Defining the Libraries' Role in Research: A Needs Assessment; A Case Study

By: Kathryn M. Crowe and Michael A. Crumpton

Crowe, K. M., & Crumpton, M.A. (2014, 4-6 August). *Defining the Libraries' Role in Research: A Needs Assessment; A Case Study.* Paper presented at the 2014 Library Assessment Conference: Building Effective, Sustainable, Practical Assessment, Seattle, WA. Washington, D.C.: Association of Research Libraries.

Made available courtesy of Association of Research Libraries:
http://libraryassessment.org/bm~doc/proceedings-lac-2014.pdf

©Association of Research Libraries. Reprinted with permission.

Abstract:

The University Libraries at the University of North Carolina at Greensboro partnered with Information Technology (ITS) and the Office of Research and Economic Development (ORED) to develop a needs assessment survey. This "UNCG Faculty Research Data Support Needs Survey" was administered to all faculty members in spring 2013 and included questions on the format(s) of their research data, how they store and backup data, how they share/disseminate data, data management plans, and their priorities for support. This paper will discuss the background literature, the survey methodology, how the results were used to identify priorities, steps taken to address priorities, and the benefits of cross-campus collaboration in an assessment project.

Keywords: Research | Needs Assessment | Survey | Research data

Article:

*****Note: Full text of article below**

Proceedings of the 2014 Library Assessment Conference

Building Effective, Sustainable, Practical Assessment

August 4–6, 2014
Seattle, WA

Edited By
Sarah Durso, Association of Research Libraries
Steve Hiller, University of Washington
Martha Kyrillidou, Association of Research Libraries
Angela Pappalardo, Association of Research Libraries

Defining the Libraries' Role in Research: A Needs Assessment; A Case Study

Kathryn M. Crowe and Michael A. Crumpton
University of North Carolina at Greensboro

Abstract

The University Libraries at the University of North Carolina at Greensboro partnered with Information Technology Services (ITS) and the Office of Research and Economic Development (ORED) to develop a needs assessment survey. This "UNCG Faculty Research Data Support Needs Survey" was administered to all faculty members in spring 2013 and included questions on the format(s) of their research data, how they store and backup data, how they share/disseminate data, data management plans, and their priorities for support. This paper will discuss the background literature, the survey methodology, how the results were used to identify priorities, steps taken to address priorities, and the benefits of cross-campus collaboration in an assessment project.

Introduction

Academic libraries are increasingly taking on the role of supporting faculty research. In addition to traditional services such as assisting with literature reviews they now also provide resources for data management, digital humanities, open access publishing, and scholarly communication issues. Because of new guidelines by many funding agencies that require data management plans and open access to raw research data, libraries are providing support for developing these plans, storage for raw data, and assistance in archiving data for access.

The University of North Carolina at Greensboro (UNCG), one of seventeen campuses of the University of North Carolina system, is a High-Research Activity University and also earned a "Community Engaged Classification" from the Carnegie Corporation. In 2013–14 the enrollment included 13,640 undergraduates and 2,666 graduate students. With distance learners the total headcount was 17,707. The University Libraries sought to provide additional services for data management and digital humanities. At the same time, other campus units including Information Technology Services (ITS) and the Office of Research and Economic Development (ORED) had a stake in these services. We determined that a needs assessment was essential in order to gain information to prioritize our resources and that it was crucial to collaborate with other stakeholders on campus.

Literature Review

Two important publications regarding data and these issues that are occurring as research data grows beyond normal operating practices are CLIR's *The Problem of Data* and the ARL SPEC Kit 336 on *Responsible Conduct of Research Training*. These publications helped clarify and inform the need for evaluating our own resources and services due to changing priorities on campus. It is also worth noting two other publications, published since this project, that are related and relevant to the intentions served by our study. Another CLIR publication, *Research Data Management; Principles, Practices and Prospects,* published in November 2013 addresses the baselines established by the DataRes Project and is titled. We also looked at ITHAKA S+R's *Supporting the Changing Research Practices of Historians* to see how new tools and technologies are impacting access and discovery methods for data, which are now presented in different formats.

As addressed in *The Problem of Data*, as the scale of data creation grows, so does the need to determine methods of data creation that properly preserve and maintain data, while providing security and accessibility as needed. For faculty, this can create a life cycle of data from its creation to its use into new knowledge products. It was felt on our campus that this issue needed further clarification as to data stewardship and personnel trained to make appropriate decisions with regard to general curation of data. Larger academic libraries across the globe were beginning to formulate positions within their staffs to address

this need, and we were interested in creating and funding a similar position.

Another concern on campus was in the form of new federal mandates from granting agencies on the proper handling of data, including storage and providing access. These created behavioral concerns for faculty who hesitated to comply and thus were at risk to lose funding or control of their research. In reviewing the ARL SPEC Kit 336 on *Responsible Conduct of Research Training* we recognized this issue of providing ethical standards for whatever methods were put into place, which also seeded the need for collaboration with our partners in ITS and the Office of Research.

We were somewhat gratified to see in Martin Halbert's article, *Prospects for Research Data Management*, in *Research Data Management; Principles, Practices and Prospects* from CLIR, a list of barriers that supported findings from our survey completed not long before. His list of barriers included issues of funding, lack of organizational structures, and professional preparation. These are similar to our findings in terms of changes that need to be made to institution policies and priorities for managing data properly going forward. Other articles in that same publication promoted the need and help define the structure expected in providing data management services in libraries.

And finally ITHAKA S+R's *Supporting the Changing Research Practices of Historians,* looked at discipline-specific needs in terms of supporting research and data curation needs. This seemed important to us because our survey demonstrated multiple differences between disciplines and a customized approach might be warranted to garner support and ease concerns of faculty and researchers who are being asked to change practices and methods. This report also gave good insight into how a researcher views primary and secondary data or local access to non-digital components. We expect to find their recommendations useful going forward.

Needs Assessment at UNCG

Planning for the UNCG needs assessment began in fall 2012. The impetus for this survey was two-fold. First, many funding agencies require data management plans (DMP) as part of their requirements. In addition, UNCG adopted a policy in 2012, "Access to and Retention of Research Data," that outlines the rights and responsibilities of investigators and the institution in the use, retention, and maintenance of data produced during the research process.

Representatives from the University Libraries, Information Technology Services and the Office of Research and Economic Development met to develop the survey. Together we decided the purpose was to determine faculty needs regarding storing and sharing data, assistance needed with managing and storing data and their priorities for these services.

We consulted other studies and surveys to help us design our instrument. Most useful were The University of North Carolina at Chapel Hill's survey included in their 2012 report, *Research Data Stewardship at UNC: Recommendations for Scholarly Practice and Leadership.* We also consulted with Parham, Bodnar, and Fuchs from Georgia Tech after reading their article, "Supporting Tomorrow's Research: Assessing Faculty Data Curation Needs at Georgia Tech" in C&RL News. They kindly shared their instrument with us. Another useful article was Peters and Dryden's 2011 article "Assessing the Academic Library's Role in Campus-Wide Research Data Management: A First Step at the University of Houston."

We wanted to ensure that respondents understood that "research data" has a broad interpretation. For the purposes of the survey it was defined as:

> Information recorded in any form, and includes any materials needed to validate research findings, such as laboratory notebooks, biological specimens, video, photographs, and environmental samples. The policy includes discussion of data collection, retention, archiving; the disposal, removal, or transfer of research data; rights to access of data and data sharing; data security; and export control. In many cases, there are multiple layers of regulatory requirements that impact the use, retention, and maintenance of research data (e.g., federal policy, funding agency specific policies, and state policies).

This definition was included in the invitation to the survey.

The survey sought to help us determine priorities and focus future staffing and other resources to ensure that faculty have the support they need for their research. Collaborating with other units was essential for the success of the survey. Because we each have different roles in supporting faculty research each brought our unique perspective. Blending our strengths made it a much better survey.

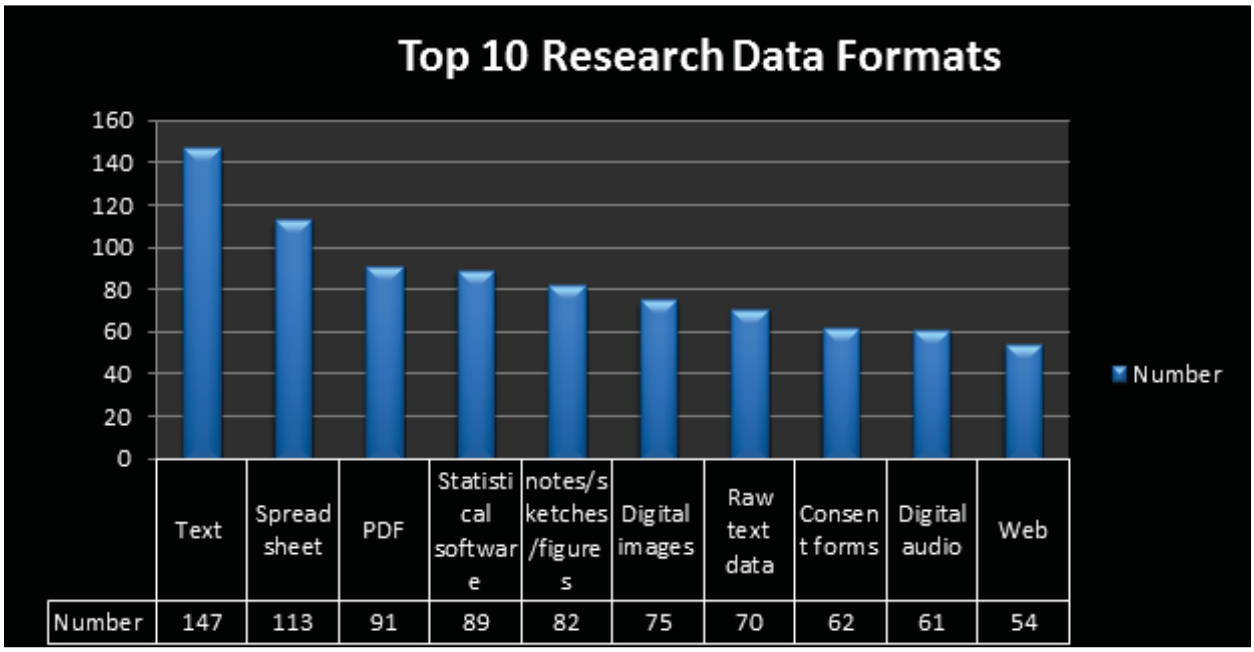
Methodology

We spent considerable time developing the survey in fall 2012. It was tested among members of the Senate Research Advisory Committee and vetted in the Research Policies Committee. Questions were included regarding the format of their research data, how they store and backup data, how they share/disseminate data, data management plans, what support they currently receive and their priorities for future support. A few demographic questions included their status (tenure-track, research staff, etc.) and if they currently have external funding. Several qualitative forms provided the opportunity for further comments. We used Qualtrics to mount it. In February and March 2013 the online survey was sent to all faculty, research and post-doctoral staff (1,193 total). One hundred sixty completed the survey for a 13% response rate.

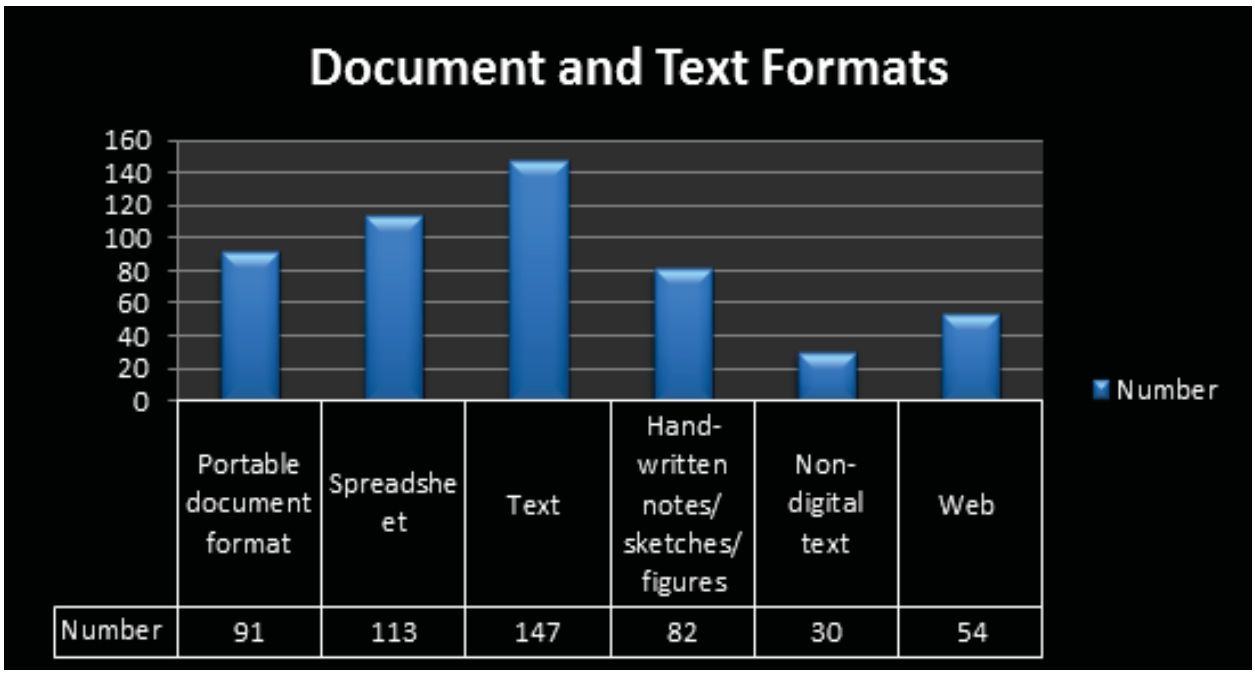
Results

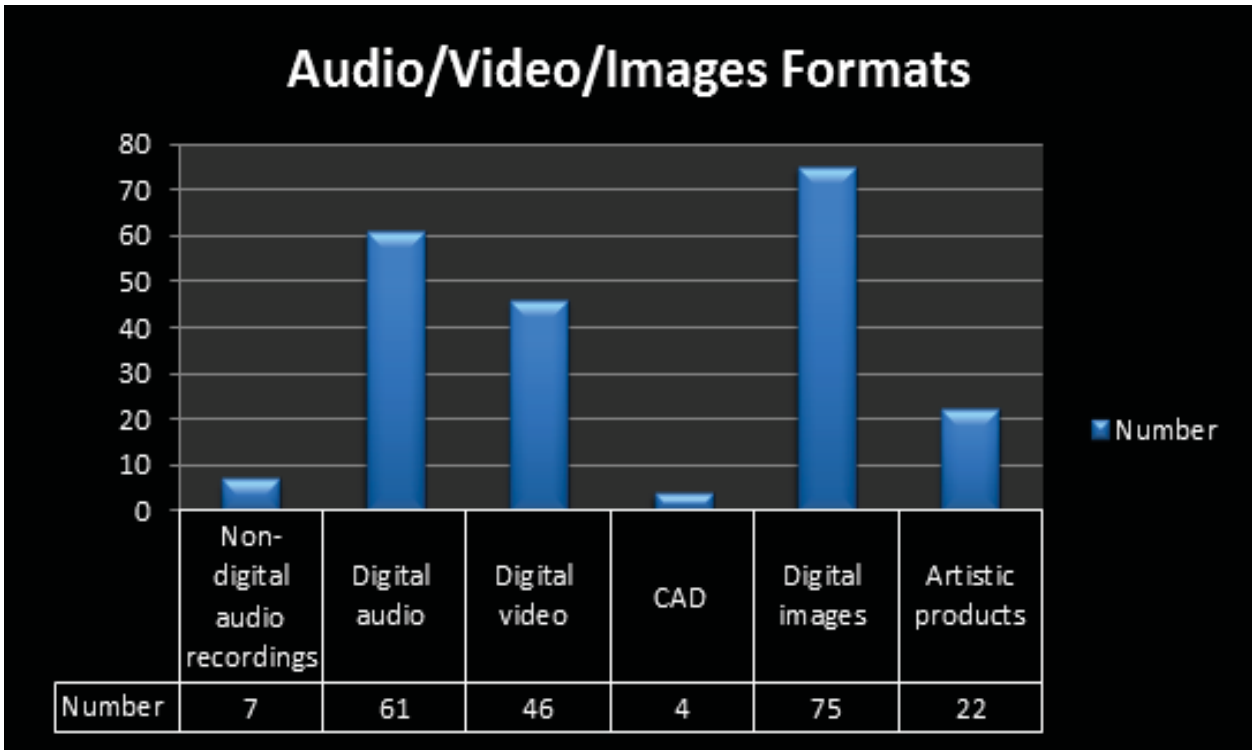
Formats

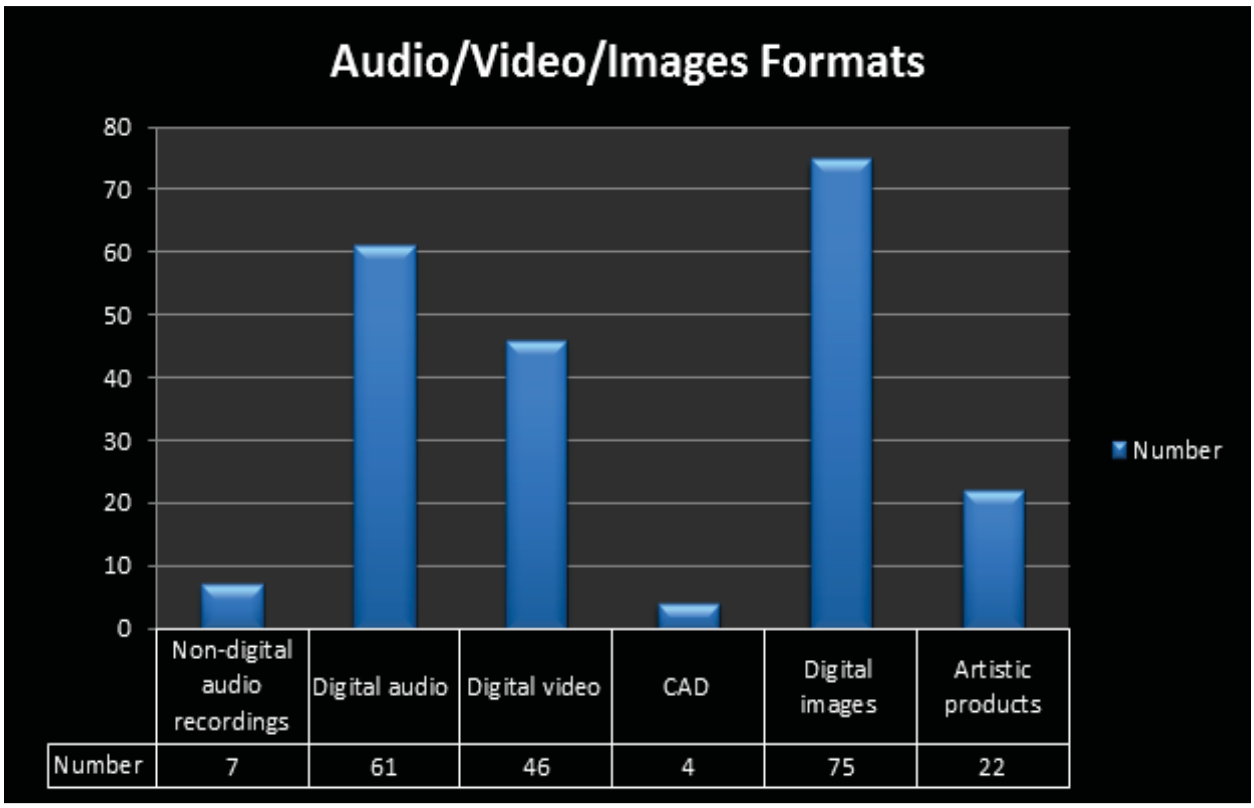
The first question asked respondents to choose from over 20 options which formats they use for their data. Respondents could choose all that applied. The most-used format is text files (80%) followed closely by spreadsheets (62%), and PDFs (50%). In general, however, faculty use a wide variety of formats, which makes it difficult to generalize. This chart shows the top ten formats used:

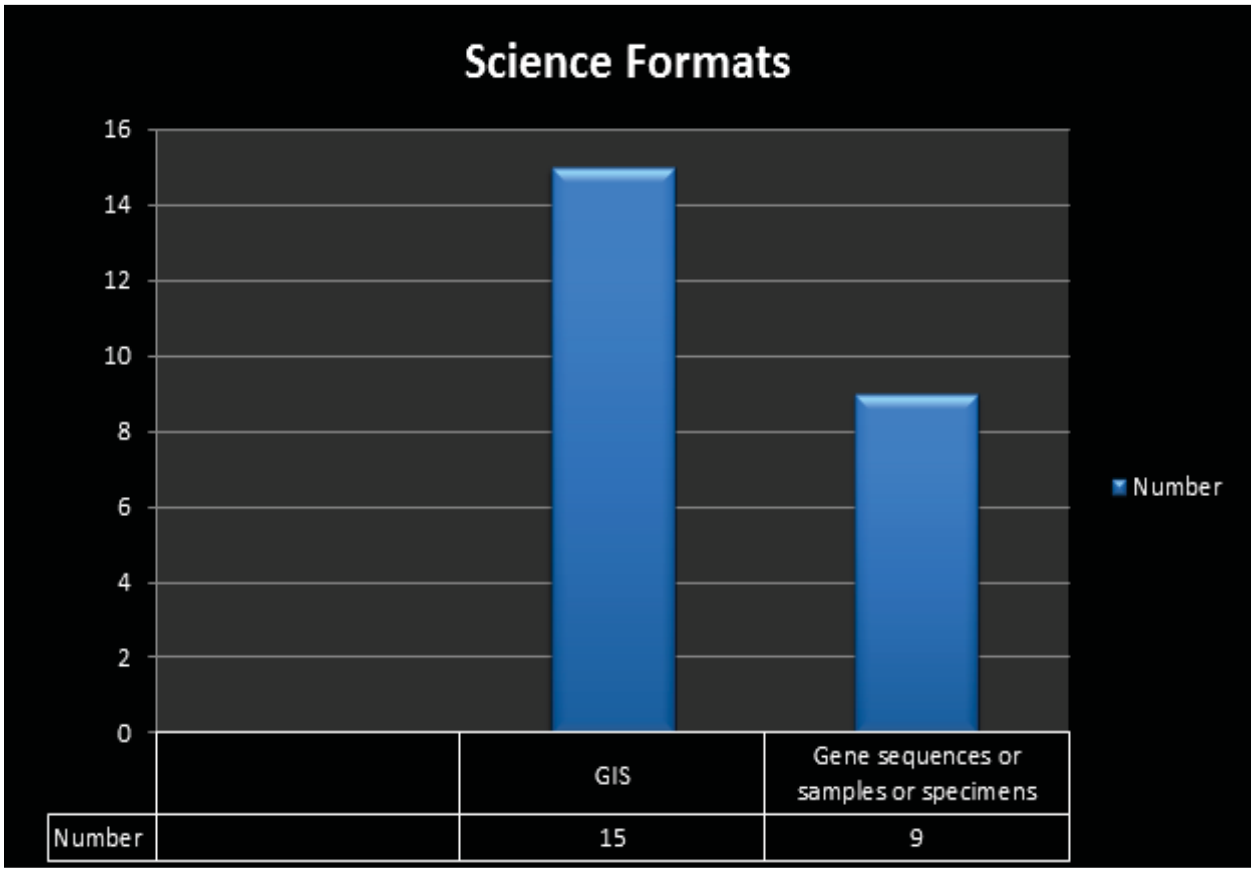


The next charts group the formats into similar types.

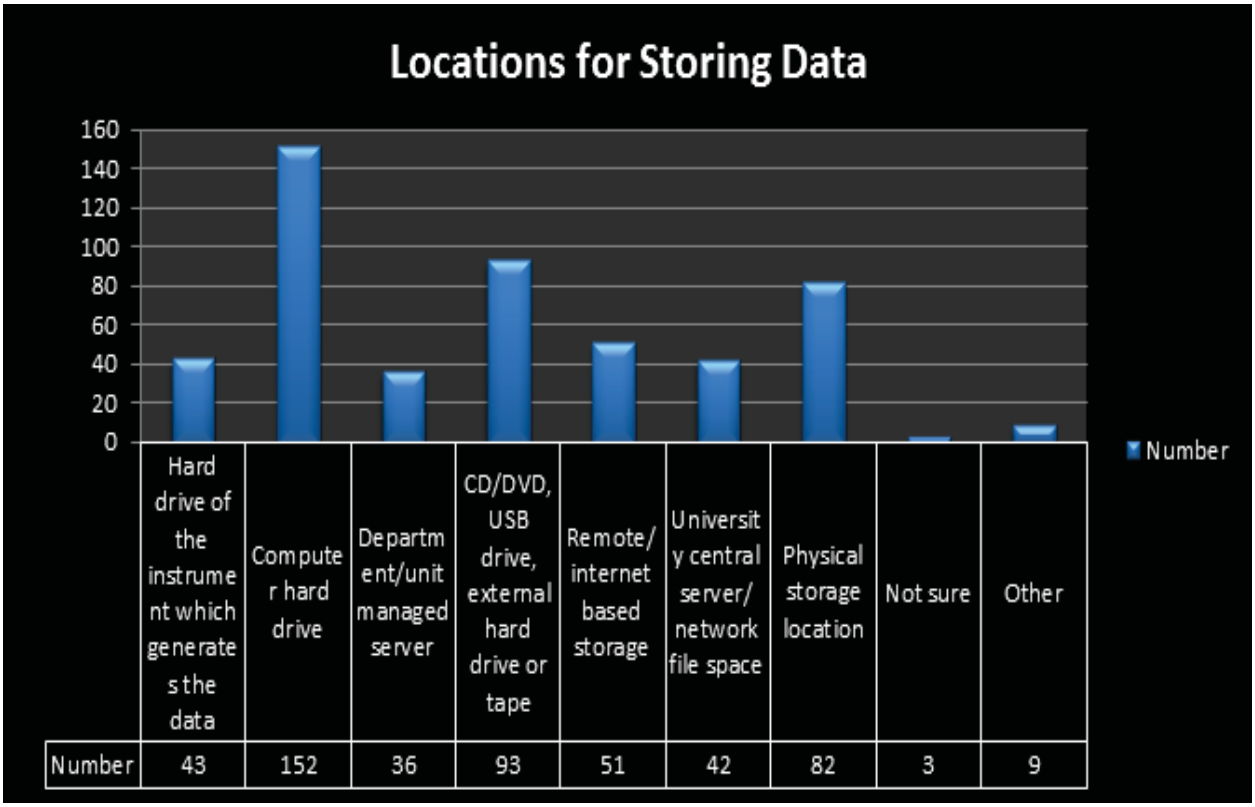

Document and Text Formats
160
140
120
100
80
60
40
20
0
Number
Portable document format
Spreadsheet
Text
Hand-written notes/ sketches/ figures
Non-digital text
Web
Number
91
113
147
82
30
54


Audio/Video/Images Formats
80
70
60
50
40
30
20
10
0
Number
Non-digital audio recordings
Digital audio
Digital video
CAD
Digital images
Artistic products
Number
7
61
46
4
75
22


Audio/Video/Images Formats
80
70
60
50
40
30
20
10
0
Number
Non-digital audio recordings
Digital audio
Digital video
CAD
Digital images
Artistic products
Number
7
61
46
4
75
22


Science Formats
16
14
12
10
8
6
4
2
0
Number
GIS
Gene sequences or samples or specimens
Number
15
9

Storage and Backup
The next several questions asked how researchers store and back up data. Again they could check all that apply. Most (84%) store data on a hard drive or an external device such as a CD/DVD, USB, external hard drive, or tape (52%). A fairly significant number use non-digital physical locations (46%). Fewer use cloud or remote storage (28%) or a central server (23%).



For back up, very few are using central locations such as network file space (27%) or cloud storage (26%). Most use a CD/DVD, USB, or external hard drive (68%) or a computer hard drive (58%). Respondents could check all that apply so some use more than one strategy. Only 16% automatically generate backup files.

Sharing data
The majority of respondents (75%) do not anticipate sharing their data.

Thirty respondents answered a qualitative question about how they share their data. Many indicated they use cloud services such as Dropbox, Google Docs, shared network space or Qualtrics. Others use CDs, file transfer or e-mail. Some responded that the final publication was the dissemination method. Only one indicated they use an online data deposit. One comment indicated a need for automatic back up: "I would like to have automatic backups of data but we do not have a means to do so. This should be a priority in my opinion."

When asked about barriers to sharing data, 57 responded. Issues included:

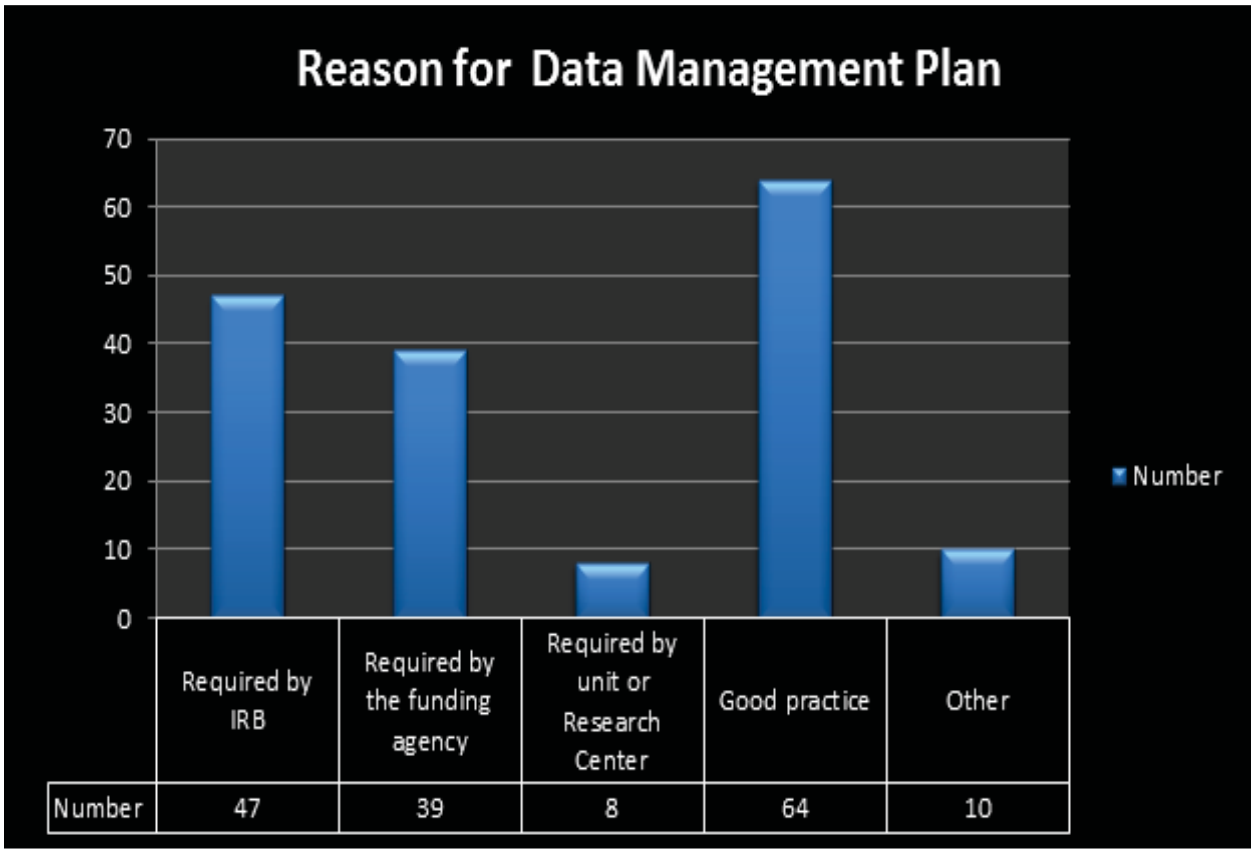
- Size of datasets
- Confidentiality and copyright
- Easily accessible access to central storage on campus
- Lack of knowledge about sharing—what can be shared and how to do it
- Compatibility across systems

Thirty-six provided qualitative responses to their support needs for sharing data. Many did not feel they needed support or were not sure what assistance they need. Some felt NC DOCKS is sufficient. (Except for the recent addition of the ODUM service which few faculty have used, NC DOCKS is primarily for published works, not data).

Several indicated they need assistance with how/ where to store data including large data sets and audio/video.

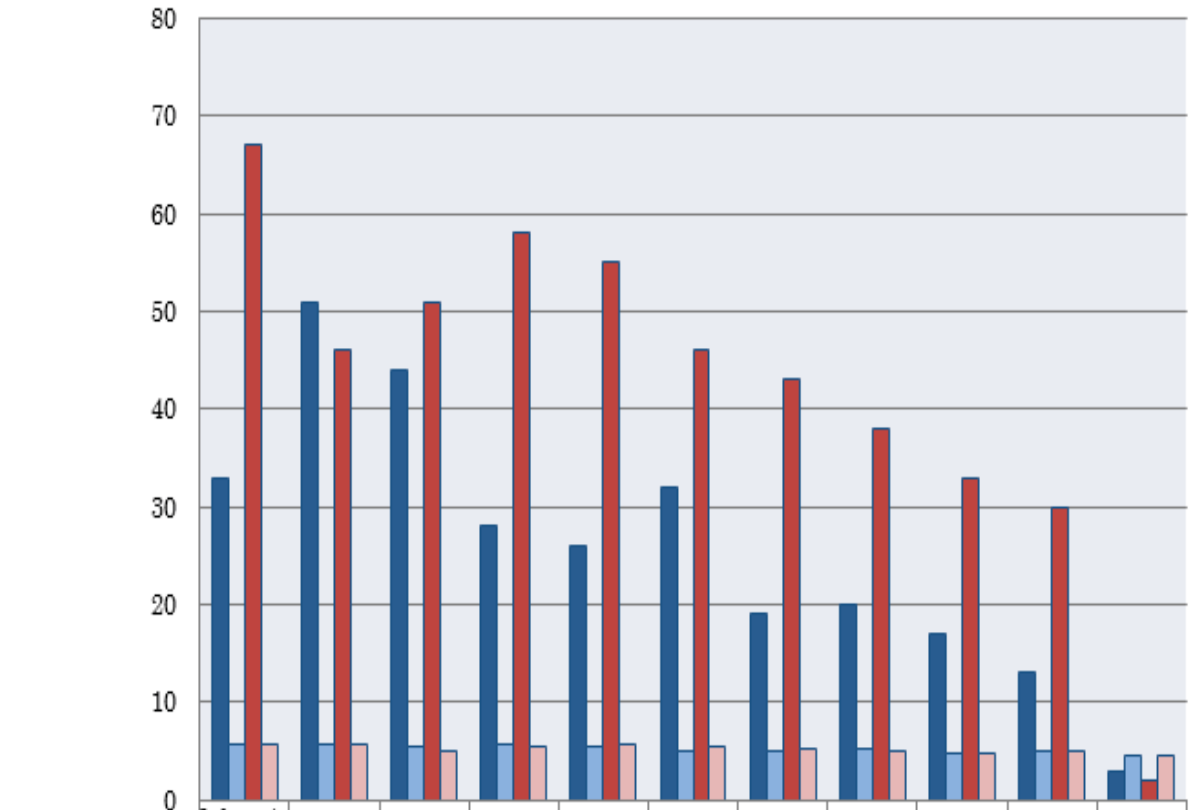
Data Management Plans

Forty percent of respondents indicated that they had DMPs for current projects; it should be noted that only 97 responded to this question. The chart below shows why they have them. They could check all that applied.



Priorities for support

To help us prioritize resources for research support respondents were asked to rank a variety of services. The chart below indicates those ranked very important or important:



	Information about best practices developing a data management plan	Routine data storage & backup services	Assistance meeting data sharing or storage requirements	Tools for sharing research data	Assistance with cost estimates for data storage and retrieval	Digitizing data from older formats	Assistance applying metadata to research data	Assistance storing data with third-party archives	Data disposal/ destruction	Assistance preparing data sets for public access	Other
Very Important	33	51	44	28	26	32	19	20	17	13	3
MeanVery Important	5.65	5.68	5.4	5.78	5.46	5.14	5.12	5.34	4.9	5	4.65
Important	67	46	51	58	55	46	43	38	33	30	2
Mean important	5.68	5.78	5.14	5.4	5.65	5.46	5.34	5.12	4.9	5	4.65

Current Support

Most faculty reported that they do not currently have support for managing and storing data (56%). Those that do have support receive it from personnel in their department (33%) or from ITS (22%).

Additional support needs

Twenty-three responded to a final qualitative question that asked faculty what other research technology tools or needs they thought were a high priority. Responses included:

- Managed web hosting
- Cold storage for paper documents
- Cloud servers
- Conversion software
- Digital humanities
- Funding for data storage options

Demographics

Of the 160 individuals who completed the survey, 73 percent of respondents were tenure track faculty and 13 percent were non-tenure track. This compares to campus statistics of 53 percent of

full-time faculty is tenured and 77 percent hold a doctorate or terminal degree in their field.

The remaining respondents were research or post-doctoral staff. Thirty-eight percent of respondents indicated that they currently have external funding for a research project.

Follow up and action items

It was obvious from the results that storage and automatic backup of all types of data (numerical, digital humanities, audio/video) was the greatest need among faculty. Assistance with sharing and data management plans was the second greatest need. While most faculty were backing up their data, they were not following best practices such as using shared storage or the cloud. Many faculty did not seem aware of data sharing requirements or assumed the final publication sufficed as sharing.

UNCG established several new services for researchers based on the survey results.

The survey provided very useful data to help the stakeholders prioritize services. Because storage and backup were identified as important needs, ITS launched a hosting service, WordPress Multisite (http://itsnews.uncg.edu/2013/09/06/new-service-wordpress-multisite/), in September 2013 for researchers who need a content management platform. It is available at no cost to UNCG researchers. ITS also launched a Box cloud storage pilot in fall 2013 and expanded it in 2014 to include 50 GB of storage for each user. Researchers may also share data with researchers at other institutions through Box.

In 2012 the UNCG University Libraries began providing social science data storage at no cost through the Odum Institute DVN at UNC Chapel Hill. This DataVerse Network is a container or centralized repository for research data studies that can be customized and managed by its owner. It is a web application for cross-disciplinary data in the social sciences and meets the mandate requirements of funding agencies for data storage and access.

We expanded options to make more data accessible through the libraries' institutional repository, NC DOCKS (http://libres.uncg.edu/ir/). Currently this includes work of UNCG faculty members and some student work and must be scholarly, research, or educational work. All of the materials in NC DOCKS is open access and searchable. In addition, all academic departments and programs have a libraries' liaison that works closely with faculty to ensure that the resources fit their needs and to assist with research. Specialized services to faculty include electronic journal publishing support, digital image hosting, and an open access journal publishing fund. The data service librarian provides assistance and consultation with statistics and numeric data discovery, ICSPR and statistical software. ERIT, the libraries' IT department provides faculty support for data management and digitization projects. The Hodges Special Collections and University Archives Department (SCUA) offers unique archival collections and finding aids and research guides.

The libraries created an outline of a position that would be expected to train and be the expert on research support and data services. A copy of this position draft is Appendix A, and it is expected that the libraries will move forward when funding is secured. Note that this draft does not require an MLS, which is a product of research on similar positions and discussion over the skills needed for these functions, differently from typical librarian competencies. There is a trend in research libraries to forgo the MLS requirement in lieu of other skills more closely associated with the analysis and curation of data.

The Office of Research and Economic Development has now created a Researcher Zone (http://researcherzone.uncg.edu/) that directs faculty to a variety of departments, offices, and support resources for multiple needs, including data management. The libraries are part of this portal with all services and resources listed. The Office of Sponsored Programs (OSP) which is part of ORED provides data management plan assistance to faculty who are writing grants. The libraries and OSP collaborate on the DMPTool and how to offer it to UNCG researchers.

The survey also provided evidence that there was a lack of awareness among faculty about DMP and data sharing requirements and how to find resources for assistance. A team in the libraries including the authors, head of libraries' IT, the science liaisons, the data services librarian, and the metadata librarian began meeting in spring 2014 to discuss strategies for increasing awareness. We

decided first to conduct follow-up interviews with faculty and research support personnel on campus. The interviews confirmed that support for these activities vary widely among departments and schools and that there is a big need for training and awareness. To address these issues the team developed the following action plan:

- The libraries provided support for the data services librarian to receive additional training so that she can be a "first responder" for data management needs to provide general guidance.
- A Research Data Management LibGuide (http://uncg.libguides.com/RDM) was developed to bring together in one place information resources for data management plans, data storage, and data archiving and storage. It includes campus resources, tutorials, and links to repositories. The guide was marketed to appropriate audiences through blogs, the campus online newsletters and e-mail blasts, and linked from other LibGuides and web sites.
- Training for libraries' liaisons was developed so that they feel more comfortable with the resources available to advise their faculty.
- The data services librarian presented at the Research Advisory Council, which is a group composed of the primary research administrators from each academic unit, and at departments as needed. She also provided training for graduate students.

Conclusions

The survey was a very useful and positive experience. The collaboration with ITS and ORED provided the libraries the opportunity to work with other units and blend our shared expertise. We all gained important information about faculty needs and priorities regarding research data. Such partnerships help raise the profile of the libraries as essential to the research process.

The experience provided us with a broader awareness of the issues academic libraries are facing with regard to research and data services. As stated in the literature, these are issues being addressed across the profession that provide opportunities for new partnerships, skill development, and strategic planning on the part of library adminstrators.

Important services were implemented that will improve access to storage, archiving, and assistance with data management plans. In addition, we were able to provide needed training for the campus.

—Copyright 2015 Kathryn M. Crowe and Michael A. Crumpton

Bibliography

Akers, Katherine G. "Going beyond Data Management Planning Comprehensive Research Data Services." *College & Research Libraries News* 75, no. 8 (September 1, 2014): 435–36.

Antell, Kare, Foote Bales, Jaymie Turner and Brian Shults. "Dealing with Data: Science Librarians' Participation in Data Management at Association of Research Libraries Institutions." *College & Research Libraries* 75, no. 4 (July 2014): 557–74. doi:10.5860/crl.75.4.557.

Bresnahan, Megan M., and Andrew M. Johnson. "Assessing Scholarly Communication and Research Data Training Needs." *Reference Services Review* 41, no. 3 (August 2013): 413–33. doi:10.1108/RSR-01-2013-0003.

Council on Library and Information Resources. *Research Data Management: Principles, Practices, and Prospects,* 2013. http://www.clir.org/pubs/reports/pub160/pub160.pdf.

Jahnke, Lori, Andrew D Asher, Spencer D. C Keralis, and Charles. *The Problem of Data*. Washington, DC: Council on Library and Information Resources, 2012. http://www.clir.org/pubs/reports/pub154/pub154.pdf.

Johnson, Layne M, John T. Butler and Lisa R.1 Johnston. "Developing E-Science and Research Services and Support at the University of Minnesota Health Sciences Libraries." *Journal of Library Administration* 52, no. 8 (November 2012): 754–69. doi:10.1080/01930826.2012.751291.

Keil, Deborah E.1. "Research Data Needs from Academic Libraries: The Perspective of a Faculty Researcher." *Journal of Library Administration* 54, no. 3 (April 2014): 233–40. doi:10.1080/01930826.2014.915168.

Leonard, Michelle Foss, Denise Beaubien Bennett. *Responsible Conduct of Research Training*, Association of Research Libraries Spec Kit 336, 2013.

Parham, Susan Wells, Jon Bodnar and Sara Fuchs. "Supporting Tomorrow's Research." *College & Research Libraries News* 73, no. 1 (January 2012): 10–13.

Peters, Christie, and Anita Riley Dryden. "Assessing the Academic Library's Role in Campus-Wide Research Data Management: A First Step at the University of Houston." Science & Technology Libraries 30, no. 4 (September 2011): 387–403. doi:10.1080/0194262X.2011.626340.

Shen, Yi and Virgil Varvel. "Developing Data Management Services at the Johns Hopkins University." Journal of Academic Librarianship 39, no. 6 (November 2013): 552–57. doi:10.1016/j.acalib.2013.06.002.

"Supporting the Changing Research Practices of Historians." Accessed September 29, 2014. http://www.sr.ithaka.org/research-publications/supporting-changing-research-practices-historians.

Tenopir, Carol, Robert J. Sandusky, Suzie Allard, and Ben Birch. "Research Data Management Services in Academic Research Libraries and Perceptions of Librarians." Library & Information Science Research (07408188) 36, no. 2 (April 2014): 84–90. doi:10.1016/j.lisr.2013.11.003.

Research Data Stewardship at UNC: Recommendations for Scholarly Practice and Leadership. University of North Carolina at Chapel Hill, Chapel Hill, NC 2012. http://sils.unc.edu/sites/default/files/general/research/UNC_Research_Data_Stewardship_Report.pdf.

Appendix A

Research and Data Support Coordinator

Position Summary:
The University of North Carolina at Greensboro University Libraries is actively expanding its support for faculty research campus wide. We seek a dynamic individual to serve as research and data support coordinator to organize, plan, and coordinate the libraries' interdepartmental initiatives to support faculty research in a collaborative environment. Working within the libraries' Electronic Resources and Information Technology Department (ERIT), the research and data support coordinator coordinates the libraries' provision of the following services in support of faculty research: research data management, digital humanities tools, website design, user interface design, database development, digitization services, and content and application hosting and development. The research support coordinator will meet with faculty researchers, assess their needs, recommend options and solutions, and, as needed, direct faculty to appropriate support resources within the libraries and campus wide. The position works with faculty, academic units, and research centers, assisting in managing, describing, preserving, and making research and data available and accessible to appropriate audiences. The position will assist faculty with writing data management plans, will work closely with the libraries' subject liaisons, and will provide library-wide training, research, and assistance for our research and data support initiatives. This position is best suited for a candidate with a broad understanding of IT, in order to effectively coordinate the interdepartmental efforts of library specialists in areas such as programming, web design, metadata, digitization, and data curation.

Responsibilities:
Provides library-wide, interdepartmental coordination of the libraries' team-oriented research and data management support programs, which will include significant participation from Reference and Instructional Services, Special Collections and University Archives, Music, Cataloging, and potentially other library departments:

- works closely with the UNCG Office of Research and Economic Development (including the Office of Sponsored Programs), UNCG Information and Technology Services, faculty research committees, and other campus stakeholders to ensure efficient and effective support for researchers;
- assists faculty with technological elements of grant applications, and with crafting effective data management plans;
- works closely with library subject liaisons to make sure they are kept informed and that they can assist in communicating research and data management support opportunities and options to faculty;
- conducts training, group instruction, and/or workshops;
- contributes to and is active in state, regional and national meetings, conferences and workshops, reviews professional literature, and networks with professional colleagues outside of the university to stay informed about developments and trends in research support.

Required Qualifications:

- Advanced degree
- At least two years of experience in at least one of these three: academic libraries, grant specialization in sponsored programs, or grant coordination for externally funded programs
- Excellent oral and written communication skills
- Strong service orientation
- Demonstrated knowledge of significant trends and issues in research, research support, and data management plans
- Demonstrated ability to work in a collaborative environment that encourages personnel to work across departments to support the goals and initiatives and priorities of the libraries
- Strong analytical and decision-making skills
- Experience with project management
- Basic understanding of a broad range of information technologies, including programming, hardware, digital humanities tools, web site design, user interface design, database development, digitization services, and content and application hosting and development

Preferred:

- Demonstrated experience with two or more of the following—programming, hardware, digital humanities tools, website design, user interface design, database development, digitization services, and content and application hosting and development
- Experience with data management plans
- Grant writing experience and familiarity with federal funding requirements