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putting the pieces together: theory and practice

Gathering Feedback from Early-Career Faculty: Speaking with and Surveying Agricultural Faculty Members about Research Data

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Abstract

In spring 2013, the Life Sciences Data Services Librarian at the University of Illinois at Urbana-Champaign gave a data management presentation to early-career, agricultural faculty members participating in a selective program designed to help them succeed in the tenure process. After the presentation, the participants were invited to complete an online survey that included questions on how well informed and prepared they feel about funding agencies' data requirements, what data challenges they face, and how the library can help with new or improved services in this area. The presentation discussion and survey responses suggested value in offering data training specifically for agricultural graduate students and research assistants and compiling examples of data management plans from successful grant proposals. Despite the small number of participants, the feedback provides an interesting glimpse into data management from the perspective of early-career faculty.

Introduction

Several academic libraries have investigated the data practices and needs of their faculty members and used the findings to help inform their data services (Scaramozzino, Ramírez, and McGaughy 2012; Steinhart et al. 2012; Peters and Dryden 2011; Westra 2010). This type of study typically involves a mix of faculty members and other researchers. In the spring 2013 semester, the author was invited to give a data management presentation to early-career faculty. This was a valuable opportunity to not only raise awareness among new faculty that the library is willing and available to provide research data support, but also to gather feedback to inform the library's data services. Outreach to new faculty members is a common practice in librarianship, because as Anthony (2010) writes, "By creating relationships with new faculty, librarians can build bridges lasting for decades to come."

The early-career faculty members were participants in the Research Academy, which is offered by the University of Illinois College of Agricultural, Consumer and Environmental Sciences (ACES) Office of Research. The Research Academy is a selective program designed to help ACES faculty in their first or second year on campus succeed in the tenure process, with sessions focusing on grant identification and writing, effective time management, and tenure material preparation.

Since the participants were actively identifying and writing grants, the author's presentation focused on three main topics: data management and sharing requirements of major

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funding agencies, practical information and resources for meeting those requirements, and data support and resources available from the University Library. Beyond just informational, the session generated productive discussions about data, grant funding, and other issues, such as the benefits and costs of open access publishing.

Following the presentation, the author conducted a survey to gather more systematic feedback. The survey asked how well informed and prepared the participants felt about funding agencies' data requirements, what data challenges they faced, and how the library could help with new or improved services in this area. This article details the survey results, discusses the effectiveness of this survey method, and describes future plans.

Methodology

Given the many demands on newer faculty members, the author designed the study to be as convenient and stress-free as possible. An online survey was created, so participants could respond at their convenience. The survey was implemented through a University-developed web application, which has clear privacy policies and ensures that survey responses are anonymous. The Institutional Review Board and the Research Academy Director both approved the survey.

The survey, which was pre-tested with two agricultural faculty members, included 18 questions (Appendix). Some of the questions were included to provide context, such as how the respondents had used academic libraries previously and how informed they felt about funding agencies' data management requirements. After reading the "Prepared to Plan?" article by Steinhart et al. (2012), the author also decided to ask how well prepared the respondents felt to address funding agencies' requirements. To inform data services, the survey asked about data challenges and requested feedback on what services would be helpful. In the author's experience to date, a limited number of researchers have actually requested help with research data, so one question explicitly asked how likely the early-career faculty would be to request data assistance from a librarian. The questions about specific data tools and resources were included to gather feedback that has otherwise been difficult to gather. The survey also asked for ideas on how to better promote the library's data services, since the faculty respondents may have ideas that are particularly effective for reaching other faculty.

The pool of potential survey respondents was small. The Research Academy is a selective program, and in spring 2013, there were 12 participants. Six of the 12 participants attended the author's presentation, but all participants were invited to complete the survey. One question asked whether the respondent attended the presentation.

The presentation was in early May. The next day, an individual survey email was sent to each participant, and 10 days later a reminder email was sent to every participant, since the submitted responses were anonymous and the author did not know who had already completed the survey. The survey closed on June 7, 2013.

Results

Seven participants completed the survey for a 58% response rate. Five of the seven respondents attended the presentation. In the past, the respondents had mainly used academic libraries for traditional purposes: database or journal subscriptions (6), interlibrary loan requests (4), reference questions (3), and citation management tool access or assistance (3). Few had taken advantage of institutional repository access or assistance (2) or citation metrics assistance (2). Only one respondent had arranged a library instruction session for students, and no respondents used library assistance with author rights, intellectual property, open access, or research data.

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Figure 1: How well informed respondents felt about funding agencies' data management/sharing requirements

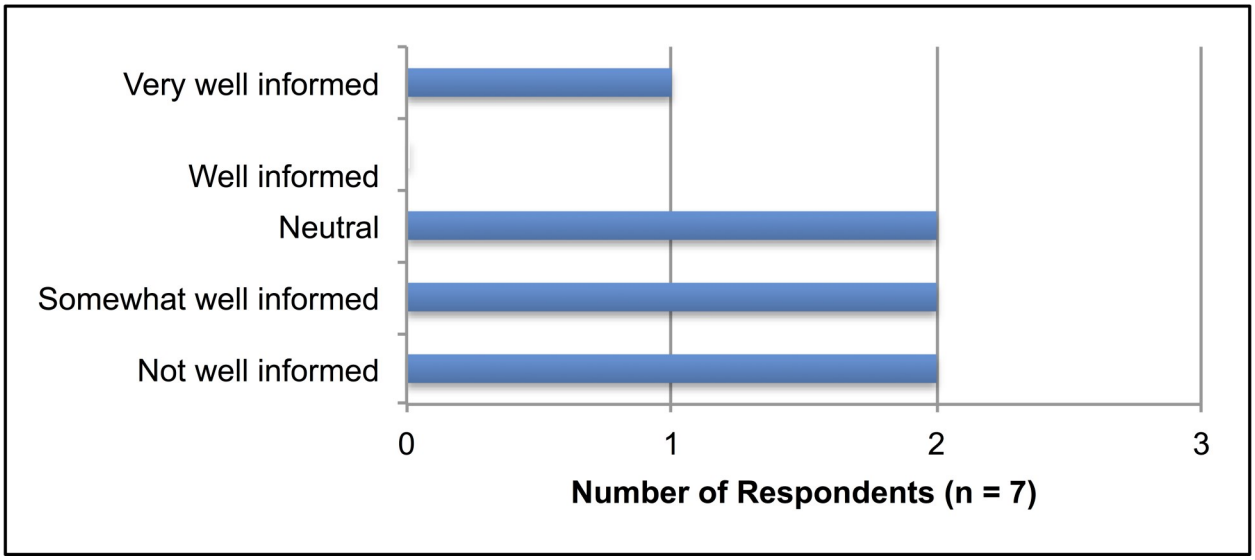


Figure 2: How well prepared respondents felt to address funding agencies' data management/sharing requirements

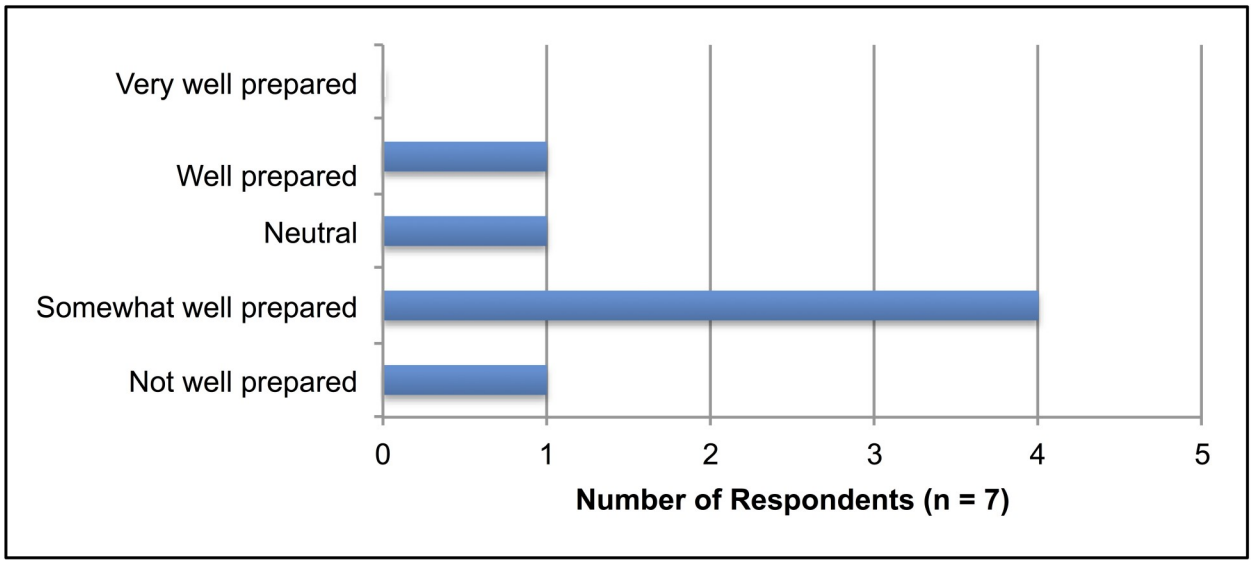


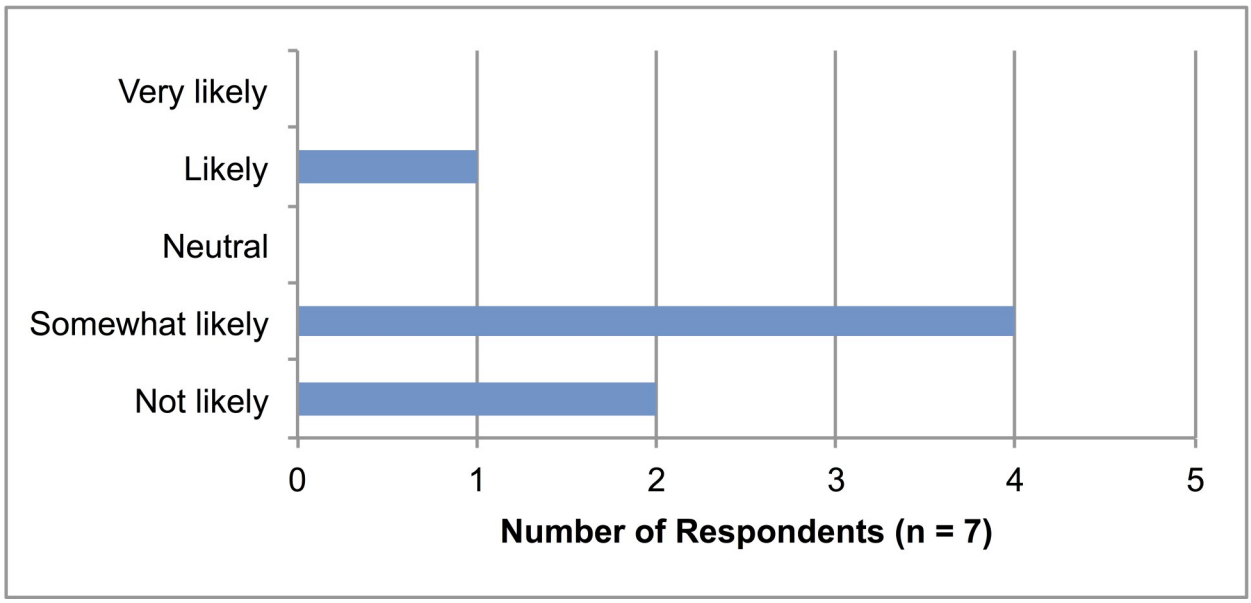
Table 1: Data challenges faced by survey respondents

What data challenges do you face with your research? (Pick top 3)	Number (n = 7)	Percentage
Ensuring data security	3	43%
Managing data (e.g., versioning, file naming)	3	43%
Preparing data to share	3	43%
Storing or backing up data	3	43%
Writing data management plans	3	43%
Finding and acquiring data from others	2	29%
Describing data (i.e., metadata)	1	14%
Linking data to your publications	1	14%
Preserving data for long-term access	1	14%
Submitting data to repositories	0	0%

Table 2: Interest of survey respondents in library data services

What data services do you think would be most helpful from a librarian or the University Library? (Pick top 5)	Number (n = 7)	Percentage
Data management training for laboratory assistants and graduate students	5	71%
Involvement/integration in grant proposals and research projects	4	57%
Consultation on data management challenges/questions	3	43%
Data management plan templates/tools (i.e., do-it-yourself resources)	3	43%
Data management plan consultations (i.e., individualized assistance)	2	29%
Data citation guidance	2	29%
Data description (i.e., metadata) assistance	1	14%
Dataset purchasing	1	14%
Help identifying repositories to acquire or to submit data	1	14%
Informational website with data management best practices and links to campus resources	1	14%
Providing an institutional data repository	1	14%
Workshops/seminars on funder data requirements and tools/resources to meet those requirements	1	14%

Figure 3: Likelihood of respondents to request research data assistance from a librarian



Most respondents did not feel well informed about or well prepared for funding agencies' data management requirements (Figures 1 and 2). Six respondents were neutral to not well informed and neutral to not well prepared. The one remaining respondent felt very well informed about the requirements and felt well prepared to address the requirements. Of the two who did not attend the presentation, one felt not well informed about the requirements and one felt somewhat well informed. When asked openly for questions or concerns about funding agencies' data requirements, the main question was how to maintain the confidentiality of research subjects.

One question asked the survey respondents to select their top three data challenges from a list of 10 options (plus an "Other" option). The responses were fairly evenly divided, with one to three respondents selecting each option, except "Submitting data to repositories" and "Other," which were not selected (Table 1). The most frequently selected options (i.e., selected by three respondents) were ensuring data security, managing data, preparing data to share, storing or backing up data, and writing data management plans.

The survey asked what data services would be most helpful from a librarian or the University Library. The respondents could pick five from a list of 12 options (plus an "Other" option). All options were selected at least once, except "Other" (Table 2). The most frequently selected were: data management training for laboratory assistants and graduate students (5), involvement/integration in grant proposals and research projects (4), consultation on data management challenges/questions (3), and data management plan templates/tools (i.e., do-it-yourself resources) (3). The next two questions asked how likely they would be to request research data assistance from a librarian (Figure 3) and why. Six respondents were somewhat likely to not likely. Only one was likely to request assistance. As for why, one respondent wrote, "I can find most things I need online and including a third party usually takes longer." Another wrote, "Right now I do not see a need for data assistance, but if my funding agencies (primarily USDA) start requiring data sharing and data manage-

ment plans, I may seek assistance in proposal development." One respondent, who attended the Research Academy presentation, explained "poor knowledge on services provided," was the reason for being not likely to request assistance.

During the Research Academy presentation, several resources were highlighted as practical resources for meeting data management requirements, and the survey asked how useful these might be. The two respondents who did not attend the presentation chose to skip these questions. For Databib and the DataONE resources (e.g., Best Practices, Software Tools Catalog), the five responses were almost exactly divided across the 5-point scale from very useful to not useful. For the DMPTool and the author's Life Sciences Data Services website, four respondents selected very useful or useful, and one selected somewhat useful. When asked what other tools or resources would be helpful, one respondent wrote, "To have access to grant proposals that have been successful in the past." Another stated, "Honestly, even a non-credit class for people like me about the basics of empirical research would be helpful."

The respondents had few suggestions when asked how the library's data services could be better promoted on campus, especially to newer faculty. The two who responded suggested that handouts or a presentation at new faculty orientation, emails, and fliers would help raise awareness.

Discussion and Future Plans

The Research Academy presentation and follow-up survey were effective in meeting the goals of raising awareness of the library's research data support and gathering feedback to inform the library's data services. The presentation was beneficial for introducing the faculty to the idea that the library can provide research data assistance, so when the survey asked what data services would be most helpful, this was not a completely new concept for those who had attended the presentation. The positive interaction and discussion during the session may have also contributed to the strong survey response rate (58%), which was crucial for gathering ample feedback from a small pool of potential respondents. The survey responses provided information that the author has had difficulty gathering previously, such as feedback on tools and resources like the DMPTool and the author's Life Sciences Data Services website. The author has not been contacted by any of the Research Academy participants yet, which perhaps is not surprising since most responded that they would be unlikely to request research data assistance from a librarian. However, the session discussion and survey responses did point to two potentially valuable initiatives, which the author is pursuing.

When asked what data services would be most helpful from a librarian or the University Library, data management training for laboratory assistants and graduate students was most selected by the respondents (71%). The University Library has a Savvy Researcher workshop series, which none of presentation attendees had heard about previously, and the series has a few data-related workshops, including an Intro to Data Management session co-taught by the author. As a follow-up to the survey, the author emailed the Research Academy participants to further promote the Savvy Researcher series and to mention that they can request a workshop to be taught at an upcoming meeting, such as a research group or laboratory meeting. The author is also exploring opportunities to offer data training specifically for agricultural graduate students and research assistants. Library involvement in data education for students is a growing trend, as indicated by the Data Information Literacy project (2013) and the Planning a Data Management Curriculum and Requirements for a Collaborative Data Repository project (2012), which were both funded by the Institute for Museum and Library Services.

In the survey, only one respondent noted that access to successful grant proposals would be helpful, but this idea was also discussed during the presentation, and everyone agreed that they would appreciate seeing successful data management plans. At this point, few data management plans are publicly available to use as examples (e.g., DMPTool Funder Requirements 2013; Research Data Services Examples 2013; Research Cyberinfrastructure Example Data Management Plans 2013). Therefore, the author identified and contacted life sciences researchers at the University of Illinois who recently received a National Science Foundation grant and asked if they would be willing to share their data management plans, whether publicly on the author's Life Sciences Data Services website or more privately with Research Academy participants, as a way to help early-career faculty. Four grant recipients agreed that the author could share their data management plans with Research Academy participants.

While the number of survey respondents was small, their answers provide an interesting glimpse into data management from the perspective of early-career faculty. If invited to meet with future Research Academy groups, the author plans to distribute this survey and compile the results in order to have a larger group of respondents and to track changes over time.

Conclusion

The Research Academy presentation was a valuable opportunity to reach early-career faculty members and raise their awareness of the library's research data support. The follow-up survey was effective in gathering systematic feedback about how well informed and prepared the respondents felt about funding agencies' data requirements, what data challenges they faced, and what library data services would be helpful. It remains to be seen whether the presentation and survey will lead to consultations or collaborations with any of the Research Academy participants, but from the session discussion and survey responses, the author identified two potentially valuable initiatives. The author is exploring opportunities to offer data training specifically for agricultural graduate students and research assistants, and the author has collected and shared data management plans from successful National Science Foundation grants.

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Appendix: Survey

1. Please indicate your consent to participate:
   - I consent
   - I do not consent

2. Did you attend the Library presentation about research data management at the May 9 Research Academy meeting?
   - Yes
   - No

3. In the past, for what have you used academic libraries (Check all that apply):
   - Author rights or intellectual property assistance
   - Citation management tool (e.g., RefWorks, EndNote) access or assistance
   - Citation metrics (e.g., h-index, journal impact factor) assistance
   - Database and journal subscriptions
   - Institutional repository access or assistance
   - Interlibrary loan requests
   - Library instruction sessions for your students
   - Open access assistance
   - Reference questions
   - Research data assistance
   - Other [Please specify]

4. How well informed do you feel about funding agencies' data management/sharing requirements? [Scale of 1 to 5, with 5 being very well informed]

5. How well prepared do you feel to address funding agencies' data management/sharing requirements? [Scale of 1 to 5, with 5 being very well prepared]

6. What questions or concerns do you have about funding agencies' data requirements?

7. What data challenges do you face with your research? (Pick top 3)
   - Describing data (i.e., metadata)
   - Ensuring data security
   - Finding and acquiring data from others
   - Linking data to your publications
   - Managing data (e.g., versioning, file naming)
   - Preparing data to share
   - Preserving data for long-term access
   - Storing or backing up data
   - Submitting data to repositories
   - Writing data management plans
   - Other [Please specify]

8. What data services do you think would be most helpful from a librarian or the University Library? (Pick top 5)
   - Consultation on data management challenges/questions
   - Data citation guidance
   - Data description (i.e., metadata) assistance

- Data management plan consultations (i.e., individualized assistance)
- Data management plan templates/tools (i.e., do-it-yourself resources)
- Data management training for laboratory assistants and graduate students
- Dataset purchasing
- Help identifying repositories to acquire or to submit data
- Informational website with data management best practices and links to campus resources and services
- Involvement/integration in grant proposals and research projects
- Providing an institutional data repository
- Workshops/seminars on funder data requirements and tools/resources to meet those requirements
- Other [Please specify]

9. How likely are you to request research data assistance from a librarian? [Scale of 1 to 5, with 5 being very likely]

10. And why?

11. Of the tools and resources that I highlighted during my Research Academy presentation, how useful do you think they will be? [Scale of 1 to 5, with 5 being very useful]
    - Databib (http://databib.org/)
    - DataONE Software Tools Catalog (http://www.dataone.org/software_tools_catalog)
    - DMPTool (https://dmp.cdlib.org/)
    - Life Sciences Data Services website (http://www.library.illinois.edu/lsdata/)

12. What suggestions do you have to make any of these tools or resources more useful for you?

13. What other kinds of data tools or resources would be helpful for you?

14. How can I better promote the Library's data services to other researchers on campus, especially to newer faculty?

15. Do you have other comments?