The Impact of Reference Desk Queries on Undergraduate Scholarship

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Article begins on next page
The Impact of Reference Desk Queries on Undergraduate Scholarship

Ronald C. Jantz

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Professor James E. Katz

Abstract

The goal of this research is to understand what impact, if any, the usage of the academic library reference desk has on undergraduate scholastic performance. Part of the motivation for this study is the dramatic drop in reference desk usage in most academic libraries over the past ten years. If the use of the reference desk does not improve scholarly performance of undergraduates, it is important to understand how reference librarians might better advance undergraduate scholarship. This study will therefore explore the reasons why undergraduates do not use the reference desk and what new services or facilities within the library they view as important. The results of this study have important implications not only for undergraduate study but also for the profession of academic librarianship.

Introduction

The traditional classification of libraries defines four main groups - academic, school, public, and special. Since user behavior differs significantly for each, the focus in this study will be specifically on academic libraries and the use of the reference desk. Librarians in an academic setting perform many different functions including bibliographic instruction, cataloging, book selection, research consultation, and providing service at reference desks. Technology and, more specifically, the Internet and search engines such as Google represent a technological discontinuity for libraries and the profession of academic librarianship. A technological discontinuity in the business world can rapidly render a product or service outmoded and not viable. A classic example is
the introduction of the Texas Instruments portable calculator on college campuses in the 1960s. In a very few years, slide rules disappeared from the campus and were never to be seen again except in museums. A similar phenomenon appears to be happening in academic libraries as usage of the reference desk has dropped dramatically over the past ten years. In a classic study of library goodness, Orr (1973) asks two questions: how good is the library service and what good does it do? This study focuses on the latter question.

Given the complexity of today's information world, it is generally assumed that reference librarians can help undergraduates improve their academic standing by assisting them in finding high quality information. How important is the reference desk in advancing undergraduate scholarship, and how should reference librarians focus their energies? Given the prolonged and sustained drop in the usage of the reference desk (see next section), we might want to contemplate the question: “what happens when no one shows up at the reference desk?”

Librarians at Rutgers University Libraries have witnessed the dramatic decline in reference desk usage. This study proposes to examine reference desk usage at the four main libraries in the New Brunswick/Piscataway area: Douglass Library, Alexander Library, the Library of Science and Medicine, and Kilmer Library. In the questions that follow, these libraries are collectively referred to as “the library”.

**Literature Review**

A review of the literature from the past 15 years found no published articles dealing with the impact of reference librarianship on scholarship from a quantitative perspective. A recent article (Poll & Payne, 2006) stressed the importance of measuring the impact of library services and discussed various methods for assessing impact. In particular, the authors listed areas for impact assessment including the correlation of library use and academic performance. Although there is considerable literature on the
changing roles of reference librarians, there appears to be a reluctance on the part of librarians to engage in quantitative impact assessments. Tyckoson (2001) takes a very subjective view of assessment by suggesting that reference service models should reflect the values of the community of users. Cardina and Wicks (2004) collected survey data on how reference librarians roles have changed in the period 1991 – 2000. This article focused primarily on professional issues such as job satisfaction and did not address the quality of service being offered. Tenopir (1999, 2001) has been quite active in assessing the changes in reference service in academic libraries. In her most recent article (Tenopir, 2001), she acknowledges that reference librarians are handling fewer questions at the reference desk. She notes, however, that librarians are reporting that the questions are much more difficult to answer. In her discussion of the 21st century librarian, Mosley (2002) speculates that librarians will always have a role of ongoing interaction between the student and access to information. In contrast, Markey (2004) suggests that library educators should be concerned about placing too much reliance on the users’ niche because it places librarians in an intermediary role, and information technology has had a devastating impact on intermediaries in other professions such as travel agents and financial brokers.

Orr (1973) has attempted to develop a model for quantitatively measuring library goodness which consisted of five facets: a) document services, b) citation services, c) answer services, d) instruction services, and e) facilities services. The category of “answer services” includes the service a reference librarian offers. Orr points out that there is considerable resistance to the quantitative model and opponents of his approach suggest that the major benefits of a library are intangible and not readily quantified. Buckland (1988)\(^1\) has studied the issue of library goodness extensively prior to the introduction of the Internet. He indicates that people use the library service “. . . to seek

\(^1\) Buckland, p. 58.
knowledge and reduce distressing ignorance.” He also indicates that people will seek knowledge by using the least painful approach. It is well known that in-person usage of the reference desk in academic libraries has been dropping steadily since the introduction of the Internet, perhaps in part because the Internet presents a “less painful” information seeking process. Wiegand has written extensively on the importance of the traditional aspects of the profession of librarianship and the importance of the library as “place”. In a recent article (Wiegand, 2003), he states that every year for the past five years college and university librarians have answered over 100 million reference questions – more than three times the attendance at college football games. This perspective conveniently ignores the precipitous plunge in reference desk usage over the past ten years. When the author arrived at Rutgers University Libraries in 1997, the total count of reference desk queries of all types at Alexander Library for the academic year 1996 – 1997 was estimated to be about 100,000. In a recent email communication (Mulcahy, 2006), the librarian who coordinates reference services at Alexander Library indicated that reference counts for the busiest month of the Fall semester (October) had dropped from 3079 in year 2003 to 1898 in year 2006, a reduction of 38% in four years. In round numbers, if one were to estimate Alexander library reference counts to be approximately 1500 per month for the total academic year 2006 – 2007, this results in a total of 18,000 reference desk visits and a reduction of almost 80% from the 1996 – 1997 academic year. The research library official statistics provide further evidence of this trend (Association of Research Libraries, 2006). In a sampling of ten state university library statistics from 1997 to 2004 (the most recent year available), the average percentage drop in these eight years was 51.2%. Although most librarians attribute this drop in usage primarily to the introduction of powerful search engines such as Google, this study aims to understand if there are associations with Internet usage as well as
other important factors that are prevalent in the environment of an undergraduate student.

Recognizing these troubling trends, academic librarians have been exploring alternatives to the traditional reference service. In an approach that takes the reference desk to the student (Kuchi, Mullen, et al, 2004), a library outpost was established on the Busch campus student center at Rutgers University and staffed with reference librarians. Contrary to the expectations of the team, having a reference desk outside the library and in an area where there is a lot of student activity did not appear to raise the number of reference questions. The team recommended further study before establishing library outposts as part of the regular library service.

**Research Question and Methodology**

This study proposes to examine reference desk usage by undergraduates at the four main libraries of Rutgers University in the New Brunswick/Piscataway area: Douglass Library, Alexander Library, the Library of Science and Medicine, and Kilmer Library. We want to understand if usage of the reference desk by undergraduates improves their scholarship. Undergraduates can receive instruction at the reference desk and they can obtain professional guidance as to what resources to use, the quality of these resources, and where they can find these materials.

The research hypothesis or conjecture that we want to test is that using library reference desk services leads to the use of higher quality information and therefore this usage will have a positive impact on undergraduate scholarship, ultimately improving grade point averages. In this analysis, we will use the undergraduate’s cumulative grade point average (GPA) as a proxy dependent variable for improved scholarship. The independent variable (refdesk) is the number of times an undergraduate asks questions at the reference desk in a semester. Functionally, this relationship can be expressed as follows: \( \text{GPA} = f(\text{refdesk}) \). The intent of this study is to understand if there is a
relationship between GPA and the number of times that an undergraduate asks
questions of the librarian at the reference desk in a semester (see questions 1 and 4 of
the survey – Appendix 1). The null hypothesis is stated as follows: there is no significant
difference between the GPA for undergraduates who ask questions at the library
reference desk and those who don’t.

Survey Questions.

There are obviously many factors that contribute to an undergraduate’s
scholarship and whether or not they use the reference desk. In the survey, we have
collected data on the most obvious factors including the major study area, whether the
student lives on campus or off campus, whether the student owns a laptop, and
environmental conditions in the library including building hours and the availability of
study tables. For example, common sense suggests that a student living off-campus will
likely use the reference desk less because of the possible inconvenience of traveling to
the campus. We should also note here that Rutgers University Libraries does not offer
virtual, real-time reference so this mode of reference service was not included in this
study. Additionally, there has been much speculation among librarians that both
reference desk and library usage differ significantly among the three major disciplinary
areas: humanities, sciences, and social sciences (see question 2).

If reference desk usage does positively affect GPA, then we would like to
examine other factors that might increase usage and thereby improve scholarship.
Studies have shown that if students physically enter the library, they are likely to use the
reference desk. If we could remove impediments to entering the library, we might see
an increase in reference desk usage. Correspondingly, if there is no relationship
between GPA and reference desk usage, we want to understand other aspects of
undergraduate study behavior in order to explore alternative approaches for improving
scholarship. As a result, the survey attempts to captures data on the number of times in
a week that a student enters one of the main libraries, why students go to the library, and reasons why students do not use the reference desk (see questions 7, 8, and 9 – Appendix 1). Finally, questions 10 – 13 of the survey solicit information on the possible new services and facilities that might help improve undergraduate scholarship including the extension of open hours for the library buildings and providing more study tables. Responses to these questions will provide clues as to how to improve the study environment and perhaps also improve undergraduate scholarship.

Survey Respondents and Data Collection.

To collect data for our analysis, we asked students in a sophomore-junior level class in communications to fill out a 13-question survey. Realizing that this sample would be largely from the area of the social sciences, additional surveys were distributed in the Rutgers University student center in New Brunswick in order to obtain a broader representation in the sciences and humanities. In total, this part of our study produced 74 surveys for the analysis2.

Results

In order to quickly understand our basic demographics, the frequencies for the two primary demographic variables are shown in the Table 1. The cross-tab (N=74) allows us to observe the distribution of on/off campus residency (columns) versus the distribution across the three major disciplinary areas (rows): humanities, social sciences, and science. The majority (52 of 74, 70.3%) of respondents are involved in the social sciences and 68.9% (51 of 74) live on campus. Approximately 18% of the students are in the area of the humanities and only 7% in the sciences.

2 Note that we are assuming, for the purposes of this study, that we have a random sample.
Table 1 – Demographic Distribution of Sample

To understand if we have a relationship between the number of times a student has used the reference desk in a semester and the cumulative GPA, we will use the Pearson chi-square test and a pre-set significance level of $p = .05$. Therefore we will reject the null hypothesis if the $p$ value is less than the preset value of .05. The contingency table for GPA crossed with refdesk is shown below in Table 2.

<table>
<thead>
<tr>
<th>Major Area</th>
<th>Live on Campus</th>
<th>No</th>
<th>No Response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sciences</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>36</td>
<td>16</td>
<td>0</td>
<td>52</td>
</tr>
<tr>
<td>Humanities</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Don't Know</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>No Response</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>22</td>
<td>1</td>
<td>74</td>
</tr>
</tbody>
</table>

Table 2 – Contingency Table for GPA x Refdesk

<table>
<thead>
<tr>
<th>Grade Point Average</th>
<th>No. of Questions Asked at Refdesk</th>
<th>Zero Questions</th>
<th>1-5 Questions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT 2.0</td>
<td>Count</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2.0 - 2.4</td>
<td>Expected Count</td>
<td>.5</td>
<td>.5</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>5.0</td>
<td>5.0</td>
<td>10.0</td>
</tr>
<tr>
<td>2.5 - 2.9</td>
<td>Count</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>13.0</td>
<td>13.0</td>
<td>26.0</td>
</tr>
<tr>
<td>3.0 - 3.4</td>
<td>Count</td>
<td>8</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>8.0</td>
<td>8.0</td>
<td>16.0</td>
</tr>
<tr>
<td>GT 3.4</td>
<td>Count</td>
<td>8</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>9.5</td>
<td>9.5</td>
<td>19.0</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>36</td>
<td>36</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>36.0</td>
<td>36.0</td>
<td>72.0</td>
</tr>
</tbody>
</table>
The Pearson chi-square value for this table is 1.874 (N=72), the degrees of freedom is 4, and the p value is .759. Note that we have removed two survey responses in which there was no response or a response of “Don’t Know” to one of the questions in the above contingency table, resulting in N=72 for this analysis. The p value is obviously greater than .05 and hence we fail to reject the null hypothesis. We will use Figure 1 below to examine the relationship further.

Figure 1 – GPA x No. of Questions by Discipline

The histogram of Figure 1 helps us analyze the pattern of behavior by showing the trends graphically. The disciplines in each of the cells on the x-axis are Sciences, Social Sciences, Humanities, Don’t Know, and No Response. First, it should be noted that no students selected responses that indicated that they asked questions at the reference desk more than five times in a semester. Secondly, the reason for the high p value is
also fairly obvious from Figure 1. Most questions were asked by students who had a GPA between 2.5 and 2.9. For the column with GPA between 2.4 and 2.9 in Figure 1, the number who asked 1-5 questions and the number who asked zero questions is identical (the count from Table 1 for both cells is 13) suggesting that for students in this GPA range, the reference desk had no effect. From our research hypothesis, we might expect to see a larger difference between the observed frequency and the expected frequency for those students with high GPAs. The difference for those in the highest GPA range (greater than 3.4) between 1-5 questions and zero questions is also very small (11 versus 8). Although not statistically significant, there appears to be a slight negative relationship for those students with GPAs less than 2.4. In this GPA range, there were seven students who asked zero questions and four students who asked 1-5 questions. Unfortunately, the counts are too small to draw any conclusions.

Given that there is no significant statistical relationship between GPA and number of questions asked at the reference desk, we want to explore other associations in the data that are significant and would provide insights for further investigation. Question 3 solicits responses on the importance of the reference desk to an undergraduate’s study. Intuitively, we might suspect that there would be some relationship between the importance of the reference desk and the number of questions asked at the reference desk. If a positive relationship does exist, we can examine other services that the “strongly agree/agree” group of students consider important. The contingency table for these two variables is shown below:
Table 3 – Importance of Refdesk x No. of Questions Asked

<table>
<thead>
<tr>
<th>Importance of the Refdesk</th>
<th>No. of Questions Asked at Refdesk</th>
<th>Zero Questions</th>
<th>1-5 Questions</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Count</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>2.9</td>
<td>3.1</td>
<td>6.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>Count</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>5.4</td>
<td>5.6</td>
<td>11.0</td>
</tr>
<tr>
<td>Neutral</td>
<td>Count</td>
<td>19</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>15.1</td>
<td>15.9</td>
<td>31.0</td>
</tr>
<tr>
<td>Agree</td>
<td>Count</td>
<td>5</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>11.2</td>
<td>11.8</td>
<td>23.0</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>Count</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>1.5</td>
<td>1.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>36</td>
<td>38</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>36.0</td>
<td>38.0</td>
<td>74.0</td>
</tr>
</tbody>
</table>

The Pearson chi-square value for this table is 14.825 (N=74), the degrees of freedom is 4, and the p value is .005 which is less than .05. Since the p value of .005 is less than .05, there is a significant relationship between these two variables. The graphical representation of Figure 2 will help in examining the pattern of this relationship.
Figure 2 – Importance of the Refdesk x No. of Questions by Discipline

It is quite easy to see the relevant associations in Figure 2. If we look at the “strongly agree/agree” cells for 1-5 questions versus the “strongly agree/agree” cells for zero questions, the ratio is 21/5 showing that those students who thought the reference desk was important also tended to ask more questions. Similarly, for the “strongly disagree/disagree” cells for 1-5 questions versus the “strongly disagree/disagree” cells for zero questions, the ratio is reversed (5/12) indicating that those who did not think the reference desk was important asked fewer questions. We will discuss how this association might be important in the next section.
Discussion

Given that we fail to reject the null hypothesis, we want to look for other relationships that might suggest how reference librarians or library services might help improve undergraduate scholarship. These insights might lead to further research and a more in-depth study. With the association between the view that the reference desk is important and the number of questions asked, we can also examine what new services are important to those who think the reference desk is important. For example, if we examine the association between the importance of the reference desk and extending the open hours for library buildings, we find that there is quite a strong relationship with the chi-square value 9.243 (N=74, df=4) and the p value equal to .055. On the other hand, the association between the importance of the reference desk and adding more study tables is not significant with a chi-square value of 3.954 (N=74, df=4) and a p value of .412. These data are important for library administrators who are contemplating new services or facilities since it is apparent that those who value and use the reference desk would prefer to see the library open more hours as opposed to adding more study tables. This pattern is further supported by the general comments that were solicited in question 13 (see Table 4 below). After removing the “no responses” from the data, the most frequently cited suggestion for new services and facilities was extended hours at 17.2% of the respondents (coded as “hours”, N=29) in Table 4, although more study tables and food/coffee were cited almost as frequently.
Table 4 – General Comments

In an attempt to understand undergraduate study patterns and how library services might improve scholarship, we will look more closely at the demographics of who enters library buildings, why students don't use the library reference desk, and what might be possible improvements to library service.
In Figure 3, we can see some trends about why students don't use the reference desk. The categories for each cell are: intimidated by librarian, don't get answers from the reference desk, prefer to use the Internet, don't understand how the library works, and No Response. First, as anticipated, it is clear from the “Yes” column of Figure 3 that students who live on campus enter the library more often than those who live off-campus. Also, as expected, 71.6% of respondents (N=74) indicated that they prefer to use the Internet rather than the reference desk. However, it is useful to note that 10.8% of the students did not understand how the library worked and 2.7% are intimidated by the librarian. These responses indicate that there is still much work to do in the areas of bibliographic instruction and reference librarian interactions with students.
Summary and Conclusions

As a state institution, Rutgers University must be accountable to the citizens of New Jersey who pay taxes that support the library. To sustain a quality library, we need to provide quantitative assessments that can demonstrate impact. This study focused on one dimension of library services – the reference desk – and the investigation showed that there is no significant relationship between the scholarship of an undergraduate as measured by cumulative GPA and the number of times a student asked questions at the library reference desk. For further research, there are some important factors to be considered. For example, there may be other proxy variables that would better demonstrate improved scholarship. Although beyond the scope of this study, we might examine graduating seniors' job offers and initial salary offering. There are other limitations to this study. To insure a proper random sample, we would need to have proportional representation from the major disciplinary areas – humanities, sciences, and social sciences. It is also important to note that the Rutgers University campus is distributed geographically. Librarians have reported anecdotally that universities with one main, highly concentrated campus report more usage of the library and the library reference desk. To generalize the results of this study, we would have to sample institutions of different geographic configurations.

This study did show that those who deem the reference desk important also voiced a strong interest in having extended open hours for the library buildings. This input from students would be important to be evaluated by library administrators when deciding which new services to offer. Although a small percentage of respondents, the indications that students don’t understand the library and are intimidated by librarians suggests possibilities for improved bibliographic instruction.

The high response on the use of the Internet rather than the reference desk was anticipated when this study was launched. Continued and increased usage of the
Internet will likely continue to reduce the usage of the reference desk. In the end, reference librarians may need to accept that the reference desk service does not improve undergraduate scholarship and that major changes in the reference service model are warranted. Shera, as an apologist for the profession of librarianship, has tried to jolt us out of our fixation on traditional practices. He (Shera, 1965)\(^3\) states that “the history of American librarianship during the last century is indeed a record of lost opportunities.” There are opportunities for reference librarians to engage in supporting new and different forms of scholarship that emphasize collaboration, interdisciplinary research, and the use of all information sources, those within the library and those available on the Internet. Brewerton (2003) in his review of a 1962 article by Foskett has some suggestions that are very relevant for reference librarians and librarians in general. Brewerton bemoans the fact that there is a lack of an underlying philosophy for the profession of librarianship. He suggests that reflection on the profession will help us extricate ourselves from old established habits that need to change. This reflection can lead to informing practice and the resulting changes in practice can, in turn, provide new insights for reflection.

\(^3\) Shera, p. 187.
References


Appendix 1 – Survey Questionnaire

Library Survey – Please return to Ron Jantz. Thank You.

Please answer all the following questions to the best of your ability. The survey will take about five minutes. The “library” referred to in the following questions includes the four main libraries at Rutgers University: Alexander Library, Douglass Library, Kilmer Library, and the Library of Science and Medicine.

1. In a typical semester, please estimate the total number of times that you have asked a question of the reference librarian at one of the main libraries (circle one).
   
   Zero  1-5  6-10  11-15  Greater than 15

2. What is your major area of interest or concentration (circle one)?
   
   Sciences  Social Sciences  Humanities  Don’t Know

3. The reference desk at the library is important to your undergraduate studies (circle one):
   
   Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

4. What is your cumulative GPA? (circle one).
   
   Less than 2.0  2.0-2.4  2.5-2.9  3.0-3.4  Greater than 3.4

5. Do you own a laptop? Yes or No

6. Do you live on-campus (where “on-campus” is defined as being able to reach the library from your residence by walking, biking, or campus bus)? (circle one). Yes  No

7. For the current semester, can you estimate the total number of times you have entered a main library in a typical week (circle one)?
   
   Zero  1-5  6-10  11-15  Greater than 15

8. What is the most important reason you go to the library (select one)?
   
   ☐ To study.
   ☐ To work on a group project.
   ☐ To meet friends.
   ☐ To use the library resources (books, reference collection, find articles)
   ☐ Other: ______________________________

9. What are your reasons for not using the library reference desk (check all that apply)?
   
   ☐ I’m intimidated by the librarian.
   ☐ The reference desk librarian is not able to answer my question.
   ☐ I find the answers to my questions more readily on the Internet
   ☐ I don’t understand how the library works.

10. Would you come to the library more often if the library had a coffee bar (circle one)? Yes  No

11. Would you come to the library more often if study and reference rooms were open 24 hours a day (circle one)? Yes  No

12. Would you come to the library more often if more study tables were available (circle one)? Yes  No

13. What additional library services or facilities can you suggest that would help with your studies?