found themselves pushed for time and were working “up till the wire.”⁷⁷ To accommodate this time crunch NC ECHO might want to consider extending the grant timeline by 6 months, thereby spreading the workload over a longer period and possibly making the emphasis during these months project planning. Ted Waller and Janet Edgerton spent valuable time (2-3 months) in the beginning of the project experimenting with workflow and technical specifications, and Edgerton never felt like her project’s workflow achieved “assembly-line production.” Also, by extending the grant cycle NC ECHO could incorporate the development of formal institutional policies concerning the storage and preservation of the newly created digital objects into the grant requirements.

Again, these suggestions may not fall under the aegis of NC ECHO, as it is the LSTA Advisory Committee that sets the criteria for each EZ grant program.⁷⁸ However, the legislation behind the Museum and Library Services Act emphasizes accountability and as a step to evaluate LSTA in North Carolina the State Library’s Library and Services Act Plan for Implementation in North Carolina, 2003-2007 is promoting the encouragement of “grant applicants to improve their planning and evaluation.”⁷⁹ So the incorporation of planning that emphasizes the creation of institutional digital storage and

⁷⁶ Gwen Gosney Erickson has experienced delays in implementing her final project due to a change in the server’s abilities since the draft of the original grant.

⁷⁷ Pam Price interview.

⁷⁸ Sandra M. Cooper and Penelope Hornsby, Library Services and Technology Act Plan for Implementation in North Carolina 2003-2007. (Raleigh, NC: The State Library of North Carolina, 2002): III-5. <<http://statelibrary.dcr.state.nc.us/lsta/plan2003-07.pdf>>.

⁷⁹ Cooper and Hornsby, I-1; III-9

preservation policies may be a possibility for NC ECHO through the LSTA Advisory Committee.

A surprising factor that emerged from the interviews was the widespread acknowledgement of public relations as a motivator for digitization. Digitization was seen to provide “clout” and sway with “city councils” and “other funding types,” even though these individuals might not understand the process or the issues surrounding digitization.⁸⁰ Digitization projects offer institutions the opportunity to select a star collection and present it in such a manner that both the collection items and the unique services provided by the institutions are highlighted. This provides small cultural heritage institutions an opportunity to justify their value, reach a larger audience, and increase their chances for funding. Perhaps public relations were not discussed as a motivator in the digitization literature at large because the larger digitization programs situated within research institutions are not as pressed for audiences or justification as are the smaller cultural heritage institutions.

Overall, the experiences gained by the 2004-2005 NC ECHO EZ Digitization Starter Grant recipients were positive. They all have plans to undertake a digitization project in the future, if not immediately, and Greensboro Public Library has incorporated digitization into its library work plan.⁸¹ The motivations for digitization expressed by the cultural heritage institutions of access, public relations, and preservation echo the motivations of the larger institutions, indicating the continued movement towards digitization as a necessary element of cultural heritage repositories. With the help of

⁸⁰ Arthur Erickson interview.

⁸¹ Arthur Erickson interview.

organizations such as NC ECHO the digital projects and programs will not be limited to an elite few.

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Appendix A: Recruitment Letter

Date

Name

Address

Dear _____,

As part of the requirement for completing a Master of Library Science degree at the University of North Carolina at Chapel Hill, I am preparing a research paper investigating the current state of digitization in small cultural heritage institutions. Tim Pyatt, University Archivist at Duke University, has agreed to be my faculty advisor for this master's project.

I would like to visit you in person at a location of your choosing and ask you a series of questions regarding digitization at your institution. These questions will address the status of digitization projects/program at your institution, the rationale behind beginning a digitization project/program, the pros and cons experienced during the digitization process, and general questions concerning the funding of the project. The interview will last no more than an hour. With your permission, I would like to tape record the interview. You will have the right to skip any question you choose not to answer for any reason. There is also the possibility that I may ask for clarification or more information after the interview by phone or by email. In my paper, your interview responses and those of the other participants will be discussed separately and then analyzed as a group to find common issues and practices related to the current state of digitization within small cultural heritage institutions.

There are no anticipated personal risks associated with your participation in this study. You can refuse to answer any question and may stop the interview at any time. Withdrawing from the interview will not result in any negative consequences for you. Due the small number of people that I am interviewing, keeping your participation anonymous would be difficult. However, no identifying information beyond your name and institution will be used.

If you have any questions, I encourage you to contact me at sbowser@email.unc.edu. Thank you in advance for your consideration of my project; I know that your time is valuable. If you choose to participate in my study, please reply to this email indicating your willingness to do so. Attached to this email is a copy of an Informed Consent Agreement that explains the process of the interview and your rights in more detail. If you agree to participate I will bring a copy for your signature on the date of our interview. Again, thanks for your consideration.

Sincerely,

Sherrie A. Bowser
Master of Library Science Candidate
School of Information and Library Science
University of North Carolina at Chapel Hill

Appendix B: Consent Form

**University of North Carolina-Chapel Hill
Consent to Participate in a Research Study
Adult Participants
Social Behavioral Form**

IRB Study # LIBS 05-092
Consent Form Version Date: February 28, 2006

Title of Study: Digitization in Small Cultural Heritage Institutions

Principal Investigator: Sherrie A. Bowser
UNC-Chapel Hill Department: School of Information and Library Science
UNC-Chapel Hill Phone number:
Faculty Advisor: Timothy Pyatt
Funding Source: none

Study Contact telephone number: 919-933-8294
Study Contact email: sbowser@email.unc.edu

What are some general things you should know about research studies?

You are being asked to take part in a research study. To join the study is voluntary. You may refuse to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study. You will be given a copy of this consent form. You should ask the researcher named above any questions you have about this study at any time.

What is the purpose of this study?

As part of the requirement for completing a Master of Library Science degree at the University of North Carolina at Chapel Hill, I am preparing a research paper investigating the current state of digitization in small cultural heritage institutions.

How many people will take part in this study?

If you decide to be in this study, you will be one of approximately five people in this research study.

How long will your part in this study last?

Approximately one hour, for an in-person interview, with possible follow-up by phone or by email for clarification of some answers or comments.

What will happen if you take part in the study?

I would like to visit you in person at a location of your choosing and ask you a series of questions regarding digitization at your institution. These questions will address the status of digitization projects/program at your institution, the rationale behind beginning a digitization project/program, the pros and cons experienced during the digitization process, and general questions concerning the funding of the project.

With your permission, I would like to tape record the interview. You will have the right to skip any question you choose not to answer for any reason. Your name and the name of your employer will be revealed in my paper. Due to the small number of people that I am interviewing, keeping your participation anonymous would be difficult. However, no personal identifying information beyond your name and institution will be used.

There is also the possibility that I may ask for clarification or more information after the interview by phone or by email. In my paper, your interview responses and those of the other participants will be discussed separately and then analyzed as a group to find common issues and practices related to the current state of digitization within small cultural heritage institutions.

What are the possible benefits from being in this study?

Research is designed to benefit society by gaining new knowledge. You may also expect to benefit by participating in this study by learning how some of your colleagues are dealing with issues related to digitization within small cultural heritage institutions.

What are the possible risks or discomforts involved from being in this study?

Disclosure of sensitive institutional information. If you are uncomfortable providing names of specific collections, funding, donors, or other involved parties, special care will be taken not to include any identifying information. If this situation arises you may use pseudonyms, may choose not use any names or identifying information at all (e.g., "a donor"), or decline to answer the question.

How will your privacy be protected?

Participants will be identified in any report or publication about this study. Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies for purposes such as quality control or safety.

I would like to audio tape our interview. If you consent to being taped, you may request that the recorder be turned off at any time. The tapes will be for my use only, will not be shared with anyone, and will be erased once my paper is written. Any written transcript of the interview will be destroyed once my paper is completed.

I do plan to quote participating individuals in this study. The quotes will be taken verbatim from the audio tape only, and will be interwoven into the narrative of the study. As mentioned above, your name and the name of your employer will be revealed in my paper. Due to the small number of people that I am interviewing, keeping your participation anonymous would be difficult. However, no personal information that might potentially be captured on the audio tape during the interview will be quoted. Of course, at any time you may decline to answer any question or quit the interview entirely.

Will you receive anything for being in this study?

Upon completion a copy of the study will be sent to each participant, if desired.

Will it cost you anything to be in this study?

There will be no costs for being in the study

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions, or concerns, you should contact the researcher listed on the first page of this form.

What if you have questions about your rights as a research participant?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Participant's Agreement:

I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

- I give permission for the researcher to audio record the interview.
- I do not give the researcher permission to audio record the interview.

Signature of Research Participant

Date

Printed Name of Research Participant

Appendix C: Interview Script

Name of Institution:

Type of Institution (library, archive, museum, historical society, other):

Name and Position of Interviewee:

Opening Questions –

- Could you generally describe your digitization project? i.e. Collection digitized, number of items digitized?
- Could you describe the motivation that prompted the digitization program or project? (i.e. access, preservation, user demand, etc.)
- Attendance of NC ECHO's digitization institute is a requirement upon receipt of NC ECHO's Starter Digitization Grant. When did you attend the institute? (Before or after the receipt of the grant)
- Was NC ECHO's digitization institute helpful? If so, how?

Project Planning –

- Did the Starter grant provide enough funding?
 - Were you able to buy enough equipment? The right equipment?
 - Did you have enough staff?
- Was the scope of your digitization project realistic? Or did you have to make changes? (i.e. change number of materials to be digitized, get lesser equipment)
- What about the digitization project was easy? What was hard?
- In a similar vein, what did you like/dislike about the project?
- Did you have any surprises? If so, what were they?
- Before we discussed motivation –
 - If motivation for project is access - Did you conduct any preliminary needs assessment or any evaluation metric before beginning your project? (i.e. survey of researcher needs, cost-benefit analysis)
 - If main motivation was preservation – Did you enact any restrictions to limit access to the physical artifact?

Costs –

- Was your digitization project fully or partially funded by NC ECHO's Starter Digitization Grant? If partially funded what other funds were available (grants/internal funds)?
- Going into the digitization project what were your perceptions concerning cost? Were they true or false?
- Looking back what do you wish that you had known about digitization costs going into the project?
- Do you have any suggestions about cost information that would be useful to institutions beginning a digitization project?

Sustainability and Evaluation –

- Have you taken any measures to preserve and sustain your digital project? Did you create digital masters? If so, what have you done with your digital masters? (i.e. how and where are you storing them?)
- Did you do any evaluation of your digitization project? (i.e. have the staff look at it or a local community group)

Support –

- Was your parent institution helpful, supportive?
- Was NC ECHO helpful and supportive? Did you feel like you were going it alone or did you feel part of a larger community?
- Have you or any of the project staff attended any other NC ECHO workshops? (other than the one required)
- Is there anything that NC ECHO can do to make the process easier?

Closing Questions –

- What effect has the digitization project had upon the institution? (i.e. increased access, increased institution morale, etc.)
- Do you have plans for another digitization project?
- Had you known then what you know now what would you do different?

Appendix D: Collection Summary

Janet Edgerton, H.H. Brimley Library, North Carolina Museum of Natural Sciences

The collection digitized by the Brimley Library consisted of a variety of archival materials (photos, letters, telegrams, and speeches) relating to the finding of a whale skeleton that washed up onto the shore of Wrightsville Beach in 1928. Nicknamed "Trouble," the whale has, since its acquisition, been one of the star exhibits and was adopted as the museum's logo. The story of the whale skeleton and its recovery has been translated into a children's book.

Arthur Erickson, Greensboro Public Library

Greensboro Public Library undertook a project to digitize the archival materials of Greensboro native and short story author William Sydney Porter, a nationally prominent author of the early 20th century, known more commonly as O. Henry. The materials amassed between Greensboro Public Library and the Greensboro Historical Community represent 2,000-3,000 archival items, mainly letters and manuscripts. Although a few finding aids existed for the collection, the materials were not accessible in any meaningful way. So, they worked collectively with the Greensboro Historical Museum, the *Greensboro News and Record*, and with other holders of O. Henry materials to create a comprehensive web portal.

Gwen Gosney Erickson, Friends Historical Collection, Hege Library, Guilford College

The Friends Historical Collection created digital images of documents from the John B. Crenshaw Papers. Primarily correspondence, these records relate the experience of North Carolina Friends (Quakers) during the Civil War. Supporting images of individuals featured in the correspondence, were also created to add visual interest and to be used along with highlights from the collection for a traditional in-house exhibit. The web access to the collection will allow unprecedented access to letters which provide the often-overlooked perspective of North Carolina pacifists during the Civil War. The collection also offers information for individuals interested in the Civil War, antislavery efforts, Quakerism, and the local and family history of North Carolina.

Pam Price, Albemarle Regional Library

"The Paul Ronald Jenkins Photograph Collection documents the Murfreesboro, North Carolina area between the years of 1870 and 1960. Mr. Jenkins, a local pharmacist and amateur photographer, regularly printed vintage negatives and copied "old photographs" for customers and friends. His collection of historic images represents a "collective visual memory" of more than a hundred years of life in rural Northeastern North Carolina. Most of the original photographs copied by Mr. Jenkins have since been lost to history, and the images exist only through the prints in this collection. The collection is owned by the Murfreesboro

Historical Association and was placed on permanent loan to the Elizabeth Sewell Parker Memorial Library in 2000. The Historical Association agreed to have the collection digitized and published on the web, thereby making this important collection available to a greater audience.”⁸²

Ted Waller, College Archives, Meredith College

It has been tradition at Meredith College, since 1936, that the senior class presents the Meredith College Alumnae Association with a doll on Class Day. The collection, consisting of 103 dolls, represents a unique Meredith tradition that is of interest not only to the college community and the alumnae, but also to doll enthusiasts and hobbyists. The Meredith College presentation of the collection is distinctive in that it allows the dolls to be viewed from 360 degrees. “The general term for 360 degree images is virtual reality. For the doll project, 36 images of each doll were created with a digital camera and downloaded to a PC. Virtual reality (VR) software is used to "stitch" the images together into a VR object. The object is resized and converted into a Quicktime movie. The movie is then inserted into a web page as a Quicktime object.”⁸³

⁸² “Paul Ronald Jenkins Photograph Collection,” Digitization Projects February 14, 2006, Albemarle Regional Library, 8 April 2006 <<http://www.albemarle-regional.lib.nc.us/specialcollections.htm>>.

⁸³ “VR Doll Project Procedures,” Year-by-Year Doll Listing October 3, 2005, Meredith Doll Collection, Carlyle Campbell Library, 8 April 2006 <http://www.meredith.edu/library/archives/dolls/doll_project_procedure.htm>.

