A multifaceted approach to promote a university repository:
the University of Kansas' experience.

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Article Type:
Case Study

Purpose of this paper
To describe the history of KU ScholarWorks, the University of Kansas' institutional repository, and the various strategies used to promote and populate it.

Design/methodology/approach
This paper describes how KU ScholarWorks came into being, and discusses the variety of activities employed to publicize the repository and encourage faculty to deposit their work. In addition, the paper discusses some of the concerns expressed by faculty members, and some of the obstacles encountered in getting them to use the repository. The paper concludes with some observations about KU's efforts, an assessment of the success of the program to date, and suggests some next steps the program may take.

Findings
KU ScholarWorks has relied on a "self-archiving" model, which requires regular communication with faculty and long-term community building. Repository content continues to grow at a steady pace, but uptake among faculty has been slow. In the absence of mandates requiring faculty to deposit work, organizations running institutional repositories must continue to aggressively pursue a variety of strategies to promote repositories to faculty and encourage them to deposit their scholarship.

Originality/value
KU's experience will help other institutions develop institutional repositories by providing examples of marketing strategies, and by promoting a greater understanding of faculty behavior and concerns with regard to institutional repositories.

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INTRODUCTION

In a September 2005 article assessing institutional repository deployment in the United States, Clifford Lynch and Joan Lippincott conclude that "institutional repositories are now clearly and broadly being recognized as essential infrastructure for scholarship in the digital world" and that they are "being positioned decisively as general-purpose infrastructure within the context of changing scholarly practice, within e-research and cyberinfrastructure, and in visions of the university in the digital age" (2005). However, although repositories may be "recognized as essential infrastructure" it is not necessarily faculty-authors doing the recognizing, and persuading faculty to fill institutional repositories (IRs) through self-archiving remains a challenge.

The University of Kansas (KU) established its institutional repository, KU ScholarWorks, in spring 2003, early in the IR movement, with solid support from the Provost, who was instrumental in helping launch the repository as part of a broader scholarly communications program. Since its introduction, library staff have employed a variety of strategies and approaches, none of which are unique to KU, to marketing KU ScholarWorks to the KU community. However, despite active building and promotion for nearly three years, making the campus aware of its existence and purpose has not been easy, and uptake among faculty has been slow, though content has continued to steadily grow.

KU's experience is typical. A 2004 report on the state of institutional repositories asserts,
> "The biggest problem facing those setting up IRs is persuading faculty to use them. Outside a few disciplines (e.g. physics, computer science, and economics) there is little tradition of preprints or working papers and apparently still little interest in self-archiving. Academics may be radical in their thought but they are conservative in their behavior, and there is a good deal of inertia in the current publishing systems….The data quoted in this report shows that take-up rates for IRs have to date been very patchy, especially where the deposit of materials depends on the decision by individuals to self-archive their material" (Ware, 2004).

"Archivangelist" Stevan Harnad states that encouragement to deposit items "is not sufficient to raise the self-archiving rate appreciably above the 15% baseline for spontaneous self-archiving" (2006). He argues forcefully for institutions to require faculty to self-archive all research. In the absence of those mandates (and perhaps as a necessary preliminary to them) institutions operating IRs will continue to employ a variety of small- and large-scale, labor-intensive methods to reach out to faculty, solicit their material, and further engage them in applying alternative methods to disseminate their research. This can be "a slow, incremental, somewhat piecemeal process" (Lynch and Lippincott, 2005) which has been compared elsewhere to throwing spaghetti at a wall and seeing what sticks (Salo, 2006). This kind of advocacy and grass-roots activism may be part of the preliminary groundwork needed to create an environment in which such mandates will be possible.

Jones, Andrew, and MacColl (2006) place these advocacy efforts in a theoretical framework that relates Everett Rogers' diffusion of innovation concepts to issues of faculty adoption of IRs, the challenges of getting widespread use of an innovation, and the time and efforts involved. They describe a social-system of repository use where innovators introduce IRs and advocacy builds support for IRs, but wholesale adoption does not occur until use is mandated.

Success for institutional repositories is usually defined by the number of items held in relation to the number of faculty, and, though less often articulated, by how often the archived items are downloaded by others (use by authors and readers) (Shearer, 2003). Jones, Andrew, and MacColl compare an IR to a library and ask, "…who in their right mind would want to visit a library without books?" (2006). The more items deposited that

are representative of the faculty output the better. But this definition of success, if solely based on numbers, belies one purpose of IRs, which is to create opportunities for change in the system and its stakeholders, such as authors, publishers, and readers. In essence, universities are widely adopting institutional repositories as dissemination engines because the successful IR will create an opportunity for behavior changes in both authors and readers, two key stakeholders in the system.

Thus, gauging the success of KU's repository (and other repositories) is not simply a numbers game, especially not at this early stage when IRs are still largely in embryonic form. Although the number of items in KU ScholarWorks is modest, the repository has several very active communities and contributors, and has generated interest among faculty in a variety of departments on campus. Moreover, the early establishment of an institutional repository has given KU librarians a great deal of feedback and knowledge about the campus environment and faculty members' perceptions and needs with regard to scholarly communication. KU has gained valuable experience in the policy and technical requirements of setting up and maintaining a repository, and librarians have established relationships with academic units that will likely prove beneficial in the long term as more faculty are persuaded to use KU ScholarWorks.

This paper discusses the history of KU ScholarWorks to date, including the strategies used to populate it. Part One describes how KU ScholarWorks came into being, and discusses the variety of activities employed to publicize the repository and encourage faculty to deposit their work. Part Two explains how some KU ScholarWorks communities have evolved, and includes several observations and an assessment of KU efforts. The paper concludes with thoughts about measuring the "success" of KU's repository, and suggests next steps for the program.

PART ONE / BIRTH AND GROWTH OF KU SCHOLARWORKS

Take in Figure 1: IR development at the University of Kansas

THE KU ENVIRONMENT

The University of Kansas (KU) is a comprehensive educational and research institution with over 29,000 students and 2,200 faculty members. KU includes the main campus in Lawrence; the Medical Center in Kansas City, Kansas; the Edwards Campus in Overland Park; a clinical campus of the School of Medicine in Wichita; and educational and research facilities throughout the state. KU offers more than 170 fields of study and has a research budget of more than $274 million. The KU ScholarWorks repository includes scholarship created primarily by faculty, staff, and students at the Lawrence and Edwards campuses. This repository service is offered and maintained by KU Digital Initiatives, a program of Information Services (IS). The Vice Provost of Information Services oversees the Libraries, Information Technology (IT), and Networking and Telecommunication Services divisions. Staff from both IT and the Libraries take part in providing technical and administrative support for KU ScholarWorks.

LAYING THE GROUNDWORK

Discussion of scholarly communication issues on campus preceded the launch of KU ScholarWorks as a pilot project. David Shulenburger, an early advocate for scholarly communication reform, was Provost and Chief Operating Officer at KU until June 2006. Shulenburger, an economist, proposed developing a national eprint archive, the National Electronic Article Repository (NEAR) (1998), and wrote and spoke on the topic extensively while KU Provost. He provided a campus forum for discussion of scholarly communication issues through the Provost's Seminar on Scholarly Communication, sponsored by the Office of the Provost and the University Libraries. Following on the heels of national efforts to manage the rising costs of library subscriptions to scholarly journals, such as the enumeration of the Tempe Principles for Emerging Systems of Scholarly Communication (Association of Research Libraries, 2000) and the formation of the Scholarly Publishing and Academic Resources Coalition (SPARC), the first Provost's Seminar, "From Crisis to Reform: Scholarly Communication and the Tempe Principles," was held on November 8, 2000. The primary focus of the seminar was engaging faculty in discussing the Tempe Principles for Emerging Systems of Scholarly Communication. Speakers addressed KU's role in the scholarly communication movement, reactions to the Tempe Principles, and discipline-based solutions to the serials crisis. While this seminar did not focus on establishing an institutional repository at KU, it laid the groundwork for development of a KU repository by raising awareness of issues that a repository might help address.

LAUNCH OF A PILOT REPOSITORY

Efforts to establish an institutional repository at the University of Kansas began in earnest in 2002 when the Libraries hosted a forum for KU librarians to discuss scholarly communication issues and the open access movement. Provost Shulenburger focused on changing scholarly practices, and Information Services leadership focused on establishing a repository for preservation and dissemination. A 2003 white paper explains,

> "…scholarly works scattered across a variety of Web sites can be difficult
> for other researchers to locate. Opportunities for effective exchange may
> be lost in the chaotic sprawl of the World Wide Web…. Institutional
> repositories—**digital collections that organize, preserve, and make
> accessible the intellectual output of a single institution**—are emerging
> at leading universities as one response to this new environment" (Fyffe
> and Warner, 2003).

Information Services leadership developed a repository implementation plan that called for a series of working groups to address various aspects of establishing and maintaining an institutional repository. These working groups were organized in the spring of 2003 and each group was to complete its charges and submit a report by summer 2003. The

system selection group recommended installing DSpace, then in beta test (version 1.0 was released by the time KU was ready to proceed with the installation), and KU began with a "proof-of-concept" test repository to build further administrative and faculty support. In all, 28 staff members from the Library and IT units on the Lawrence and Medical Center campuses participated in the working groups. KU ScholarWorks launched as a pilot repository in September 2003.

EARLY AND ONGOING FACULTY INVOLVEMENT

KU ScholarWorks was conceived as a service for faculty, and KU Libraries sought ongoing faculty involvement from the earliest stages of planning and development. One of the IR working groups, the early adopters group, identified faculty from across KU who might learn to use the system, submit some items, and provide feedback to refine the IR. Some early adopters were faculty who had previously expressed an interest in digital scholarship. Richard Fyffe, Associate Dean for Scholarly Communication and Holly Mercer, Coordinator for Digital Content Development, met with each early adopter at least once to demonstrate system functionality, discuss policies and procedures, and assist in uploading documents. The early adopters group submitted items to the test repository, then met together in January 2004 for a focus group discussion on policy issues as well as system functionality. Feedback received from these focus groups influenced subsequent decisions in the planning and development process. Early adopters believed that KU ScholarWorks communities should reflect epistemic communities rather than administrative campus units (such as schools and departments). Therefore, KU ScholarWorks supports three community types: formal communities, associated with academic departments and research units; informal communities, for individuals to contribute without a formalized community structure; and communities of practice, for interdisciplinary groups that lack a formalized administrative structure. Interestingly, while early adopters stressed the need for communities of practice, none have been requested yet.

While responses from the focus groups were generally positive, few of the "early adopters" in fact became users of the repository. However, one early adopter did establish KU ScholarWorks' first formal community, the Policy Research Institute community, and several others became members of a KU ScholarWorks advisory committee. While KU ScholarWorks' policies are ultimately the decision of Information Services leadership, this advisory group brings an important faculty and user perspective to the planning process. Staff working on repository development had hoped that members of the advisory committee would also act as "ambassadors" who would advocate the use of KU ScholarWorks to faculty peers, but to date the group has not yielded dramatic results in terms of advocacy or activism. In fact, few members of the committee are associated with departments or research centers with KU ScholarWorks communities or have actually submitted items themselves. Future plans may call for an expanded or altered membership so that actual KU ScholarWorks participants will have a greater voice in developing and refining the service.

In addition, the KU Libraries held a separate focus group in conjunction with KU Continuing Education (KUCE) in February 2005 to learn more about principal investigators' needs for meeting grant dissemination requirements. The Libraries and KUCE invited recent federal grant recipients in various disciplines to participate. The participants stated that dissemination of research was often only considered as an afterthought, because by the time there were results to report they had already moved on to the next project. They indicated an interest in having boilerplate language to describe how KU ScholarWorks meets preservation and dissemination requirements for inclusion on grant applications. Consequently, KU Libraries added a section to the "About KU ScholarWorks" Web site titled "Support for Grant Applicants" which includes a link to text that grant applicants can copy and paste into their grant proposals (http://www2.ku.edu/~scholar/docs/grantsupport.shtml).

ROMEO GREEN (I)

KU ScholarWorks launched with the expectation that faculty would self-archive their work—that is, they would decide to upload their work themselves or submit via a departmental proxy. However, it was clear there would be a number of barriers to immediate faculty participation, ranging from complex copyright clearance issues, to confusion about appropriate content for the repository, to simply getting the attention of busy faculty and researchers who may not pay much attention to a new service whose benefits are not immediately clear to them. Library staff believed that departments would be more likely to join as communities if faculty could see high quality content already in the repository, and therefore launched a project to populate KU ScholarWorks.

KU Libraries launched the *RoMEO Green* project in September 2004 to explore some of these issues. Phase one of *RoMEO Green* (named after the RoMEO/SHERPA project from which much of the initial publisher policy data was derived) focused on alternative, staff-mediated strategies to populate the repository. By combining KU faculty citation data with "green" publisher policy data (publishers that allow their authors to post versions of their articles on web sites on in repositories), staff determined which papers by KU authors might be deposited in KU ScholarWorks. Staff then contacted those authors and asked permission to deposit the articles on their behalf. This initiative was based in part on a similar initiative undertaken at the University of Glasgow (Mackie, 2004).

The *RoMEO Green* project goals were to add content to KU ScholarWorks, explore services that might be offered faculty to support their use of KU ScholarWorks, and create interest in an institutional repository at KU. Staff identified and requested 2210 articles from faculty. Ninety-two articles, about 4% of the total requested, were deposited. The percentage is low, but this was the first time many faculty had heard of KU ScholarWorks. It is also consistent with the compliance rate in the initial eight-month period after the National Institutes of Health (NIH) implemented its Public Access Policy requesting and encouraging (but not requiring) that NIH-funded investigators submit their

final, peer-reviewed manuscripts to the National Library of Medicine's PubMed Central Database upon acceptance for publication in a journal (Zerhouni, 2006).

At KU, in addition to the 92 articles added to the repository, the *RoMEO Green* project did provide several, perhaps less quantifiable, benefits. It provided a way for the Libraries to continue to reach out to faculty about scholarly communication issues; staff received feedback about faculty behavior and attitudes, and gained a better understanding of the complexity of working around publishers' self-archiving policies; and it helped KU Libraries form relationships with some faculty members who later deposited more material in the repository. This is important because, as will be discussed later, one of the ways communities in KU ScholarWorks become active submitters is through long-term relationship building with individual faculty members and departments. The library hopes that getting an early start in developing these relationships will pay off later. (For a full description of the KU's RoMEO Green project, its methods and findings see Mercer and Emmett, 2005)

FACULTY RESOLUTION AND SECOND SCHOLARLY COMMUNICATION SEMINAR

In March 2005, the KU University Council, the governance body for faculty and professional and academic staff of the University, passed a broad "Resolution on Access to Scholarly Information." KU was the first member of the American Association of Universities (AAU) to pass a resolution calling on its faculty to self-archive (Suber, 2005). The resolution, a result of strong advocacy and involvement from Provost Shulenburger and Assistant Dean Fyffe, addresses current issues in scholarly communication, and calls on faculty to take such actions as amending their copyright transfer statements to allow them to deposit their work in KU ScholarWorks, and to become familiar with the publishing and business practices of journals and support those that permit dissemination through university repositories and other open access models. The resolution also calls on the academy (University, professional and scholarly associations and administrators) to establish clear "guidelines for merit and salary review…and promotion and tenure…that will allow the assessment of and the attribution of appropriate credit for works published in such venues" as KU ScholarWorks (University of Kansas University Council, 2005). It calls on KU Libraries to provide resources to help faculty better understand the business practices of journal publishers and their impact on the scholarly communication system.

Passage of the resolution was timed to coincide both with the second Provost's Seminar on Scholarly Communication (http://www.lib.ku.edu/scholcommSeminar.shtml), held in early March 2005, and with the official launch of the KU ScholarWorks repository. The second Provost's Seminar focused specifically on the role of digital repositories in the scholarly communication system, and brought leaders in the scholarly communication movement to the KU campus. The Seminar also included a demonstration of KU ScholarWorks. KU is not alone in choosing to announce its IR at a scholarly communication seminar; the University of New Mexico, for example, planned a similar event to announce its repository, also in March 2005 (Phillips et al., 2005) .

While librarians had been talking informally about KU ScholarWorks, and giving formal presentations to academic departments, research centers, and governance bodies for some time, there was a noticeable spike in interest in KU ScholarWorks following the Provost's Seminar and passage of the University Council resolution. Some academic departments requested that library subject liaisons attend a departmental meeting to discuss KU ScholarWorks, and individual faculty contacted KU ScholarWorks administrators to inquire about the submission process and items accepted for deposit. The University Council resolution is a significant accomplishment and is an indication of the importance of this issue to KU leadership and their commitment to addressing it, but the lasting impact of the resolution on the KU ScholarWorks repository is still unclear. When the summer break approached, direct inquiries from faculty declined. Clearly, there is a need for a continued and sustained effort at keeping faculty aware of these issues, as they seem to respond when the opportunities are presented to them.

ONGOING OUTREACH AND EDUCATION

Since the events and publicity surrounding the official launch of KU ScholarWorks in March 2005, KU Libraries has continued to promote the repository on a smaller scale. Library staff have been communicating formally and informally with academic departments, making presentations at departmental meetings, working with individual faculty members to deposit their materials, taking advantage of personal connections, and generally looking for opportunities to discuss the repository program. The combination of education and outreach efforts has resulted in small but growing KU ScholarWorks communities.

Staff are also increasing outreach to and involvement of library subject liaisons. Subject liaisons have more regular contact with faculty members in their subject areas than KU Digital Initiatives staff do, and it is clear that their participation and support will be crucial for a successful repository program (Bell et al., 2005). The Libraries currently offer workshops on KU ScholarWorks to subject librarians so that they can become more familiar with the program and better able to discuss it with faculty. Recently, usage statistics have been sent out monthly to library liaisons with data on the most-downloaded items of the month. Liaisons can then send this information on to their faculty colleagues if they feel it is appropriate.

An "About KU ScholarWorks" Web site (http://www2.ku.edu/~scholar/) provides information about the repository service. The Web site includes a detailed FAQ, policy documents, text for grant applicants, and links to other pages about scholarly communication issues. A section on "Working with Publishers" is intended to help educate users about intellectual property issues and give them some guidance in retaining or obtaining rights for their work. This section includes links to the Securing a Hybrid Environment for Research Preservation and Access (SHERPA) Web site so that faculty may determine the policies of particular journals in which they publish, letter templates they can use when seeking permission from publishers to post articles in the repository,

and an "author's addendum" that authors can use to modify their copyright transfer agreement with their publisher. (This addendum is based on the addendum created by SPARC, and was reviewed and approved by KU General Counsel.)

ROMEO GREEN (II)

In early 2006, KU Libraries continued gathering faculty input by following up with a second phase of the *RoMEO Green* project. This phase focused on assessing faculty perceptions of KU ScholarWorks, and identifying what conditions would encourage KU faculty to adopt greater use of the repository. Faculty who had responded favorably to requests to participate in the first phase of *RoMEO Green* (by granting permission to have some of their published articles posted in KU ScholarWorks) were invited to attend focus groups. During the focus groups, they discussed their knowledge and impressions of KU ScholarWorks, the submission process, departmental and disciplinary concerns about the repository, and any barriers to depositing their work. The twelve faculty who participated offered enthusiastic support for KU ScholarWorks. Some, though not all, regularly submitted their work to the repository. Several broad issues emerged from the focus groups.

Financial and administrative support. Faculty feel overburdened as it is and feel that they and their departments do not have the time or infrastructure to take on new responsibilities, to become familiar with copyright issues, or to learn the archiving policies of different publishers. They think that centralization of these activities would be more efficient.

Policy and community issues. Staff detected some tension between the desire to set submission and content policies at the community level, and the need to understand and be assured of the consistency and quality of content in the repository across the entire institution. This suggests a possible need to illuminate more clearly the distinction between the access and preservation functions of the repository, and the peer-review functions of formal publication. Staff working with the IR need to better articulate to faculty that KU ScholarWorks is not intended to displace the traditional peer-review process.

Technological barriers. There were several suggestions for repository software changes or technology add-ons that would increase efficiency or lower technology barriers to participation (for example, the ability to automatically create PDF files as part of the submission process).

Marketing and education. There is a need for continued and more aggressive marketing about KU ScholarWorks and scholarly communication issues. Participants offered many suggestions for ways to publicize these issues. They also suggested that library staff make discussions of scholarly communication issues more concrete---rather than presenting abstract and formulaic explanations about the scholarly communication system. The Libraries would be more effective if it "told success stories." Faculty want to hear

concrete examples of real benefits of participating in these programs, in terms they understand.

A report was made to the KU Libraries Dean's Council with recommendations for future actions based on IR user feedback. The recommendations included providing greater support for teaching faculty through staff-mediated projects, developing and implementing detailed marketing and education campaigns, and providing technology support to simplify the submission process. The report was well received, and the Dean of Libraries presented the report to IS leadership. Information Services is currently involved in strategic planning, and it is expected that many ideas will be implemented in support of the planning process.

PART TWO / OBSERVATIONS AND ASSESSMENT

SUCCESSFUL KU SCHOLARWORKS COMMUNITIES

KU has adopted a somewhat labor intensive approach to encourage submissions to KU ScholarWorks that relies on building relationships with individual faculty authors, but more importantly, with potential KU ScholarWorks communities. Informal communities include those communities established as part of the *RoMEO Green* project, as well as those that were created at the request of an individual faculty member or researcher, without departmental support. Thirty-one (72%) of the forty-three KU ScholarWorks communities are informal, and lack a designated community administrator or signed memorandum of agreement. Formal communities have an identified community administrator who acts as a point of contact, and is empowered to make decisions on behalf of the community. A memorandum of agreement outlines the formal relationship between a community and KU ScholarWorks (http://www2.ku.edu/~scholar/docs/memorandum.shtml). Although informal communities make up 72% of the total number of communities, they account for only 19% of total items deposited. Formal commitments with campus units seem to build stronger relationships and provide structure for ongoing community development, content recruitment, and faculty support.

Gibbons noted that understanding the needs of faculty is necessary to build a repository program, and implementers must create "a tailored and personalized impression" to which faculty can relate (2004). Communities also have their own personalities, needs and uses for a repository, and it is important to develop relationships with them to understand those needs. KU ScholarWorks communities have come into being and grown in a variety of ways. The following three examples of successful communities will illustrate this process:

Author Advocacy. The personal communications established through the *RoMEO Green* project increased many participants' awareness of their rights as authors. When one faculty member was asked to supply the author final draft of his work, he initially declined, but did express an interest in understanding why he was not asked to supply the

publisher's versions. He preferred to have the final published version available, rather than the author final draft. This professor had served as editor of a scholarly society journal, and he used those professional connections to gain permission for KU to post in KU ScholarWorks the publisher versions of all articles, present and future, authored by KU faculty in that society's journals. In this case, staff efforts did not result in one of the desired outcomes of the project (for faculty to deposit their own work), but it did lead to one author's better understanding of publisher policies and author rights, and 35 additional articles posted. Perhaps even more importantly, a faculty member became an agent of change. As Rogers states in his work *Diffusion of Innovations*, a "change agent's position is often midway between the change agency" (in this case, the University), and the client system (the scholarly society). The faculty member was able to effect change because he was an effective "linker" between the interests of the University and its faculty, and the scholarly society as publisher (2003).

Department-Mediated Submissions: The School of Law and the Department of Public Administration have adopted a mediated process whereby an appointee from the academic unit submits all work on behalf of authors. While to date only two items have been submitted to the Public Administration community using this method, the School of Law has over 120 items in its community. Public Administration and Law have experienced different outcomes based on this model, and RoMEO Green faculty focus groups expressed doubts that all departments would have the resources to take on such a task. Still, a centralized approach to community development may prove an effective submission method for other campus units.

Graduate Student Project Submissions: A final example demonstrates how the first student content was deposited into KU ScholarWorks. The School of Engineering offers professionals employed in engineering firms the opportunity to pursue an advanced degree in Engineering Management at KU's Edwards Campus. The Engineering Management program does not have a thesis requirement, but instead requires students to submit a field project. The field projects were submitted in print to the program and retained in the program offices, and a second copy was placed on reserve in the library on the Edwards Campus. After the library director at the Edwards Campus attended a KU ScholarWorks information session, she determined KU ScholarWorks would be a more efficient method to disseminate and store the field projects. She approached the Engineering Management program director, and he supported adoption of a new procedure using KU ScholarWorks. Students continue to submit field projects to the Engineering Management program, and Edwards Campus library staff then deposit an electronic copy in KU ScholarWorks.

BY THE NUMBERS

In an earlier paper describing efforts to populate KU ScholarWorks, Mercer and Emmett stated, "KU ScholarWorks will fill its role as an institutional repository when its contents are representative of the vast research output from the many disciplines at KU" (2005). As of September 1, 2006, there are 759 items in forty-three KU ScholarWorks communities or, on average, 17.65 items per community. While the number of items

available in KU ScholarWorks continues to increase, it hardly represents the depth or breadth of scholarship produced by KU faculty. In addition, the number of items available in KU ScholarWorks is far fewer than the median for Association of Research Libraries (ARL) members with repositories (University of Houston Libraries' Institutional Repository Task Force, 2006). This is despite the extensive promotion of the repository over the course of several years. Why are the numbers lower than expected at this stage, and what can staff learn from this?

First, one must be careful not to read too much into these numbers. Lynch and Lippincott, in their survey of U.S. repositories, recognized that comparing repositories by size is problematic because

> ...no two institutions are counting the same things. We received reports of the number of objects ranging from hundreds of thousands to, at the low end, a few dozen. The diversity in both the definition of what constitutes an "object" and in the nature of the objects being stored (massive videos or groups of datasets as opposed to individual articles or images) makes repository size very hard to interpret, or to relate to space measurements (2005).

In addition, a count of total items in a repository does not take into account factors such as whether items were archived by authors or by proxies. The libraries have not been proactive in identifying for submission items such as working papers and technical reports that are already available on departmental Web sites. KU has taken an approach that relies on building relationships with individual faculty authors and potential communities, and encourages self-archiving. Most of the content in KU ScholarWorks has been self-archived by individuals or submitted through their community administrator, as opposed to a library staff-mediated model.

Another metric for measuring the success and impact of a repository is usage, which can be measured by the number of searches performed and number of items downloaded from the repository (Shearer, 2003). The DSpace usage logs at KU show that the repository is searched regularly and items are frequently accessed.

CONCLUSIONS

KU has employed a variety of methods to encourage its faculty to take more control of the intellectual rights of their future works using the IR as a dissemination tool. As outlined in this paper, staff's multifaceted approach has utilized the efforts of University and Library top administrators, IR staff, library subject specialists, early adopters, and advisory board members to populate the repository. KU ScholarWorks continues to grow at a slow but steady pace, with several successful and active communities. Still, KU Libraries are striving for higher participation, and can make some general observations and conclusions about its approach so far.

Based on the experiences at KU and those reported by colleagues at other institutions, library staff know there is work yet to do to increase the rate of adoption of the IR. KU ScholarWorks has relied heavily on the "self-archiving" model for institutional repositories, where authors deposit their own works with little assistance from their academic units or the Libraries. This model assumes faculty have made, or are willing to make, the behavioral change required to deposit their published and unpublished scholarship. While ultimately this behavioral shift is a desired outcome, the reality may well be that faculty will be more willing to self-archive when there is more content available in the repository. Indeed, faculty stated as much during the *RoMEO Green* focus groups. More content in the IR can serve as indirect evidence that current practice is shifting. Until contributing to an IR is an integral part of the scholars' social system (and hence normal practice), they are not likely to use a repository (Jones et al., 2006).

Institutional repositories are still in the early stages of development. Everett Rogers' innovation diffusion model defines five stages of progression: knowledge, persuasion, decision, implementation, and confirmation (2003). KU is firmly in the decision stage, with some enthusiastic early adopters and departments committed to using the repository. The University of Kansas is an early adopter of an institutional repository, although individual faculty are at various stages along the adoption continuum. A handful of authors regularly submit their work to KU ScholarWorks, but they are not yet activists who encourage and persuade their peers to submit. The challenge will be to continue developing methods to encourage uptake so that KU ScholarWorks will move through the implementation phase and become part of the fabric of faculty practice at KU.

While mandates may eventually be the best way to ensure comprehensive capture of the output of an institution, those running IRs must continue to pursue other means of applying social and administrative pressure to persuade faculty to deposit their works. Other institutions, such as the Massachusetts Institute of Technology, have found that identifying and working with an "insider advocate" is a more effective means of increasing deposits (Baudoin and Branschofsky, 2003) . A respected member of the faculty might influence behavior more than administrative encouragement. Identifying more insider advocates or activists, who will promote KU ScholarWorks, is a logical next step for continued development of KU's institutional repository program.

KU has experienced several changes in leadership in 2006. With a new Provost and several new deans (including a new Dean of Libraries), the Libraries have an opportunity to work with these new campus leaders to market the KU ScholarWorks service and spark changes in faculty behavior. Staff are hopeful that IS leadership will act on faculty recommendations outlined in the RoMEO Green report. The report calls for increased support for library-mediated submissions, and enhancements that will make faculty self-archiving easier, such as conversion to the PDF format as part of the submission process.

Expanding KU ScholarWorks to include more graduate student work is a priority for Digital Initiatives. During focus groups, faculty expressed strong support for inclusion of theses and dissertations in KU ScholarWorks. Inclusion of electronic theses and dissertations (ETDs) will increase total submissions to the repository, but will also

provide greater exposure for graduate student work. Staff will also expand the number of KU ScholarWorks contributors by offering to host papers and presentations given at conferences and symposia sponsored by KU.

KU will continue a personalized approach to encouraging use of KU ScholarWorks. While staff will continue to work with individual faculty, more energy will be directed toward establishing formal communities, where the most significant growth in items has occurred. As the number of KU ScholarWorks communities continues to rise, staff will work even more closely with library subject specialists, so that they can effectively market the repository service. Staff will continue to sponsor periodic focus groups with KU ScholarWorks users, and others engaged in alternative methods for research dissemination. KU ScholarWorks community practices will be documented by "telling stories," so that faculty understand how KU ScholarWorks reflects their own disciplinary work practices.

IR administrators and advocates have the responsibility and challenge to continue to make faculty aware of the repository and related scholarly communication issues. This can be done by promoting the repository and engaging in dialogue with faculty as much as possible. Use of the repository by KU faculty is tied in part to larger trends in the academic world. As self-archiving becomes an increasingly accepted part of academic practice, KU faculty will wish to participate in that practice, and KU Libraries must position KU ScholarWorks to meet their needs as well as the needs of the institution as a whole.

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