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Focusing on student research in the institutional repository

DigitalCommons@USU

Student research is a significant and rapidly growing component of the institutional repository (IR) at Utah State University (USU). A briefing paper prepared for Open Access Scholarly Information Sourcebook (OASIS) points to student works as one of nine purposes for an IR.[1] It is not uncommon to find undergraduate and graduate theses and dissertations in IRs. In 2013, an analysis of 283 U.S. repositories using the bepress or DSpsace platforms indicated 71% include this type of student research. However, other student research such as posters, presentations, or papers were only found in 38% of these repositories. Utah State University's IR actively solicits student research resulting from research groups and individuals, as well as posters and creative works featured in the university's Student Showcase symposium.

USU's Office of Research and Graduate Studies (RGS) and the Merrill-Cazier Library recognize that the IR makes student research highly visible and are undertaking a collaborative effort to investigate the significance of emphasizing student research in the IR in recruitment and retention.

IRs are online archives for collecting, preserving, and providing open access to an institution's intellectual output and other digital assets, with an emphasis on research and scholarly works. A primary purpose of an IR is to increase discoverability of research while supporting a larger global movement towards open access. IR programs also serve as vehicles for working with university faculty, staff, and students to help them better understand and control the rights to use and disseminate their work.

IRs offer universities an effective means to manage, disseminate, and preserve the scholarly and creative output of faculty, staff, and students. Regardless of original formats, IR content can be stored digitally and made globally accessible. According to the OASIS briefing paper, a repository has the following purposes and benefits for an institution:

- opens up the outputs of the university to the world;
- maximizes the visibility and impact of these outputs as a result;
- showcases the university to interested constituencies—prospective staff, prospective students, and other stakeholders;
- collects and curates digital outputs;
- manages and measures research and teaching activities;
- provides a workspace for work-in-progress, and for collaborative or large-scale projects;
- enables and encourages interdisciplinary approaches to research;

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- facilitates the development and sharing of digital teaching materials and aids; and
- supports student endeavors, providing access to theses and dissertations and a location for the development of e-portfolios.[2]

IR at Utah State University

Utah State University's IR operates on a bepress- powered platform called Digital Commons. DigitalCommons@USU went online in late 2008, and now hosts more than 41,000 items. This content, which ranges from traditional scholarly articles and presentations to recorded lectures and open access journals, has been downloaded more than 2.5 million times. More than one million of those downloads occurred in 2013, indicating an impressive trajectory of growth and rate of access.

USU has a strong tradition of collaborative research between faculty and students. Founded in 1975, USU's undergraduate research program is one of the oldest in the United States, and has evolved to be a key component of the USU undergraduate experience.[3] Utah State University's IR has actively collected and incorporated graduate and undergraduate student works since 2010. These student works include the posters students present at the annual Student Showcase, a symposium organized by RGS featuring outstanding work produced by students in research, scholarly, and creative projects. More recently, the IR highlights student research created by research groups that include both faculty and student members.

Research groups

Seeing the benefit of incorporating student research, the physics librarian and Physics Department faculty developed a plan to gather faculty *and* student research from specific research groups within their department into collections that would showcase the work of the entire group. The Atmospheric Lidar Observatory was the first to participate. Other groups soon followed, and while some are more enthusiastic than others about continually contributing, the Physics Department as a whole supports the IR.

Physics faculty and students alike submit research, and the site features a unique blend of content ranging from traditional peer-reviewed articles to reports and posters created by faculty, student, and faculty/student joint authors.

While the Physics Department has been the largest contributor, library staff solicit student research from all disciplines. The Digital Commons includes research from students participating in the Get Away Special, an interdepartmental team of students who have been building and sending experiments into space since 1982. Education and outreach items in this collection created by USU students have been downloaded more than 3,000 times.

Student e-profiles via student profile pages

USU has taken this concept of incorporating student work in IRs a step further by building individual profile pages (known as SelectedWorks in the bepress platform), where students can present their research and scholarly interests and promote their skills and accomplishments. The Digital Commons license permits USU-affiliated authors to retain their SelectedWorks site after leaving the institution, allowing students and faculty to maintain an online archive, and even add to it, at the next phase of their careers. The Physics Department provides links to its graduate students' SelectedWorks pages from the department's website, as well as links to IR pages for physics students research and to online collection of theses and dissertations.

Students are motivated to deposit their work in the IR for several reasons. First, it provides a permanent and official place to archive their research so they may refer to it on curricula vitae. Digital Commons offers stable URLs that will not change, and students can refer to the document's location for years to come. Second,

as students build a body of work, the SelectedWorks pages showcase their research. This allows the students to build an online curricula vitae and promote their research and academic skills, something several students have told us they find useful when considering their next steps after USU, whether applying to graduate school or entering the job market.

In some cases, students enthusiastically embrace the concept of archiving their works and they use the feature on their personal author's page that allows them to upload files of their research. This practice led staff in the Digital Initiatives department, who manage the Digital Commons, to implement a site wide RSS feed to alert us to any new contributions so the research could also be deposited with the appropriate department.

Other students are taking advantage of the ability to market their research group and their personal author site by adding QR codes to their posters that link to Digital Commons. This allows visitors to easily view other works by the student and the research group.

In the past, this type of student research has not been readily discoverable. Bringing this hidden research to light and organizing it so research groups could feature their work seemed likely to appeal to people in the scientific community.

In an effort to gauge this interest, USU's physics librarian and IR librarian created a poster to present at the Fall 2011 Meeting of the American Geophysical Union. The poster explained the Merrill-Cazier Library's approach to organizing research in Digital Commons.[4] During the poster sessions, visitors were asked to complete a short survey about the organization and potential benefits of IRs. Thirteen of the 19 people who completed the survey were affiliated with colleges or universities. Of special interest to USU was the extent to which the arrangement of information by research groups, as well as the inclusion of student and faculty research, could be beneficial.

Of the respondents, 13 (68.4%) indicated the information housed in an IR, such as Digital Commons@USU, would be very helpful when recruiting students, while five (26.3%) said it would be somewhat helpful. One person (5.3%) replied that it would not be helpful.

When respondents were asked if highlighting their research group's publications in an IR would aid in attracting high caliber students, nine people (47.4%) strongly agreed and nine people (47.4%) agreed, and one person (1%) was neutral.

Although the sample size was small, the survey and comments from visitors indicate capturing research from students would have broad benefits. Overall, our undergraduate research series (this does not include honors theses) receives very respectable use—more than 18,000 downloads in just over three years (a total of 80 items, half of which were added in the last year). This is evidence of significant interest in the research our students are producing.

The Physics Department is our pilot department, and we can only speak to how they have used the ability to showcase student and faculty research so far. As mentioned, the department provides a link to both theses and dissertations and student research from their departmental website, and these links clearly show potential students that these faculty actively engage students in research and provides a very clear idea of the current disciplinary emphases.

Our efforts in this area have recently expanded to include capturing undergraduate capstone research projects. These senior level projects, which require presentation or publication, will populate a new, separate series in Digital Commons. This provides the department with a record of the projects as well as an opportunity to demonstrate their students' high-quality accomplishments.

Student research as a student recruitment tool

USU is beginning a campus-wide effort that builds on and expands the successful

relationship that the Physics Department has with the IR. USU is a RU/H Research University (Carnegie "high research activity" classification) with a robust undergraduate research program. At USU, faculty collaborate actively with students in their research, and the IR provides an ideal medium to demonstrate to potential students this faculty engagement and opportunities for students to participate and present their findings at conferences around the country and even internationally.

Preliminary anecdotal evidence from current and potential USU students indicates that this prominent display of student work is a feature that sets USU apart from many other universities. RGS recognizes the value and the exceptional potential of the Digital Commons and its promotion of student research as a recruiting tool.

As an institution, USU is beginning a new and more focused approach to student recruitment, particularly at the graduate level. The library, and the IR team in particular, has joined these conversations to plan a joint effort, which could have great potential benefit for the individual departments, the IR, the library, and USU as a whole. Initial conversations have focused on possible adjustments to Digital Commons to emphasize particularly significant components of the student research record—for example, the name and location of conference presentations.

The RGS Office has identified two pilot departments, and our process will involve a two-pronged approach—the RGS team will work with the departments to update and improve their respective web presences while library staff will analyze the current student research content from each—ensuring that it is properly and effectively organized and displayed as well as recruiting additional participants to contribute content.

Conclusion

The goal of this project is to harness the considerable dissemination capacity that DigitalCommons@USU has to spread the word about USU student researchers' great work. An IR is a unique vehicle to promote an institution's faculty, staff, and students and the work they do. By adding more departments to the project, the library hopes to demonstrate to a broader audience the advantages of promoting student scholarship and faculty collaboration via the IR.

Meanwhile, the authors are conducting research to evaluate students' and faculty members' perceptions of benefits from showcasing student scholarship in IRs. Current efforts to capture student research have immediate and tangible results for the students, and the authors look forward to documenting evidence of related benefits for faculty, departments, and institutions as a whole.

Notes

1. Alma Swan, *Open Access Self-Archiving: An Introduction* (Cornwall, UK: Key Perspectives Limited, May 2005), http://eprints.ecs.soton.ac.uk/11006/01/jiscsum.pdf.

2. Ibid.

3. Joyce Kinkead, Linda Blockus, and Council on *Undergraduate Research (U.S.), Undergraduate Research Offices & Programs: Models & Practices* (Washington, DC: Council on Undergraduate Research, 2012).

4. Betty Rozum and Andrew Wesolek, "Promoting Physics Faculty, Students and Research through the Library's Institutional Repository" (presented at the Fall Meeting of the American Geophysical Union, San Francisco, CA, December 2012), http://digitalcommons.usu.edu/lib_present/41/.