Content In, Content Out: The Dual Roles of the Reference Librarian in Institutional Repositories

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Abstract
The development of institutional repositories has typically involved administrative and technical staff from libraries and campuses, with little input from reference librarians and subject specialists. Reference librarians have vital roles to play in helping to recruit authors to submit their content to institutional repositories, as well as in educating users to search such repositories effectively and retrieve the scholarly content from them. The experience that reference librarians have in searching a wide array of databases also enables them to provide a useful perspective on the design of effective search interfaces for institutional repositories. Experience at the University of Oregon demonstrates the efficacy of involving reference librarians in the design and development of an institutional repository from the beginning.

Introduction

In the last few years, the institutional repository (IR) has emerged as an important new model in scholarly communication. An IR is defined as "a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members" (Lynch, 2003). The IR has the potential to offer:

> A new strategy that allows universities to apply serious, systematic leverage to accelerate changes taking place in scholarship and scholarly communication, both moving beyond their historic relatively passive role of supporting established publishers in modernizing scholarly publications through licensing of digital content, and also scaling up beyond ad-hoc alliances, partnerships, and support arrangements with a few select faculty pioneers exploring more transformative new uses of the digital medium. (Lynch, 2003)

In the library literature, discourse has focused on implementing IRs as an alternative to traditional publishing. Absent from the discussion is the call for collaboration of library staff throughout the organization. In particular, there is limited scholarship on the role of reference librarians in the implementation of institutional repositories. The lack of involvement may stem from reference librarians' preoccupation with other issues, such as the rethinking of the reference service model and the development of virtual reference services. Furthermore, administrators

have not considered reference/subject librarians as essential team members in what is viewed as a technical services project.

The IR model is still evolving and its role in scholarly publishing uncertain. If the IR is to be a new and powerful model of scholarly communication, reference/subject librarians must participate in the development and growth of the IR. Their experience working with users and intimate knowledge of the research process provides critical skills that will contribute to the evolution of institutional repositories. As vital partners, reference librarians can be a key connection between the IR and users, getting content in to the repository and out to library users. In this article we address the role of reference librarians in creating and promoting the IR, focusing on how those roles have developed with the University of Oregon's (UO) institutional repository, the Scholars' Bank (SB).

Building the IR

In 2003, the University of Oregon Libraries began to investigate the feasibility of an institutional repository as part of a library-wide initiative process. The Head of Metadata and Digital Library Services and the Director of the Center for Educational Technologies co-chaired a team comprised of the Head of Reference, the University Archivist, and the Geography/Map Librarian. The original objective of the initiative was to change the nature of scholarly communication on the UO campus. The committee quickly realized the immense scale of such a change and created more short term and tangible goals, hoping to include scholarly output from any member of the campus community, as well as materials supportive of the university's mission, such as newsletters, finding aids, and selected university records. In implementing an IR, the team has focused on the design of the system as well as the complementary contextual wrapper, or the supporting web and usage guides for the service. None of the individuals could claim prior expertise or ownership of the issues and each brought a unique perspective to the discussion. Because of this structure, reference service perspectives informed discussions of technical and preservation issues. Team members from non-public service areas developed a greater knowledge of user issues and perceptions and the complex issues of metadata standards, preservation, and copyright became much clearer for reference librarians. The team learned a great deal about research on campus, which individuals and departments were early adopters, and how much active marketing it takes to add content to the IR.

There are several different institutional repository software packages; the most commonly used are Dspace and Eprints. The UO Scholars' Bank uses DSpace, an open-source system developed by MIT Libraries and Hewlett Packard. The initial software development was grant-funded and is freely available to anyone wishing to download and use it. Although the design and implementation of an institutional repository require a high level of technical expertise, reference librarians can readily be involved. Reference librarians need not master the infrastructure of the IR; they should focus instead on learning the basics in order to fully contribute their own expertise. Some of the areas where reference librarians can contribute are in the refinement of the submission process, the application of metadata, and development of useful interfaces to promote effective searching.

Submission Process

Initially, institutional repositories expected faculty self-submission of materials. However, self-submission means a willingness to invest in learning a new process, an understanding of some new terminology, and some familiarity with copyright issues. These are significant barriers for faculty and students, and have been a stumbling block in adding content to IRs. Although Scholars' Bank was initially established to support author self-submission, in reality library staff within Metadata and Digital Library Services have added the vast majority of materials on behalf of authors. Unfortunately, submission fields in current Dspace software (as of March 2005) include library-specific terminology that cannot be modified without rewriting the underlying computer code. Though we have developed local guides for submission to various collections to try to overcome this obstacle, we know that the faculty member's interest in information issues is usually episodic and quixotic. Based on our past experience with faculty and on the difficulty of non-library staff in dealing with the DSpace submission form, it seems unlikely that faculty will fully embrace self-submission. Librarians, who have historically been responsible for information organization and archiving, may need to continue functioning as mediators between authors and IRs (Pinfield et al, 2002).

In the future enhancement and refinement of the submission process, reference/subject librarians can play a pivotal role in advocating for potential content providers, helping to prevent roadblocks and unrealistic expectations. Rather than rely on unassisted faculty self-submission, reference librarians can work to develop a facilitated process. Furthermore, as public service librarians who assist non-technically savvy users with new technology; reference librarians can function as the mediator between the system and the contributor.

Metadata and Searching

In addition to contributing a user-centered perspective to the design of content submission process, reference librarians' understanding of the user can inform the creation of metadata and IR search tools. DSpace software supports fulltext searching of materials and searching of descriptive metadata (information such as authors, titles, subjects, keywords, abstracts). All metadata and fulltext can be searched simultaneously in the general search box. Subject searching can be done only through the advanced searching mode by direct input of search terms; it is not possible to browse by subject. Another area of concern is the DSpace software's lack of authority control for names or subjects. The software does not support controlled lists of names or subject terms, nor provide for any "see from" or "see also" references. Being able to browse by author at least permits a rudimentary type of authority control, as duplicate entries for the same name can be found and corrected. However, without such a browse function for subjects, the only option is to aim for some consistency in input. Within Scholars' Bank, we have tried to use terms from appropriate controlled lists to describe the subject content of individual works. Library staff members submitting materials to the repository on behalf of authors are asked to search for appropriate subject headings in the library's catalog. In other cases where materials deposited in Scholars' Bank duplicate submissions to a disciplinary archive, library staff select terms that have been used in the disciplinary archive to describe the same items in Scholars' Bank.[1] If the software supports a controlled vocabulary, users must have access to the list of terms in order to formulate effective searches.

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[1] For example, the SB has harvested working papers from RePEc: Research Papers in Economics (http://repec.org/).

Working with faculty and students on a daily basis reinforces the reference librarian's sense of the vital role of authority control, and the importance that a controlled vocabulary plays in specialized academic research. In a recent meeting with a potential IR community, an author of this article discovered that the group's primary interest in the tool was to search for topics across disciplines. This kind of search relies on a vocabulary that is both controlled and available to the user.

Development of search tools must extend beyond the single IR to assist users in accessing materials across the growing number of IRs. Access to these materials and the ever-increasing amount of information available on the Web can change the nature of communication and research, but for this to happen librarians must negotiate the information glut and rethink access. The shift from scarcity to abundance, as detailed in Gandel and Katz, means that increasingly refined tools are needed to sift through the growing haystack in order to find the needles (2004). To make effective use of institutional repositories along with all the other disparate sources of information that make up today's research landscape, it is important that libraries develop integrated portals.

With the rapid growth of repositories, it is impossible to be aware of and consult each available resource separately. Harvesters like OAIster, which use the Open Access Initiative – Protocol for Metadata Harvesting (OAI-PMH)[2], cull metadata from and link to OAI-compliant institutional repositories in order make cross-institution searches possible. These harvesters are critical in making materials available to users. In the selection of IR software, reference librarians must advocate for the selection of tools that comply with prevailing standards. In DSpace repositories, for example, metadata can be harvested via OAI-PMH. This means that content from these IRs can be registered and included in aggregators like OAIster. Other indexing agencies, such as Google, also harvest from repositories and are working on creating scholarly portals to open-access web-based materials.

Libraries must also bring together IR content with other information resources. Currently, too many libraries display a bewildering collection of separate links to the catalog, article databases, and various locally developed resources. Much work needs to be done to create a single entry point at the local level that searches and retrieves information from the different sources seamlessly. At the University of Oregon, we have begun by linking all digital collections from a single entry page, allowing users to select the collection that they wish to search or to search across all collections that use the same software. It has become increasingly clear, as databases and delivery mechanisms proliferate, that we need to develop a local interface that will search across multiple software platforms. Choosing and developing sources that support the OAI-PMH makes the development of such portals possible in today's world. Libraries must not be stymied by the fact that the initial portals will be somewhat crude because the standards and protocols vary across databases; the most important outcome is the users' discovery of the many different sources. More specific entry points can still provide access to specialized sources for more sophisticated researchers. Over time, the portals themselves will become more robust as standards converge and as the tools for searching across databases become more sophisticated.

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[2] OAI-PMH is the standard for harvesting metadata and sharing it between services.

Federated searching now offers an additional opportunity to bring IR content together with library catalogs and other databases, creating the "one-stop shop" which users so desire. In an academic world of inter- and cross-disciplinary studies, such approaches allow for quick and easy searching. Reference librarians are very familiar with the researcher's struggle to remember the multiple resources available on a given topic. Often a library user stops the research process as soon as she finds anything that will suffice; other times, a researcher will become overwhelmed by options and fail to find directly relevant resources (Agosto, 2002). The inclusion of IR content in catalogs and cross-database searches greatly increases the likelihood that they will be used.

Federated searches and harvesters, however, will create a need for increasingly fine-tuned search tools. Making more content available and creating tools to search the large amount of content greatly increases the recall of a given search. But the precision of searches plummets as recall skyrockets. The power of the institutional repository is partially its ability to house different formats and genres of information packets. Because navigation across multiple formats is more available, systems will be needed that allow the user to parse information types (audio, visual, articles, datasets, maps, etc.) in searches and understand differences in results. High precision in search results and format types will be essential for users with specific research queries.

Filling the IR

In order to create a successful institutional repository, the library must find authors to submit materials. To do so, library staff must be able to convey the value of the IR to the campus community. Conveying this information effectively to authors relies on an understanding of the culture of scholarly communication locally and beyond. Susan Gibbons, who studied the publication patterns of various sciences, social sciences and humanities, notes that "…what is essential is to first gain a really good grasp of scholarly communication within a discipline and how an IR might fit into the existing model" (2004b). Reference/subject librarians, familiar with the general academic milieu and the cultures of different disciplines, are uniquely positioned to successfully tackle these challenges.

Cultural and Academic Barriers

Early in the development of institutional repositories it was recognized that "getting campus 'buy-in' was the main worry…. Buy-in would require a shift in how things are done, and any shift in academia can often be a frustrating process" (Carver, 2003). Values entrenched among faculty and campus administration have prevented some authors from immediately embracing the IR model. That the IR challenges many traditional academic values should not be unexpected, but the strength of these concerns may surprise some librarians.

Given existing barriers, authors who submit material to the institutional repository are, in a sense, risk-takers and academia has traditionally been considered a risk-averse environment (Gura and Percy, 2005). The traditional culture of academic publishing accounts for some of the resistance to IRs; journal and monograph publication processes are deeply embedded in the scholarly process. Across disciplines, publishing in journals and monographs has been the standard for over a hundred years, and integrating a new genre into scholarly communication is a significant challenge. Faculty depend on the traditional publication process not only to disseminate research, but also to get tenure and establish themselves in their field.

Other campus-wide challenges faced by librarians are not as abstract. At the UO, the IR team has encountered resistance across disciplines regarding,
- fear of disrupting existing relationships with publishers
- concerns about the equivalence between IR and journal publishing
- ignorance of copyright law
- reluctance for research to be made public without proper vetting
- reluctance to modify bureaucratic processes
- reluctance to have a university stamp on their scholarly output
- lack of time to learn how to do something different
- technophobia
- uncertainty about the authenticity of the file

For instance, staff in one community worried that authors would submit an electronic copy that differed from the paper versions that had been vetted by the community's reviewers. When asked how it was possible to know that the paper copy that was delivered to the library for deposit was the same as the version that had been vetted days before somewhere else on campus, they responded that authors were "morally obligated" so submit the correct paper version. Somehow, the same moral obligation was not felt to transfer to an electronic environment, in spite of the fact that most paper versions today originate from electronic files. There have also been concerns expressed about disrupting established processes, such as those for theses and dissertations. Additionally, some campus administrators have expressed concern about having an institutional stamp on content that hasn't been vetted properly. On the other hand, some faculty are reluctant to have an institutional stamp on work that they consider to be personal property.

Within the existing academic culture there are disciplines that are open to alternative methods of communication. The practice of sharing work-in-progress has a long history within physics and economics.[3] Other disciplines, such as the arts, are interested in multi-media applications and have been quicker to embrace digital publication. However, in many other disciplines, especially in the humanities and social sciences, there is no such tradition. The UO IR team has identified other discipline-specific issues:

- reluctance to share versions of their work that are not completed (i.e., working papers)
- reluctance among professional associations to encourage changes in scholarly publishing
- disciplines where only a few publishers control the journals
- disciplines with pre-existing forums for sharing scholarly work (i.e., physics, economics)
- disciplines that are performance based (i.e., dance)

The reluctance to submit materials to an IR reaches beyond issues of academic culture. The hesitation of some faculty to engage with a new technology and the challenge of getting their attention for an extended period of time should not come as surprises. Like the rest of us, it is difficult for them to take the time to learn something that is not of immediate use to them. It is common to hold fast to processes that are familiar and seem to work, even if new and potentially useful innovations are available. This is particularly the case if new technology requires a significant commitment of time. Currently, faculty are not yet convinced that the traditional

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[3] See RePEc, previously mentioned, and ArXiv.org (http://arxiv.org/), a Physics repository

publishing process is not meeting their needs. Until they are convinced of the need to change, they will not be willing to learn to use a new system.

Promotion and Marketing
Overcoming the institutional and discipline-specific barriers to IRs can be accomplished, but it takes a partnership of the entire library and a commitment to a long-term marketing effort. Reference/subject librarians who are immersed in their subject disciplines can help by anticipating possible barriers and providing the IR team with information essential to success. Reference/subject librarians are the face of the library for most faculty and are best situated to introduce them to new models of information communication. Through their ongoing campus relationships, they can identify departments and organizations that might be potential IR communities. For example, the Social Sciences librarian, one of the authors of this piece, is also the Honors College (HC) liaison. During a meeting with HC staff, she identified Honors College theses as a potential collection to be added to Scholars' Bank. Other departments subsequently saw the Honors College theses collection and contacted the library to set up similar collections for their high-quality student work. Without the initial connection made by a reference librarian, these collections might have taken considerably longer to establish, or they might never have happened at all.

In searching for potential authors and IR communities, reference/subject librarians can connect the IR team with faculty who may be early adopters and could serve as their departments' bellwethers. Reference/subject librarians can facilitate the spread of faculty interest in IRs within their subject areas by sharing the positive experiences of varied disciplines; those who readily embrace it may encourage those who perceive barriers. Reference/subject librarians can also provide a link to graduate students who may not already be fully embedded in a particular discipline's publishing traditions.

Academic culture cannot change in the space of one conversation, and may not, in some disciplines, change at all. IR implementation work requires tenaciousness and the ability to weave discussions of scholarly publishing alternatives into many interactions over time. Individual face-to-face meetings are the most effective ways to engage faculty and work through the many underlying cultural barriers. Ideally, the reference/subject librarian should attend meetings with departmental representatives. If this isn't feasible, before any meeting takes place, it is important to consult the reference/subject librarians for those departments as they can provide insight and continuing connections. The meetings must be individually tailored and presented by staff who are personable, user-centered, technically knowledgeable, and conversant with current scholarly communication issues.

In marketing the IR, it may be helpful at the outset to position the repository as complementary to traditional publishing. This is especially the case in disciplines that lack a history of collaboration and research-sharing. In these disciplines, the institutional repository concept may need to be more extensively explained, marketed, and a variety of specific concerns addressed. Initially, IRs were envisioned as a replacement for the traditional journal publication model (Crow, 2002). More recently, however, it has been recognized that IRs will include traditional published content as well as many types of materials that have never been captured systematically before (Shearer, 2004; Lynch, 2003). Currently the content being deposited and archived in IRs is diverse from the

standpoint of authorship, format, and content. Some of the types available in the UO Scholars' Bank and other IRs are:

- pre-prints and post-prints of published materials
- out-of-print materials
- conference papers and presentations
- working or discussion papers
- journals
- student work, such as class papers, terminal projects, theses, and dissertations
- learning objects requiring long-term retention
- finding aids to collections of other materials
- electronic or digitized administrative records requiring long-term retention
- websites
- documents, images, audio files, video, slideshows, etc.
- raw data

A promising development at the UO is a movement to archive the work emanating from a series of Research Interest Groups (RIGs). As with the Honors College theses, this connection was initially made by a reference librarian. (RIGs) have memberships that include faculty and graduate students of the University of Oregon, as well as community participants. Much of their work has previously not had a venue for wide distribution and sharing. With their goals of "facilitating collaborative research and inquiry, creating support groups that can assist their members in preparing and submitting grant proposals, building better connections between scholars and community activists, and creating opportunities for cross-disciplinary discussion among scholars", the RIGs seem ideally suited for inclusion in Scholars' Bank.[4] The UO's experience with RIGs provides a clear example of how explaining the multiple uses of the IR will help convey its value as a supplement to traditional models of sharing and disseminating research.

Promotion of the repository must also use scholarly publishing terminology that is familiar to faculty. Avoid library jargon words such as "institutional repository" and use terms that are more readily understood such as "long-term electronic archive" (Foster and Gibbons, 2005). Susan Gibbons recently cautioned librarians to avoid the "Tower of Babylon" and find a lingua franca that has meaning for the target audience (Gibbon, 2004a). It helps to name the IR something more user-oriented. The University of Oregon's IR is called "Scholars' Bank", a name suggested by a reference/subject librarian.

Tools that facilitate faculty acceptance are brief audience-specific handouts that focus on the specific benefits for that individual or department, as well as a brief demonstration of the IR features, file types, and searching capabilities. Presenters should emphasize the strengths of the IR software, but also be prepared to discuss its shortcomings. Discussions with faculty often focus on copyright, traditional publishing mechanisms and how the IR relates to them. It is useful to address these concerns in the context of larger scholarly communication issues. It is also helpful to provide examples of aggregator sites such as Google Scholar and sites for further

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[4] Information about CSWS and its mission can be found at http://csws.uoregon.edu.

learning like Sherpa, which tracks publisher positions on self-archiving.[5] Specific examples that show the potential impact of the IR are useful. For example, at UO a Scholars' Bank contributor was recently contacted to write an article after a publisher found her dissertation in a Google search.

Informational materials and resources for faculty are also essential before and after meetings. Quick follow up on faculty questions and concerns is essential. A user-oriented IR website and a faculty-focused FAQ will greatly facilitate communication.[6] Handouts made available during meetings should also be available online. At the UO, we have developed extensive documentation for and about the Scholars' Bank. We have written FAQs and other background documents, worked with specific communities to develop author resource pages, and developed step-by-step submission guides. We have also sought to bring the larger issue of academic publishing to the forefront of conversation, explaining the nature of open access archives and the changing landscape of scholarly communication on supporting web pages. All of these materials are linked from the main page of the repository. This information allows potential IR contributors and users to learn about the service on their own and provides a stable infrastructure that enables us to promote the service more easily.

Don't expect immediate buy-in; repeated contact and follow-up has been the norm at the University of Oregon and elsewhere. Changing an institution's traditional approaches requires substantial time and effort. The UO Scholars' Bank team has worked for almost two years to address the barriers to adoption of the institutional repository. Campus communities that have embraced the IR concept at the University of Oregon include:
- undergraduate research projects and theses
- graduate students who need to develop CVs for the job search
- library faculty, including special collections and archives
- disciplines involved with public policy issues
- institutes that desire greater visibility
- disciplines with a culture of sharing working papers
- faculty who self-archive on individual websites
- disciplines that generate large research data files
- faculty whose research uses primary source material held in the library
- projects that need a distribution mechanism, but have funding or technical skill constraints

Small successes, such as some of those mentioned above, can then be shared across communities and help to leverage a more positive reception to the IR concept at the campus level.

The UO Scholars' Bank effort is based on a model of providing highly flexible support to faculty. Once a department, organization or individual has expressed interest in submitting materials, we look for opportunities to "make it work". If faculty members want to participate, but don't want to submit materials or provide the metadata themselves, we offer to do it for them. When concern arises about copyright agreements, we offer to contact publishers on their behalf. If authors worry about having people outside their discipline see their work, we

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[5] These can be found at http://scholar.google.com and http://www.sherpa.ac.uk/romeo.php, respectively.
[6] The Scholars' Bank FAQ is at http://libweb.uoregon.edu/catdept/irg/SB_FAQ.html.

emphasize our ability to create restricted-access collections. This high level support and quick response is necessary to build the faculty member's trust in this new publishing venue.

Bringing the IR to Users

The primary focus thus far has been on creating and adding content to the institutional repository. A focus on user awareness of and comfort with IRs is the next step in the acceptance of repositories as a trusted method of scholarly publication. It is essential for the library community to embrace the challenges of IR content dissemination. Developing powerful and easy-to-use interfaces, aggregators and other access tools will be useless if researchers don't know that IRs exist. There are a variety of repositories and access tools scattered across universities and other academic organizations, but reference librarians need to promote these sites and tools more vigorously.

Making users aware of IR content requires significant effort. At the UO, we have attempted to increase user awareness by making links to the Scholars' Bank through the online catalog: creating a record for the IR and cataloging individual items in the repository. We are also discussing the generation of MARC records from IR metadata. These are all powerful tools in increasing awareness but reference librarians need to step up to promote IRs and teach faculty and students the value of this burgeoning new resource. We have integrated sessions on Scholars' Bank into the Library credit course taught every term, as well as presenting guest lectures to different academic departments and classes.

To become IR advocates, reference librarians must be familiar with their own institution's repository, as well as the repositories of other libraries and organizations. The emergence of federated search tools, aggregators, and the inclusion of repository materials in catalogs, as discussed in the previous section, makes IR content more available. Continuous changes require close monitoring by reference librarians. Library-wide communication can help reference librarians stay abreast of local IR content and developments. Librarians can showcase examples of IR use in a reference context on library-wide websites or blogs. Associations such as ACRL and ARL are committed to exploring new modes of scholarly communication and both are excellent sources for up-to-date information. Reference/subject librarians need to take advantage of the current professional development opportunities and make IR issues a high priority for their associations and volunteer as program presenters or panelists. For examples, in the fall of 2004, one of the authors of this paper gave a presentation on Scholars' Bank to the regional Association of College and Research Libraries Fall meeting.

Reference/subject librarians who provide instruction and reference are familiar with user behaviors and needs best understand how users will use IRs. As their familiarity with IRs increases, reference librarians can integrate their institutions' IRs into users' research vocabulary by championing and clarifying their content. This can be as simple as incorporating IRs into reference interactions, on the desk and during virtual reference. Integration into general and discipline-specific research guides and instruction sessions can also bring IRs to the attention of users. Librarians should also communicate with departments by attending meetings and maintaining active working relationships with faculty.

In addition to advertising the IR, reference librarians can facilitate its movement into the mainstream search process by explaining its value. Repositories currently do not have the same system of vetting that peer-reviewed journals have, but they are still a powerful source of information. Researchers must know how to evaluate IR content, or it will not become a trusted resource. The level of vetting for any item from the IR must be transparent; reference librarians can help users understand if they are looking at the work of a professor or a student, looking at a pre-print, materials that supplement a book or article, etc. At the University of Oregon, we offer guides that provide tips for evaluating information sources and websites[7]; these could be modified to address evaluation of IRs. Creating the means for researchers to evaluate IR content will help increase the utility of IRs for students, faculty and other researchers.

When promoting IRs, reference librarians must ensure that users are comfortable using different access tools. In *If We Build It, Will They Come*, Lisabeth Wilson asks, "If they get there, can they make their way around the environments we have created?"(2003). While asked in the context of usability testing, we must also apply this to library instruction. Users of institutional repositories, just as users of library collections and the Internet, possess radically different technical skills and learning styles. For many of these users, an expert searcher such as a reference librarian can make the vital connections for finding specialized research information.

In teaching researchers about IRs, reference librarians must include not only the *what*, but also the *how*. This can be accomplished by customizing instruction to specific user groups and disciplines. Librarians should promote IRs not only by highlighting them in guides and classes, but by offering more targeted instruction on how to use the tools associated with repositories.

Developing IR Partnerships

In this paper we have emphasized the role of the reference/subject librarian as a partner in the institutional repository effort. However, we believe that the inclusion of staff with different expertise from all parts of the library is essential. Our contention is that this partnership needs to be a high priority for libraries developing an institutional repository. To provide some ideas for increased partnering within the library, we will briefly describe the University of Oregon Libraries' approach to its IR development.

In developing the IR, the critical components have been interdivisional collegiality across divisions and strong administrative support. Though early involvement in the IR effort is unusual for reference/subject librarians, the UO library was interested in appointing a diverse team when the IR was chosen as a priority in a 2003 initiative planning session, as discussed above. The IR team set an early goal to find ways of connecting other library staff to the IR effort, particularly reference/subject librarians. Informal conversations about the IR did not typically engage these librarians because they didn't see the direct relevance to their specialties. However, a series of presentations that included the IR as part of scholarly publishing discussions and the active participation of the University Librarian further clarified its relevance for them. As noted in several examples above, reference/subject librarians are now actively promoting the IR to their departments, looking for new IR opportunities, and adding IR-related efforts to their annual goals

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[7] These are found at http://libweb.uoregon.edu/guides/findarticles/credibility.html
http://libweb.uoregon.edu/guides/searchweb/evaluating.html, respectively.

A few additional examples highlight how reference librarians have already played a significant role in developing communities and collections within the UO's institutional repository. At the University of Oregon, the majority of librarians have some reference responsibilities, regardless of their departmental affiliation. One of the first communities created for Scholars' Bank was the brainchild of the Map Librarian who served on the initial IR group. He identified the Department of Planning, Public Policy, and Management (PPPM) as a possibly receptive group and initiated contact with them. As a result, several collections were created for this community, including a collection of scholarly papers and presentations produced by the department, projects of the Oregon Natural Hazards Workgroup, and a collection of student terminal research projects. Success at PPPM was due, in part, to a pre-existing library database describing the student terminal projects to provide intellectual access to the paper archive of the projects. With the creation of an IR collection, the library was able to combine the database descriptions with the archiving of the content in one place. This collection expanded access to these materials and set the pattern for capturing often-neglected student research through the institutional repository.

Another growing success resulted from discussions with the School of Architecture and Allied Arts (AAA), initiated by the Head of the Architecture & Allied Arts Library. Within AAA, the Arts and Administration Program has maintained a website for archiving and describing student research. Thanks to the initiative of the Head of the AAA Library, the first collection established for this community is an archive for this student research that is intended to replace the departmental website. In addition to approving the harvesting of past research, faculty are directing new students to submit their work to Scholars' Bank after their projects have been accepted. The AAA faculty have also begun to archive a locally-produced electronic journal within Scholars' Bank and discussions are underway for creating collections of faculty research.

Conclusion

Institutional repositories are a new resource with potential to develop in a variety of directions. Working collaboratively with other specialized staff, reference/subject librarians can help chart the course for IRs, particularly in regards to authors' and users' needs. For IRs to reflect the spectrum of intellectual output and become "a part of a core information infrastructure that the university offers" (Greenstein, 2004), reference/subject librarians should vigorously pursue outreach to faculty and departments. To do so most effectively, more research is needed on how different disciplines could use the IR as an alternative to traditional publishing venues. Furthermore, the reference librarian's close interaction with library users searching for information will help facilitate the move of repositories into the information mainstream. These areas include development of online assistance and tutorials, sophisticated search tools and the implementation of usage studies. Overall, reference/subject librarians need to raise their profile within the scholarly communication community so that their expertise can inform the development of IRs and other models.

The experience of the University of Oregon Libraries in developing and promoting an institutional repository makes it clear that such endeavors benefit from the inclusion of library staff from a all departments. At many institutions, IR development has relied heavily on technical and administrative staff. Reference/subject librarians have not played as active a role as we believe they can and should. The skills of reference librarians uniquely position them for a

dual role in the IR community: as facilitators in getting the content into the repository and content out to users. The UO Scholars' Bank project demonstrates how the involvement of reference librarians can create a more useful, robust repository that contributes to the long-term evolution of scholarly communication.

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Further Resources

Below are some useful resources for further exploration. More can be found at
http://libweb.uoregon.edu/catdept/irg/IR_Resources.html.

Examples of IRs

- *University of Oregon Scholars Bank (https://scholarsbank.uoregon.edu/dspace/)* is the University of Oregon's institutional repository, built with DSpace software.
- *E-LIS: Eprints in Library and Information Science (http://eprints.rclis.org/)* is an example of a collaborative repository, run by Research in Computing, Library and Information Science.

Examples of Harvesters

- *OAIster (http://oaister.umdl.umich.edu/o/oaister/)* harvests from a variety of OAI-PMH compliant academic repositories.

Institutional Repository Software

- *DSpace (http://www.dspace.org/)* is software developed by MIT Libraries and Hewlett Packard.

Organizations

- *Scholarly Publishing and Academic Resources Coalition (SPARC) (http://www.arl.org/sparc/)* is "an alliance of academic and research libraries and organizations working to correct market dysfunctions in the scholarly publishing system." SPARC's website includes news updates and publications, with faculty talking points
- *ACRL Scholarly Communication (http://www.ala.org/ala/acrl/acrlissues/scholarlycomm/scholarlycommunication.htm)* covers the ACRL's efforts to "reshape the current system of scholarly communication, focusing in the areas of education, advocacy, coalition building and research." The site includes reports, activities and other information.

Initiatives

- *Open Archives Initiative (http://www.openarchives.org/)* is an organization that focuses on the technical side of open access and making materials widely available.
- *Budapest Open Access Initiative (http://www.soros.org/openaccess/)* came out of a 2001 Open Society Institute meeting in Budapest and sets guidelines for the creation of an institutional repository.