How Academic Librarians Can Influence
Students' Web-Based Information Choices

Abstract: This study concentrates on the web-based information habits of college students and their use of campus library websites, in particular, finding that college and university students look to campus libraries and library websites for their information needs. As confident and savvy users of electronic information resources, college students value access to accurate, up-to-date information with easily identifiable authors. They are aware of the shortcomings of information available from the web and of their needs for assistance in finding information in electronic or paper formats.

Problem statement

College and university librarians are acutely aware that usage of their websites and electronic resources is growing. They observe that, since fewer students visit the library in person, knowledge about the needs of their student users is limited. In order to deliver relevant services, academic librarians need to know more about the preferences and needs of these invisible information consumers.   To that end, OCLC commissioned a web survey of the information habits of college students in December 2001. The purpose of this study is to describe the end-user market segment populated by college and university students and to present their views of successful information delivery. The results of this study reveal significant opportunities for academic librarians to improve services to students, and ultimately connect users with the resources the library offers.   This study yields powerful recommendations for librarians on how they can influence students' web-based information choices.   To support librarians in their efforts to meet students' information needs, OCLC intends to repeat this study on an annual basis, using this data as a baseline for measuring changes in student behavior and expectations, and for measuring success in delivering information.

Methodology

OCLC commissioned Harris Interactive to conduct a blind research study with college students who used the Internet. Conducted via the Internet between December 11, 2001 and January 1, 2002, the survey sample included participants from the Harris Online panel consisting of over 7 million individuals from more than one hundred countries. Qualified respondents for this study were 18-24 year old U.S. college students who use the Internet for school-related assignments. The sample of 1,050 qualified respondents has an overall statistical margin or error of +/- 3 at the 95% level of confidence. Mapping of student home and school ZIP Codes confirmed that the sample was representative of all regions of the U.S.

Related studies

Much has been collected and published about consumer use of email and the web for e-commerce for the commercial sector. Most of these studies track unique hits at websites and search engines, hours spent online, and purchasing behavior, and typically, do not separately examine academic or library sites. For instance, in 2000, a 24-hour, 4-day study with 74 people from various backgrounds wondered if they could find answers in a satisfactory way. The study concluded the following:

- *More than 31% of all respondents use Internet search engines to find answers to their questions. However, people who use Internet search engines express frustration because they estimate that half of their searches are unsuccessful.*

- *Americans have not yet found an ideal information resource. Not one participant said they would use the same resource time and again when seeking answers.* [1]

In addition, a Summer 2000 Roper Starch Worldwide survey found that 86% of end users feel that "web searching could be more efficient."[2] Because students are part of the general web-using population, data like this have merit, but fail to identify specific behaviors and needs of students in higher education, or to indicate library share of mind among that user segment.

At the time OCLC launched this study, other library-related market studies had been published about public library users, teen library usage, and Internet usage. The Pew Internet and American Life studies looked at educational and recreational web use among high-school students aged 12 to 17, finding that 71% used it as a major source, and 58% use school- or class-specific websites.[3] The Urban Library Council's 2000 research on the impact of the Internet on public library use focused on a broad age segment from 18 to 65+, and found that users of either the library or the Internet tended to be significantly younger, but did not identify them as students.[4] None of those specifically considered the general population of U.S. college and university students (estimated by the U.S. Department of Education at nearly 16 million for 2002) and their usage of academic library websites.

Numerous other studies that focused on college students and their use of academic library websites produced rich information. One such study in 1997 with 235 Duke University freshmen concluded that:

> *…we should be making the most of the technological juxtapositions available to us, just like the commercial sector. To achieve these will require heightened levels of experimentation by libraries and technical collaboration with the commercial sector. Heightened connectivity will require our working closely with providers in mutually beneficial ways, with the sole purpose of assuring the best arrangement of these services for the user.* [5]

These studies typically represented the author's institution only, making it difficult to successfully accomplish the collaboration described above. OCLC's study of **The Information Habits of College Students** combines a focus on the academic student community with a nationwide basis, in order to bring together data on students as a market of information consumers and academic libraries as suppliers to that market.
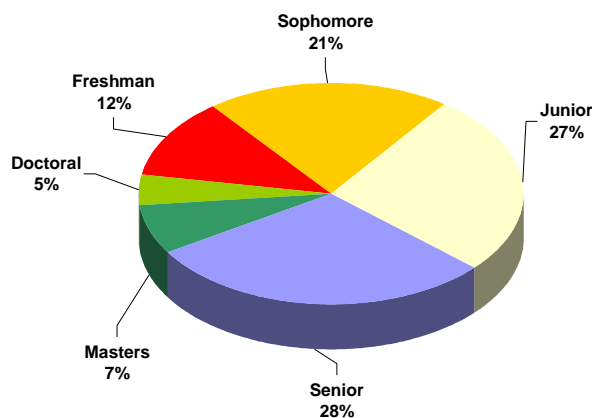
Findings

College students and their web use
Who are they?
The college student respondents in this study are primarily undergraduate students (89%). Of the 11% who are graduate students, three-in-five are in a Masters program.

Respondents by Class

Over half of the students are taking at least 13 credit hours, and over two-thirds reported GPA's of 3.1 or higher. Six-in-ten are employed at least part time. Their major areas of study vary, as the table below shows.

Major areas of study	
Liberal arts	20%
Business	19%
Engineering/Computer science	13%
Biological sciences	12%
Physical sciences	5%
Other/Undecided	31%

Eight-out-of-ten respondents are aware of their local public library (83% had visited at some time in the past) and read 1 to 10 books per month (87%).

How do they rate themselves as web users?
College students have confidence in their abilities to locate information for their study assignments. Three-out-of-four agree completely that they are successful at finding the information they need for courses and assignments, and seven-in-ten say they are successful at finding what they seek most of the time. The first-choice web resources for most of their assignments are search engines (such as Google or Alta Vista), web portals (such as MSN, AOL or Yahoo!), and course-specific websites. They do not use online study aids or groups, or essay and paper websites.

Search engines

Web portals

Course-specific websites

Legend:
- For every assignment
- For most assignments
- For some
- Don't use/know
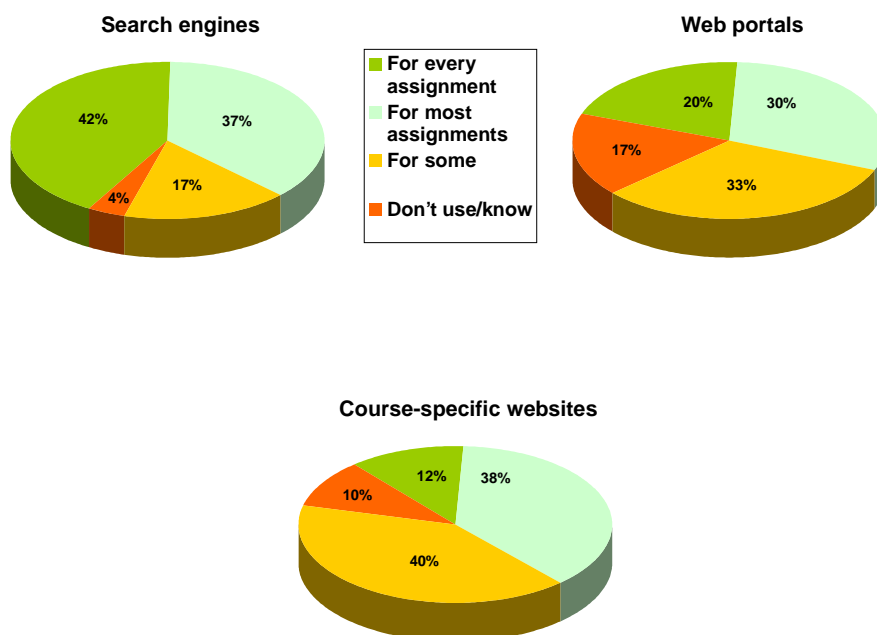
Except when their professors or teaching assistants direct them to specific course-related websites, they make their own decisions about which web resources to use. Nearly two-thirds strongly feel they know best what information to accept from the web. Only 4% think the quality of information they find is not good enough for their assignments. One-fourth say they find too much, but only one-in-ten report that the information they find is not enough to be useful.
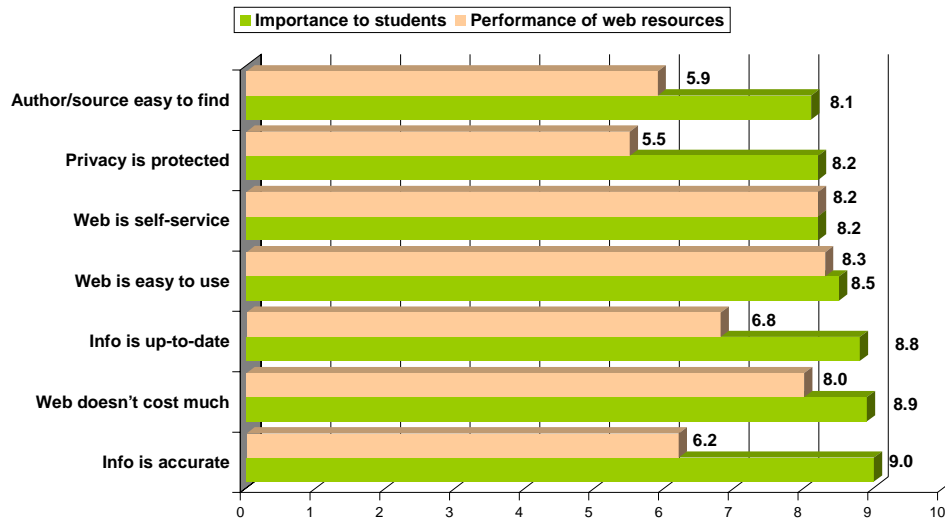
What do they think of the web?
Advertising within websites bother college students. Four-out-of-five students are bothered at least a little, and one-quarter are more bothered. Most (58%) believe that there is no difference in the reliability of information on websites with advertising, and only one-in-five believes ad-free websites have more reliable information. In addition, 88% agree completely that they are less likely to use a site that charges a fee for information, for a mean score of 9.3 on a 10-point scale against this scenario.

What do they value?
Most important to college students is the accuracy of the information they find – a trait they share with librarians; however, they believe the web falls considerably short of delivering that accuracy, as the chart below shows. Only half agree completely that information on the web is acceptable or approved for study assignments. Less than two-thirds agree completely that the range of resources on the web is adequate. Students also want the information they find to be up-to-date, and the authors or sources of the information need to be easy to find. College students are aware that the web does not meet all of their needs.

Web Attribute Performance Gap

■ Importance to students ■ Performance of web resources

Attribute	Performance	Importance
Author/source easy to find	5.9	8.1
Privacy is protected	5.5	8.2
Web is self-service	8.2	8.2
Web is easy to use	8.3	8.5
Info is up-to-date	6.8	8.8
Web doesn't cost much	8.0	8.9
Info is accurate	6.2	9.0

What are their defining preferences?
The results of this study show well-defined preferences for remote access, fact-to-face interaction, and the library's print resources.

Remote access
For their study assignments, college students access the web at home, the campus or public library, and in classrooms. Four-out-of-five students use the library for web access, but only one-in-five prefer that access point. However, over 90% access the web remotely from the library via their home computer, and the majority of students (78%) prefer that form of access. They access the web via high-speed lines, with over 40% logging on via cable modem, T1/T3 line, ISDN, or ADSL/DSL.

Face-to-face contact
If students need help when using the web for study assignments, they prefer face-to-face interaction to online or even telephone contact. Four-out-of-five students are more likely to seek help in-person, compared to one-in-two who ask online or by telephone. Even though they prefer face-to-face interaction, seven-in-ten students say they would use online help to find exactly the information they need for their study assignments. When asked if they would use online help available from librarians for no charge, sixty-two percent say "definitely."

Their preferences for remote access affect who they seek assistance from when using the web. Since college students are more likely to be in their homes and dorms when they need help using the web, they rely upon their friends first – 61% ask a friend or classmate for help. More than one-third (36%) of students ask their professors or teaching assistants for help with using the web, and one-in-five (21%) ask librarians. Regardless of whom they ask for help, college students are less than completely satisfied with the help they receive, and give similar satisfaction ratings for help provided by friends/classmates, professors/teaching assistants, and librarians. The mean satisfaction score for librarian-provided help is 7.8 (on a scale of 0 to 10), compared to scores of 7.9 for help provided by professors or teaching assistants and 7.8 for classmates or friends.

Print resources
Finally, although 99% of respondents use email and 78%prefer to access the web remotely, most college students do not exhibit a strong preference for electronic copies over paper copies. In fact, only one-third (34%) indicate a marked preference for electronic copies.

In short, the survey describes college students as confident and savvy users of electronic information resources who value access to accurate, up-to-date information with easily identifiable authors. They prefer personal interaction when seeking web assistance. Advertising does not influence their information choices, and they are not ready to pay for information access. They are aware of the shortcomings of information available from the web and of their needs for assistance in finding information in electronic or paper formats.
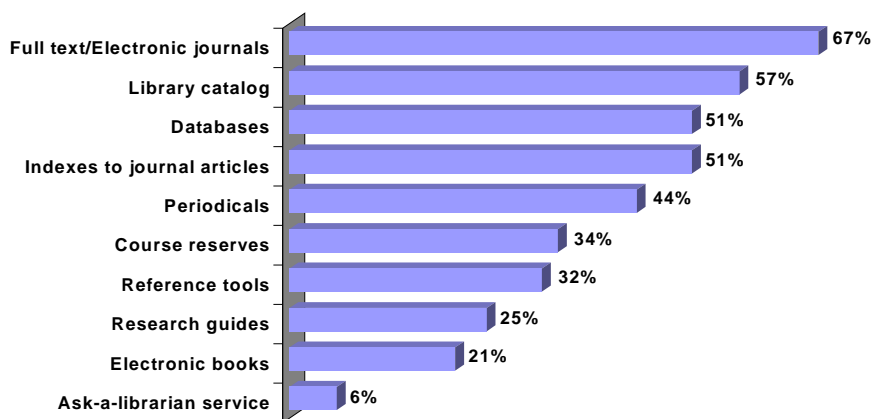
College students and their library usage
What library resources do they use?
Seven-in-ten students use the campus library website for at least some of their assignments, and one-in-five use it for most assignments. College students find out about the library's website from multiple sources, including from their professors and teaching assistants (49%), by looking it up themselves (45%), from classes about using the library (34%), and from librarians (27%). Among the students who do not use the campus library's website, some (20%) did not know the library had a site, and some (29%) say it doesn't have what they need, but nearly half (43%) feel other sites have better information.

During their most recent electronic visit, most used full texts of journal articles (67%), the library's catalog (57%), databases and journal indexes (51%), and electronic books (21%). Few college students use any "Ask-a-librarian" services.

Web-Based Library Resources Used

| Resource	Percentage
Full text/Electronic journals	67%
Library catalog	57%
Databases	51%
Indexes to journal articles	51%
Periodicals	44%
Course reserves	34%
Reference tools	32%
Research guides	25%
Electronic books	21%
Ask-a-librarian service	6%

Nearly 9 out of 10 students (89%) also use the campus library's print resources, including books, journals, articles, and encyclopedias. In addition to using the library's print resources, they make photocopies from print resources and even print copies of electronic resources.

	Print resources used at campus libraries
75%	Books (excluding encyclopedias)
70%	Journals or periodicals
64%	Articles
34%	Encyclopedias
11%	None of these

U.S. college students look for information about other geographic regions, including Europe (46%), South America (25%), and Asia (24%) , and say they need information in languages other then English – Spanish for 13% and European languages for 11%.

What is missing?
Based on their library website experiences, over half of the students (55%) report having a difficult time finding complete articles that include charts, tables, and photographs. In addition, respondents repeatedly mention their needs for photocopying and for printing out electronic information.

Hard to find information
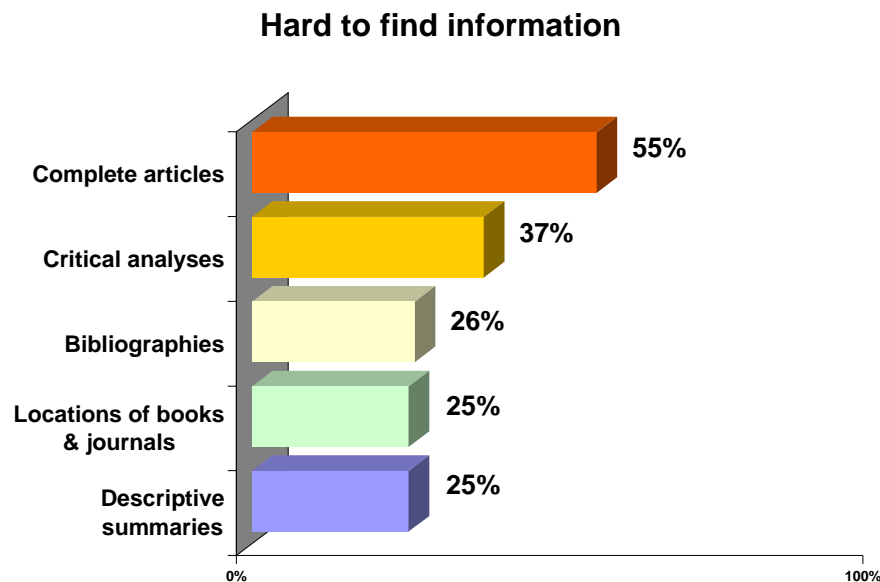
In response to the question: "Based on your experiences, what two things should your campus library do to help you with your study assignments," eight-out-of ten students make serious and thoughtful suggestions. The comments fall into these general categories:

- □ Make it easier to use and access library resources;
- □ Have more materials available – both print and electronic;
- □ Offer interactive maps, study tips, and guides; and
- □ Provide links to other library and research sites – also mentioned in the earlier Duke study.

In fact, over half of the respondents want some way to search other libraries' collections for the resources they need, and 72% of those respondents say they would pick up a book themselves from another nearby library.

Perceived barriers

From their points of view as library users, students identify several major barriers to their successful use of library resources.   Regardless of whether or not these barriers are genuine, students perceive that access is denied, because of the following:

▫ Inability to **access** databases remotely due to password requirements and/or license restrictions
▫ Difficulty **searching** and **navigating** within the library and its website
▫ Costs of copying and printing at the library
▫ Shortage of knowledgeable **librarians**
▫ Lack of the **customer orientation** they have come to expect as consumers

A sampling of their verbatim comments is below:

▪ *"Allow remote access to catalog/periodicals/reserve information for students with Internet access at home."*
▪ *"The whole point to a library is to have information that can be accessed EASILY and used for one's [own] uses.   When that information is there, however, it is too difficult to get it ... what good does it do…?"*

▪ *"Librarians are always too busy to help you when you need help. You have to be an expert to be able to navigate through their system."*

The awareness that librarians have more information than they make available to remote users is most frustrating to students.

Future research plans

Using this data to establish a baseline, future studies will compare academic libraries' progress on meeting students' information needs. In particular, progress in usage of campus library websites against baseline usage for popular search engines and web portals will demonstrate how well libraries integrate with generally available web resources. Increased recognition of library web-based resources will demonstrate how successful librarians are at promotion, instruction, and accessibility.

Baseline data

	2001	2002	2003
Use of campus libraries' print resources	89%		
Use of campus library web sites	73%		
Use of librarians – in-person, online or by phone	21%		

Web Resources Used	For every assignment	For most assignments	For some assignments	Don't use/ know
Search engines	42%	37%	17%	4%
Web portals	20%	30%	32%	17%
Course-specific websites	12%	38%	41%	10%
Campus library website	11%	30%	42%	17%

One key baseline measure is overall satisfaction with the help librarians provide. Approximately 67% of students give librarian-provided help ratings of 10, 9 or 8, indicating that they are satisfied with librarian-provided help.

Satisfaction with Librarian-Provided Help Using the Web

| ■ 10 = Completely satisfied | ■ 9 | ■ 8 | ■ 7 | ■ 6 | ■ 5 | ■ 4 | ■ 3 | ■ 2 | ■ 1 | ■ 0 = Not at all satisfied |
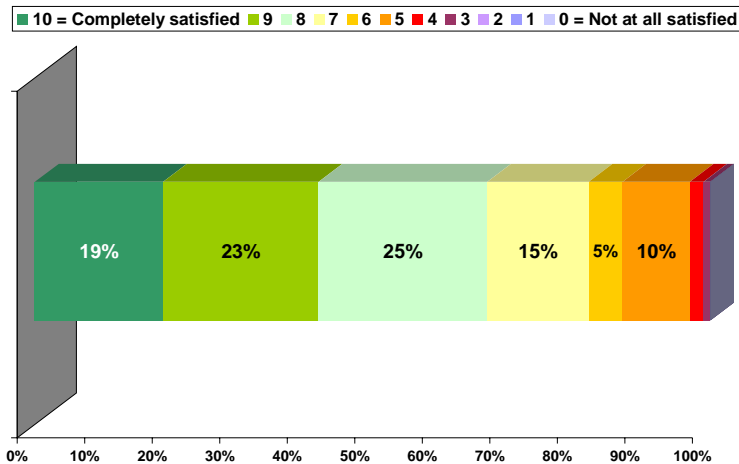
At December 2001, reported use of course-specific and campus library websites for study assignments is very similar.

As a global library cooperative, OCLC and its members are in a position to influence students' information choices through how libraries respond, whether the response is technical, procedural, organizational, or behavioral. In the coming months, OCLC will conduct dialogs with academic librarians to develop answers to these questions, as well as action plans for responding to them.

Recommendations

From the data, it is clear that there is a performance gap between college students' expectations for library service and their perceptions about the service they receive, particularly for web-based information services. It is also clear that students continue to depend upon the library for information resources, in both electronic and print formats. The data strongly suggest that there are real opportunities for academic librarians to connect students with libraries' high quality resources. A successful approach should incorporate the following tactics to increase libraries' visibility on the web:

- Emphasis on students' and librarians' common preferences for accuracy, authority, timeliness, and privacy
- Tight integration of the library's electronic resources with faculty, administrative, and other campus websites
- Open access for remote users
- Clear and readily available navigational guides – both online and in the library.
- Relentless promotion, instruction, and customer service

Questions for further exploration and discussion

How can librarians influence students' information choices on the web?
OCLC poses the following questions in the spirit of provoking discussion and action.

- Most students prefer to access the web for study assignments using their home computer. *Can librarians ensure easy remote access to electronic information resources through technologies like NCIP? Are library policies and procedures in place to support broad access? Can database license restrictions be eased?*

- Students naturally gravitate to the generally-available web tools. *Can librarians create multiple access points at the web locations students prefer, whether those are search engines, portals, or the campus bookstore's site?*

- Web search engines and portals provide single-point search access. *Can libraries deliver websites that __directly__ present and connect to relevant information from many databases and resources, including faculty, curriculum, and administrative websites?*

- Students want access to information even if it is available only from other libraries. *Should librarians enable "remote circulation" through automated, patron-initiated interlibrary loan? Should librarians grant students reciprocal borrowing privileges among other libraries within geographical proximity?*

- Students want assistance with using the web, but prefer face-to-face contact. *Can librarians deliver the kind of personalized, interactive service that will appeal to them?*

- Students expect service providers – both electronic and bricks-and-mortar – to offer convenience, selection, quality, and a welcoming atmosphere. *Can librarians create a customer-friendly experience to match the best merchants and consumer websites?*

- Students want to know more about the library and its resources. *Can librarians execute marketing rules for product definition, promotion, price, placement, and positioning?*

- Students frequently visit libraries in the evenings and on weekends. *Are students' perceptions of customer service based on exposure to professional librarians, paraprofessionals, or students?*

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