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Scholarly Communication Coaching: Liaison Librarians' Shifting Roles

> Todd Bruns Steve Brantley Kirstin Duffin

Introduction

Two and a half decades into the open access (OA) movement, rapid changes in scholarly communication are creating significant demands on scholars. Today's scholars must wrestle with meeting funder mandates for providing public access to their research, managing and preserving raw data, establishing/publishing open access journals, understanding the difference between "green OA" and "gold OA," navigating the complicated issues around copyright and intellectual property, avoiding potentially predatory publishers, adapting their tenure plans to OA, and discovering increasing amounts of OA resources for their research and their curricular materials. These demands present an opportunity and a need for librarians to step in and assist scholars with the scholarly communication process.

Along with a rapidly-shifting scholarly communication field, two important areas of librarianship have been undergoing changes as well in the past fifteen years. Institutional repositories (IR) continue to proliferate in academia, in tandem with the growth of discipline repositories such as arXiv and scholars' commons such as Research Gate and Academia.edu. In spite of increasing numbers of repositories, institutional repositories have not yet achieved status as an embedded technology central to the research enterprise of the institution. Although enthusiastically embraced by librarians, institutional repositories are still unknown to significant numbers of faculty, or viewed by discipline scholars as primarily a purview of the library and not integral to their research life (Creaser, 2010, 9; Cullen and Chawner, 2010, 133; Hahn and Wyatt, 2014, 93; Dutta and Paul, 2014, 295).

The second important area, the duties of subject liaisons, have been impacted by the continuation of the serials crisis, now coupled with devastating losses in library collection budgets due to the Great Recession (Prottsman, 2011, 107). Plutchak (2012, 11) argues that more scholars now tend to view their research processes as largely "outside the library," even as scholarly communication proliferates and changes in publishing increase the needs of scholars for librarians' skills.

These increasing needs are requiring a commitment to scholarly communication support among libraries that goes beyond a staff member or two dedicated to managing an IR or being responsible for scholarly communications issues. In this chapter, four different methods of training subject liaisons to be "scholarly communication coaches" (the authors' term) are explored, and an integrated method of training subject liaisons at a master's-granting university library is suggested. A "scholarly communication coach" is defined here as a subject liaison, trained to understand copyright, author rights, and the use of various scholarly communication tools (e.g., the copyright checking online database Sherpa/ROMEO), then embedded in their academic department to partner with their department faculty and assist with scholarly communication demands throughout the research process. By putting scholars' needs at the center of liaison efforts, librarians would be addressing critical needs of the research community, re-asserting the librarian role as central to connecting scholars with knowledge, and perhaps establishing the institutional repository as an embedded technology central to the research life of the university (Kenney, 2014, 3; Kirchner, 2009, 23; Malenfant, 2010, 64; Mullen, 2011, 2). It should be noted that this chapter describes partnering subject liaisons with the Institutional Repository Librarian and the Head of Reference Services at a specific master'sgranting university in the development of creating an "engagement-centric" model (Kenney, 2014, 3) to support academic scholars' scholarly communication and publication needs. At other institutions, the more appropriate partnership may be an Institutional Repository or Scholarly Communications Librarian with the Head of Collection Development. An engagement-centric model is consistent with the service approach described by the University of Nebraska at Lincoln's Paul Royster at the 2014 Open Repositories Conference, and with cross-collaboration (Bruns et al., 2014, 244) as beneficial for creating a robust institutional repository.

Gearing Library Services to Support Scholarly Communication

Although the rapid adoption and growth of institutional repositories in academic libraries can be seen as an indicator of success of the open access initiative, faculty often perceive of the repository as being something "the library does" and not integral to their research process. As pointed out by Peter Suber, one of the challenges that institutional repositories face is that scholars generally do not comprehend that depositing in a repository and publishing in a subscription journal are both compatible and comparable. In order to address this resistance, some advocates of open access such as Steve Harnad have suggested the implementation of institutional mandates. A similar concept was suggested at the 2012 Budapest Open Access Initiative, with a proposal that institutions with repositories require deposit for attainment of tenure and promotion. Presenting the repository as part of a service demonstrates potential for integrating the repository into the research life of the campus in a way that makes more sense to discipline scholars' workflows (Neugebauer and Murray, 2013, 91; Royster, 2014, n.pag.). As Neugebauer and Murray note, if there is no compelling reason from the scholars' perspectives to participate in a repository, getting them to do so is challenging (2013, 90). Depositing into a repository has to make sense in the context of the scholar's academic career.

For the institution, success of the repository is imperative. Institutions face increasing competition for diminishing resources and students who are seeking the greatest educational return on investment, making the public profile of the university and the institution's prestige increasingly important. The repository enables open access to the published intellectual output of the institution, increasing the likelihood that prospective students can discover research being performed in their areas of interest. The success of the repository is also essential for the continuing evolution of scholarly publishing. The shift to the open access model of scholarly publishing has been significantly slowed by the failure of faculty – through ignorance or indifference more often than from a philosophical opposition – to actively participate in depositing their work into institutional repositories. Positioning the repository into the research lifecycle of the institution is essential to creating sustainable growth of the repository.

The actual work of raising the relevance of the repository in the estimation of the university faculty requires a concerted, dedicated and collective effort by the library professionals most closely associated with the research lifecycle: the IR librarian, Digital Initiatives or scholarly communication point person, and subject liaisons. Liaisons need to focus on both collection development and the provision of services to their departments. Liaison support of the repository, both in promoting its use and in assisting with deposits (content collection) into it, is just one aspect of scholarly communication support. Other aspects of their roles as scholarly communication support specialists include authors' rights support, data management and data curation, expanded access to unknown collections and consultations on the

state of the publishing landscape of the discipline being some of the other products of a subject liaisonship. Clearly, when one begins to elaborate the set of needs the contemporary scholar must face to thrive in an intensely competitive and complex research and publication environment, it is plain to see that a single professional or small group is insufficient to manage the task. To successfully address the current needs of a forward-thinking faculty, the academic library needs to place scholarly communication competencies in the toolkit of every librarian who has a role interacting with subject faculty.

Science, Technology, Engineering, and Mathematics (STEM) Scholars

The disciplines in science, technology, engineering, and mathematics (STEM) have generally led the trend towards open access and often have the most advanced needs. One of the first open access repositories, arXiv, was developed in the early 1990s as a means for the rapid sharing of research preprints among researchers. The field of mathematics has shifted its entire scholarly publishing model to open access. Funder mandates, initiated by the National Institute for Health and since embraced by other organizations, necessitate the public access of research supported by public funds. For scholars working to get grants from NIH and other sources, providing public access to the published scholarship and planning for data management have become central to the research process.

Science faculty at the authors' institution put teaching at the center of their professional focus, although research is also very important to most of these scholars. Journal prestige and appropriateness of the publication platform for the research is of tantamount importance to these scholars. While scholars are becoming increasingly aware of open access publishing, they may not be able to distinguish between an OA journal and a subscription-based journal (Thorn et al.,

2009, 43; Xia, 2010, 620). According to Thorn et al., self-archiving in a subject or institutional repository is supported by a minority of researchers (2009, 44). Publishing in an OA journal, along with making access to research available through the IR, is perceived by some as less esteemed, similar to findings at other institutions (Davis and Connolly, 2007, n. pag.; Harley et al., 2010, 226; Laughtin-Dunker, 2014, 9).

At the authors' institution, participation in the IR varies by department. In the sciences, only faculty in the Biological Sciences department have embraced adding their works to the IR (92% participation), whereas faculty in Chemistry (26%), Physics (16%), and Geology/Geography (13%) have been slower to contribute. Bell et al. discovered that low participation by faculty is due to a lack of understanding the role of the IR (2005, 286). Lack of confidence in the IR concept (Davis and Connolly, 2007, n. pag.; Kim, 2011, 248) and concerns of violating copyright (Davis and Connolly, 2007, n. pag.; Kim, 2011, 247; Dutta and Paul, 2014, 293) are other factors de-motivating faculty participation. Understanding these scholars' hesitations associated with the IR will help guide the training of subject liaisons as scholarly communications coaches.

In terms of conducting literature research, finding and accessing articles is the goal for science scholars. Bell et al. points out that faculty rarely care how research articles are made available to them (2005, 287). It may not be clear to faculty who use Google Scholar that some articles they are accessing come from IRs (St. Jean et al., 2011, 35). In addition, while some scientists at the authors' institution, particularly biologists and chemists, are relatively heavy users of interlibrary loan (Tolppanen and Derr, 2010, 311), immediate access to articles is preferred. For these scholars, the sharing of preprints is less daunting than in other disciplines. Librarians can grease the wheels of IR participation if they are able to communicate to these

scholars that IRs improve access to the research they need; providing data will clarify this message.

With library budgets still shrinking and journal prices still skyrocketing, maintaining subscriptions to desired scientific journals may now be a luxury. Taylor et al. (2008, 19) and Bosch and Henderson (2014, 32) note the existence of a gap at many institutions between scholar information needs (i.e. access) and the modern evolution of scholarly publishing. Well-populated IRs can help sustain the instantaneous access to published research that scientists desire. To achieve this, particularly in a sustainable fashion, subject liaisons trained to offer scholarly communication coaching in the STEM areas can both assist their faculty with access and promote open access collection development into the IR.

Literature Review: Scholarly Communication Services

A review of the scholarly communication literature reveals a wide range of scholarship on a number of issues, including managing institutional repositories (Armstrong, 2014, 43; Bruns et al., 2014, 244; Bull and Eden, 2014, 263; Burns, Lana, & Budd, 2013, n. pag.; Royster, 2014, n. pag.; Sterman, 2014, 360), authors' rights (Wirth and Chadwell, 2010, 337), open access (Harnad, 2010, 68; Linlin, 2013, 3), citation rates (Gargouri et al., 2010, n. pag.; Suber, 2012, 15), library publishing (Allen, 2008, 59; Park and Shim, 2011, 76), metrics (Bruns and Inefuku, 2015, n. pag.; Gordon, 2012, 198; Inefuku, 2013, n. pag.; Konkiel and Scherer, 2013, 22), and faculty engagement (Tewell, 2014, 80; Wiegand, 2013, 335). The transformation of liaison librarians into scholarly communication supporters is a recent phenomenon in the literature.

T. S. Plutchak has described what he referred to as the upcoming "great age of librarians" (2012, 10). In his address to the 111th annual meeting of the Medical Library Association in 2011,

Plutchak took the position that, as user habits take a digital turn, the library as place and public services in the form of reference, collection development, and organization of library resources for use, all have diminishing value to researchers. The library is perceived as less central to their research process, decreasing its relevance. Conversely, information and newly-created knowledge continues to proliferate. This fact, combined with research that crosses disciplinary boundaries, confounding efforts to classify it, is making the need for librarians more relevant and necessary than ever (Plutchak, 2012,10).

Mullen (2011, 3) reports that as recently as 2011, ACRL standards for libraries in higher education had still not emphasized scholarly communication or open access as a core competency. She suggests also that reference librarians and subject liaisons may be more confident and comfortable using traditional library resources rather than open access sources or the institutional repository. Nevertheless, rapid changes in scholarly communication continue to increase both the support needs of discipline scholars and calls for the inclusion of scholarly communication skills as a core librarian competency (Bailey, 2005, 259; Bonn, 2014, 132; Bresnahan and Johnson, 2013, 413; Kenney, 2014, n. pag.; Kirchner, 2009, 22; Thomas, 2013, 167; Neugebauer and Murray, 2013, 84; Wirth, 2011, 197). Subject liaison librarians, already connected to academic departments, are key to the "engagement centric" model of embedding librarianship into the research enterprise of the institution and in the support of scholarly communication needs (Kenney, 2014, n. pag.; Malenfant, 2010, 63; Neugebauer and Murray, 2013, 84; Plutchak, 2012, 10; Thomas, 2013, 167).

A shift to an engagement-centered practice means that subject liaisons focus on indicators of research value that their departments and their institution consider important and not what the library considers important. By doing so, subject liaisons are better positioned to provide scholarly communication coaching to faculty at targeted points of need. Thomas (2013, 170) proposes a three-level system of scholarly communication support: open access support in the form of assisting scholars with the variety of publishing models and with making their work open access; copyright and intellectual property support in the form of consultations about copyright transfer agreements (CTAs) and the fair use of copyrighted work; and research support in the form of enabling scholars to successfully evaluate open access sources and to meet funder mandates. As libraries investigate shifting liaison librarians to these new roles, a variety of methods are being employed.

Implementations of "Scholarly Communication Coaching"

Oregon State University's "Rights Well Workshop"

Wirth and Chadwell describe the creation of a Rights Well Workshop at Oregon State University Libraries that provides focus to the complexity of scholarly communication by training subject liaisons to better understand authors' rights and copyright transfer agreements (CTAs) (2010, 337). In this perspective, authors' rights are a key component of scholarly communication, and assisting faculty with better management of their copyrights and their intellectual property would provide fundamental advancements to more scholarship being open access.

The Rights Well Workshop is first conducted for librarians. Wirth and Chadwell note that not only do librarians need to be trained to better serve the scholarly communication needs of the faculty with whom they liaise, but librarians like any other authors need to understand and exercise their own authors' rights (2010, 341). Additionally, librarians who will be supporting scholarly communication and especially the depositing of open access work in repositories need to be self-archiving their work. Responding to Doug Way's 2010 study on the limited (27%) open access availability of library and information studies articles, Wirth and Chadwell state, "There is no reason that librarian authors should not be self-archiving their articles in significant numbers while simultaneously working to inform authors in other disciplines to do the same" (2010, 342).

In the Rights Well Workshop, discipline-specific key journals are determined. This can be done through a variety of methods and sources: creating or reviewing reports of faculty publications at the home institution, checking the *Web of Science Journal Citation Reports* for a ranking of impact factor and the calculation of the *Eigenfactor* score, or a recent review of the literature of the field if one is available (Wirth and Chadwell, 2010, 342). The next step is to identify the publishers of the journal and get their CTAs, followed by checking their copyright policies via the Sherpa/ROMEO online database (http://www.sherpa.ac.uk/romeo/) and the CTA statement. This preparation is vital to understanding the discipline under review, and essential for speaking "with" faculty about the journals they are very familiar with as opposed to "at" them with broad generalities.

Wirth and Chadwell report the workshop itself is divided into six sections (2010, 351). A brief introduction and discussion of outcomes are followed by some background discussion of the importance of authors' rights and explanation of terminology such as CTAs. This is followed by fifteen minutes of discussion on publishers and journals in the discipline, and thirty minutes of small group reviews of CTAs that are reported back to the larger group. Sections on amending CTAs, reviewing author addenda such as the Scholarly Publishing and Academic Resources Coalition (SPARC) addendum (http://www.sparc.arl.org/resources/authors/addendum), listing resources to help in this analysis, and a short time for questions conclude the workshop.

Wirth and Chadwell argue that this method of deploying subject liaisons prevents scholarly communication services from being limited to a one person or one unit "silo" (2010, 345). Competency in scholarly communication skills, and specialized knowledge of the publishing landscape of a discipline or sub-discipline, combined with an adapted Rights Well Workshop, demonstrate the best of what "embedded librarianship" is supposed to be: working alongside and in support of scholars through the process of creating new knowledge.

Critics of authors' rights instruction argue that author addenda are suspect and perhaps unenforceable (Royster, 2014, n. pag.). Anxiety over tenure and promotion also contributes to scholar hesitation on pushing publishing rights addenda. Scholars may have discomfort advocating for authors' rights if they see it as potentially risking a rejection. No amount of knowledge of one's rights can resolve the issues surrounding the pressure to maintain the status quo under the current system. Neugebauer and Murray maintain that until scholars have a compelling reason to alter their publication habits, getting scholars in the disciplines to assert their own authors' rights could remain a significant hurdle (2013, 93).

University of Colorado at Boulder: Training Needs Assessment

The approach taken at the University of Colorado to create awareness for the need for scholarly communication support services was to survey the librarians for knowledge deficits via training needs assessment. Involvement in the design process of the training program led to increased reception to the new skills training by participants (Bresnahan and Johnson, 2013, 426). Scholarly communication issues were rated in a Likert scale of "Strongly Disagree" (-2) to "Strongly Agree" (2). The survey asked for knowledge and anxiety levels about authors' rights, copyright, data analysis and manipulation, data citation, data lifecycles, data management plan

consultation, data sharing, data preservation, finding data, funder mandates and policies, institutional and disciplinary repositories, metadata and data description, and open access. In order to prioritize the needs once identified, the survey included questions that allowed the trainees to design the training: "What should the institution be doing? What is not being done at the institution? Why is the institution not doing what should be done?" (Bresnahan and Johnson, 2013, 417).

Perhaps not surprisingly, the concepts having to do with data (the exception being "finding data") received higher anxiety and need-for-training marks than non-data concepts like authors' rights, open access, institutional repositories, copyright, and funder mandates (Bresnahan and Johnson, 2013, 424). Also noted were specific concerns communicated by the subject liaisons including a need for practical, hands-on training, and anxiety that librarians would be "unwelcome" to converse with scholars on these issues.

Participants expressed concern about potential disciplinary differences among researchers, although no disciplinary breakdowns were provided in the survey to ascertain if subject liaisons to particular fields anticipated higher data management knowledge requirements than in other fields. While this approach is effective for engaging subject liaisons into a new scholarly communication training program, Bresnahan and Johnson noted the limitations of their own survey in that it addressed librarian perceptions and not those of disciplinary scholars (2013, 426).

University of British Columbia: Disciplinary Scans and Embedding Services

At the University of British Columbia (UBC), subject liaisons were identified not only as appropriate support personnel for assisting discipline faculty with scholarly communication, but also as rich sources of feedback to the library about changes in the scholarly communication environment of disciplines (Kirchner, 2009, 25). The strategy at UBC was to insert the subject liaison at the discipline level: besides having a basic understanding of scholarly communication, the subject liaison would develop greater confidence in their own knowledge of the trends, issues, and models of scholarship in their discipline. The UBC method of disciplinary scans and embedding services also requires deeper levels of involvement in the discipline and the workings of its faculty.

Prior to the creation of the scholarly communication training program, the Institutional Repository Librarian and the Digital Initiatives Librarian (responsible for helping faculty launch open access journals using the Open Journal Systems platform) had both worked with subject liaisons on the launch of their institutional repository and a journal hosting program (Kirchner, 2009, 24). This experience and familiarity proved to be valuable for setting the tone of the scholarly communication training. The earlier projects had already adapted the subject liaisons to thinking about their particular discipline's needs.

Lee Van Orsdel's *Faculty Activism in Scholarly Communications – Opportunity Assessment Instrument* (http://www.arl.org/storage/documents/publications/scprog-fac-activismassessment.pdf) was adapted into a tool for subject liaisons and renamed "Delving Into Your Discipline" (Kirchner, 200, 24). Liaisons used the tool to conduct environmental scans of the scholarly communication milieu in their discipline. The scan was followed up with interviews with disciplinary scholars. The interviews by liaisons proved to be an extremely valuable method that led to greatly-increased understanding of the research needs and habits of the faculty they supported. Additionally, liaisons established connections with the campus Office of Research Services so that liaisons might partner with grant managers to assist faculty in meeting funder mandates. The interviews also helped create connections with journal editors for the purpose of assisting their journal's transition to an open access publishing model.

With the assistance of the Institutional Repository Librarian and the Digital Initiatives Librarian, Kirchner reported that subject liaisons were able to better assess and understand the scholarly communication systems of their particular disciplines (2009, 25). This accomplished two of the project's primary goals: sustaining library relevance and impact on the campus research community, and bringing subject liaisons further into the scholarly communication heart of their particular disciplines (Kirchner, 2009, 27).

University of Minnesota: A Systems Approach

Although scholarly communication skills are increasingly seen as a core competency, resistance to doing "one more thing" by already-overworked librarians can be a potential issue. Librarians also report lack of confidence and comfort in some areas of scholarly communication support, as seen previously with the needs assessment training exercise. The importance of "mainstreaming" scholarly communication support skills into the daily work lives of subject liaisons, to "fully own" them, led to the creation of the University of Minnesota Libraries' new Academic Programs department, led by Karen Williams (Malenfant, 2010, 64).

Karen Williams employed a systems approach as a conceptual framework, a method that "recognizes the innate networks, the interconnectedness, interdependency, and collaboration among people in organizations" (Malenfant, 2010, 64). The thinking at Minnesota was that scholarly communication is shifting rapidly and required significant alteration of the service model. Malenfant writes of four key steps taken at the University of Minnesota Libraries. The first step was to establish a support system for subject liaisons. This took the form of a

"Scholarly Communications Collaborative," a method of educating subject liaisons via workshops, and creating resources and learning tools (Malenfant, 2010, 67). This reinforced the idea that the librarians were not just learning new skills but that an intrinsic change of perception was taking place: subject liaisons should not only understand scholarly communication issues but also be of the mindset that they were to actively seek opportunities to promote open access.

Development of support tools in the first round of step one included a video on authors' rights, a Powerpoint[™] template, and talking points for an open access "elevator speech" (Malenfant, 2010, 67). An environmental scan exercise (similar to that conducted by the University of British Columbia) ascertained the existence of any discipline repositories and the positions taken on open access by major societies in the field.

As a result of the environmental scan, and with the use of the developed tools, subject liaisons were enabled to engage their faculty in discipline-specific terms. This set the stage for the second round of step one: Identifying influential faculty across campus who serve as journal editors or officers in their societies and who might champion the subject liaisons to their colleagues and help communicate the liaison's role in supporting scholarly communication in their discipline (Malenfant, 2010, 68).

Inherent to a systems approach is the formalization of new skills and duties. The second step of the process involved rewriting subject liaison responsibilities. This allowed the new standardized responsibilities to include scholarly communication support as specific duties (Malenfant, 2010, 68). After the rewrite, subject liaisons were expected to educate their faculty on scholarly communication issues; advocate for open access and sustainable scholarly communication; work with faculty to help them understand changes to the scholarly communication workflows; promote the institutional repository as a resource for the faculty; and

use the repository as a new collection development activity by working to incorporate their faculty's scholarship into the repository.

Step three was an assessment exercise. Malenfant describes a survey given to liaisons to ascertain their new skills levels in a number of areas: the unique aspects of scholarly communication in their discipline, a basic understanding of the publishing models available, understanding of the tenure pressures in their discipline (such as journal impact factors), a self-assessment of their advocacy of open access, and their activities advising faculty on authors' rights (2010, 69). By taking part in this exercise, subject liaisons were receiving the message that scholarly communication skills were inherent to their work as liaisons, not something additional.

Step four of this systems approach was meeting a performance goal. This involved the subject liaison discussing author rights with faculty, in a format of the liaison's choosing (Malenfant, 2010, 70). They could give a presentation, meet individually with faculty in consultations, send an email, or give an entire seminar. Having a performance goal emphasized the importance of the new scholarly communication services duties, and liaisons were released from previously-required responsibilities such as reference desk duties, managing departmental libraries, and collection development in order to "re-direct scarce resources – their time" to their new duties (Malenfant, 2010, 70).

One value of the systems approach is that it lays bare areas of resistance. Such a wholesale alteration of duties is intended to make scholarly communication support a core competency of what it means to be a subject liaison, yet Malenfant writes that post-project reports indicate that some subject liaisons still felt that minimal knowledge about scholarly communication was acceptable, an attitude that would be unheard of in other areas of liaison competency such as a discipline subject index (2010, 71). Despite those few discouraging reports,

the project positions the library in a leadership role on campus on number of issues, including authors' rights and the efforts to meet funder mandate requirements. This approach to subject liaison training demonstrates that liaisons are learning new knowledge and skills in advocacy and persuasion, and new methods of interacting with their faculty.

Case Study: Scholarly Communication Coaches

At a library serving a medium-sized comprehensive master's-granting university, librarianship requires collaboration, informal communication, and a diverse skill set. The faculty librarians at Eastern Illinois University (EIU) number fewer than twenty and represent all areas of operation in the library. All but three also share collection development and single or multiple department liaison responsibilities. Acquiring new knowledge and skills surrounding scholarly communication is one of many hats they wear. The librarians are used to performing a variety of roles and the addition of new skills does not represent a threat; however, achieving a level of true comfort with the intricacies of scholarly communication in one or more disciplines might appear daunting.

At Eastern Illinois University the Institutional Repository Librarian, the Head of Reference Services, and the Dean of Library Services initiated the transition of subject liaisons from collection development librarians to scholarly communication librarians in response to growing campus needs for scholarly communication support. The Institutional Repository Librarian, regularly fielding questions from faculty regarding authors' rights, copyright, depositing into the repository, contacts from questionable publishers, repository embargoes, and content quality, noted increasing numbers of questions related to these issues. The Head of Reference Services, who was pursuing a modernization of the reference service workflow, also recognized the growing need for the generalist and specialist librarian to have some understanding of the shifting landscape of scholarly communication. The collaborative nature of service at the library meant that all the reference librarians were also subject liaisons, and other librarians whose primary duties were not reference nonetheless performed some reference assistance. From a public service perspective, it made sense for all librarians who had responsibilities providing reference service to also have an understanding of how new knowledge is disseminated, and how that model is changing. In addition, every librarian performing reference assistance also had a department or departments to whom they were responsible for collections, library instruction, and as liaison to the faculty.

For the Dean of Library Services, establishing stronger ties between the subject liaisons and their respective departments was part of a major initiative to re-assert the library as central to research on campus.

Added to this were a series of library materials budget cuts that necessitated a higher than usual frequency of meetings of subject liaisons for collection development purposes, meetings that included advocating for more open access scholarly sources to balance necessary journal cancellations. These three leadership perspectives and the collection development situation created something of a "perfect storm" in which to implement the training to be a scholarly communications coach.

The Institutional Repository Librarian and Head of Reference began to design a program with a literature review to try to see if this kind of program had been performed at an institution of a similar size. They also needed to decide if there were areas of scholarly communication that were not appropriate for the faculty population. Previous consultations with the campus Research Services Office had determined that data management needs for the campus research community were not likely to be intensive; therefore, the training will not apply to data services beyond helping with data management plans. The scholarly communication coach program will focus more on authors' rights, an environmental scan of departments, and providing liaisons with a "toolkit" of resources with which to perform "scholarly communication coaching" – some examples being checking copyright permissions, describing a data management plan for a grant proposal, and avoidance of potential predatory publishers. In the rare cases in which extensive data services are required, the Institutional Repository Librarian working with the Head of Library Technology will handle extensive data management. In keeping with the collaborative and informal environment of the library, a systems approach of formally revising job descriptions was considered to be unnecessary.

Initial Steps: Authors' Rights and Environmental Scans

An authors' rights workshop similar to that conducted at Oregon State University, combined with discipline-area environmental scans and discussions with faculty, as done at the University of Minnesota and the University of British Columbia, are planned for the "foundation" course in subject liaison training. These two activities will give subject liaisons the best initial core competency knowledge for understanding the scholarly communication environment in their respective fields. Armed with this knowledge, each liaison will be established as a resource for faculty support surrounding scholarly communication issues.

At Open Repositories 2014 in Helsinki, Paul Royster advocated for the institutional repository as a service (2014, 1). Royster's service orientation goes far beyond mediated depositing in the IR and includes copyright clearance, typesetting, metadata, scanning, uploading,

usage reporting, and other services. Not all libraries have the ability to provide this *carte blanche* service model, but by applying Royster's service orientation the subject liaisons, which include the Institutional Repository Librarian and the Head of Reference among their ranks, will establish core areas of scholarly communication need based on a specific discipline. The liaison then would know where they need to develop competencies if there is a deficit in their knowledge, and hence what services they can develop, offer, support and promote. The core areas will each fall somewhere along the timeline of the research lifecycle from the literature search and data gathering to data curation (where necessary) and archiving of the OA version of the scholarly product. Understanding the research process will help liaisons communicate with faculty about their needs and identify areas that need additional service development.

Core Areas & Tools of Scholarly Communication Coaching

OA Resources for Faculty Research

The ongoing library serials crisis and the diminishment of state allocations made available to public institutions of higher education as evidenced in Kelderman (2014, A6), has forced many college and university libraries to cancel journal after journal after journal. The reduction in the number of subscriptions equates to a reduction in the research immediately available to a faculty member at an institution. Knowing this, one area of faculty support will be targeted during the initial research stage. For this competency, subject liaisons are expected to understand the scholarly communication environment in their discipline, and in particular be aware of open access resources for research. Tools and sources available to develop this competency include the Directory of Open Access Journals, the Digital Commons Network, the Registry of Open Access Repositories, pertinent discipline repositories, and scholars' networks or scholars' commons appropriate to the discipline (see the list of suggested scholarly communication coaching tools in the Appendix).

The Institutional Repository Librarian and the Head of Reference will conduct instruction workshops to introduce the subject liaisons to these resources. To demonstrate competency, subject liaisons in turn will teach the other liaisons workshops on open access resources specific to a discipline. These sessions serve to educate the liaisons in other areas but also as a self-assessment of one's level of competence. The internal library sessions will be important for establishing liaison confidence levels and comfort with the resources, but are ultimately meant to introduce discipline faculty to open access research as source materials. In addition to adding to the faculty members' knowledge of research resources, the sessions may serve as a remedy to a common faculty misperception about open access not being peer-reviewed or high quality research (Nicholas et al., 2014, 129).

Managing Data

Although this area is not intensive at a medium-sized master's-granting university, it is still important to offer the possibility of support as service. Service development in data management and curation can be an educational tool for both the librarians and the faculty who are introduced to the idea. Funder mandates requiring public access to published research, and to the research data informing the published work, are in place and are increasing. As such, scholars are frequently being tasked with describing data management plans in their grant proposals.

The established competency here is familiarity with the DMPTool (https://dmptool.org/), developed by a consortia of research institutions to assist scholars with developing data management plans specific to their institution's policies and to the grant they are writing for.

Training exercises will include completion of the DMPTool webinar series (http://blog.dmptool.org/webinar-series/) in which free recordings, slides and bibliographies are available through several webinars. Despite the current low demand for these needs, subject liaison knowledge of this area, particularly in the STEM fields, is an important feature of scholarly communication support and will likely grow in relevance to many fields.

Publishing Options

Upon the completion of research into a manuscript, the author seeking a publisher has several alternatives. Acceptance in their journal of choice could mean no open access at all, publication fees for making the manuscript freely available for the user ("gold OA"), an OA journal that requires author processing fees, or deposit of a peer-reviewed manuscript or publisher PDF in a repository ("green OA"). At this point of the research lifecycle, the role of the subject liaison is to assist the faculty with navigating a variety of publishing opportunities. Also important in this area is the avoidance of potential "predatory publishers" that lack editorial boards, an established peer-review process, and demand payment after manuscript "acceptance." As Linlin describes in her investigation of scholarly publishing literacy, the continually-shifting sands of academic publishing in the era of open access and subscription-based access to scholarly communication are a source of confusion for scholars (2014, 3). The liaison librarian, working in partnership with the publishing scholar, can identify appropriate publication avenues. If by virtue of the liaison's support, the author retains rights over their intellectual property or chooses to publish in a journal that allows deposit in an IR, the liaison has played an integral role in ensuring access to that research.

At this point, the subject liaison's familiarity with Beall's List

(http://scholarlyoa.com/publishers/) of potential predatory publishers can help scholars avoid any unsolicited or dubious publishing opportunities. Strong knowledge of authors' rights are vital, and with that knowledge liaisons can assist faculty who want to protect their copyrights and negotiate addenda with their publishers. For this purpose, familiarity with discipline publishers' CTAs and with the Sherpa/ROMEO tool (http://www.sherpa.ac.uk/romeo/) are key to the subject liaison's duties.

Nuts & Bolts: Collection Development and Assisting Faculty with Deposits

Once the discipline scholar's manuscript is accepted for publication, the subject liaison's duties turn back to collection development. The inclusion of the faculty member's scholarship in the repository is known to be beneficial for the scholar. The open access exposure to search engine robots increases the discoverability of the work and its availability increases citation counts (Gagouri et al., 2010, 8). The institution hosting the work also benefits from the exposure through increased visibility and prestige. This support service involves the subject liaison depositing the scholar's work on their behalf, a mediated-deposit model, which includes librarian-quality metadata. The mediated-deposit model creates a more sustainable repository depositing system, and reinforces the repository in the scholar's mind and habits as part of the research process.

By incorporating the duties of collection development to include collecting discipline scholars' work for deposit into the IR, the library will essentially "clone" the Institutional Repository Librarian – in terms of content collection – by a factor of ten. Multiple librarians performing mediated deposit on behalf of faculty will lead to a more "sustainable system" for ingesting content into the repository, and create a "healthier" repository in the long-term (Carr and Brody, 2007, n. pag.).

Conclusion

In order for the development of liaison librarians as scholarly communication support professionals to continue, it is essential that the library literature add reports of real-world experiences and data about those experiences. The addition of published strategies, successes and failures from more institutions will add to the development of best practices. Additional surveys of discipline scholars' attitudes about their scholarly communication needs, similar to the University of California at Berkeley's Center for Studies in Higher Education's report *Assessing the Future Landscape of Scholarly Communication: An Exploration of Faculty Needs and Values in Seven Disciplines* (Harley et al., 2010, n. pag.), would be beneficial for institutions to accurately craft their programs to fit their faculty's needs.

Even as subject liaisons grow into their new roles as scholarly communication coaches in their disciplines or departments, scholarly communication methods and practices continue to evolve. Library digital publishing is a new trend in scholarly communication and could soon be considered a new core competency (Bonn, 2014, 134). As the library profession moves from a faculty liaisonship that is primarily about building collections to a model that incorporates engagement with researchers in the research process, it must also adapt, shift and grow along with the environment in which it operates. Open access is growing at a steady and strong pace. Unless and until the subscription model for journal publishing is made reasonable and fair, access to new knowledge will be limited to only those large and elite institutions that can afford it. For these reasons and many more, establishing sustainable repositories will be essential to maintain fair and equal access to research. This is also true for the larger institution. Prospective students have an opportunity to see their future professors' work. Boards of higher education, legislative bodies, and donors can see firsthand the intellectual artifacts of the faculty, and perhaps more importantly (by virtue of download counts) how influential that work can be.

But that sustainable repository can only occur as a result of the service liaisons operating as scholarly communication coaches. As new knowledge proliferates in the digital age, scholars' needs for assistance with navigating the complexity of the scholarly communication world will establish librarians – who, Plutchak noted, are trained to "bring people together with the intellectual content of the past and present"(2012, 12) – at the heart of the research enterprise. Subject liaisons, transitioning to these new roles, will be at the forefront of this new librarianship.

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