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Populating Your Institutional Repository and Promoting Your Students: IRs and Undergraduate Research

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20 | Populating Your Institutional Repository and Promoting Your Students: IRs and Undergraduate Research

Betty Rozum and Becky Thoms

Establishing institutional repositories (IRs) and encouraging supportive faculty participation can be daunting. Gaining access to scholarly publications and other products that students produce, especially undergraduate researchers, can be an even more challenging task. Many IRs contain graduate theses and dissertations as well as undergraduate honors theses and the abstracts of work that students present at student research events or conferences. It is less common to find IRs whose compilers thoroughly collect student scholarship from all aspects of students' research activities, which can demonstrate the academic involvement of both a university's student population and the faculty who collaborate with their students (Barandiaran, Rozum, & Thoms, 2014). When an opportunity arose at Utah State University's Merrill-Cazier Library to begin such a process, a partnership was born that benefits students, faculty members, and the library. This case study describes the evolution and benefits of that partnership.

Utah State University's (USU's) IR was established in 2007, and it consisted solely of a small collection of theses and dissertations. This collection was made available using CONTENTdm, the software that USU was already using for its Digital Library. However, it quickly became clear that this was not a good fit, and after a review of the repository options available on the market, USU selected the bepress platform. DigitalCommons@USU launched in October 2008 and was comprised primarily of the aforementioned theses and dissertations, a library newsletter, and a small selection of publications from academic departments. DigitalCommons quickly

Full-Text Documents in DigitalCommons@USU Cumulative uploads by date

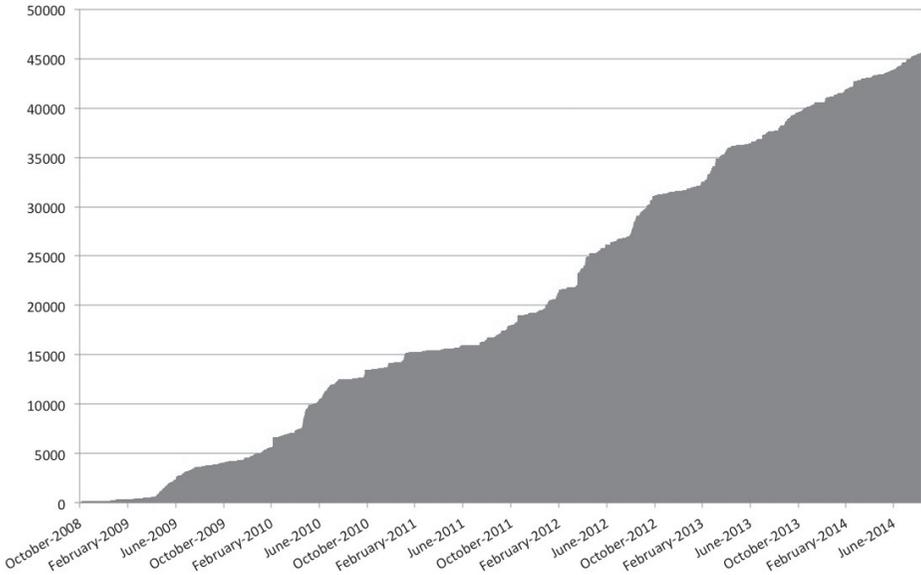


Figure 20.1. DigitalCommons@USU cumulative uploads by date, October 2008 through June 2014.

established itself and began to grow rapidly (see Figure 20.1). By the end of the first year, DigitalCommons had more than 10 distinct series, which included the Departments of Psychology and Animal, Dairy, and Veterinary Science as well the Quinney College of Natural Resources and the *Intermountain West Journal of Religious Studies*, in addition to the inaugural theses and dissertation and library content. As of September 2014, DigitalCommons holds more than 44,000 documents, which represent all of USU’s nine colleges, six journals, products from myriad other research centers, events, and unique content.

All of this success has not come without its challenges. While some departments and faculty enthusiastically embraced DigitalCommons as a tool both to archive and expand the impact of their research, other USU units have required more convincing. Early on the Digital Initiatives Department made the decision to adopt a one-stop-shop approach to adding items to DigitalCommons, specifically faculty publications. This means that

a faculty member need only submit a current curriculum vitae (CV), and DigitalCommons staff will use that to build a site (termed SelectedWorks in the bepress platform) for the individual, which will include entries for all of the scholarship noted on the faculty member's CV. These records are then used to populate the IR—specifically the series for that faculty member's home department. The next step is for DigitalCommons staff to research the copyright status of all of the publications on the CV—which is done primarily utilizing SHERPA/RoMEO, with additional research on individual publisher Web sites as needed. This information is collected into a document that clearly indicates which version (preprint, postprint, published version) can legally be added to the IR. Publisher versions, when allowed, are uploaded, and faculty are asked to submit other versions if they have them. This also serves to remind faculty of the importance of archiving versions of their papers. This model, which is very different from the self-deposit approach taken by many IRs, has contributed significantly to the flourishing of DigitalCommons@USU.

This hands-on approach provided opportunities to develop relationships with particular units on campus and to understand their research interests. In 2011, as DigitalCommons marked its third-year anniversary, the faculty of the USU Physics Department were becoming strong supporters, with well over half the department submitting their vitas for inclusion. Interest in the capabilities of the platform was at a peak, and the physics librarian and physics faculty began discussing some new ways to use DigitalCommons to promote faculty and student research.

It is fairly common to see institutional repositories arrange materials by producers of content along the lines of academic units or type of researcher. For example, the faculty scholarship is grouped together by department; graduate theses and dissertations are together, and so on. What we had not seen at USU was a gathering of scholarship from both faculty and students into one community, based on the research area of the scholarship, nor had we seen an intensive effort to collect student scholarship beyond graduate theses and dissertations and honors theses.

A member of the physics department was very interested in showcasing the research of his lab, which focuses on atmospheric physics. Locally known for the “green beam,” which appears like a laser shooting into the

night sky to collect data from the atmosphere, the Atmospheric LIDAR Observatory (ALO) has been measuring temperatures, densities, and waves in the mesosphere and looking for evidence of global warming since 1993. It has been upgraded to be the most powerful LIDAR in the world (Sox, Wickwar, Herron, Bingham, & Peterson, 2011).

The physicist in charge of the ALO recognized an opportunity to use DigitalCommons as a venue that would collect scholarship from all members of his research team, regardless of their status or the format of their research. Thus, this entry site would collate works from faculty as well as graduate and undergraduate students in the form of peer-reviewed articles, reports, conference publications, posters, presentations, and theses and dissertations. In addition to grouping the materials together in one area that would be easy to browse, such a collection would showcase the work of the research group and archive materials, some of which were scattered in computer files and print documents in offices around the university.

After establishing the structure in DigitalCommons, the physics librarian worked with the faculty member to gather materials and obtain permission to post them in the IR. The collection currently has 72 items that have received 3,870 downloads. Interestingly, the majority of downloads come from posters, presentations, and reports that would not be available through other venues (data as of September 2014).

At the same time that the library was working with the ALO group, the physics librarian was also working with the Physics Department head to outline options for a similar community for a student-led interdisciplinary research group on campus, the Get Away Special (GAS) Team. This student team was founded in 1976 at USU and has upheld the university's reputation for flying more experiments that include the work of student researchers into space than any other university in the world. Students participate from a number of departments on campus, drawing heavily from engineering and physics. The GAS program has been a rich part of the history of USU, and setting up a collection to promote the work of the students was in the best interests of all parties. The library worked closely with the student coordinator to gather materials and obtain permissions from students to post them. An additional benefit of this effort was that the library obtained the print archive that had been housed in the student lab, ensuring the records would be added to the university's Special Collections and Archives.

Some of the scholarship that students have produced, in particular the educational resources, is very popular. In fact, of the undergraduate research hosted in DigitalCommons, the four most frequently downloaded items come from the GAS program, with a total of more than 12,700 downloads among them. After a year, an exhibition was created in the library to showcase the GAS program and the research conducted through the years (Rozum, Wesolek, & Martin, 2012). This ultimately helped the library to secure additional archival materials pertaining to the early space program in Utah.

Working with the ALO group and the GAS Team paved the way to set up communities for other research groups. The physics librarian approached faculty members working with groups of undergraduate and graduate students in specific areas of physics. While a few wanted communities such as the ALO set up for them, no one took advantage of DigitalCommons to the extent that the Materials Physics Group (MPG) has. The MPG studies the effect of the space environment on aerospace materials. In addition to the lead faculty researcher, graduate and undergraduate students conduct research in this area. The faculty member has been diligent through the years about archiving article postprints and conference posters and presentations, and he came to the table with valuable resources in hand.

A community similar to the ALO was established for the MPG collection, and as time allowed, metadata and files were uploaded. As of September 2014, the site had just over 440 records, which have received more than 10,700 downloads. These include faculty publications, conference publications, reports, senior student reports, graduate theses and dissertations, posters, and presentations. As with the other sites, these are all grouped together—faculty with students—presenting a comprehensive view of the group’s research to any visitor to the IR. A few MPG students began adding QR codes linking to DigitalCommons collections of materials to their posters so conference attendees could quickly discover more research.

Currently, all physics students, undergraduate and graduate, are encouraged to submit scholarship to the librarian for inclusion in DigitalCommons. The community of Physics Student Research (http://digitalcommons.usu.edu/phys_stures/), which does not include the capstone projects or theses and dissertations, collects all recent scholarship submitted. This community features just over 90 entries, as of September 2014, which have been downloaded more than 4,500 times. In 2014, the Physics Department

began requiring undergraduates to submit their senior capstone projects to the IR as well (http://digitalcommons.usu.edu/phys_capstoneproject/). While only 16 documents have been uploaded as of September 2014, these have received a respectable 159 downloads.

Additionally, physics graduate students and undergraduates who are actively participating in DigitalCommons are provided with SelectedWorks sites. This affords students the opportunity to build an online presence with permanent links to their scholarship and to use this for graduate school, fellowship, scholarship, job, or other applications. Both faculty members and the physics librarian promote this service. The Physics Department links to the student research page and the graduate students' SelectedWorks sites from their departmental Web site, exposing visitors to their Web site and to the research and interests of their students and faculty. Although this is still a new effort, the department is beginning to see some positive recruitment effects, as evidenced by comments made by prospective graduate students who interview at USU. Students have commented on seeing research from other students and faculty through the department and DigitalCommons links.

Physics faculty feel that incorporating student research in DigitalCommons has concrete benefits. Including the senior capstone projects is very important to the department because it allows them to provide data for outcomes and assessment. This is being used as part of an accreditation process that requires students to demonstrate that they have reached a certain level of mastery in physics.

Faculty see a correlation between spikes in download activity in the MPG materials and the two major conferences for this group—the Spacecraft Charging Technology Conference and the Small Satellite Conference. At each conference, half a dozen people have approached members of the lab with unsolicited comments about research they discovered on the institutional repository site. At these conferences, students and faculty consistently place QR codes linking to the MPG site in DigitalCommons on business cards and presentations, which also boosts the visibility of their work.

Faculty also find that capturing the research from student poster presentations is very valuable as many of these posters contain significant research. After a particular conference, posters are generally tossed aside, or

they may hang in the halls of the department. Capturing the posters and making the data accessible ensures the work does not disappear and allows students to point back to an archive of their scholarship. Student posters in DigitalCommons receive a fair amount of downloads.

Before attending important conferences, the faculty mentors for both ALO and MPG will touch base to make sure the most recent scholarship has been uploaded so that their students' and research groups' work can be readily available. The increased visibility of research conducted by the faculty and students has led to contacts by researchers from around the country to comment on papers. More significantly, the department has secured funding for two projects as a direct result of research that a private company discovered through the DigitalCommons. These projects will allow more students to participate in additional research, which again will be deposited in the IR.

What really has made the venture a success, according to conversations with faculty, has been the involvement of their librarian and the willingness of the library to offer expertise and staff to clear the copyright and enter records into DigitalCommons for both faculty and student scholarship. This allowed the faculty to overcome any fears or hesitations they might have had over legal issues or time commitment to participating in the IR.

The IR does raise a few concerns for the Physics Department, mainly with the nature of the SelectedWorks sites. The integration between the SelectedWorks sites (the author pages) and DigitalCommons is weak, resulting in inaccurate download statistics, added work for maintaining up-to-date sites for both, and confusion in explaining reports to faculty.

Another minor concern is the lack of control over the content of SelectedWorks sites. At USU, these sites, unlike the DigitalCommons side of the institutional repository, can be fully edited by the person to whom the page belongs. This means that students can add anything they wish, possibly claiming work done while at USU, adding a photo that is inappropriate, or posting other content that does not reflect well on the department or university. Several staff members in the library have full administrative rights to remove content so that they could remedy such situations, but it is an area, unfortunately, that librarians must think seriously about. Thankfully, these are relatively minor concerns and are more than offset by the

significant benefit that the Physics Department and library have seen as a result of their efforts to incorporate faculty and student work in DigitalCommons.

This enormously successful project is the result of the unflagging efforts of a motivated subject librarian and faculty members in an extremely receptive and enthusiastic academic department. It is worth noting this work comprised only a small percentage of the librarian's time, demonstrating that a strategic investment of effort can have a major payoff. While at first glance it may seem unlikely that it could be replicated, early efforts to expand this initiative across campus have been positively received, and working in concert with the Office of Research and Graduate Studies, the library is making progress in expanding the successful physics model to other departments. Academic departments and disciplines have different needs, expectations, and concerns. There will not be a one-size-fits-all approach, but incorporating student work in DigitalCommons@USU has enormous potential benefit for faculty and students. USU's experience attests that a knowledgeable and enthusiastic team of librarians can work in concert with individual departments to find the unique blend of content and access that best highlights great local research accomplishments.

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