

Supporting the Dissemination of Undergraduate Research: An Emerging Role for Academic Librarians

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Introduction

North American universities are increasingly placing an emphasis on undergraduate research. Research offices, awards, internships, and other initiatives devoted to undergraduate research suddenly abound. As opposed to course-based work, this research typically takes place outside of formal curricula, is often faculty-mentored, and involves the creation of new knowledge. The Council on Undergraduate Research (CUR) offers the following as a definition of undergraduate research: “an inquiry or investigation conducted by an undergraduate student that makes an original, intellectual, or creative contribution to the discipline.”¹

While not an altogether new development—MIT and Caltech had undergraduate research programs as early as the 1960s and 1970s, respectively, and CUR was formed in 1978—the rapid growth of these initiatives may be traced to 1998’s Boyer Commission on Educating Undergraduates in the Research University, *Reinventing Undergraduate Education*.² This report identified the need for a new model of undergraduate research, one which advocates for a synthesis of teaching and research and that sees the undergraduate as a partner in the research process, rather than simply a passive learner.³ Goals outlined by the Commission include a desire to expose undergraduate students to the research process, and an opportunity to align undergraduate research training with faculty research projects.⁴ Additionally, universities are striving to im-

prove students’ chances of being admitted to graduate programs and to better prepare them for graduate education. Many universities are also seeing the potential for these initiatives to function as important tools for recruitment and retention, and for achieving strategic educational objectives. For example, McGill University, in its most recent strategic planning document, *ASAP 2012: Achieving Strategic Academic Priorities*, identified the need to extend opportunities for undergraduate research by mandating that all faculties increase or initiate such opportunities, and monitor and report on them regularly.⁵ The creation of Offices of Undergraduate Research in both the Faculty of Arts and the Faculty of Science, and their administering of faculty-mentored summer research internship awards, is evidence of this mandate beginning to be realized. Other examples of undergraduate research initiatives at North American research-intensive universities include the following:

- New York University’s annual Undergraduate Research Conference, undergraduate research journal *Inquiry*, and summer research opportunities such as the Summer Undergraduate Research Program (SURP) at the NYU Langone Medical Center.⁶
- The University of Alberta’s Undergraduate Research Initiative (URI), which facilitates undergraduate research via skills development sessions and “research crawls”, fund-

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ing for a faculty-mentored research program, support for publishing and presenting research, and an Undergraduate Research Awareness Week.⁷

- Numerous undergraduate research centers and programs at UCLA.⁸
- The University of British Columbia's Undergraduate Multidisciplinary Research Conference (MURC) at which supervised undergraduate research is presented and a "mentor meet and greet" is held.⁹
- York University's 1st annual Undergraduate Research Fair.¹⁰

Initiatives such as these are expanding the range of academic skills that undergraduate students are called upon to utilize, and presenting new and important opportunities for librarians to extend their services to this population. While targeted information literacy and library research methods instruction is one important component of support, another is the education of undergraduate students with regard to scholarly communication and the dissemination of their research. In addition, the landscape of scholarly communication is changing rapidly, expanding to include new media and formats, and academic librarians have an obligation to chart and identify these changes for all of their users, including undergraduates. Initiatives encouraging undergraduate research will only be half realized if students do not understand what scholarly publishing is, how it is changing, and how to join its conversation. Librarians are well placed to offer support in this emerging area.

Despite this, undergraduate research and the opportunities it presents our profession with are not being widely discussed in the library and information science (LIS) literature just yet. This gap was identified by Stamatoplos in 2009 with his acknowledgment that, based on the literature, "one would not know of the existence and nature of independent mentored undergraduate research or of examples of library engagement with it".¹¹ Based on conference presentations in 2011 and 2012,¹² it appears that the conversation surrounding the topic is starting to pick up, though the gap in the published literature has remained. Very recently, Hensley, Shreeves, and Davis-Kahl, addressed this gap and conducted a survey of current practices of library support for undergraduate research, which is detailed in their in press article.¹³ What follows is a brief summary of the limited but

growing discussion of library support for undergraduate research in the LIS literature.

In 2008, Zhang reported on library involvement in a collaborative research program at Rollins College via special collection use.¹⁴ At Rollins, student-faculty pairs produce original research and are supported by the archival librarian and the library's unique archival holdings. The library benefits from an increased use of their specialized holdings as a result of this collaboration. Detailing a decidedly embedded approach in 2009, Stamatoplos described the relationship at Indiana University-Purdue University Indianapolis between the library, the Undergraduate Research Opportunities Program (UROP), and the Center for Research and Learning (CRL)—a relationship that has involved a librarian on the team from the conception phase of the undergraduate research program and that has seen two librarians assigned to support the CRL.¹⁵ This has led to many contributions to undergraduate research on that campus from the library, including consultations, group instruction, participation in planning and advisory activities, serving as reviewers for proposals and awards, assisting with undergraduate research conferences at the campus and national level, targeted collections work, and the creation of a library-funded undergraduate research award that recognizes use of library collections. As mentioned, discussions of library support for undergraduate research have also appeared in conference presentations in recent years. In 2011, Davis-Kahl, Hensley, and Shreeve presented ways in which the libraries at Illinois Wesleyan and the University of Illinois are taking active roles in the dissemination and publication of undergraduate student research; these roles include supporting student research conferences and student journal publishing and facilitating the depositing of undergraduate research in an institutional repository.¹⁶ Hensley also presented on the topic at the Workshop for Instruction in Library Use (WILU) and Library Orientation Exchange Conference (LOEX) in 2011, outlining the benefits of undergraduate research, possibilities for library instruction focused on the creation of posters and presentations, and the opportunities to discuss scholarly communication with students as they take on the role of knowledge creators.¹⁷ Last spring's ACRL 2012 Spring Virtual Institute included a presentation from Cunningham et al. that gave an overview of ways the library at the University of South

Florida has been able to extend its reach, form partnerships, and embed itself in programs as a result of its support of undergraduate research.¹⁸ Informed by a philosophy of “sharing a storefront”, the library and the Office for Undergraduate Research have created a program that sees a “library highlights” presentation, as well as a library competency assessment survey built into the orientation to the undergraduate research program. Feedback after the survey can include connecting students with liaison librarians and general and targeted instructional workshops. University of Alberta librarians, reporting at WILU in May 2012, described a collaborative service model that has been built between the library and the Undergraduate Research Initiative, highlights of which include the creation of an Undergraduate Research LibGuide (<http://guides.library.ualberta.ca/undergraduateresearch>), assisting with a research symposium, and the initiating of a study to assess the impact of library and URI services on the students’ experiences.¹⁹ The previously mentioned forthcoming article by Hensley et al. shares the results of a survey of 240 libraries at institutions with undergraduate research programs and reveals that most of these libraries “are offering at least some kind of support for such a program, although services are not consistent across type of institution.”²⁰ Findings indicate that support is taking place in many forms, especially information literacy instruction (86% of the 240 libraries offer some form of this), but that this is an underexplored area in our practice.²¹

In 2009, Stamatoplos contended that if librarians find that there is value in being involved with mentored undergraduate research, then they need to “share examples of successful practice and help develop appropriate models of engagement.”²² Two years later, at ACRL 2011, Davis-Kahl, Hensley, and Shreeves asked the following to frame their panel session: “What are the current practices of academic libraries in supporting undergraduate research programs and how can libraries better support the last piece of the research process: publication and dissemination?”²³ While answers to these calls have begun to emerge, this paper, with its description of our activities and strategies at McGill University, will add to the conversation surrounding these questions and share examples of engagement that can be applied to practice, especially with regard to supporting the dissemination of undergraduate research.

Targeted Information Literacy Support

Information literacy instruction targeted to the needs of undergraduates conducting research outside of standard course work is the first component of support that must be put in place. This subset of students has needs that differ from the undergraduate engaged in information seeking for coursework, and these needs should be addressed. These students are required to work independently, searching for and evaluating information, and are also developing their own research questions and methods in many cases. Although similar work can be required in the standard curriculum, undergraduate students working on original research are more reliant on these skills. As Stamatoplos asserts, “students engaged in such activities may have greater and more complex overall need for quality information and evaluative skills than the average student engaged in course-related activities.”²⁴

At McGill, a partnership between librarians at the Humanities and Social Sciences Library and the Faculty of Arts Undergraduate Research Office (AUR) was formed at the beginning of 2011 in order to support undergraduate researchers. This office administers an award that was established in 2010—the Arts Undergraduate Research Internship Award (ARIA). ARIA pairs an undergraduate with a faculty member and awards the student \$2000 in funding; the faculty member’s funding source or department matches this monetary amount. This award supports a symbiotic relationship: the faculty member mentors and supervises the undergraduate’s summer research project while the undergraduate contributes to the professor’s own research activities in some way. The experience culminates with an Arts Undergraduate Research Fair during the following academic year at which students disseminate their research via conference-style presentations and posters.

In acknowledgment of the unique context in which the ARIA recipients work, we created targeted information literacy instruction sessions that aimed to arm them with the research skills and awareness of library services that they would need for what would be, for many of them, their first independent research experience. The fact that we were targeting a defined cohort allowed us to survey the group beforehand to learn what their projects were, what previous exposure to library research they possessed, and to get an idea of what they wanted to learn. We built our three-part workshop series around our findings, covering

citation management software, laying an in-depth foundation of searching mechanics across sources, and providing information about specialized sources, services, and collections that would be of interest to the group. The subject liaison librarian model was explained and the workshop series concluded with connecting the students with the appropriate subject liaisons. One of the primary ways this information literacy instruction differed from standard course-based instruction, was in its continual acknowledgement of the critical thinking and evaluative skills that an independent undergraduate researcher must develop alongside information-seeking skills. We inspired a discussion of this by opening one of the modules with a quote from Carl Sagan on the importance of skepticism, and, at a deeper level, critical thinking.²⁵ This led to a lively discussion and these advanced students responded well to a bit of philosophical framework and higher level thinking.

The partnership with AUR is a rich one and has led to other ways of engaging with the students. The librarians have become embedded in the program, attending and speaking about the role of the library in research at the Arts Undergraduate Research Fair each fall, attending “check-in” lunches during the internship period, and getting to know many of the students and their particular areas of research. This has led to the creation of other services that meet the needs of this group. For example, in 2012, the library offered space to the researchers in the form of study carrels and the carrels are grouped together to facilitate community building. This was done in recognition of the loneliness that many of the previous year’s students had reported experiencing during their summer research internship.

As support for the ARIA program was evolving, we began to identify the need to also support the students’ education with regard to the dissemination and publishing of research, beyond their presentations and posters at the Arts Undergraduate Research Fair. As Walkington asserts, it is desirable for undergraduates to experience disseminating their work to a broad audience so that they experience the process of receiving feedback from a variety of sources and have opportunities to participate in the redrafting and refining process.²⁶ Dissemination is the final step in the research cycle and we want to assist undergraduates with finishing this process. Undergraduate research initiatives will only be half realized if students do not

also develop a keen understanding of the academic publishing process and scholarly communication, and, ideally, begin to participate in it.

Joining the Conversation: Value of Publishing for Undergraduate Students

In the spring of 2012, an opportunity arose to test the waters with regard to educating undergraduates on the publication of research. As a result of the support we had provided to the ARIA program, the Faculty of Arts Undergraduate Student Society (AUS) approached us to prepare a presentation of some kind for the a week they were organizing to celebrate undergraduate research. We met with the student organizers and a few key administrators, brainstormed, and conceptualized a session that would describe the ways the library can support undergraduates throughout the publishing process. Offered on an afternoon during the AUS Research Week, the session drew a crowd of undergraduates interested in research or already producing research. Aiming to demystify the publishing process, we took a two-pronged approach, covering both the platforms for disseminating research that scholars should be aware of, as well as the library resources available to assist in the process of writing and publishing. We also used this opportunity to emphasize the importance of sharing original research, and described some of the benefits and issues that result from publishing. This information may be well understood by more senior researchers, but is often new to undergraduates.

Publishing original research is the last step in the research process. It is important to emphasize to undergraduate students that it really doesn’t matter how good a piece of research is if no one ever gets a chance to read it and to use it to inform future scholarship, policies, and/or decision making. As Hensley, Shreeves, and Davis-Kahl succinctly put it, “...with the production of original scholarly or creative work comes the expectation to disseminate and share the new knowledge or creation with the scholarly community.”²⁷ It’s also desirable to point out some of the various personal benefits that can result from publishing research—benefits such as distinguishing yourself professionally, gaining a competitive advantage with graduate school applications, and improving your chances in the in job market—as these can be a real eye opener for undergraduate students and can motivate them to start thinking about publishing. There are

now a variety of electronic publishing forums available, and it has become easier to disseminate research findings to a wider audience. In addition to conventional academic publishing mechanisms such as peer reviewed scholarly journals and conferences, there are several other platforms undergraduate scholars can use to publish their research such as undergraduate research journals and institutional repositories. In a less formal sense, students can also share their own research finding online through personal websites or blogs. They can also use the various social media available, such as Facebook, Twitter, or LinkedIn, to advertise these publications to a wider readership.

Although providing support and resources for writing is not new for libraries, there is value in reminding students how the library can help them with this process. As part of the AUS Research Week session described above, we reframed some of our most foundational services and tools, presenting them through the lens of the needs of an undergraduate researcher looking to publish. We informed the students that subject librarians were available to provide them with literature searching expertise to help find relevant materials and help identify gaps in the literature. We also reminded participants that the library can help them with their writing by providing electronic access to authoritative reference tools for grammar and vocabulary, and writing guides on the preparation of abstracts and research reports for publication. Library support for proper citation in the form of citation software and citation style guides was also described, as was the fact that we are able to advise with regard to copyright and author rights questions that may arise during the publication process. We emphasized how librarians can assist in identifying the “best” or most appropriate academic journals in which to publish their research, using tools such as periodical directories, journal citation reports, and citation mapping tools.

Modern information technology, such as the various electronic publishing mediums previously mentioned, have made it relatively easy for undergraduate students to self-publish their own research findings. When opportunities arise, librarians should try to educate students that when they publish their research on blogs, wikis, and personal websites, or disseminate this research using social media, that this is in fact publishing, and once they do this, it is often in perpetuity, and they should take care when doing this, and

therefore treat this type of publishing very seriously. New platforms have made publishing easier, yes, but this also means that much more of what is created and preserved via online communication can be considered published material. Researchers must be careful and aware of the difficulty of removing our “digital tattoos.”²⁸ One way to illustrate the legitimacy of sharing information or research knowledge using social media is to mention how the Modern Languages Association (MLA) recently updated their style guide to include a tweet as a new citable format.²⁹ This development is a great way to demonstrate to undergraduates how sharing research using social media is becoming an accepted practice in the academy, perhaps not for reporting the results of research, given the 140 character limit, but definitely news reports, and is a great way to share your research or the research findings of others.

Changes to Scholarly Communication (And Why Students Should Care)

After highlighting the potential of certain library resources as specialized tools available to support students in their publishing endeavors, we sketched a broad picture of the formats that academic publishing can take, and gave particular attention to the emerging venues in which scholarly ideas and research are being shared – venues such as social networks, blogs, and wikis. The postmillennial blurring of formal and informal and what that means for scholarly communication – and the lives of academics – was also discussed. We emphasized the double-edged sword that online publishing creates for us: the simplicity and relative ease is a boon, but must be used responsibly and thoughtfully. Students were given an overview of the Open Access movement and its platforms for publishing, including institutional repositories. We also mentioned the proliferation of departmental undergraduate research journals both at McGill and at other universities. Attention was focused on suggestions for how and where to start trying to publish, and on the concepts of peer review and copyright. Future plans include integrating this content into information literacy instruction targeted at undergraduate researchers. Teaching this content has the bonus of introducing, and reinforcing, information literacy competencies. Students are compelled to situate their own work in the research cycle and may emerge with a keener understanding of the process and well as the

various types of information involved as a result.

There is a lively discussion of changes to scholarly communication in the LIS literature. Academic librarianship has responded to this need, and the issues connected to it (Open Access, institutional repositories, and copyright, for example), by creating Scholarly Communications Librarian positions, and it is common to see these positions, or at least someone being designated to take on these responsibilities, in most academic libraries. This work is critical and should be integrated into instruction in appropriate contexts, such as this one. Librarians know this work is needed, and tremendously important, but it is rarely discussed in the context of undergraduate instruction. Two exceptions are Davis-Kahl's discussion of ways to integrate scholarly communication education into undergraduate instruction, which appeared in *College & Research Libraries News* in April 2012, and Hensley's 2011 conference presentations.³⁰

We propose bringing the need for education and support in both these areas – undergraduate research and scholarly communication—together. They inform each other and work in tandem. Doing this will ensure that we are realizing imperatives connected to both the support of undergraduate research and some of our advocacy and education obligations with regard to scholarly communication. This is one of those areas in our professional landscape where providing scholarly communication education and embedding ourselves as information literacy and research skills support specialists will have especially powerful results.

An Opportunity for Libraries and Librarians

Supporting the dissemination of undergraduate research is an emerging role for academic librarians. Sessions as we have described are a good strategy for engaging novice independent researchers, but there are other strategies that we are keen to explore. These include:

- Integrating scholarly communication content into information literacy workshops targeted at this population.
- Supervising, teaching, and hosting scholarly blogging by students throughout their undergraduate research experience.
- Supporting the actual publication of undergraduate research with infrastructure support for undergraduate research journals.

- Facilitating the consistent depositing of undergraduate research in our institution repository.
- Serving as editors for undergraduate journals.
- Embedding librarians in honors programs—these students often are the ones who are conducting independent research. Furthermore, they often go on to graduate school and we want to ensure that their knowledge of scholarly publishing is sound as early as possible.

As is the case at many academic libraries, McGill Library is undergoing a shift in the way it provides services, moving away from the reference desk model and consequently redirecting librarian time and energies to more of an embedded model of service provision. As we more fully realize the embedded model, we expect opportunities for collaboration and support for this area will only grow.

Future Thoughts

Quality is a question that will come up with regard to undergraduate research. Though the options for publishing have grown, this does not mean everyone should be publishing their work. We are not advocating for a dilution of what constitutes publishable research—standards must continue to exist, and be rigorous. At the same time, there is a fine line between being encouraging and nurturing of undergraduates' research aspirations and doing them a disservice by creating expectations they're not capable of meeting. One strategy for dealing with this is to collaborate with faculty on the issue as much as possible: work with faculty as reviewers, having them vet student work for inclusion in institutional repositories or journals. Furthermore, it is important to bring the question of the possibility of publishing research into the undergraduate research experience early on in the process by letting faculty know that it is an area in which the library will be offering education and support.

In many ways, these activities represent the evolution of the liaison librarian model; an evolution that sees liaising happening at a strategic or thematic level instead of simply at a subject level. This is an effective way to align the library with university goals and strategies, and we advocate for more of this as libraries move away from reference-centered service models.

Assessing the opportunities that arise with changes to our institutions' goals and academic models, and what these changes can mean for our services is key.

Librarians need to be anticipatory by creating and providing services just as, or ideally before, our users start to realize that they need support. If we do this, we will exceed our users' expectations every time. Furthermore, as our profession moves away from reference-centered service models, we must look for opportunities to meet users where they are and embed services with their activities. Librarians need to take notice of what has been developing as a result of the Boyer Commission and its recommendations for changes to undergraduate education. There is an opportunity to provide research skills and scholarly communication instruction to a population that is keenly in need of our specialized instruction, and highly likely to put the skills we teach to use as they create new knowledge. Furthermore, because of the nature of undergraduate research—its defined cohort of practitioners and the expectation that there is a finished product that is publishable in some way—it is also a situation in which measuring our impact could be relatively easy.

Hensley, Shreeve, and Davis-Kahl's forthcoming study indicates that specialized support for undergraduate researchers and the publishing of their work is taking place across the profession and is going largely undocumented.³¹ Is it simply a case of it just not having made it into *our* scholarly conversation yet? Are undergraduate researchers getting the support and education that they require in this area? Can the impact of library support of undergraduate research be measured? Undergraduate research is still, as Stamatoplos states, an "emergent pedagogy,"³² and we are only in recent years really seeing the impact of the Boyer Commission's recommendations. However, recognizing the existence of undergraduate research, re-envisioning library services to support it, and answering these questions, as well as others connected to the topic, should be a priority. Doing so will allow us to ensure that librarians are aligning services with the goals and expectations of our institutions and our newest researchers, as well as with those of our profession with regard to information literacy and scholarly communication.

Notes

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3. *Ibid.*, 10-11, 15-19.
4. *Ibid.*
5. McGill University, "ASAP 2012: Achieving Strategic Academic Priorities," (Montreal: McGill University, 2012), 33.
6. See: NYU Langone Medical Center, "Summer Undergraduate Research Program," <http://sackler.med.nyu.edu/surp/>; New York University, "Undergraduate Research," <http://www.nyu.edu/admissions/undergraduate-admissions/learn-at-nyu/undergraduate-research.html>.
7. See: University of Alberta, "Undergraduate Research Initiative: The URI Presents..." <http://www.uri.ualberta.ca/URIPresents.aspx>.
8. See: UCLA, "Undergraduate Research Centers," <http://www.ugeducation.ucla.edu/ugresearch/>.
9. See: University of British Columbia, "The Multidisciplinary Undergraduate Research Conference," <http://murc.ubc.ca/>.
10. York University, "Undergraduate Research Fair," <http://undergradresearchfair.blog.yorku.ca/>.
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13. Merinda Kaye Hensley, Sarah L. Shreeves, and Stephanie Davis-Kahl, “A Survey of Library Support for Formal Undergraduate Research Programs,” *College & Research Libraries*. In Press. Accepted January 2013; expected publication July 2014. <http://crl.acrl.org/content/early/2013/02/06/crl13-458.full.pdf+html>.
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 15. Stamatoplos, “The Role of Academic Libraries in Mentored Undergraduate Research: A Model of Engagement in the Academic Community.”
 16. Davis-Kahl, Hensley, and Shreeves, “Completing the Research Cycle: The Role of Libraries in the Publication and Dissemination of Undergraduate Student Research.”
 17. Hensley, “Showcasing Undergraduate Research: The Role of the Instruction Librarian.”; Hensley, “Consumer to creator: Investigating and Building Library Support for Undergraduate Research.”
 18. Cunningham et al., “Undergraduate Research Programs and the Academic Library.”
 19. Smith and Koch, “Enhancing the Undergraduate Experience through a Collaborative Model.”
 20. Hensley, Shreeves, and Davis-Kahl, “A Survey of Library Support for Formal Undergraduate Research Programs,” 20.
 21. *Ibid.*, 16.
 22. Stamatoplos, “The Role of Academic Libraries in Mentored Undergraduate Research: A Model of Engagement in the Academic Community,” 240.
 23. Davis-Kahl, Hensley, and Shreeves, “Completing the Research Cycle: The Role of Libraries in the Publication and Dissemination of Undergraduate Student Research.”
 24. Stamatoplos, “The Role of Academic Libraries in Mentored Undergraduate Research: A Model of Engagement in the Academic Community,” 239.
 25. “It seems to me what is called for is an exquisite balance between two conflicting needs: the most skeptical scrutiny of all hypotheses that are served up to us and at the same time a great openness to new ideas. Obviously those two modes of thought are in some tension. But if you are able to exercise only one of these modes, whichever one it is, you’re in deep trouble.” Carl Sagan, “The Burden of Skepticism,” *Skeptical Inquirer* 12 (1987).
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 27. Hensley, Shreeves, and Davis-Kahl, “A Survey of Library Support for Formal Undergraduate Research Programs,” 5.
 28. See the University of British Columbia and the University of Victoria’s Digital Tattoo Project for a discussion of the concept and excellent teaching resources: <http://digitaltattoo.ubc.ca/>.
 29. Modern Languages Association, “How Do I Cite a Tweet?,” http://www.mla.org/style/handbook_faq/cite_a_tweet
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 31. Hensley, Shreeves, and Davis-Kahl, “A Survey of Library Support for Formal Undergraduate Research Programs.”
 32. Stamatoplos, “The Role of Academic Libraries in Mentored Undergraduate Research,” 235.