

Desperately seeking information: where and why engineering students find the information they need

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Introduction

The purpose of this study was to determine which sources engineering students turn to for information for a class assignment or research project, and their reasons for choosing those sources, and to ascertain whether there were differences in information-seeking behavior between students at different points in their studies (e.g. freshman, sophomore, junior, senior, or graduate student), and between male and female students. We hope to use this information to better inform our library instruction efforts and the services we provide at the University of Washington Engineering Library.

Materials and methods

An online survey was created, tested by a sample of students, revised, and then approved by the University of Washington Human Subjects Review Committee. An invitation to take the survey was sent by email to the University of Washington College of Engineering's student listserv in the Spring Quarter of 2006.

The survey consisted of demographic questions (year in school, department, gender), and six questions asking the students for their first, second, and third choices for information resources and their reasons for choosing each source (see Figure 1). Students who complete the survey were then eligible to enter a drawing for one of five \$20.00 gift certificates to the University Bookstore.

Figure 1:

Question 1.
Where or to whom do you turn first/second/third when you need to find technical information for an Engineering class assignment or research project?

A. Professor or TA
B. Other students or friends
C. Google or other Internet search engine
D. Research Databases such as Compendex, Inspec, ProQuest, etc.
E. Library collections (e.g. books, journals, etc.)
F. Ask a librarian
G. Other, please explain

Question 2.
Why do you choose this source?

A. Gives reliable information or is an expert/authority on the topic
B. Quick to contact/access
C. Easy to use or communicate with
D. Convenient or close
E. Can communicate face-to-face or by phone
F. Anonymous
G. Other

The survey was available for two weeks, and during that time, we received 260 eligible responses. Of the 2660 students enrolled in the College of Engineering (Winter Quarter 2006), we received a response rate of 9.7%. 2087 men (78.5%) and 573 women (21.5%) are enrolled in the College. Our sample consists of 38% women, which is higher than the proportion of women enrolled in the College. The UW College of Engineering is composed of 10 departments and we received a sampling from all departments (see Figure 2). We also received a representative sample of responses from each class (Freshman-Senior and Graduate Students)—see Figure 3.

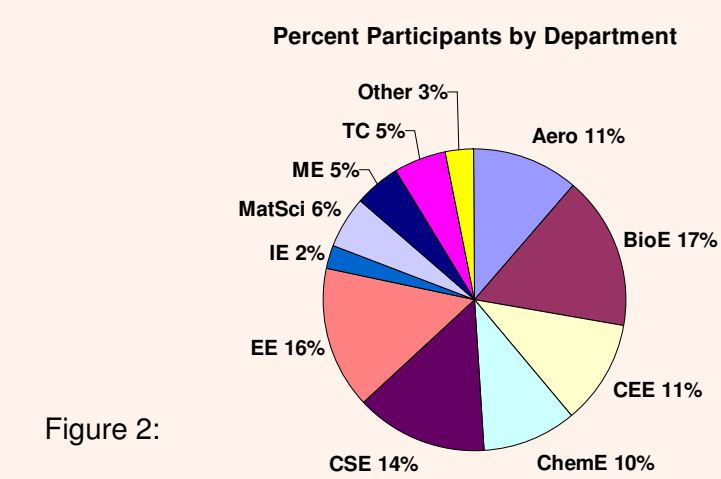


Figure 2:

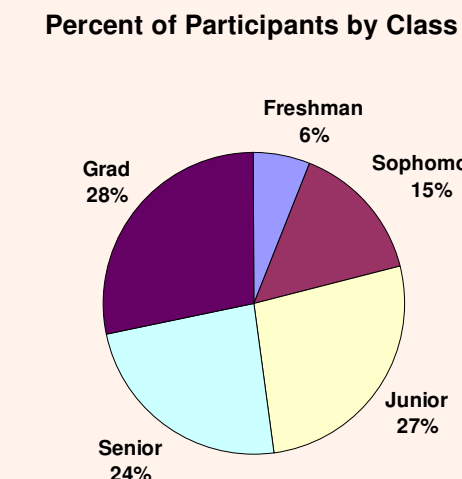


Figure 3:

Results

"Google or other Internet search engine" was chosen by 47.3% of all respondents as the first resource they turn to for finding information. This was the first choice for all groups (by class, department, and gender). "Professor or TA," "Other students or friends," and "Research databases" were also consulted first. "Library collections" and "Ask a librarian" were hardly ever or never chosen as a first choice. (see Figure 4)

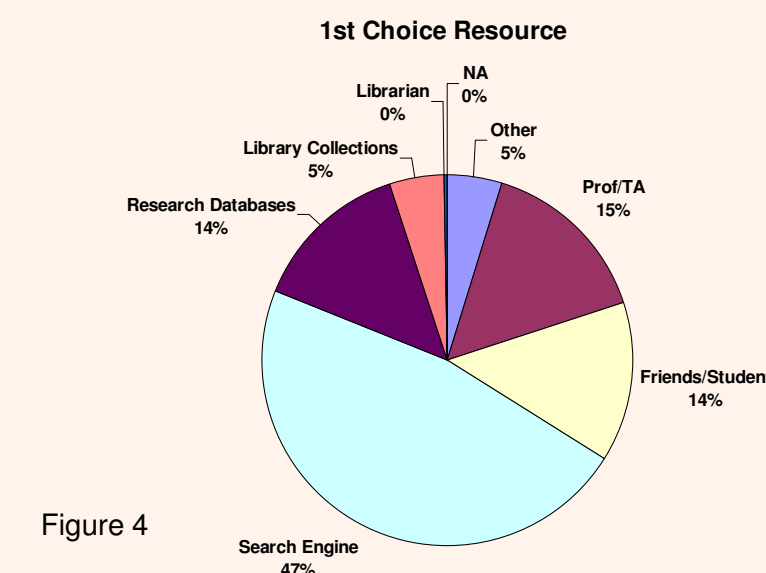


Figure 4

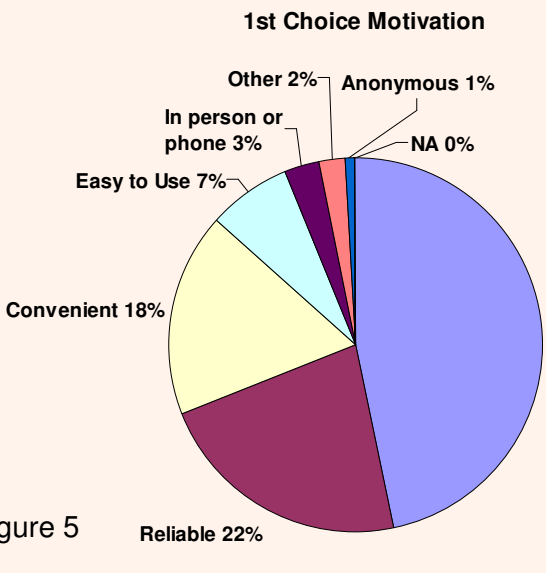


Figure 5

The main reason that students chose an information resource was because it was "Quick to contact/access" (46.5%). Reliable or convenient were also reasons for choosing an information resource, but not nearly as important as quickness. Ease of use of a resource, or whether it was in person or anonymous were not important to many students. (see Figure 5)

When we aggregated the data for all three information choices and looked at the reasons why each resource was chosen, we found that there was a strong correlation between "Quick" and "Search engine," and between "Reliable" and "Prof/TA," "Research Databases," and "Library Collections" (see Figure 6).

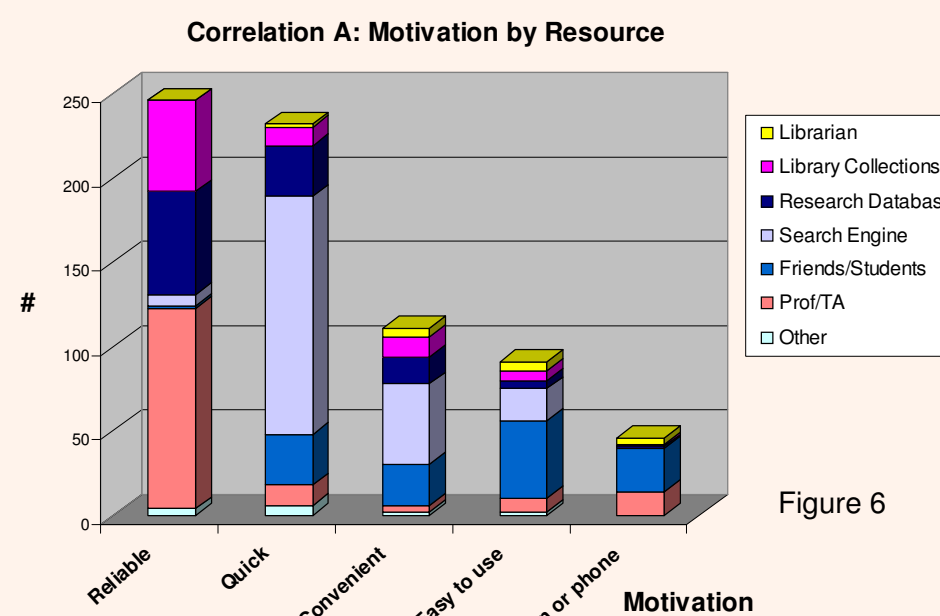


Figure 6

Likewise, the students who chose "Search engine" did so primarily because they considered it to be quick, convenient, and easy to use, not because of its reliability. "Prof/TA," the overall second choice, was chosen most often because it is considered to be reliable. Students also consult their friends and other students, but mostly because they are easy to use and convenient. The students who chose to consult research databases and library collections did so mostly because they consider them reliable sources of information (see Figure 7).

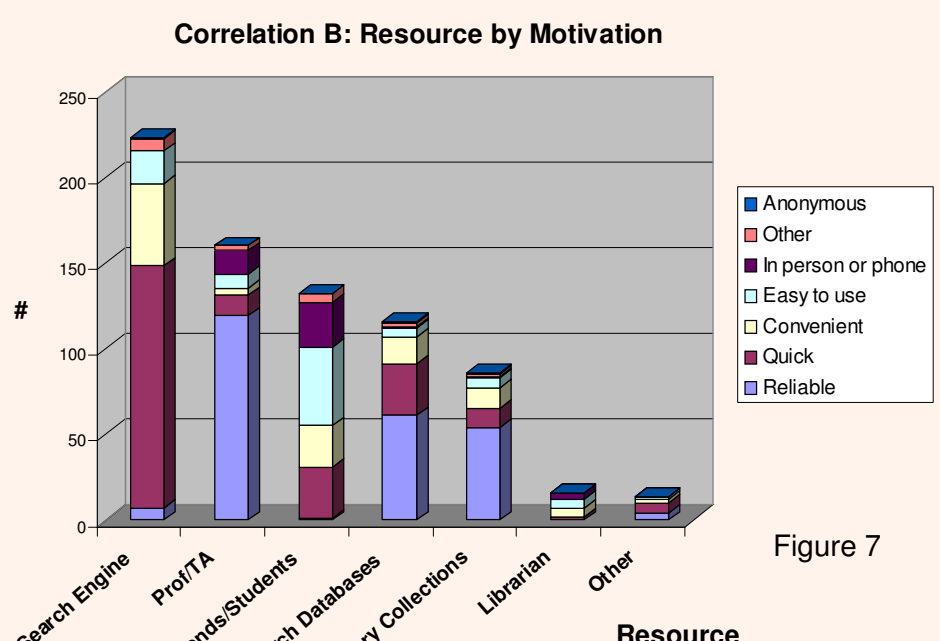


Figure 7

Breakdown by Class

Our data show some differences in students' first choice information resource between different classes. Freshmen were overwhelmingly more likely to turn to a search engine as their first choice than sophomores, juniors, seniors, or graduate students. Sophomores, juniors, and seniors also chose search engines as their first choice, and were more likely than freshmen to ask for help from professors and TA's and other students or friends. Graduate students were the most likely to start their information search with research databases and library collections and were not likely to ask friends or other students. Use of library collections and librarians were dimly low for all groups (see Figure 8).

For all groups, quickness was the most important factor in selecting their first information resource. Following quickness, freshmen preferred convenience over reliability or ease of use. Graduate students and sophomores tended to choose sources for their reliability over convenience or ease of use (see Figure 9).

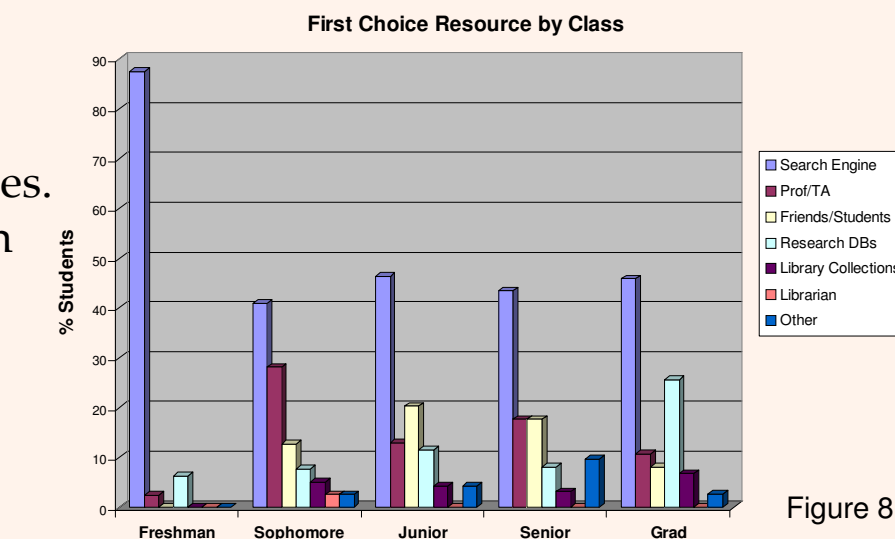


Figure 8

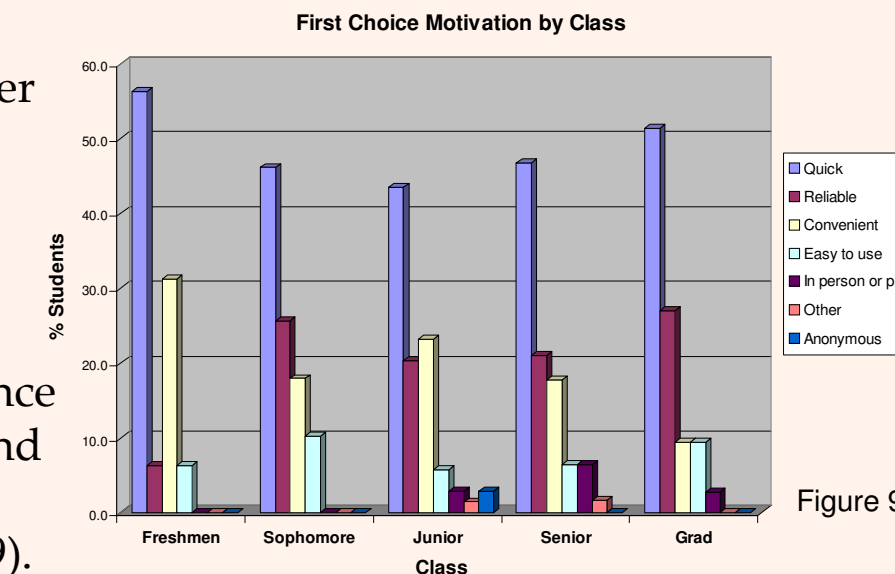


Figure 9

Breakdown by Gender

Some differences in information-seeking behavior appear between male and female students. While both groups showed a strong preference for search engines as their first information choice, female students were slightly more likely to begin their search with research databases and library collections than male students (see Figure 10).

Quickness was the most important factor for both groups in choosing an information resource. Women were more likely than men to choose a source that they considered to be reliable as their first choice, and men were more likely than women to choose a convenient source first. Women were much more likely than men to choose a source that they could interact with in person or on the phone, and men were more likely to prefer an anonymous source (see Figure 11).

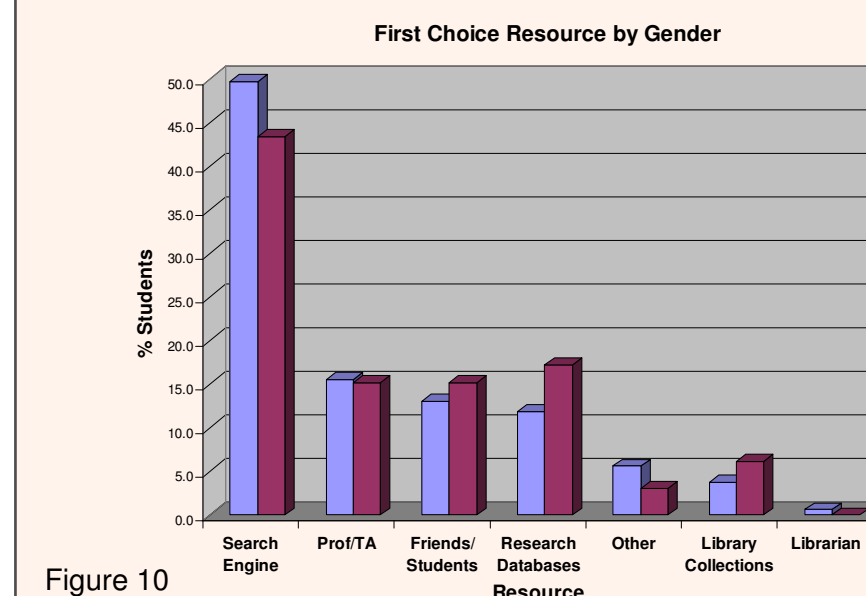


Figure 10

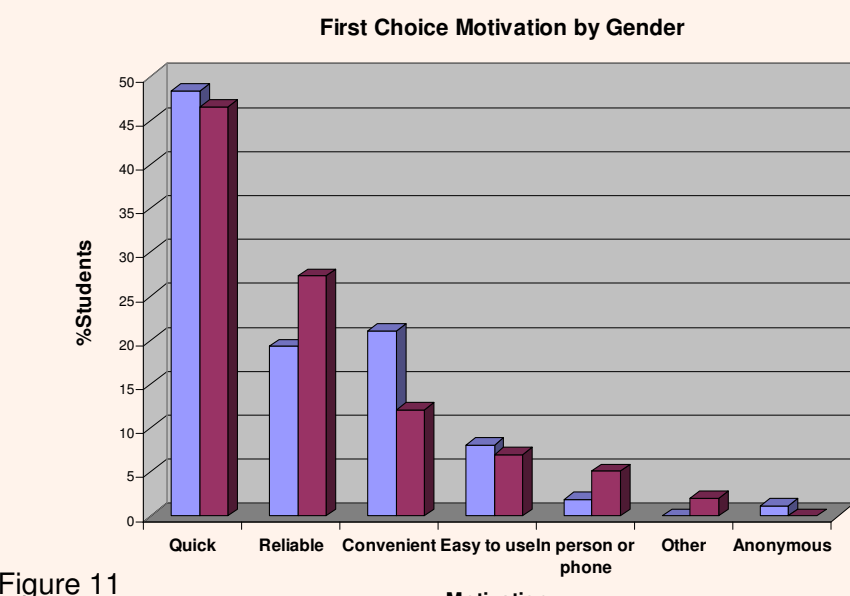


Figure 11

Conclusions

Like the professional engineers documented in the literature (see Tenopir and King, Pinelli), engineering students seek to "minimize loss rather than maximize gain" when searching for information, and they value accessibility (e.g. quick, easy to use, convenient) over technical quality (e.g. reliability) when selecting an information resource. They also rely on their colleagues (e.g. friends and other students) as information sources. Librarians and library collections remain low on the list of sources consulted by engineering students, but a significant number of students are using research databases. The students in our study appear to have a good understanding of the relative quality of information sources—they use the Internet because it's quick and convenient, not because they think it's reliable. Similarly, they understand that sources such as their professors and TA's, library collections, and research databases are comparatively more reliable sources of information.

Considering the results from our survey, librarians should consider designing ways to become more relevant to engineering students. Librarians could offer classes on more effectively using search engines such as Google or Google Scholar. We could market the library and its resources as being quick, reliable, convenient and easy to use. It may also be valuable to educate the people whom students consider to be reliable sources of information- i.e. their professors and TAs- on key library resources and services.

Further research could include focusing on the specific habits of undergraduates or graduate students, studying more explicitly how students use search engines and the Internet and what factors influence their use of libraries and librarians, and comparing students' habits in different engineering disciplines.

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Acknowledgments

Betsy Wilson, Dean of Libraries, University of Washington Libraries, provided funding for the gift certificates. Stephanie Wright, Management Information Librarian, University of Washington Libraries, contributed her expert help with manipulating the data in SPSS.

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