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Identifying the Resource and Service Needs of Graduate and Professional Students (The University of Iowa User Needs of Graduate Professional Series)

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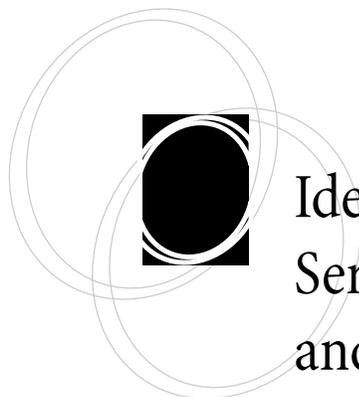Christine Walters
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Identifying the Resource and Service Needs of Graduate and Professional Students

The University of Iowa User Needs of Graduate Professional Series

Carlette Washington-Hoagland and Leo Clougherty, co-chairs

abstract: The library profession has a vested interest in the retention and information literacy of graduate and professional students. Recent research highlights the need for the overall study of graduate student use of the library and of those services and resources geared toward that population. A University of Iowa Libraries' user needs assessment survey of a random sample of graduate and professional students revealed that although graduate and professional students come to the library to do research or to use other library resources, fewer come to study or borrow books. Graduate and professional students recognize the need for more assistance in using the library and would like more opportunities for library instruction. They prefer human contact. Even though they are satisfied with the resources and quality of staff assistance, they would like to find more material on the shelves when they need them. In addition, many of them are unaware of the range of library services available to them. One of the key strategic goals of the University of Iowa is the maintenance and support of premier graduate and professional programs. Among 131 public research universities recently ranked in Hugh Davis Graham's and Nancy Diamond's 1997 book *The Rise of the American Research Universities*, the University of Iowa ranked among the top 20 based on the quantity and quality of research performance (1997).[1] As one of only two public research universities in the state of Iowa, the University of Iowa has a special role in graduate and professional education. In the knowledge-intensive world of the future, graduate and professional education play a central role, and given the limited opportunities for such education within the state of Iowa, this part of the University of Iowa's mission will increase in importance over time.

In 1996 the University of Iowa Libraries embarked on a four-year process to assess user satisfaction with resources and services provided by the Main Library and the eleven branch libraries (Art, Biological Sciences, Business, Chemistry, Engineering, Geology, Health Sciences, Mathematical Sciences, Music, Physics, and Psychology). A pilot survey was developed and administered during the fall 1996 semester that served as the catalyst for the development and eventual implementation of a more broadbased analysis beginning in 1997. The University of Iowa library system is complex, serving a broad user base (undergraduates, graduate and professional students, faculty and staff). Therefore, the User Needs Assessment Group developed a three-step research approach. Since undergraduates represent the largest user community, they were the first group studied. The undergraduate study was completed during the 1997/98 academic year, and a final report was submitted to the libraries' Executive Council June 1, 1998. [2]

Summer 1998 marked the beginning of the second phase of the research project, the graduate and professional student study. The project objectives were:

- to know and to understand how graduate and professional students access library resources and services (survey questions 13–27; 57–77);
- to know what library services, resources, collections and facilities graduate and professional students use for study, teaching and research (survey questions 28–46; 47–56);
- to know how graduate and professional students perceive library resources and services (survey questions 111–118);
- to know how satisfied graduate and professional students are with library resources and services (survey questions 79–95; 97–103; 105–109; 110–118); and
- to identify unmet needs and areas for improvement (open-ended questions 78, 96, 104, 110, 119 and 132).

Project objectives were developed based on the variety of degrees offered at the University of Iowa. The Graduate College confers master's and Ph. D. degrees and provides professional improvement and certificate opportunity in more than ninety major fields. Degree opportunities are available in the Arts and Humanities; Education; Social Sciences; Biological, Biomedical and Health Sciences; Mathematics; Natural and Physical Sciences; Engineering; and Business.

Literature Review

A literature review provided the foundation for a more clearly defined focus of the project objectives and methodology. It also provided a point of reference for comparative analysis with similar studies. The literature indicated the need for the overall study of graduate student use of the library (1989, 1994 and 1995),[3] discipline specific studies (1991 and 1996),[4] international student studies, and study of those research services and resources geared mainly towards graduate students and faculty (1987 and 1995).[5]

Librarians have a vested interest in both graduate and professional student retention and information literacy.

General Student Populations

Librarians have a vested interest in both graduate and professional student retention and information literacy. The successful graduate student is able to see beyond the present, is ambitious and desires to make a significant contribution to a chosen profession (1989, 1991 and 1995).[6] Graduate students are using library resources to do research, trying to adjust to departmental politics, planning their academic program, and acclimating to the campus culture (1995).[7] Additionally, recent research has found that graduate students in the humanities take longer to graduate and graduate at a lower rate than do science graduate students. Minorities share the same characteristics and also may feel isolated from students in the majority (1995).[8] According to Howard Adams, minorities are apprehensive about the competitive nature of graduate school and may have misgivings about the racial climate (1993).[9]

In an early study, Marilyn Parrish concluded that teaching faculty were essential to graduate education and to guide graduate students in their use or non-use of the library. Using a multi-method approach, Parrish conducted a study at Bowling Green State University to understand the graduate student research environment. The literature review process brings most graduate students to the library, but most graduate students are not comfortable using the library. When faculty members are unaware of library resources and services or uninformed about the library, they pass misinformation along to their students (1989).[10]

Christine Barry found that helping graduate students learn to use the library and find information can be a challenge that the librarian and faculty member each wrongly assume the other is addressing. The faculty member has other methods of gathering information, not available to a new graduate student, which can circumvent the need for extensive information gathering at the library. And even if faculty members use computers in information seeking, retrieval, and management, they may not be prepared to train graduate students in these skills. Barry concluded that librarians should take the lead in information skills training but should share responsibility and that information skills training should be a requirement for research supervisors (1997).[11]

A pilot study by Charlotte Simon on information retrieval techniques found a ten-year or greater gap between the undergraduate degree and graduates studies (1995).[12] The study showed that students misjudged the amount of time necessary to conduct a thorough literature search. Graduate students, like undergraduates, 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 (1995).[13]

In 1993, Gayle Poirier and Lola Varughese at Louisiana State University (LSU) conducted a survey of the university community to study their users' library search strategy and success in locating materials. The findings indicated that the main reason students come to the library is to do research. Fewer students come to the library to study, use reserve, make photocopies, and/or borrow books (1994).[14]

Also in 1993, Cheryl Ann McCarthy conducted a study at the University of Rhode Island Library with three objectives: to ascertain students' perceived effectiveness in identifying, locating and selecting resources; to assess their reasons for satisfaction or dissatisfaction with their search; and to analyze what they need to improve their effectiveness in using the resources. Findings indicated that most students believed

they use library resources effectively, and that they expected to find more materials on the shelf when they needed them. They recognized the need for more assistance using the library, and thus requested training sessions or classes (1995).[15]

Graduate and Professional Student Populations

The University of Tennessee Center for the Health Sciences' (UTCHS) medical faculty and the library conducted a needs assessment to determine what had to be taught to medical students for them to develop life-long information-seeking and gathering skills. The study showed that two types of library instruction are necessary for medical students: (1) an orientation to the physical facilities and services provided by the UTCHS Library, and (2) more formal instruction emphasizing the organization and efficient use of biomedical information (1986).[16]

A survey investigating the reading patterns of Emory University Business School graduate students showed that the part-time MBA students relied most heavily on monographic material while full-time MBA students used mainly periodical literature. Results identified a need to improve circulation and loan policies for part-time professional graduate students (1986).[17]

Andrea Inez Koss, a Kent State University researcher, studied the information needs and research skills of MBA students in the first summer session of 1996 in order to discover the types of information and resources used when researching business topics for class assignments, research, and individual projects. Respondents indicated that they most frequently use computers, current periodicals, bound periodicals, and business reference books. Two important recommendations were made: (1) Librarians should promote their skills to students and faculty so that MBA students can broaden their knowledge base and better utilize library resources and (2) Librarians should work with professors in creating and giving instructional sessions (1996).[18]

Kathleen Prendergast, in a survey of anthropology graduate students at the University of Chicago, found that footnotes were heavily relied on as access routes to other information, that published literature and classes were often used as a direct source of information or as guides to other information, and that informal conversations with other anthropologists were cited as useful for general information. Prendergast reports minimal use of abstracting services and indexes, a surprisingly heavy use of *Reader's Guide to Periodical Literature* and a surprisingly low use of the *Peabody Museum Index*. The majority of respondents indicated that they often locate information too late for the information to be useful to them and that they are willing to take a library methodology course (1978).[19]

Barbara Grabowski, Suciati and Wende Pusch conducted a survey to develop a profile of the most likely users of electronic communication (e-mail). The most common user was a childless, full-time, doctoral candidate with an assistantship, who had a part-time position or no employment (1990).[20]

Faye Maxwell conducted thesis research to study use patterns of selected computer-based bibliographic information systems by education graduate students at the University of Alberta, Canada, and to pinpoint methods to increase their use. She found that relevancy and use of selected resources varied by the respondent's program and department as well as the system itself. Non-use of selected resources was related to

lack of library experience, not computer experience, especially when the system in question was available only in the library. Maxwell found that education graduate students prefer human contact. She concluded that education graduate students need an adequate number of computer workstations, training, and staff assistance to improve use rates and the quality of searches conducted (1991).[21]

International Student Populations

Various studies reported special needs of international students. Soo Yong So found that international students may require special library services. To meet their special needs, So suggested that libraries offer native language and individualized bibliographic instruction, special staff development training, and outreach activities (1994).[22]

Allen Natowitz found that international students' use of U.S. academic libraries is influenced by the cultural diversity on campus, language and cultural barriers, and technological barriers. In developing successful bibliographic instruction and staff training programs, Natowitz suggested more concrete approaches to increasing the sensitivity toward and understanding of different cultures, performing quantitative statistical before-and-after studies of program effectiveness, and addressing budgetary and funding issues that affect planning in a climate of fiscal austerity (1995).[23]

Mary Alice Ball and Molly Mahony (1987), Nancy Moeckel and Jenny Presnell (1995), Ziming Liu (1993), and Mary Beth Allen, (1993) also stressed the importance of recognizing the different information-seeking behaviors of international students. [24–27] Since other cultures may emphasize textbook learning, little classroom participation and memorization, the critical thinking skills necessary to use the library successfully may not be developed sufficiently. Furthermore, many countries do not use the Dewey Decimal or Library of Congress classification systems nor do they have open stacks. Finally, international students may not have the reading comprehension ability of their American counterparts. These authors discussed bibliographic instruction relative to library staff development courses specifically designed to improve the service to foreign students. Native language tours and glossaries and special workshops about the library system and technology for international students were also recommended.

According to Darlene McKenzie, who conducted a survey at Kent State University, a typical international student is 26 to 30 years old, male, in a graduate program, and attends school full-time. McKenzie suggests that because of cultural differences and language barriers, international students may be uncomfortable asking for assistance from library staff. International students may also be unaware of many library services and intimidated by the size of the library (1995).[28]

Suzanne Irving reported that international students do not understand the interlibrary loan (ILL) network and the copyright laws in the United States and may have retrieval problems. The one-on-one ILL interview, background knowledge of ILL through bibliographic instruction, and workshops for ILL library staff were recommended for improving the ILL service to international students (1994).[29]

Use and Satisfaction Studies

In April of 1987, William Lyons and Linda Phillips conducted a survey of all teaching faculty members and graduate teaching assistants to gather information on the quality

of the library system and the quality of the library's facilities, collection, and services. Results indicated that the respondents were very satisfied with the resources at the library and with the quality of the library staff assistance, and that respondents thought the quality of class presentations by librarians was excellent. However, most respondents did not take advantage of library instruction (1987).[30]

Anna Perrault and Marjo Arseneau at Louisiana State University (LSU) conducted an interlibrary loan survey of two user groups, graduate students and faculty/staff, to discover the level of satisfaction with the interlibrary loan service and to compare graduate students' and faculty/staff perceptions and expectations of interlibrary loan. The results of this 1992 study confirmed the findings of a previous study that found students were satisfied with the services. With regard to turnaround time, graduate students perceived that their requests were met more often within a week than did the faculty/staff. However this report concluded that there is not a great difference between the groups regarding perception of turnaround time and satisfaction with this service (1995).[31]

Abraham Azubuike and Monica Greaves conducted a study at Ibadan University Library to determine graduate students' awareness of the library's services and to determine the relationship between the students' awareness of and use of the services. Results indicated that the average graduate student is aware of slightly less than half of the library services and that his or her awareness varied regarding type of service (1989).[32]

What can be done to assist graduate students? According to Adams, various authors compiled lists of helpful strategies: 1) a library orientation specifically for graduate students that addresses their area of study, 2) a faculty mentor in the department, 3) supportive colleagues, and 4) adequate funding (1993).[33]

Stephen Stoan (1991) and Judith Palmer (1991) caution against any expectation librarians may have of changing attitudes of faculty or graduate students. [34, 35] Stoan observes that scholars "function as information-generating and information-seeking individuals" (1991).[36] He suggested training in the mechanics of retrieval, informing faculty and students of new acquisitions, and leaving it at that. Palmer concluded that no population can be regarded as an undifferentiated whole, even if that population works together and shares common goals (1991).[37]

Summary

The literature review confirmed the potential of a survey and its content. Researchers have attempted to measure quality, awareness, and use of library resources, facilities, and services and user satisfaction. Graduate students as a group were studied but discipline specific, service specific (e.g., ILL), and international student studies added to the knowledge base.

Research showed that graduate students would benefit from contact with librarians and information literate faculty mentors. The students recognized their need for assistance and training. Over time, research addressed the use of electronic as well as print resources. Various studies reported the needs of international students, but did not compare international students to American students. Two studies treated interlibrary loan issues. Based on the data, all of the studies presented strategies to assist graduate and professional students.

Methodology

Design of the Study

The User Needs Assessment Group, in collaboration with a statistical consultant from the University of Iowa Testing Program, designed the survey instrument. The sample population consisted of a random stratified sample of 10 percent of the graduate and professional students (N=7,154) enrolled at the University of Iowa during the fall 1998 semester (see Table 1). Graduate students are defined as anyone who is enrolled in the Graduate College. Professional students are those enrolled in graduate programs offered by the Colleges of Medicine, Dentistry and Pharmacy.

Table 1

Study Population Stratification

College/Area	Total Population*	Study Population N**	Number in Sample n
Dentistry	300	288	29
Medicine	1,481	707	71
Pharmacy	493	475	48
SUBTOTAL	**2,274**	**1,470**	**148**
Graduate College			
Business	994	921	92
Dentistry	62	58	6
Education	897	780	78
Engineering	312	255	26
Liberal Arts	2,596	2,334	233
Medicine	574	482	48
Nursing	215	167	17
Other	627	615	62
Pharmacy	77	72	7
Post-Docs	215	—	—
Workshop	88	—	—
SUBTOTAL	**6,657**	**5,684**	**569**
GRAND TOTAL	**8,931**	**7,154**	**717**

* Based on fall 1998 enrollment as of December 7, 1998.

** Excluded from study population: Workshop students, Post-doctoral appointments, December 1998 candidates for degree, students who have restricted address information, Dental Health Sciences students, Residents and Interns, Fellows, Hospital Certificate Programs, and undergraduate programs in the Colleges of Medicine, Dentistry and Pharmacy.

The survey was pre-tested by a group of graduate and professional students. A professional facilitator guided the pre-test activities. Some of the issues uncovered by the pre-test included use of unfamiliar library terminology and formatting and scaling inconsistencies. The results of the pre-test were used to refine the survey and to prepare it for dissemination. The respondent demographics very closely matched that of the university across the following variables: Degree Objective, Gender, Age, Housing, Employment, College and Citizenship.

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Data Collection

Of the 717 surveys mailed, 93 percent (667) were sent to students who lived off campus and 7 percent (50) to students who lived in university housing. The initial mailing yielded a response rate of 31.9 percent (228 returned surveys). Study participants who had not returned their surveys by the requested return date were mailed a follow-up letter and second survey. Overall, a total of 318 surveys were returned representing a final response rate of 44 percent (see table 2). The respondent demographics very closely matched that of the university across the following variables: Degree Objective, Gender, Age, Housing, Employment, College and Citizenship. Therefore, the respondent data can be generalized to the study population, (1998).[38]

The User Needs Assessment Group coded and analyzed the six open-ended questions as well as conducted a comparative analysis of the study demographics with

Table 2
Response Rate

Mailings	Respondents	% of Sample n (n=717)
First Mailing		
Usable surveys	223	31.10%
Nonusable surveys	5	0.70%
Second Mailing		
Usable surveys	84	11.72%
Nonusable surveys	6	0.84%
Total	**318**	**44.35%**

that of the UI Registrar's file of the study population to validate the sample profile. The University of Iowa Data Entry Department coded the 126 forced choice questions. The University of Iowa Evaluation and Examination Services compiled the descriptive statistics, and two University of Iowa faculty in the areas of statistics and qualitative measurement facilitated the statistical analysis.

Findings

Data Analysis

The results of the forced choice questions (descriptive statistics), open-ended questions (content analysis) and chi square analysis are discussed below. But first it is important to understand how the data were coded and interpreted. An inverse 5-point Likert scale was used to measure use, satisfaction, and agreement. The scale for use ranged from 1/high (Very Frequently) to 5/low (Never). The scales for satisfaction (1=Very Satisfied to 5=Very Dissatisfied) and agreement (1=Strongly Agree to 5=Strongly Disagree) were designed in the same manner. Use of library resources and services was determined by collapsing "Very Frequently, Frequently, and Sometimes" response categories. In calculating satisfaction only those respondents who reported using library resources and services were included. The response categories "Very Satisfied and Satisfied" were collapsed to represent satisfaction. Response categories "Strongly Agree" and "Agree" were collapsed to identify preference, and "Disagree" and "Strongly Disagree" were collapsed to represent nonpreference.

In coding the open-ended responses, like observations were grouped together, tallied and divided by the total number of responses collected under a given topic. This task was assigned to two members of the research group. Even though respondents were given an opportunity to comment on the questions asked in each survey section, they tended to ignore the placement of the open-ended question and commented on what they deemed important, irrespective of the content of the questions in the section.

Chi square test of statistical significance was used to both validate the survey instrument and to identify existing significant relationships. Chi square statistics with a probability of .05 or lower were considered significant.

Questions About the University of Iowa Libraries

Reasons for Use (Q18–Q21)

The top reasons cited by graduate and professional students for using the libraries were to check out/borrow books and other material (73 percent), check out/borrow magazines/journals (70 percent) and to use the photocopiers (66 percent). Large numbers of respondents "seldom or never" recall items (61 percent).

The open-ended responses revealed a lack of awareness of library services and resources (46%) as well as a need for more information and general instruction (41%).

Use of Library Navigational Resources (Q23–Q25)

Graduate and professional students "seldom or never" use the Library Explorer, the computer program that explains how to use the libraries (87 percent) or printed

handouts (71 percent) to answer questions about library resources. Instead they ask library staff (60 percent). The open-ended responses revealed a lack of awareness of library services and resources (46%) as well as a need for more information and general instruction (41%).

Use of Library Services (Q28–Q40)

Graduate and professional students use public service desks (66 percent) and reserve services (53 percent) more than any other service. They "seldom or never" use reference consultations (89 percent); assigned study carrels (80 percent); the Information Commons or Information Arcade (technology-based facilities) (74 percent) to develop presentations; web pages to scan images or text, or Interlibrary Loan/Document Delivery (70 percent) services. The open-ended responses revealed a lack of awareness of library services and resources (46 percent) as well as a need for more information and general instruction (41 percent). The print resources used most by graduate and professional students are journals (80 percent) and books (76 percent). Fourteen percent or fewer use any other printed resource.

Use of Electronic Resources (Q42–Q46)

Graduate and professional students use electronic indexes and bibliographies (68 percent), electronic journals (48 percent) and electronic books (32 percent) more than any other electronic resource available in the libraries. Large numbers of the respondents "seldom or never" use electronic maps/aerial photos (95 percent), videos (85 percent) or newspapers (83 percent). Again, it is important to point out that an analysis of the open-ended responses revealed that respondents were unaware of many of the library resources and services (46 percent) covered in the survey. Graduate and professional students rarely use any of the libraries' special departments. The two facilities that received the most use are technology-based, the Information Commons (26 percent), and the Information Arcade (25 percent).

Library Services

In-Person Service (Q59–Q67)

Graduate and professional students contact library staff in person for reference (61 percent), circulation (53 percent) and Interlibrary Loan/Document Delivery services (35 percent) but they rarely obtain these services by telephone, e-mail, or web form. Respondents "seldom or never" use library instructional services in a library (85 percent) or outside a library (96 percent) even though 49 percent of the open-ended responses related to library instruction identified a need for more library instruction.

Use of the Libraries' On-line Computer System (Q69–Q75)

Even though the libraries' online computer system (OASIS) is used by 68 percent of the respondents from a library location and by 50 percent from a nonlibrary location, 45 percent of the open-ended responses related to electronic resources indicated that graduate and professional students are unhappy with the system. Also, respondents "seldom or never" use the libraries' website within a library (68 percent) or from outside a library (62 percent).

User Satisfaction

Electronic Resources (Q79–Q90)

Even though graduate and professional students are satisfied with the libraries' print and electronic resources—journals (73 percent); index, databases, and bibliographies (68 percent); maps/aerial photos (68 percent); handouts (65 percent); and books (63 percent), the open-ended comments related to collections reflected a need to expand and update the collections (35 percent).

Services (Q91–104)

Graduate and professional students are satisfied with the services offered at the libraries. This was exemplified in the open-ended and closed-ended analyses. For example, 77 percent of the respondents are satisfied with the services provided at the public service desks (reference, circulation, information, and/or help desk), and 50 percent of the open-ended comments related to staff were positive.

Facilities (Q105–Q109)

Graduate and professional students are satisfied with the libraries' informational/directional signage (71 percent) and computer workstations (61 percent), but fewer are satisfied with study and research space (53 percent), public photocopiers (49 percent) and microfilm/microfiche readers (47 percent). Open-ended comments related to equipment also reflected this trend. Fifty-two percent of these comments identified a need for more/better/cheaper photocopies; twenty percent of the comments reflected a need for more or better computers. Fifteen percent of comments indicated that respondents would like more or better microfilm/microfiche equipment and 14 percent of the comments related to facilities identified a need for more study space.

Perceptions (Q 111–Q118)

Graduate and professional students agree that: "the library staff is helpful" (82 percent), "the libraries offer the services I need" (78 percent), "the libraries' staff is courteous" (78 percent), "overall the libraries do a good job of supporting coursework" (62 percent), "the libraries have sufficient resources and materials to support my research" (61 percent) and "the libraries have sufficient resources and materials to support my teaching" (59 percent). But fewer respondents agree that "the libraries have pleasant physical facilities" (39 percent) and that they "can easily locate the materials" they need (54 percent). These findings are consistent with what was found in the content analysis. More specifically, 42 percent of the open-ended responses related to facilities identified a need for library refurbishment. Fourteen percent reflected a need for more study space. Eleven percent reflected a need for improved study carrels. Twelve percent of the responses related to collections stated that needed materials are not on the shelf, and 16 percent of the responses indicate that materials are difficult to locate.

Significance

(See Table 3)

The results of this research reflect a number of the trends identified previously in literature review. Graduate students come to the library to do research. They would like to find more material on the shelves when they need it. Fewer graduate students come

Only 29% of the respondents in this study had been at the University of Iowa (UI) more than five years. Fifty-three percent had been at the UI three years or less.

to the library to study or borrow books. Even though they believe they use library resources effectively, they recognize the need for more assistance in using the library and would like more opportunities for library instruction. Graduate students prefer human contact. They are heavy users of electronic resources. They are satisfied with the resources at the library and the quality of staff assistance. Many of

Table 3

Descriptive Statistics

Variable	Respondents	Data %
Degree Objective		
Certificate	1	0.33%
DDS	14	4.58%
MD	27	8.82%
Masters	119	38.89%
PharmD	25	8.17%
Professional Improvement	3	0.98%
PhD	110	35.95%
Combined Degree	4	1.31%
Other	3	0.98%
Gender		
Male	126	41.04%
Female	181	58.96%
Age		
25 & under	104	33.88%
26–29	72	23.45%
30–34	50	16.29%
35+	81	26.38%
Unknown	0	0.00%
Housing		
University Housing	31	10.10%
Off-Campus Housing	276	89.90%

Table 3 Cont.

Variable	Respondents	Data %
Enrollment		
Full-time	213	69.84%
Part-time	92	30.16%
College		
Dentistry**	17	5.59%
Engineering	15	4.93%
Liberal Arts	91	29.93%
Education	36	11.84%
Business	28	9.21%
Nursing	12	3.95%
Pharmacy**	32	10.53%
Medicine**	47	15.46%
Other	26	8.55%
Field		
Arts and Humanities	50	16.34%
Education	36	11.76%
Social Sciences	44	14.38%
Biological Sciences/ BioMedicine/ Health Sciences	117	38.24%
Math/ Sciences/ Engineering	33	10.78%
Business	26	8.50%
International Students		
International Student	46	14.98%
Immigrant/Citizen	261	85.02%
Racial Identity		
White/Caucasian	240	78.18%
Black/African American	6	1.95%
Asian/Asian American	41	13.36%
American Indian or Alaskan native	1	0.33%
Mixed (parents not of same racial category)	3	0.98%
Prefer Not to Respond	16	5.21%
Years of Affiliation with The University of Iowa		
<1 year	58	18.89%
1–3 years	105	34.20%
4–5 years	56	18.24%
>5 years	88	28.66%

them are unaware of range of library services. Only 29% of the respondents in this study had been at the University of Iowa (UI) more than five years. Fifty-three percent had been at the UI three years or less.

Even though the study by Carol Hodgson and Jane Simoni found that humanities graduate students take longer to graduate, (1995) only 29 percent of the respondents in this study had been at the University of Iowa (UI) more than five years.[39] Fifty-three percent had been at the UI three years or fewer. Only 16 percent identified their field as Arts and Humanities. Further analysis would be necessary for this study to confirm or support their finding.

While graduate students in previous research seemed to rely on faculty, 60 percent of the respondents in this study ask a library staff member questions about the libraries, and only 37 percent ask faculty, another student, or someone other than library staff. In this study, there is less reliance on personal contacts outside the library, but this study does support previous research assertions that information skills training for faculty is essential.

Results both support and contradict the findings of Gayle Poirier and Lola Varughese. They found that most students come to the library to do research (1994).[40] This study found that students come to the library to check out/borrow books and other materials (49 percent to check out/borrow magazines/journals (44 percent), and also to use the photocopiers (44 percent).

Results support research by Cheryl Ann McCarthy, the University of Tennessee Center for the Health Sciences, and the Andrea Inez Koss studies (1995 and 1996).[41] Even though the graduate and professional students in this study did not take library instructional classes, they recognized a need to do so in their open-ended responses. Since only 54 percent strongly agree or agree that they can easily locate materials, orientation to physical facilities may be necessary.

Contrary to the findings of Kathleen Prendergast (1978), this study found heavy use of electronic indexes and bibliographies (68 percent) even though use of the print indexes was lower (37 percent).[42] No effort was made to compare international students to immigrants and citizens or to analyze their responses separately.

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Nearly 15 percent of the respondents in this study were international students and approximately 15 percent of the total graduate and professional student population at the UI are international students. No effort was made to compare international students to immigrants and citizens or to analyze their responses separately. It is possible to analyze the data further, and this large a group does influence the aggregate data.

This study looked at some of the same demographics as the study by Darlene McKenzie and reported a "typical" graduate and professional student (1995).[43] In this study, the respondent was a Caucasian female, under 30 years old, and enrolled full-time. She was an immigrant or a citizen of the United States. The respondents were almost evenly split between the science (49 percent) and nonscience (51 percent) fields.

The research by Suzanne Irving and Anna Perrault and Marjo Arseneau encouraged the researchers to ask about interlibrary loan (ILL) (1994 and 1995).[44] Even though most respondents in this study did not use ILL, 75 percent who did use it were "satisfied or very satisfied" with the service. More research would be necessary to determine why many did not use it. It is important to note a contradiction. Only 61 percent of the respondents in this study agreed or strongly agreed with the statement, "Libraries have sufficient resources and materials to support my research," and only 59 percent agreed with the statement, "Libraries have sufficient resources and materials to support my teaching." However, many are not using ILL to supplement materials available at the UI.

Results supported part of the research of William Lyons and Linda Phillips (1987).[45] Both studies found that graduate and professional students were satisfied with library services (58 percent to 77 percent depending upon the service). However, this study found that fewer students are satisfied with collections (36 percent to 73 percent) and equipment/facilities (47 percent to 71 percent). Responses to open-ended questions elaborated upon the dissatisfaction with collections, equipment, and facilities. Graduate and professional students are unaware of the full range of library services available to them.

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Like the Abraham Azubuike and Monica Greaves and Darlene McKenzie studies, this survey found that graduate and professional students are unaware of the full range of library services available to them (1989 and 1995).[46] Of the comments related to instruction and awareness, 46 percent expressed a lack of awareness of these services.

Conclusions and Recommendations

Conclusions

The project goals were accomplished. The data showed what library services, resources, collections, and facilities graduate and professional students use, and provided an understanding of how they access library resources and services. In addition, the data revealed the perceptions of and satisfaction with library services and resources. Unmet needs and areas for improvement were identified, and recommendations were submitted to the University Librarian. A forum for all staff was held to review the report and to answer related questions. The report and its

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recommendations were used to shape, to refine and to develop services to meet the information needs of graduate and professional students. Then the report and subsequent actions were added to the project website at <http://www.lib.uiowa.edu/lib/unag/index.html>.

The results of this study influenced customer service discussions and helped shape strategic goals and budget requests. Also, library staff and administrators used the data to identify future initiatives.

Recommendations

The User Needs Assessment Group recommended the following goals to meet the service and resource needs of the graduate and professional students more effectively. Actions taken by the Libraries are listed as well.

Short-Term Goals

- *Increase efforts, by all library units, to publicize library resources and services and to introduce graduate and professional students to the full range of resources and services available to them.*
  The library system has made substantial strides in educating users about available resources and services. For example, bookmarks were created for all departments highlighting services, web pages, and important contact information for library users. The Libraries' web page has been updated to reflect very targeted needs and a "tickertape kiosk" was installed for a period of time at the North Circulation Desk in the Main Library with messages about services. The Libraries developed an information literacy program customized by user category and a Public Relations Action Committee (PRAC). To ensure that a more targeted assessment of related issues is possible, PRAC is composed of subgroups of librarians and support staff representing units that serve the various user groups.
- *Keep in mind the graduate and professional students' frequent use of face-to-face contact with library staff while planning and reviewing library services.*
  In response to this recommendation, the Libraries expanded library hours and hired additional staff.
- *Work with the Copy Center Manager to increase the number and quality of photocopiers throughout the library system.*
  Relevant findings were shared with the manager of the Copy Centers.
- *Propose a reduction in cost per page of photocopies to the Copy Center Manager.*
  Relevant findings were shared with the manager of the Copy Centers.
- *Improve physical arrangement of the collections.*
  The Libraries is evaluating space issues and implementing improvements as time and resources are made available.
- *Review stack maintenance to improve the graduate and professional students' ability to locate needed materials, paying particular attention to shelving and shelfreading.*
  The Bookstacks Department at Main Library is currently reorganizing shelving to make locating materials more intuitive. Branch library staff members are shelfreading more frequently.
- *Replace the microfilm/microfiche equipment throughout the library system.*
  Two new reader printers were purchased for the Media Services Department, Main Library. New microfilm/microfiche readers were ordered for some of the branch libraries.

Long-Term Goals

- *Remodel and refurbish the libraries.*
  Some of the recent refurbishment efforts at the Main Library include the purchase of new furnishings and carpeting for study areas and corridors, the addition of a new reading room on the first floor, and new seating added to the undergraduate study area on the second floor. The Information Commons at the Hardin Library for Health Sciences underwent a major expansion that doubled its size. Some branch libraries received new carpeting, additional shelving or sound-absorbing screens to reduce noise in study areas.
- *Expand and update current collections, particularly journals.*
  The Libraries has expanded its collection of print and electronic resources. The Libraries now has access to 2,043 full-text journals through 89 different vendors and publishers, 122 indexes and abstracts and reference tools. Other acquisitions include *ScienceDirect, Books 24x7, netLibrary, AP Multimedia Archive* and *WorldCAT.*
- *Replace the online computer system.*
  The Libraries new online computer system, InfoHawk, was implemented in August of 2000.

Future Research

Further research is necessary to determine why students identified a need for additional instructional sessions but did not take advantage of available instructional services. Likewise, further research is needed to identify if lack of awareness is related to library usage, or whether discontent with a resource, equipment or facility impacts overall use. In addition, further research is needed to compare international student responses to those of immigrants and citizens.

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