JESLIB 2012; 1(3): 115-117
doi:10.7191/jeslib.2012.1038

Journal of eScience Librarianship
putting the pieces together: theory and practice

Editorial

What do Data Services Librarians Do?

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The articles presented in this issue of the *Journal of eScience Librarianship (JESLIB)* demonstrate many of the data services librarians can offer to the research community. By providing data services, librarians are able to create an opportunity to potentially connect and collaborate with a new group of users in their institutions. So, what do data librarians really do? Along with actually curating and archiving data sets and assigning metadata to data elements, data librarians may teach students data management fundamentals and assist researchers with the National Science Foundation (NSF) data management planning. Whatever services data librarians offer, they need to be supported. JESLIB is meant to be a forum for librarians to share what they do and how they do it as well as to exchange information about the developments and lessons learned in data services librarianship.

In her article, "A Data Sharing Story," Merce Crosas explains the fundamental elements of data sharing and one response to addressing the challenges presented to facilitate effective and efficient data sharing and preservation practices. The Dataverse Network open-source software from the Institute for Quantitative Social Sciences at Harvard University -- offers one ready-made solution to social scientists needing to store, secure, and back up data for long-term use. Crosas gives several examples of success stories as well as a glimpse into the future of Dataverse -- expanding and supporting additional scientific disciplines and forming new interdisciplinary collaborations with journals and librarians.

Raboin, Reznik-Zellen, and Salo discuss the lessons learned from three different institutional approaches to developing research data management programs and services in their article entitled "Forging New Service Paths: Institutional Approaches to Providing Research Data Management Services." Despite each project's uniqueness, the authors offer some common elements needed for success in developing data services such as: 1) the need for an administrative champion and administrative support; 2) the need for infrastructure support; and 3) the need for a team approach. At the same time, challenges such as how to balance workload, how to engage researchers, and how to support and acquire professional development persist. The authors agree that librarians can still be successful despite these challenges.

Adamick and colleagues at the University of Massachusetts-Amherst describe the library's efforts to support graduate students who participate in sponsored research through the development of a data management curriculum. In "Data Management Training for Graduate Students at a Large

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Research University," the librarians describe the workshops along with pre- and post-workshop survey responses. The authors conclude that both broad-based workshops like the one described as well as discipline-specific workshops are needed.

Two articles, "Lurking in the Lab: Analysis of Data from a Molecular Biology Laboratory," and "A Case Study: Data Management in Biomedical Engineering," describe the various data types and files found in research labs and highlight the challenges researchers have in describing, managing, organizing, and retrieving the variety of primary research data generated during laboratory experiments. Jen Ferguson's paper describes the research data generated on instruments in a molecular biology teaching lab. The author found hundreds of data files in several different file formats on lab hard drives. Naming conventions, data security, proprietary software, and data management practices in general varied from student to student working in the lab and made data retrieval difficult. Assisting research faculty and their students at the time of primary data generation to develop sound data management practices is an emerging role for a librarian. Schroeder echoes the problem of the increase in proprietary formats and the difficulties in converting the information generated through these forms into more generic formats for preservation and future retrieval described by Ferguson. Shroeder sees this issue as an "opportunity for librarians" through their development of standards, protocols, and vocabularies: This is an emerging role for science librarians.

Gaudette and Kafel describe similar challenges in laboratory data management practices. In this instance, stem cell experimentation on rats yielded hundreds of data sets that needed to be captured, stored, and retrieved for future scholarly outputs such as papers and reports. The co-authors describe the seemingly haphazard way in which lab personnel may follow established practices and the limitations of print lab notebooks. Dr. Gaudette, recognizing the importance of data management, has collaborated with librarians to develop data management instruction for undergraduate and graduate engineering students involved in data-driven research projects.

As these authors attempt to describe what data librarians do, questions of the requisite scientific background and future employment of librarians follow. While data services librarianship is emerging as a new area of specialization for librarians, only a few schools offer programs of study. In "Mentoring for Emerging Careers in eScience Librarianship: An iSchool-Academic Library Partnership," Gail Steinhart and Jian Qin discuss a collaboration between a research library and an I-School in order to recruit prospective students with a science background into librarianship. Mentoring is one form of support that can be offered to librarians and students interested in becoming data management librarians. While feedback on the program's ability assist the students in understanding library culture and developing professional contacts, its ability to help students secure a job, internship, or volunteer opportunity was mixed. The successes, challenges, and trade-offs in offering such a mentoring opportunity are discussed.

On February 22nd, 2013 the Office of the President directed Federal agencies with more than $100 million in Research and Development expenditures to develop plans to make published results of federally funded research freely available to the public within one year of publication, and to require researchers to better account for and manage their digital data resulting from federally funded scientific research. This is a potential game changer for academic librarians offering data services to the scientists and researchers in their institutions. What services to offer, the challenges in offering these services, the opportunities presented by offering these services, data management curriculum offerings for students and researchers, and the professional develop-

ment needed for librarians offering these services are all topics to be explored in this and future issues of JESLIB.

ISSN 2161-3974