Graduate Students and the Library

A Survey of Research Practices and Library Use at the University of Notre Dame

This study sought to determine the extent to which the Hesburgh Libraries of the University of Notre Dame meets the needs of its graduate students. It focused on how Notre Dame graduate students found research materials and how useful the Hesburgh Libraries' collections were in their research and studies. Information gathered through this project indicates the level of usefulness of library resources and collections for one of its main constituents—graduate students. Graduate students' contacts with the library, regardless of method, were almost always for their own research pursuits, not for faculty research. Graduate students at Notre Dame had more limited contacts with librarians and with library outreach research services. Most respondents (62.8 percent) preferred to use remote access to obtain copies of electronic items identified as relevant to their research. Across the board, however, graduate students were generally satisfied with the various library services. The survey showed that 44.6 percent and 41.1 percent of the respondents rated the library as "very useful" and "useful," respectively, in their research. The data collected has provided a better understanding of graduate student research behavior, methods of library access, and levels of satisfaction with library resources, which will inform local practices and has the potential to do the same at other institutions of higher learning nationwide.

This study sought to determine the extent to which the Hesburgh Libraries of the University of Notre Dame (ND) meets the needs of its graduate students. It focused on how ND graduate students found research materials and how useful the Hesburgh Libraries' collections were in their research and studies. The study looked at the following types of questions: What were the information-seeking strategies graduate students employed in research and writing? How did they identify and acquire relevant research materials? What was their level of satisfaction with the library's collections?

Founded in 1842, ND is a private Catholic university located in Notre Dame, Indiana. The student population is largely an undergraduate one and primarily residential. In 2007 there were 8,451 undergraduate students and 3,362 graduate and professional students.[1] The Graduate School was established in 1918 and offers thirty-two master's and twenty-five doctoral degree programs.[2] This study focused on the nonprofessional graduate students.

LITERATURE REVIEW

Locally created user surveys are common at academic libraries. They assist the administration in assessing

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collections and services and formulating policies affecting library acquisitions and use. Studies show that undergraduates, graduates, and faculty all use the library differently—undergraduates for a place to study, graduates both for a place to study and to make use of the collections and services, and faculty to make use of the collections and services.

Berger and Hines found that Duke University undergraduates were more interested in generalist types of materials (e.g., magazines and newspapers). Faculty more often used "esoteric research publications" (e.g., manuscript materials and conference proceedings).[3] "Graduate students, truly in a transitional stage between these two groups, almost always responded in a way which placed them right between the experiences and desires of undergraduates and faculty."[4] Gardner and Eng found that undergraduates at the University of Southern California "demand access to information 24/7."[5] Further, these undergraduates "expect[ed] convenient, one-stop shopping when it [came] to research."[6] Studies by others in academic settings show that faculty were more interested in print books and journals and remote access than were graduate students.[7]

More recently, libraries have begun to use LibQUAL+ to assess user satisfaction via perception of service quality.[8] LibQUAL+, a survey created by the Association of Research Libraries, measures the user's perception of library service compared to the user's expectations.[9] Hesburgh Libraries used it twice (2002 and 2006) with very positive results in customer service and less favorable results for collections and building facilities. Levels of satisfaction differed between user groups.[10]

METHOD

This study used an online survey to assess graduate students' relationship with the Hesburgh Libraries. The survey contains quantitative and qualitative questions, as well as options for additional comments. The twenty-question instrument included queries concerning graduate students' research processes in general as well as their use of the library collections, website, services, and space. It also consisted of questions regarding their level of satisfaction with the various services and collections. The survey was anonymous, although basic demographic data was collected as part of the analysis. Readers of this article interested in seeing the survey can contact the authors for a copy. As mentioned previously, Hesburgh Libraries had used LibQUAL+ in 2002 and 2006. The results from those surveys indicated differences in levels of satisfaction between user groups. The decision to use a newly developed survey for this study was an acknowledgment that researchers cannot rely on one set of methods or one instrument when looking at users and thereby conclude that user needs are or are not being met. The more vantage points a user is viewed from, the more accurate the picture of that user.

The graduate student population (nonprofessional postbaccalaureates) at ND in spring 2008 was 1,861 students, with 64 percent of them pursuing a doctorate.[11] It should be noted that the law and business students are not viewed as graduate students by the Graduate School, but are viewed as members of their respective colleges; moreover, these populations are served by their own libraries. For instance, the law library is separate from Hesburgh Libraries in funding and directorship. Response rates for Web surveys of students have been shown to be somewhat lower (21 percent response rate) than for mail surveys (31 percent response rate).[12] It is generally acknowledged that incentives to survey respondents also increase the rate of return.[13]

For this study, the authors sent survey links in an e-mail to all graduate students, excluding law and business school students, via a local electronic discussion list. Two e-mail reminders were also sent. Additionally, students who completed the survey and were interested in winning one of three Apple 80GB iPods could provide their e-mail address (this data was separated from the rest of their survey answers by the software) for entry into a drawing. The survey remained open for two weeks. The authors collected the survey data electronically using open source survey software. The software was set up on the www.nd.edu domain so that students would know the survey was originating from a legitimate source. Unique tokens were generated and e-mailed to the students identified. In addition, security measures were taken to assure that only those receiving tokens would have access to the survey, a token could only be used once, and the anonymity of survey participants was preserved (tokens only identified whether or not an invitee had taken the survey—they did not link survey responses to survey takers). The ND Office of Research's Institutional Review Board approved this method prior to the start of the project. The authors analyzed the data using the Statistical Package for the Social Sciences (SPSS).

FINDINGS

As described above, a unique code allowing access to the survey was e-mailed to each of the 1,861 graduate students. Of those, 987 students responded, 920 of which completed the survey. So, 7.7 percent of people who started the survey decided not to complete and submit it. The total response rate was 53 percent (987/1,861), but the response rate for completed surveys was 49.4 percent (920/1,861). Ninety-two percent (920/987) of respondents completed the survey and were entered into the drawing for the three iPods.

At ND during the spring semester of 2008, 64.16 percent were PhD candidates and 35.84 percent were master's students. The distribution of survey respondents was 77.28 percent PhD students and 22.72 percent master's students. A breakdown by department and degree revealed that PhD students from Aerospace and Mechanical Engineering, Biological Sciences, Chemistry, and Electrical Engineering were slightly overrepresented compared to the actual enrollment numbers of students in these departments. Master's students were slightly underrepresented in Education. Demographics of survey

respondents were as follows: Most were 39 years of age or younger (48.5 percent were 25–29, 27.1 percent were under 25, and 20.7 percent were 30–39); 81.6 percent lived off campus and 18.4 percent lived on campus; 50.9 percent had been enrolled as a graduate student at ND for 3 or more years, 25.7 percent for less than a year, and 23.5 percent for 1–2 years; and 91.1 percent had not received their undergraduate degree from ND while 8.9 percent had.

The first part of the survey asked students about how they accessed the libraries and whether that access was for their own research or on behalf of a faculty member. More than half of the graduate students did their own library research frequently (weekly or daily) from a home computer (65.5 percent), using a personal laptop on campus with wireless access (62.7 percent), using a campus computer (59.2 percent), and in person (53.3 percent). Half or more of the students never accessed the library in any manner to conduct research on behalf of professors. Their contacts with the library, regardless of method, were overwhelmingly for their own research pursuits, not for research for faculty (see table 1).

The next set of questions focused specifically on in-person access. Hesburgh Library (the university's main library) was the most visited (56.6 percent) in person for research purposes. The most common reasons for visiting the library frequently (weekly and daily) were to study individually (41.2 percent), get an electronic article (39.6 percent), use library computers (37.1 percent), get or return a book (34.8 percent), and get a print article (29.9 percent). Students were less likely to use the library for getting an item on reserve, to consult a reference librarian, or to consult subject librarians. Of note in this subset of responses is the nonuse of library staff (reference and subject librarians) in person. These librarians are available to users for research consultations, with or without appointment (see table 2).

The next area of the survey focused on remote use of the collections. Most respondents renewed items once a semester, placed an interlibrary loan request monthly or never, and searched the ND catalog and the databases weekly. From a remote location, the following percentages of students never did these tasks: use Ask-A-Librarian (76.4 percent), search WorldCat (52 percent), get an item on electronic reserve (38.6 percent), or recall items (33.2 percent). See table 3.

Questions regarding how students identified relevant materials for their research encompassed the next section of the survey. Participants answered these questions on a 5-point scale, with "1" being never and "5" being usually. According to mean scores, students were most likely to identify materials relevant to their research by searching a database (4.45) or reading an article or book (4.23). They were least likely to get a citation from another student (2.81), get the material from their personal collections (2.75), search an online bookstore (2.39), or consult a librarian (1.76). See table 4.

If the library owned an item that students identified as relevant to their research in both print and electronic formats, 62.8 percent of those students preferred to access the electronic copy remotely. In the event the library did not own an identified item, 64.2 percent of those surveyed would be most likely to

Table 1. Graduate Students' Library Research: Purpose, Locations and Frequency

Research Purpose and Locations	Frequency (%)					
	Daily	**Weekly**	**Monthly**	**Once a Semester**	**Once an Academic Year**	**Never**
Own research						
Using a personal laptop on campus with wireless access	34.3	28.4	12.3	5.5	2.3	17.2
From a home computer	31.7	33.8	15.5	5.3	2.0	11.6
In person	20.3	33.0	26.5	11.8	4.0	4.2
Using a campus computer	20.1	39.1	17.8	7.6	3.2	12.2
Research for a professor						
Using a personal laptop on campus with wireless access	9.2	11.1	12.1	8.4	3.8	55.4
From a home computer	7.1	12.3	11.3	7.9	4.7	56.7
Using a campus computer	4.7	14.7	11.8	10.0	6.0	52.8
In person	3.4	9.9	16.7	12.3	8.0	49.7

request it via interlibrary loan.

Survey respondents were asked to rank, on a scale of 1 to 10 (1 being most important and 10 being least important), the level of importance of various library resources. The ranking of resources by medians is as follows: books (3), journals (3), online databases and indexes (3), online full-text journals (3), library hours (6), study space (6), computers (7), reference librarians (7), interlibrary loan (8), and subject librarians (8).

The ranking of resources, by the percentage of those selecting "1" (the most important) was as follows: books (35.0 percent), online full-text journals (16.7 percent), online databases and indexes (14.2 percent), journals (12.5 percent), library hours (10.4 percent), study space (4.9 percent), computers (3.3 percent), reference librarians (2.0 percent), interlibrary loan (0.8 percent), and subject librarians (0.3 percent). Ranking of resources, by the percentage of those selecting "10" (least important) was as follows: library hours (20.4 percent), online full-text journals (14.2 percent), interlibrary loan (13.9 percent), online databases and indexes (13.2 percent), study space (9.5 percent), reference librarians (8.6 percent), computers (8.0 percent), subject librarians (6.0 percent), journals (5.3 percent), and books (0.9 percent). See table 5.

The survey asked students to rank their level of satisfaction with various library resources. Students had

Table 2. Reasons for and Frequency of Visiting the Library In Person

Reasons for Visiting the Library in Person	Frequency (%)					
	Daily	Weekly	Monthly	Once a Semester	Once an Academic Year	Never
Study individually	18.6	22.6	16.4	11.4	5.7	25.3
Use library computers	10.8	26.3	19.1	12.1	4.8	27.0
Get an electronic article	9.2	30.4	17.5	7.5	3.2	32.2
Get a print article	4.9	25.0	27.2	17.6	6.8	18.5
Get or return a book	4.1	30.7	35.9	18.6	4.3	6.4
Get an item on reserve (e.g., maps, microfilm)	0.7	7.3	21.0	18.0	11.4	41.6
Consult reference librarians	0.5	3.9	10.4	21.7	15.5	47.8
Consult subject librarians	0.3	3.4	8.4	15.0	15.3	57.6

Table 3. Frequency of Use of Library Resources and Services from Remote Locations

Library Resources	Frequency (%)					
	Daily	Weekly	Monthly	Once a Semester	Once an Academic Year	Never
Search databases for an article	24.7	42.4	17.4	4.6	2.2	8.8
Search the ND catalog	23.5	42.5	20.7	5.5	1.5	6.3
Search WorldCat	5.5	15.8	14.7	8.7	3.4	52.0
Get an item on electronic reserve	3.8	16.5	17.8	14.8	8.5	38.6
Place an interlibrary loan request	1.3	9.6	29.8	20.7	10.9	27.8
Renew items	1.1	2.9	13.9	46.8	8.3	27.0
Recall items	0.7	5.1	24.9	25.0	11.2	33.2
Use Ask-A-Librarian	0.4	1.5	5.1	9.5	7.1	76.4

the highest level of satisfaction ("very satisfied") with interlibrary loan, electronic resources, and library hours. Those dissatisfied with any of the collections or services represented less than 2 percent for most services and less than 10 percent for all services listed in table 6. While students were generally satisfied across the board, most did not use subject librarian assistance, Ask-A-Librarian e-mail reference, or Ask-A-Librarian chat reference (see table 6).

The final set of questions seeks an assessment about the usefulness of the library. Most of the students found the library to be very useful in their research. Responses to a question asking them to rank overall usefulness of the library on a scale of "very useful' to "not at all useful" showed that 44.6

Table 4. Frequency of Use of Particular Methods to Identify Relevant Graduate Research Materials

Method	Mean (out of 5)	Frequency (%)				
		5 (Usually)	4	3	2	1 (Never)
Search database	4.45	68.7	17.7	6.7	3.3	3.6
Read an article or book	4.23	51.7	29.5	12.0	3.9	2.9
Search the Internet (e.g., Google, Yahoo!)	3.87	41.0	26.0	17.3	10.7	5.1
Search ND catalog	3.82	39.6	26.1	18.4	8.8	7.2
Use previously referenced item	3.52	21.8	34.9	24.8	10.7	7.8
Get citation from a faculty member	3.43	17.3	35.4	27.2	12.7	7.4
Get citation from another student	2.81	8.8	21.7	27.7	24.9	16.8
Get from personal collection	2.75	9.1	22.0	25.4	22.2	21.3
Search online bookstore (e.g., Amazon)	2.39	8.2	14.3	18.5	26.7	32.3
Consult a librarian	1.76	1.3	5.9	13.5	25.9	53.5

Table 5. Ranking of the Most Important Library Resources to Graduate Research

Library Resources	Mean (out of 10)	Ranking of Resources (%)									
		1[a]	2	3	4	5	6	7	8	9	10[b]
Books	2.78	35.0	11.3	11.0	36.8	1.0	1.5	2.4	0.1	0.0	0.9
Journals	3.45	12.5	24.1	23.3	24.8	2.7	3.4	3.6	0.1	0.2	5.3
Online databases and indexes	4.19	14.2	20.5	18.9	15.4	3.6	6.5	6.2	0.8	0.8	13.2
Online full-text journals	4.41	16.7	17.3	16.8	11.0	6.3	6.6	8.0	1.3	1.6	14.2
Library hours	5.71	10.4	8.9	10.2	5.9	12.5	11.7	11.2	5.5	3.2	20.4
Study space	6.09	4.9	6.7	7.5	2.4	16.7	14.6	17.6	11.1	9.0	9.5
Computers	6.47	3.3	4.7	4.9	1.7	18.8	14.2	15.3	15.7	13.4	8.0
Reference librarians	6.93	2.0	3.2	3.0	1.1	17.6	11.3	13.9	21.7	17.6	8.6
Interlibrary loan	7.45	0.8	1.5	2.6	0.2	10.5	17.5	11.6	17.6	23.7	13.9
Subject librarians	7.53	0.3	1.7	1.7	0.7	10.2	12.6	10.1	26.1	30.5	6.0

1[a] = most important; 10[b] = least important

percent of students rated the library as "very useful" and 41.1 percent as "useful" to their research. Only 14.3 percent indicated that the library was "not useful" in their research. Additionally, when the survey asked students about whether the ND library system had the journals they needed for their research, 57.8 percent and 34.1 percent responded "usually" and "often," respectively. When the survey asked students about whether the ND library system had the books they needed for their research, 33.9 percent and 43.5 percent responded "usually" and "often," respectively.

The authors broke down statistics by department, and three questions were of particular interest. There were no departments with most of their students assigning the most negative options ("-1" or "-2") for any of these three questions; however, there were several departments in which most of the students identified with the most positive option ("2"). On the question regarding whether the library had journals needed for their research, students in only five of the thirty departments did not assign the most positive rating of "2": Art, Art History and Design; Biochemistry; Biological Sciences; Civil Engineering and Geological Sciences; Physics; and joint or dual degree (not a department, but survey takers were able to select joint or dual degree as an option). Students in these five departments, did, however, most frequently assign the second highest rating, "1." When the survey asked students whether the library had books needed for their research, again there were no departments in which students most frequently assigned the most negative rating. Instead, most of the ratings were either the highest rating of "2" (eight departments) or the second highest rating of "1" (twenty departments). Finally, on how useful students found the library for their research, there were no departments with students most frequently assigning the most negative rating. The highest rating of "2" was most frequently chosen by students in twenty departments, and the second highest rating of "1" was most frequently chosen in twelve departments (note that in two of these departments—Art, Art History, and Design and Computer Science and Engineering—there was a tie between ratings of "2" and "1").

Lastly, 374 of the 920 respondents provided 550 additional comments, which fit into 90 discrete areas. The ten areas with the most responses were general praise (6.91 percent), need for additional electronic journals (6.55 percent), positive and negative encounters with staff (5.09 percent), positive and negative comments regarding interlibrary loan (4.36 percent), difficulty in searching the catalog (3.64 percent), desire for extended building hours (3.64 percent), need for more computer-cluster computers (3.64 percent), need for more books (3.45 percent), need for additional copies of books (3.45 percent), and difficulty in library website navigation (3.09 percent). Comparisons

Table 6. Level of Satisfaction of Graduate Students with ND Library Collections & Services

Library Collections & Services	Level of Satisfaction (%)					
	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Do Not Use
Interlibrary loan	36.1	32.7	9.8	1.8	0.2	19.3
Electronic resources	31.0	50.2	11.5	4.0	0.5	2.8
Library hours	26.8	47.5	14.2	5.0	1.0	5.4
Library website	23.3	52.5	15.1	5.1	1.5	2.5
ND catalog	23.0	50.0	15.9	6.1	1.7	3.3
Electronic course reserves	22.8	31.2	12.9	1.1	0.4	31.5
Study space	18.8	37.5	19.5	6.8	2.4	15.0
Finding print resources in the library	17.8	51.2	15.5	4.3	1.0	10.1
Course reserves	15.8	32.7	19.5	1.7	0.4	29.9
Reference librarian assistance	14.6	26.6	13.9	0.5	0.3	44.0
Subject librarian assistance	13.0	23.4	12.2	0.9	0.3	50.2
Ask-A-Librarian e-mail reference	5.0	10.9	11.2	0.5	0.2	72.2
Ask-A-Librarian chat reference	5.0	9.5	10.9	0.9	0.2	73.6

with the frequencies and percentage of respondents indicate the same ten items in the same order as for the percentage of all responses (see table 7).

These are areas in which graduate students mentioned similar concerns via previous ND surveys. Some of these concerns have been very recently addressed. One example is the launching of a new library website to hopefully alleviate users' complaints about navigation difficulty. All user populations had identified navigation difficulty as a major problem. Items such as increased building hours and more computers are likely to be investigated and addressed as part of upcoming renovations.

DISCUSSION AND CONCLUSIONS

A large percentage of the graduate student survey respondents indicated that contacts with the library, regardless of method, were almost always for their own research pursuits, not for faculty research. More than 40 percent of the same respondents indicated that the library was a very useful resource in their own research programs. By contrast, only 14.3 percent of the respondents rated the library as not being useful in their research. Across the board, graduate students were generally satisfied with the various library resources. This

could be attributed to the fact that, as pointed out by the respondents, the ND library system most often had the books and journals they needed for their research either in print or electronic formats. Additionally, the main reason for electronic access of the library by graduate students was to conduct research in library databases and to access needed journal articles.

Unlike Maxwell, who found that Canadian graduate students in education relied more on librarians in their library searches,[14] this study found, in several different sections of the survey, that graduate students had very limited contact with librarians or with library

Table 7. Top Ten Survey Comments

Rank	Response	R1[a]	R2[b]	R3	R4	R5	R6	R7	R8	R9	Totals	Percent of All Responses[c]	Percent of Respondents to This Question[d]
1	General praise	33	5	0	0	0	0	0	0	0	38	6.91%	10.16%
2	Electronic journals	27	8	1	0	0	0	0	0	0	36	6.55%	9.63%
3	Staff	12	10	3	1	0	2	0	0	0	28	5.09%	7.49%
4	Interlibrary loan	15	7	1	0	0	0	0	0	1	24	4.36%	6.42%
5	Catalog search	16	4	0	0	0	0	0	0	0	20	3.64%	5.35%
6	Hours	17	3	0	0	0	0	0	0	0	20	3.64%	5.35%
7	Number of cluster computers	13	1	4	1	1	0	0	0	0	20	3.64%	5.35%
8	Number of books	12	5	2	0	0	0	0	0	0	19	3.45%	5.08%
9	Number of copies	12	3	3	1	0	0	0	0	0	19	3.45%	5.08%
10	Website navigation	15	2	0	0	0	0	0	0	0	17	3.09%	4.55%
Top 10 totals:		172	48	14	3	1	2	0	0	1	241		
Overall totals:		374	107	39	17	7	3	1	1	1	550	43.82%	64.44%

[a] Number of individuals who made any of these top ten responses in their first comment
[b] Number of individuals who made a second comment that was one of the top ten responses
[c] Total for top 10 response item/550
[d] Total for top 10 response item/374

outreach research services. When asked about their in-person use of the library, students indicated they came to the library for individual study, not to consult with reference or subject librarians. When ranking the level of satisfaction with library resources, specialists (subject librarians), and outreach mechanisms (Ask-a-Librarian e-mail and chat reference), the graduate students ranked librarians and outreach programs as less important than the collection and tools provided by the library. More than three quarters (76.1 percent) of the respondents did not use the Ask-A-Librarian service.

ND librarians' attempts to reach this user population either in person or through outreach programs do not appear to have been recognized. This could be attributed to a lack of awareness of what is available at the libraries, since 91.1 percent of the graduate students attained their bachelor's degrees elsewhere, or to a lack of awareness of the role of librarians in library searches. It has been reported that graduate students will modify their topic or ignore relevant bodies of information if the source is not electronic, and ask for help only as a last resort.[15]

In some cases this behavior could be due to graduate students identifying more readily with professors, who they view as their primary authoritative research sources. Parrish concluded that teaching faculty were essential in guiding graduate students in their use or nonuse of the library.[16] Dependence of graduate students on professors for library research could create some problems if faculty members are unaware of library resources and services or uninformed about effective database search strategies. In these instances, they pass misinformation to their students.[17] It is important to point out that there now exist computer technologies that facilitate library research without the need for human (librarian) contact, but for questions that are complex and involved—such as those that graduate students are likely to have—face-to-face interactions may still be the most effective mode of communication between librarians and researchers.

Locally, this data can be further broken down by department for a better understanding of graduate student needs. Maxwell found that relevance and use of selected library resources varied by the graduate student's program and department.[18] Identification of positive and negative trends particular to specific departments will shed additional light on where energies should be focused. Collection development and outreach by subject area could then be customized according to these more specific findings. The departmental data will show exactly where dissatisfaction lies with library services, therefore providing a more targeted approach in enhancing ND graduate students' research processes.

The results of this study indicate that graduate students at ND are generally satisfied with services and collections in the Hesburgh Libraries. A study of other library user groups at ND—that is, undergraduates and faculty—may be interesting for comparative purposes. As the literature indicates, different populations have different needs and ways of using the library.[19] Another study of the graduate user group in the near future will focus on reasons why ND graduate students do not readily access some library resources that would seemingly be useful in their studies. Unfortunately, the inability of graduate students to involve librarians in their library searches may hamper their preliminary research efforts. Prendergast, in a study of anthropology graduate students, reported that the majority of respondents indicated that they often located the information too late for the information to be useful to them.[20]

Information gathered through this project indicates the level of usefulness of library resources, collections, and services for one of its main users, graduate students. The data collected has provided information on useful trends in graduate student user behavior, methods of library access, and levels of satisfaction, which will inform local practices. Hopefully, the findings in this study are of use to other academic libraries of similar size and with similar graduate student user populations.

Locally, the authors plan to focus their analysis further by looking at the data broken down by department. This will allow future outreach and collection development efforts to be better customized and more effective.

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