

# We Have Only Scratched the Surface: The Role of Student Research in Institutional Repositories

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## Introduction

Institutional repositories (IRs) and other research archives have at their core the mission to disseminate the scholarship of their communities. At universities, this content is often expected to come primarily from faculty and professional researchers. Certainly, faculty are significant producers of scholarship, but students also make worthy contributions to this body of knowledge. Graduate students, at least, are generally recognized as creators of information, and in recent years, IRs have been successfully collecting theses and dissertations written by masters and doctoral students. However, another important and often overlooked group is undergraduate students.

These most junior members of the academic community are doing research and adding to the body of knowledge generated by their institutions and in their disciplines. A number of studies have reported on the benefit of engaging undergraduates in research.<sup>1,2</sup> Many colleges and universities have programs devoted to involving undergraduate students in research. Students are mentored by faculty and often produce and present research at venues ranging from campus events to international conferences. It would seem

beneficial to capture these students' research to promote the undergraduate research program, highlight opportunities for student scholars at the participating institutions, and provide evidence of the institution's dedication to supporting the efforts of students, especially those who travel to present their work.

At Utah State University (USU), librarians and faculty members actively collect student research and make it available in the IR. Like many other libraries, USU initially established its IR as an accessible archive for electronic theses and dissertations. Soon after the IR launched, the faculty began to add their own publications. The physics faculty were early adopters of the IR, and the Physics Department and Physics Librarian have a very close relationship. In 2008 the Librarian began discussions with the Department about ways in which faculty and students could use the IR to promote the work of research groups and the department, and that resulted in the librarian's developing a set of series to house student works. Physics students routinely submit scholarship for inclusion in the IR from conference presentations around the country and world.

The model established by the Physics Department attracted the attention of the Research Office at USU.

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The Library enjoys a strong relationship with the Research Office, and in particular the Honors Program and the Undergraduate Research Program Director. This has helped facilitate capturing posters presented at the state capitol, at the local campus “Student Showcase,” and at other conferences in which the Research Office has direct involvement. The Research Office is interested in helping the library expand efforts to collect student research from additional departments, recognizing the benefits of highlighting students’ accomplishments and the support they receive from the university. In particular, all parties want to highlight the impressive usage of students’ research products that have been posted to the IR (over 31,400 downloads as of January 29, 2015 from a total of 105 posters and presentations).

Diligently collecting undergraduate student research does not appear to be a common practice. An analysis of 283 IRs conducted by the authors in 2013 indicated that only 38% captured student research such as posters, presentations, or research papers.<sup>3</sup> In many instances, the amount of research collected was minimal or limited to scholarship presented at campus events.

In addition to the interest expressed by groups at USU, discussions with attendees at a poster presentation of the American Geophysical Union, and corresponding analysis of a survey disseminated there, indicated that presenting student research in an IR had value.<sup>4</sup> Little work has been published regarding the efforts to archive student work in IRs.<sup>5</sup> Benefits and barriers to this undertaking warrant examination, and led the authors to conduct this study.

This study was conducted to determine what others view as benefits and barriers to collecting and making student research available. Views of four populations are particularly relevant: Undergraduate Research Program Directors, Institutional Repository Librarians, University or College Faculty, and Undergraduate Students. Each of these populations will likely have a unique perspective on the value and the challenges associated with collecting and presenting undergraduate research in an IR. Combining results from all groups will allow for the development of a

more complete picture. Preliminary results from two surveys of these four populations are presented.

## **Methods**

The authors surveyed two populations for this study, Undergraduate Research Program Directors (URPDs) and Institutional Repository Librarians (IR Librarians). URPDs are defined as any director or administrator of a college or university undergraduate research program. IR Librarians are defined as the person in an academic library responsible for the operation of the IR. The surveys were developed using Qualtrics software, were approved by the USU Institutional Review Board, and were anonymous.

The survey for URPDs was distributed via the Council for Undergraduate Research (CUR) URPDs’ listserv. CUR has about 650 member colleges and universities. The UPRD group of CUR had 566 members listed at the time the survey was developed, but of course not all of those people are active on the listserv. Responses were received from 65 Program Directors (11.5%) at the possible members.

Searching OpenDOAR enabled the authors to identify IR librarians at academic libraries that house student research in some form. A total of 272 were identified, and e-mail addresses collected. The authors sent invitations to complete the survey and asked that it be directed to the person in charge of the IR. A total of 77 (28%) completed surveys were received.

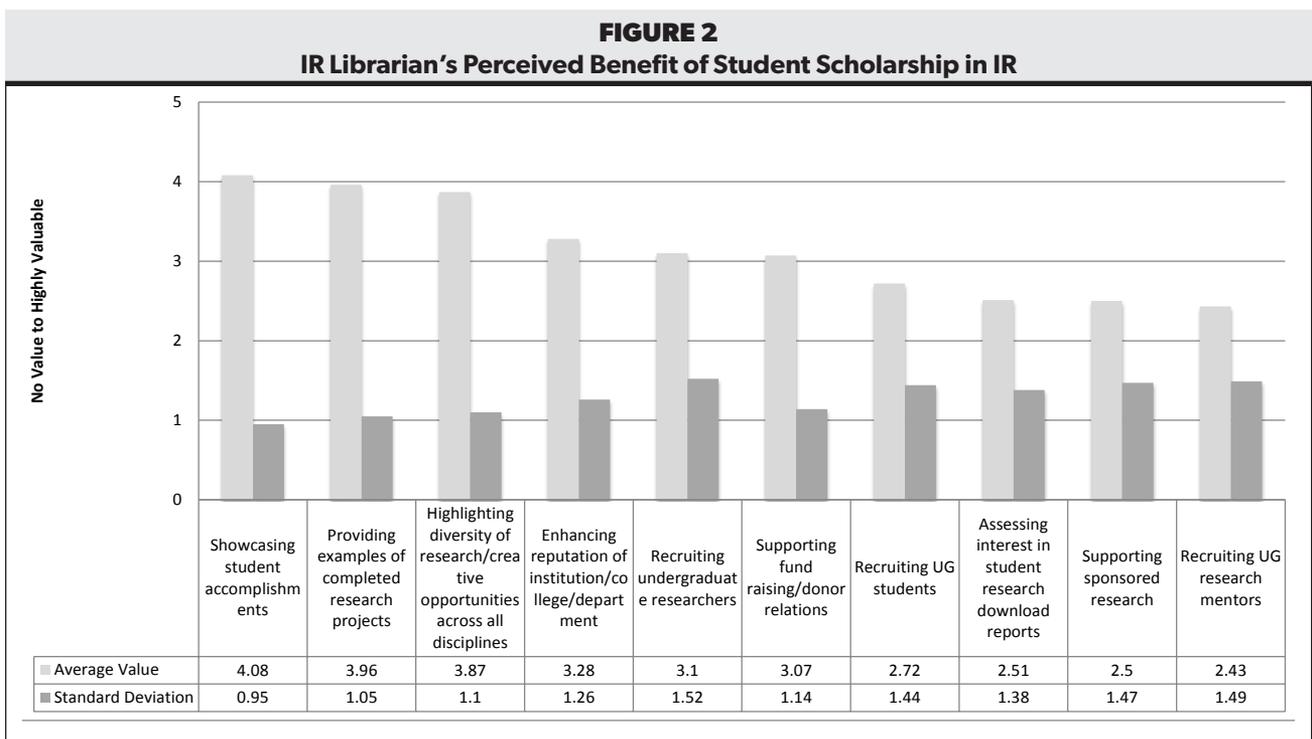
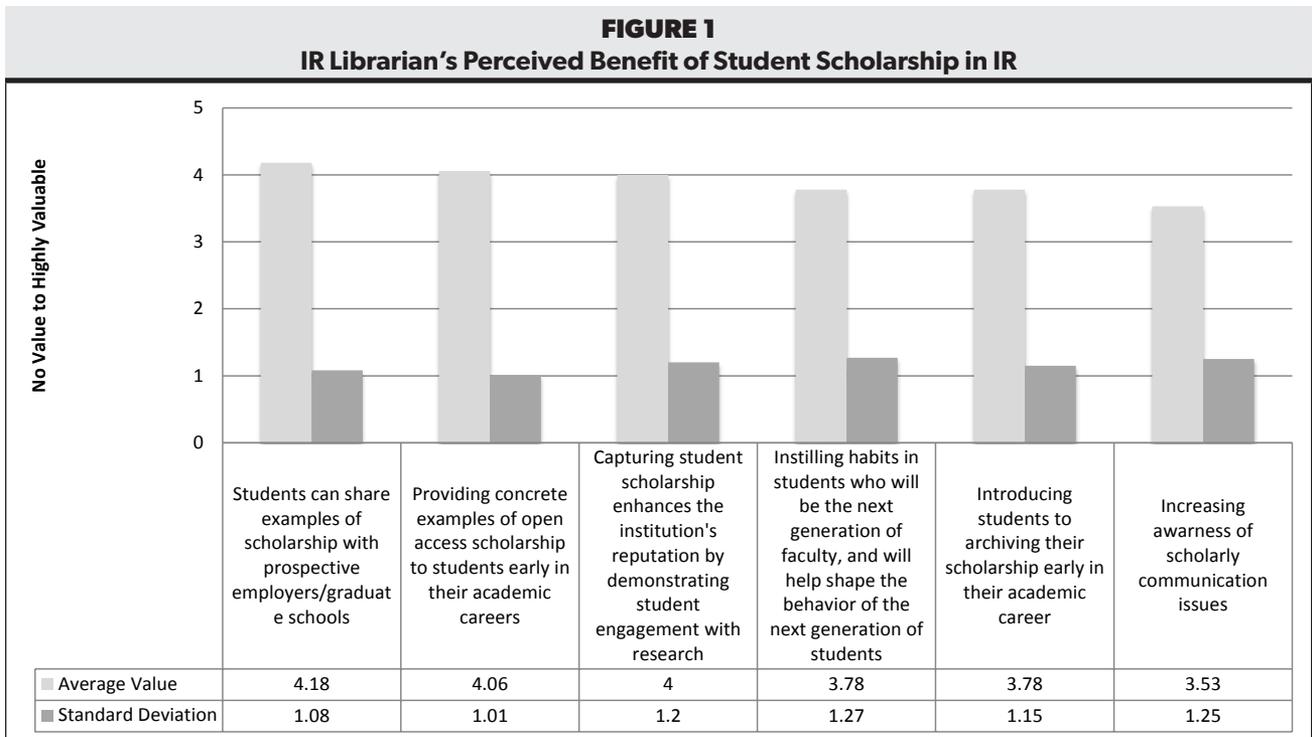
The results presented here reflect a portion of the data collected from the surveys.

## **Results**

### ***Perceived Benefits of Capturing Undergraduate Research in Institutional Repositories***

Both URPDs and IR Librarians were asked about the benefits of including undergraduate research in the IR. While there was some overlap, each population was presented with benefits that were tailored to their particular group. Both populations assigned highest value to the benefit of students showcasing accomplishments (Figure 1 and Figure 2).

*March 25–28, 2015, Portland, Oregon*



URPDs identified three aspects of including student research in IRs as providing the least benefit; these are: recruiting undergraduate research mentors, supporting sponsored research using, and assessing interest in student research via reports of downloads.

IR librarians responded that increasing awareness of scholarly communication issues was the least valuable benefit of including student work in the repositories. Interestingly, this benefit received the lowest ranking, despite the librarians' efforts to incorporate

concepts of scholarly communication into information literacy.<sup>6</sup> It is important to note, however, that all benefits were ranked as having fairly high value and the standard deviation was high for both populations.

### Benefits to Other Groups

Surveys asked the URPDs to provide their opinion regarding how valuable they thought other groups might find an online repository of undergraduate research. This population did not seem to feel strongly that the IR had significant value to other populations on campus (Figure 3).

### Barriers to Including Student Research in The Institutional Repository

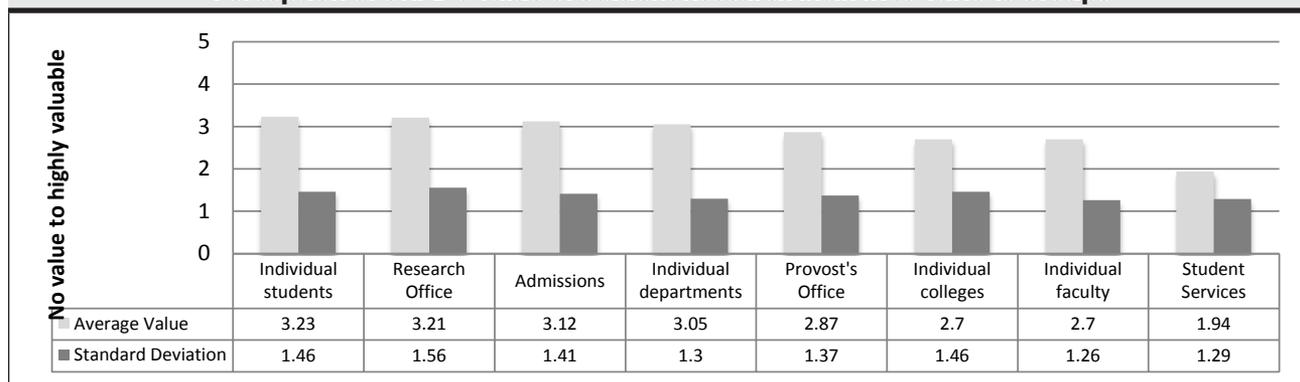
IR Librarians were asked about potential barriers to collecting student research at their institution (Figure 4). Not

surprisingly, lack of staff time is a hindrance. In addition, respondents noted that it is challenging to know when students present their scholarship at off campus venues or co-author publications with faculty, and obtaining the scholarship was difficult for over half the respondents.

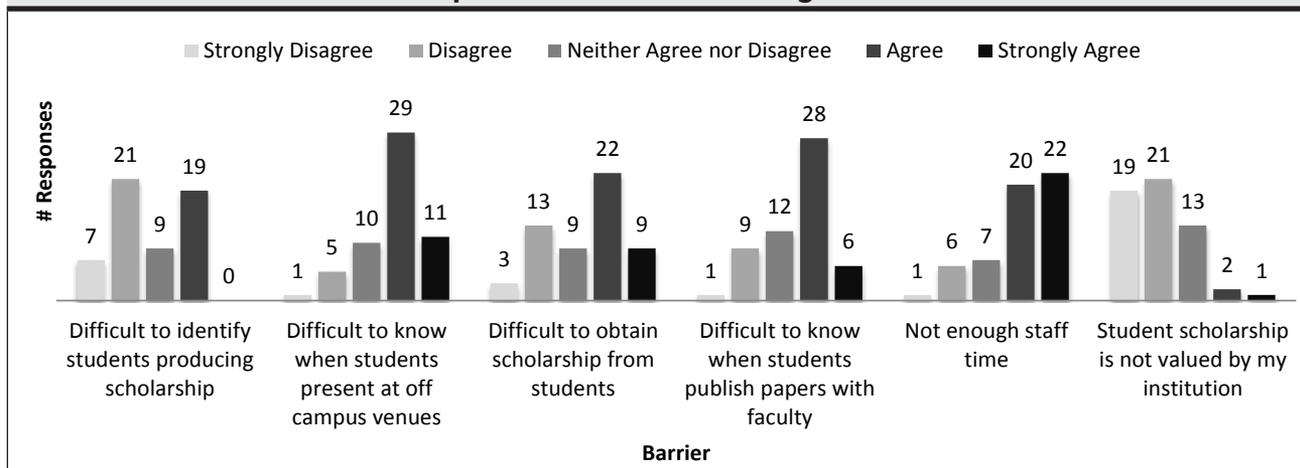
### Where is Undergraduate Research Presented and What Do Libraries Collect?

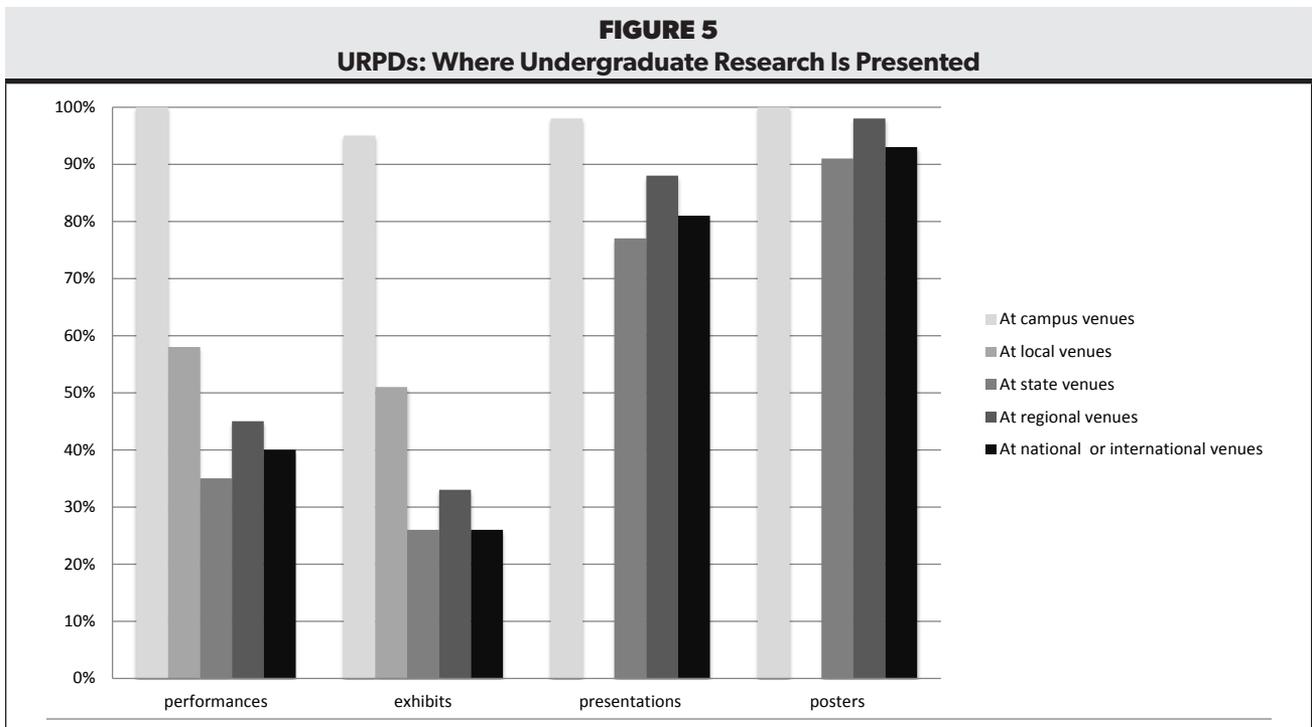
Undergraduate researchers are not limited to presenting their scholarship and creative activities at campus venues (Figure 5). Although campus events were the most common opportunities to present research, more than 70% of URPDs reported that undergraduate researchers disseminate their scholarship (specifically presentations and posters) at state, regional, and national or international venues as well. For the survey questions about posters and presentations, no op-

**FIGURE 3**  
Perception of URPD's Value of Student Research in an IR to Various Groups



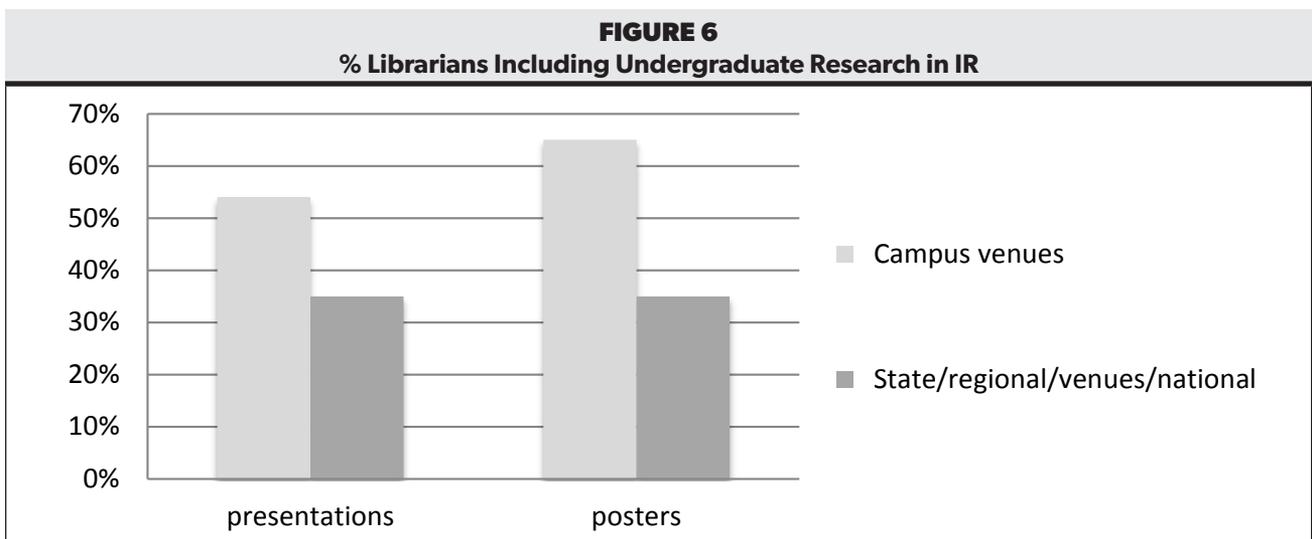
**FIGURE 4**  
IR Librarians Perceptions of Barriers to Including Student Research in IR





tion for “local” venue was provided as was for exhibits and performances, thus the gap in the graph for these data. Posters and presentations are generally presented at campus venues or state, national, international venues. On the other hand, performances and exhibits are often given at local concert halls, libraries, museums, and other locations that are not necessarily associated with the campus, but which are not outside of the local community.

While 100% URPDs reported undergraduate researchers presenting posters at campus events (Figure 5), only 65% of IR librarians reported including undergraduate posters in their repositories (Figure 6). For presentations, 98% of URPDs indicated undergraduates presented at campus events, yet 54% of IRs are capturing this research. Of the URPDs, 91-98% reported undergraduates are active at the state/regional/national levels in terms of giving posters. For



presentations, 77-88% reported undergraduates participating at regional through national levels.

Undergraduate researchers are clearly producing and presenting scholarship at venues beyond their campuses, but libraries are not capturing it to the degree it is being produced.

### Interactions between Librarians and the Research Offices

The relationship between librarians and the research office could have an impact on librarians' success in capturing student research, specifically those individuals who concentrate on undergraduate research. The survey that was sent to the URPD population asked how often they or the staff in their office interacted with the library (Figure 7). The highest percentage reported meeting once a semester, followed by monthly.

In response to a survey question about ways that their library has been involved in undergraduate research, the most frequent response referred to offering training to students about services, databases, etc., followed by offering facilities for research activities, and managing student research in the IR.

From the librarian perspective, 23 of the 59 responding IR librarians interact with the research office one to two times per year; 28 reported not interacting with their research office at all. Beyond individual students and faculty, the group reported most often interacting with Academic Department Heads or Chairs. Fifty-nine respondents answered

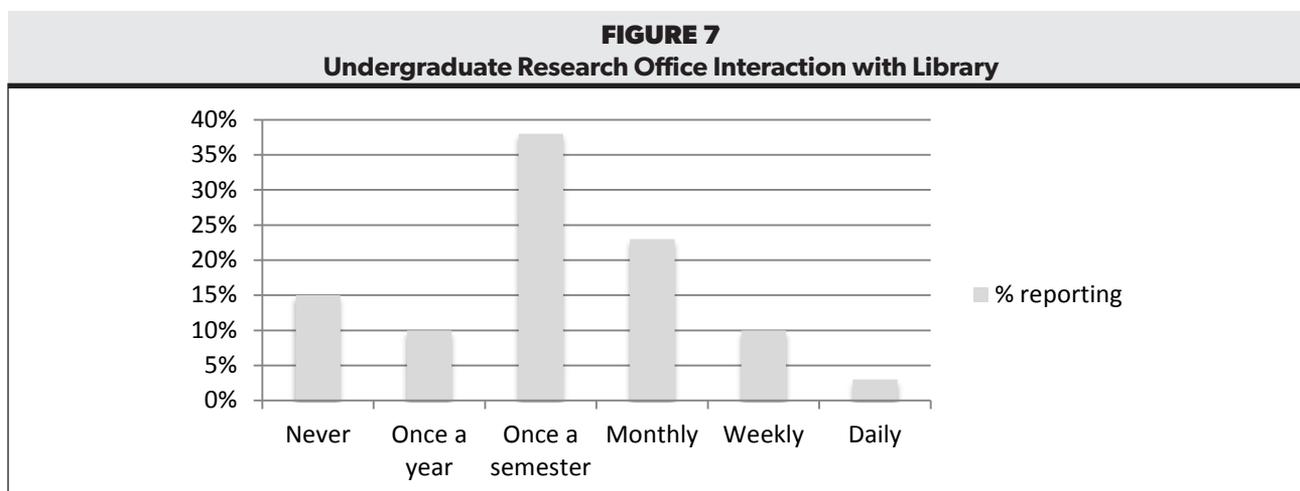
this question, and 30 indicated they interacted with this population one to two times a year.

### Discussion of Results

Results discussed here come from only a portion of responses from the two surveys submitted to URPDs and IR librarians in 2014, and more information needs to be gleaned from these and other data that the authors have collected. Two additional surveys are in development as well; one will be sent to faculty and one to undergraduate students. Combining results from all of these surveys should provide a clearer indication of attitudes regarding undergraduate research in IRs.

From the initial review of survey results, a few findings emerge: URPDs see benefits from including undergraduate student research in IRs, as such exposure showcases student work, provides examples to other students, and highlights the diversity of student research. Additional reasons to capture student research in IRs include recruitment, fundraising, and adding support to sponsored research projects in institutions that are not as highly ranked. This indicates that libraries have a strong potential partner in their URPDs if they wish to begin to collect or increase their current collection of undergraduate research.

Although URPDs see a minor benefit to students from including student research in IRs, they do not see the benefits to other populations as clearly. Their awareness of how an IR containing student research



could be used to enhance the university reputation in terms of admissions, alumni support, student success, demonstration of faculty engagement, and other areas is an excellent potential opportunity for libraries. Even though the IR Librarian population was not asked a similar question, it is interesting to note that in several comments about potential benefits, they indicated that university recruitment could be a potential benefit of housing student scholarship in the IR. IR Librarians and URPDs have an opportunity to partner and build on the work that each already does (promoting student scholarship, capturing university scholarship) to greatly enhance the reputation of the university and its programs.

Also of particular interest, URPDs are not familiar with the reporting potential of the various repository platforms nor are they aware of just how heavily student research is used. This may represent an opportunity for library outreach and warrants further investigation.

Librarians ranked the ability of students to showcase their scholarship to prospective employers and graduate schools as the greatest benefit. Interestingly, increasing awareness of scholarly communication issues was ranked as the lowest benefit. The benefits were not ranked against one another, so each could have been ranked as “highly valuable.” The fact that raising awareness of scholarly communication issues was ranked lower when this is becoming more integrated in the information literacy standards is worth further investigation.

According to URPDs, undergraduate researchers are presenting their scholarship at venues ranging from the campus to the international level. When undergraduate research is included in IRs, the scholarship presented at campus events is much more likely to be captured than presentations and posters from state, national, or international conferences. Nonetheless, national and international venues often have more prestige and can show how students are actively engaged in the research of their disciplines and are supported in these endeavors by their campus.

In their responses, IR Librarians noted the difficulty of knowing when students present their work

away from campus. Without frequent and open communication among libraries, research offices, and individual academic departments, it is extremely difficult for librarians to stay on top of such activity, particularly with the added challenge of insufficient staff time and resources to devote to the effort. All, however, parties indicate recognition of the real and potential value of capturing this work, suggesting a need for further discussion of creative ways to establish channels for continual communication.

Inarguably undergraduate scholars are producing more research than is being captured in college and university institutional repositories. Examining the frequency of contact between IR Librarians, the Research Office, and Department Chairs shows that the majority of IR Librarians either never interact with these groups or interact only one or two times a year. Increasing interactions with these groups by developing relationships, outreach, and marketing in this area could help increase submissions to IRs at institutions interested in capturing undergraduate student research. If promoting the work of students and the mentorship of their faculty is important to the institution, encouraging new and stronger liaison roles in this area, such as those described by Kenney and Kroch in their Ithaca Brief,<sup>7</sup> could facilitate the identification and collection of student produced research.

Collecting student research has clear benefits for students and the undergraduate research office. Librarians mentioned in comments on survey responses potential benefits to admissions for recruitment but also noted various concerns from faculty. Some of the concerns librarians indicated that they hear from faculty include:

- How the student research appears in the IR. For example, do search results retrieve student research along side faculty research? Are student authors clearly identified as such?
- How will this affect a faculty member’s research agenda, specifically their ability to publish work in a journal?
- What is the impact on intellectual property issues and patents?

These are all valid concerns and point to the need to keep the faculty informed and involved in the development of policies for IRs. These views also serve to remind vendors that software platforms must continue to develop to meet increasing expectations of the user community, such as the need for clear identification of authors as students.

Individual faculty were not seen by URPDs as being a population to benefit as much as other groups they rated. This along with the concerns IR librarians encountered from faculty indicates there is room for marketing in this area. Faculty could certainly benefit by having their students' work showcased in an IR. Such exposure shows that the faculty member is engaged with students, increases visibility of work by the faculty member (or when a research group is involved, the entire team), and in some cases can lead to additional funding for the group.<sup>8</sup> A follow up survey will be disseminated to faculty in 2015, and the authors are particularly interested to learn whether faculty attitudes match the perceptions of the URPDs and IR librarians.

The ability to publish work that has been posted in an IR as a poster, presentation, thesis, or dissertation is the topic of much discussion. Analysis of journals in the sciences, social sciences, and humanities indicated that publisher attitudes and policies were generally favorable to accepting papers derived from open access electronic theses and dissertations.<sup>9</sup> Survey questions about this resulted in many comments, and the authors will address the matter in a future paper after the faculty survey has been administered and analyzed.

## **Conclusion**

While undergraduate student research programs have an established, albeit still growing, campus presence, IRs are relative newcomers to the university stage. It is understandable then that libraries are only just beginning to recognize the potential for the possible synergies between these two efforts. It may appear by the lack of inclusion in IRs that the products of undergraduate research are an undervalued commodity.

Comments from survey respondents, however, reveal that the value is recognized but the potential has not been fully realized. Placing student research in the IR is an ideal opportunity for institutions to showcase faculty as teacher-scholars, recognize award winning student scholarship, and promote undergraduate research in general, all of which are mentioned as aspects to be included in promoting best practices in undergraduate research.<sup>10</sup> Academic libraries as the typical caretakers of IRs have a unique opportunity to use the IR to collect this scholarship and promote the students and university in ways that benefit numerous parties.

IR Librarians responding to the survey were clear in their opinions about the value of student research in the IR, yet equally clear was the theme that libraries are somewhat passive collectors of student research. Many marketing and outreach efforts are directed primarily, or even solely, to faculty audiences, leaving students to find their own way to the IR with their research. Typically, an IR Librarian will happily take the student research that is submitted but is not vocally promoting or advocating for the collection. A positive development would be to see IR librarians partnering with subject librarians to put libraries at the forefront of the student research discussion and communicating with their campuses about the value of this content and its reach once captured. Such collaboration also provides a perfect opportunity to reach undergraduates to discuss scholarly communication issues, such as copyright, intellectual property, and author's rights.

Results from the survey clearly demonstrated that URPDs are excellent advocates for student research, but at the same time they fail to recognize the broader campus-wide potential benefits. IR librarian responses, on the other hand, indicate recognition of the significance of this work but less active involvement in collecting research products. Partnerships between research offices and libraries could produce substantial benefits for both groups, as well as the students, their faculty mentors, and departments. Communication to and from the library is the first step to making

this happen, and libraries should step up to initiate the conversation.

## Notes

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