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IT'S RAINING CATS AND CITATION ANALYSES: NEW USES AND AUDIENCES FOR THE RESULTS OF EVIDENCE-BASED COLLECTION EVALUATION

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ABSTRACT

In this age of budget cuts, conversations with faculty do not always have a positive tenor. Faculty may feel that with the cancellation of many journals, library collections no longer reflect the research activities of the campus community. This presentation will describe two citation data studies done to evaluate current collections in light of rapidly changing academic programs, library collections, and services. The Water Resources Graduate Program citation study was undertaken to evaluate OSU Libraries' response to a new academic program proposal completed in 2003. Citations from research papers by fourth year veterinary students provide data that are useful for making evidence-based collection development and management decisions. Using the strength of the subject liaison model, these studies can also provide a unique service to faculty of these programs: a summary of what the students of the program have been citing in a way that the faculty likely do not have time to track or analyze on a program-wide basis. Sharing results with faculty is a way to demonstrate how the library is working to align the collections with faculty and student research.

Introduction

Citation analysis studies are typically done to assess and help shape a collection. If a library knows what users are citing then a comparison can be made between what a library owns or has access to and what was unavailable locally. The philosophy behind this comparison is that a library collection should reflect what the users are using.

Citation studies have been done on undergraduate papers (Knight-Davis and Sung 2008; Kraus 2002; Kriebel and Lapham 2008), graduate theses and dissertations (Brazzeal and Fowler 2005; Haycock 2004; Kuruppu and Moore 2008; Kushkowski, Parsons, and Wiese 2003) and faculty publications (Choinski 2007; Pancheshnikov 2007; Thompson and Harrison 2005). There have been studies that looked at the citations in one or more major journals in a field in order to see what types of sources are commonly cited in the field (Allen and Levy 2006; Rethlefsen and Wallis 2007) or to generate a core list of titles for collection development purposes (Crawley-Low 2006; Udofia 1997). Other studies have been done to gauge the impact of library services on distance learning programs (Heller-Ross 2002), evaluate library instruction services (Brunvand and Pashkova-Balkenhol 2008), consider the future of scholarship (Hovde 2007) and assess citation errors in the scholarly literature (Oren and Watson 2009; Reddy et al. 2008). The majority of citation studies are done in order to gather data to look inwards at how a library is doing and the results of these studies are most likely not often shared outside of the library.

At Oregon State University (OSU) we embarked on two citation studies for some of the same reasons, but realized that the results of our studies could have wider interest outside of the library. The citations analyses done at OSU focus on graduate student research: senior papers

done by 4th year veterinary students and theses and dissertations completed by students in the Water Resources Graduate Program.

Veterinary student research papers

All Doctor of Veterinary Medicine (DVM) students in the College of Veterinary Medicine (CVM) at Oregon State University have to complete a “senior paper” as part of their degree requirements. Students are encouraged to develop topics that they could use for presentations after graduation or that could result in a publication. Papers can be reviews, case reports or original research.

The idea of doing a citation analysis study of the senior papers came after helping two students format their reference lists. One student had several dozen references to journal articles; the other student had fewer than ten references and most of them were to websites. No assumption was made that one paper was better than the other; it was just interesting to see the wide variation of types and numbers of references used. Were some students not comfortable with the scholarly literature of veterinary medicine? Did they know how to search and locate it? Were websites a common reference type? Did students use the gray literature which is important in veterinary medicine? What other types of literature were students using? Were they using the most current knowledge on a subject – a requirement of their papers?

The citation analysis study did not address each of these questions, but touched on several. The study involved 150 senior papers from 2005-2009 and included more than 3000 citations. Each citation was categorized into the type of source (e.g. journal article, book, conference proceeding, government document/technical report, website, theses or other). The date of the citation was noted in order to determine the age of the material. The total number, average and median of the citations was calculated for each year. Journal, book and conference proceeding citations were also evaluated to see if the veterinary library or OSU Libraries had a subscription to or ownership of a title.

The data from this study can be used for the traditional reasons: collection development and management of the veterinary collection, but the original reasons for doing the study and other possibilities for disseminating the findings are also an opportunity.

Instruction refresher

Because of the very tight DVM curriculum and limited classroom space, the only opportunity for library instruction of veterinary students has been at the beginning of the first year, during the first week of classes, well before students begin working on their senior papers. This instruction session typically only lasts an hour and primarily focuses on finding information for their Veterinary Integrated Problem Solving (VIPS) cases, which is the problem-based learning part of the curriculum.

Students are expected to become familiar with the scholarly literature and use the most current information for their papers. They are also expected to understand the importance of keeping up-to-date on advancements in the field. Students are pretty familiar with MEDLINE, but they tend not to remember the other important databases and that MEDLINE does not cover all of their topics in depth. Because of the tight curriculum it has not been easy to find time to schedule another instruction session that would focus on searching for information for their senior papers.

If faculty were shown the trends of sources cited, along with the other data and impressions gathered from the citation analysis, a stronger case could be made that a refresher instruction session on searching the literature would be important and therefore time could be set aside.

Patron driven research guide development

Many libraries have web-based research guides that link users to high quality web resources, in addition to other information and resources. Librarians try to keep up-to-date on the best web resources and include them on these guides. The decision on what to include on these guides is usually based on previous information requests from reference interactions, resources included on guides from other libraries and general experience with the subject. Librarians spend time gathering these web resources, but other than web statistics, they may not know if what they include on the research guide is being used and what is missing. By looking at the web resources that students are using in the papers, we can use that information to help develop our subject guides.

Cancellation decisions

The collections budget for the veterinary library is very small and has not increased in four years. For the 2010 fiscal year, the budget for the veterinary library was cut by more than 20%. Working with the faculty, journals were identified for cancellation using usage and cost data, among other things. Although some proxy authenticators can collect patron statistics, we are only able to distinguish on- and off-campus usage. However, we do not know if the usage is by faculty or students, nor with which college they are associated.

The veterinary library is small enough that reshelving data is collected on print journals and books. Very few individuals from outside the CVM use the veterinary library, so the print usage statistics are a good indicator of College use, but as with online usage, we cannot separate faculty and student use.

When we reviewed journal titles for cancellation there were a couple of titles that were print-only subscriptions and the reshelving data indicated relatively low use. A couple faculty members speculated that students might be using these titles, since they were not titles that faculty identified as important for their own reading and research, and that we should perhaps continue our subscriptions. By collecting the citations from senior papers, we have more data to make evidence-based cancellation decisions.

Citation studies of graduate students usually rely on theses and dissertations, but veterinary students in a DVM program do not fall into this group. By using the data from the senior papers we are giving a “voice” to these students and now we are able to assess our collection, as well as to improve our services using both faculty and student research.

Water Resources Graduate Program Theses and Dissertations

Interdisciplinary Program

The Water Resources Graduate Program (WRGP) is highly interdisciplinary – with degrees in Water Resources Science, Engineering, and Policy and Management. Not currently managed under a single department or college, the WRGP draws on faculty expertise from several colleges and multiple departments including such diverse areas as Agriculture, Engineering, and Sociology.

For subject librarians with responsibility for Water Resources - collection development, consultations, and other liaison work -- it is an unwieldy program to categorize using Library of Congress subject headings or by relying on one or two databases. And certainly, a clearly defined set of journals covering water resources as presented at OSU does not exist.

Fitting into Library Collections Decisions

The confounding factor of supporting an interdisciplinary program in as comprehensive way as the budget allows is interesting, to say the least, but is particularly so in an age of bad budgets and sometimes competing needs from different areas of campus. In addition to utilizing sources such as the Water Resources grouping in Journal Citation Reports and local faculty publication and citation data, adding the graduate student dimension assists the library in making decisions about the collections, as well as providing a service to the faculty advising WRGP students. The students after all, may be navigating their way through a research project that is informed by varied backgrounds and expertise as evidenced by the diversity of advisors on their committees (one recent WRGP graduate student's advisory committee spanned the departments of Sociology, Forest Ecosystems and Society, and Biological and Ecological Engineering). Being able to address the demands of these programs backed by knowledge of the clientele's research habits is essential. Graduate students give us another view of the use of our collections -- bringing both their own influence and flattening individual faculty influence through their thesis projects -- for the decision making process .

Service

How does a student navigate and use the literature to give his/her research the proper framework and context? How does the library address the need of supporting research in a program that can both benefit from a highly diversified collection supporting "traditional" disciplines, but is also at risk for having its unique aspects and specialties lost in the decisions made about the other more easily categorized programs such as Engineering, Sociology, Geology, etc?

We know from the literature that collection analyses are often used to determine whether a collection is meeting the users' needs and occasionally for service activities, such as the success of instruction services. However, the idea of utilizing citation analysis for review of new program proposals after the program has been in place for several years and graduate theses and dissertations are available, is new.

Defining a 'Water Research' Collection

At OSU, a proposal for a new degree program (or a significant change to an existing one) on campus is called a Category I. The Category I includes a section on library collections. An overview of OSU Libraries' participation in the Category I reviews is available in an article by Bobal, Mellinger, and Avery (2008). Readers should review that article for the background on a firmly established, yet sometimes politically tricky process.

In 2003 several OSU librarians were tasked with developing the Libraries' response to the Category I for this new Water Resources program. The Category I review addressed the usual suspects -- monographs and journals. The current citation study only addresses journals. The information reviewed for the Category I included the 50 titles listed in the Journal Citation Reports Water Resources category (2002 ed.), interlibrary loan requests for „water' titles, as well as journals where the new program's faculty had previously published. Based on this research,

several titles lacking in the OSU Libraries collection were identified as potential candidates for new subscriptions or purchases of backsets.

Revisiting the Category I

So why revisit the Category I library review? As described above, the WRGP is an excellent example of an interdisciplinary program with researchers' areas of expertise spanning a diverse array of disciplines. It seemed necessary to include the work of the graduate students in further collection analyses. After all, the graduate students were the target audience of these evaluated and expanded collections – the faculty, for the most part, were already on campus when the program originated.

Wirth (with co-author of the study, Margaret Mellinger) decided to undertake the “retrospective” review of the Category I through a citation analysis of the theses and dissertations to see if the recommendations and decisions about the collections still fit both faculty and graduate student needs. The purpose is not see whether the Category I was “right”, but rather to see if titles previously identified as important to water researchers are as important to student research and also whether there are trends not previously identified in the Category I (are there journals to which OSU Libraries should subscribe if possible?). The faculty citation and publication data are available for 2003-2008, and now the graduate student output can be used for additional comparison to the original review.

Similar to the veterinary student papers study described above, there are other opportunities to take advantage of the wealth of data offered by this citation analysis. As students of an interdisciplinary program, are they getting the guidance they need conducting a literature review and citing sources in a way that works for their discipline and journals? These are just examples of questions to ask for which the graduate student data may help provide answers in combination with WRGP faculty input.

Overview of WRGP citation data

The data analyzed were from 18 theses and dissertations completed by graduate students since the inception of the program in 2003. The 18 works yielded 1794 citations, 58 percent of which were citations to journals. There were approximately 330 unique journal titles, although a few most certainly represent title merges and title changes. Eighteen of the journals were cited 10 or more times. Titles cited the most often were expected, such as *Journal of Hydrology* and *Water Resources Research*. The bulk of the titles were cited just once or twice.

Citation data uses for WRGP faculty

The citation data will be further analyzed in a comparison to the WRGP Category I. The data will be used to make collections decisions, as well as share a summary of the findings with the appropriate WRGP faculty. The authors of this study anticipate the WRGP faculty will be interested in the information shared about the tough collections decisions necessary, but also interested from the viewpoint of learning what their students are citing on a programmatic level, rather than student by student. Additional analyses – by degree, advisor, and other data – can be undertaken as well.

Conclusion

Citation analyses have the potential to inform many aspects of librarianship, as well as provide ample opportunity to engage with faculty in the disciplines and should not be relegated to internal use only. By using results from citation studies, in addition to the other data sources available, librarians can demonstrate to faculty how we ensure library collections are aligned with the research of the university.

These evidenced-based studies help make an informed case for improved information literacy education through the classroom and research guides. Reviewing earlier collection decisions for a new program helps the library identify trends in the early years and also serves as snapshot of the collective body of student work to date, which is helpful to understanding the developing program's needs. Finally, incorporating the students' uses of library resources into collections decisions provides insight through data that is not readily available in any other form.

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