Patterns of Undergraduates' Use of Scholarly Databases in a Large Research University

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ABSTRACT

Authentication data was utilized to explore undergraduate usage of subscription electronic databases. These usage patterns were linked to the information literacy curriculum of the library. The data showed that out of the 26,208 enrolled undergraduate students, 42% of them accessed a scholarly database at least once in the course of the entire semester. Despite their higher levels of learning and expected sophistication in information seeking skills, juniors and seniors used databases proportionately less than freshmen and sophomores. The University Library conducts a variety of introductory seminars that introduce freshmen to databases in the Fall semester. There was no evidence that this momentum is sustained in the subsequent years when higher-level more sophisticated skills are needed.

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INTRODUCTION

Studies have shown that about three quarters of undergraduate students conduct their research over the Internet as opposed to being physically in the library (Jones, 2002; Tenopir, 2003). Web resources included search engines, Web portals, course-specific Web sites, and the campus library Web site. Percentages of preference of the Internet over the library differ with discipline with 88.4% of the biology majors in Tenopir's study, for example, and 69.8% of engineering students. Another study (Voorbij, 1999) found that 60% of the respondents in the humanities and 78% of the respondents in social sciences use the Internet for study. As more students use online resources for their research, Waldman (2003) found that many of them were confused between resources that were freely available on the World Wide Web and those that were licensed through the library and accessible through the Internet.

According to Cockrell and Jayne (2002), students would rather stick with their World Wide Web search skills than try to learn new skills needed for searching different scholarly databases. This is reinforced by other studies (OCLC, 2002; Voorbij, 1999) that show that up to two-thirds of undergraduate students perceived that their Web searches yielded as much or more information than they needed. Nevertheless, Graham (2003) found that although students were not only prone to misinformation but also to advertisements, only a few of those who participated in the experiment verified the information they found on the Web. Moreover, Herring (2001) found that faculty are concerned about their students' ability to evaluate the information they found on the Web. Her study showed that, for that reason, more than 83% of faculty who participated required their students to use other sources in conjunction with the Web.

Libraries have long advocated for use of scholarly databases because of their richness in academic material and scarcity of advertisements. On average, university libraries belonging to the Association of Research Libraries (ARL) were spending about 47% of their materials budget on electronic resources in the 2006–2007 academic year (Association of Research Libraries, 2008). The highest percentage was as high as 73% for Wayne State in the 2003–2004 academic year (Association of Research Libraries, 2005). What proportion of undergraduate students is impacted by these significant expenditures? This study helps to answer this question by showing the number of undergraduate students who use these resources.

In doing so, the article will present a brief background of the University of Michigan-Ann Arbor campus, where the study was conducted. Following this overview, the article will review the literature concerning undergraduates' use of online resources. Then the research approach used in this study will be outlined followed by the findings. Lastly, the article will discuss the ramifications of the study.

PURPOSE OF THE STUDY

Information literacy – framing the question, finding information, assessing sources, evaluating content, assimilating it, and communicating new knowledge – has long been in the education system. According to the Middle States Commission on Higher Education (2003), students at all levels should have some exposure to all six of these components. As students gain mastery of various subject areas, their information needs become increasingly sophisticated, as should their information seeking strategies. This study seeks to find out if more undergraduate students use scholarly databases as their information needs increase.

The study utilizes authentication data to explore undergraduate usage of subscription electronic resources and relates these usage patterns to the information literacy curriculum of the library. Various

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other methodologies have been used in the past, including surveys, interviews, observations, transaction logs, and focus groups. This methodology eliminates the need for sampling by unobtrusively capturing all authenticated access to the resources. The study does not directly link students' use of scholarly databases with their ability to seek information or conduct research. Rather, it seeks to compare the proportion of students who use databases by year of enrollment from freshman through senior.

RESEARCH QUESTION

The following research question is addressed:

Does the number of undergraduate students who use scholarly databases increase with their gained mastery in their discipline as they progress from freshman through senior years?

HYPOTHESIS

Given that information needs become increasingly sophisticated as students gain mastery in their fields of study, the proportion of undergraduates who use scholarly databases is expected to increase with years of enrollment.

BACKGROUND OF THE STUDY

The University of Michigan has a population of over 58,000 students on three campuses: Ann Arbor, Flint, and Dearborn. The main Ann Arbor campus has an enrollment of over 41,000 students in nineteen schools and colleges. Undergraduate enrolment in Fall 2009, when this study was conducted, was 26,208 students. The University Library System has 19 libraries with holdings of over 8 million volumes and over 70,000 serial titles. It subscribes to over 1400 databases. In addition, the University is in partnership with Google to digitize its entire print collection as part of the Hathi Trust Digital Library. To date, more than 4.5 million volumes have been digitized (Hathi Trust Digital Library, 2012).

The University is a Carnegie research university. The Carnegie Foundation for the Advancement of Teaching (1994) classified research universities as those which "offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. In addition, they award at least fifty doctoral degrees and receive $15.5 million or more in federal support. According to the Boyer Commission on Educating Undergraduates in the Research University (1998), although those universities made up only 3% of the nation's total number of institutions of higher learning, they conferred 32% of the baccalaureate degrees and 56% of the science and engineering doctorates between 1991 and 1995. As such, their graduates are a significant part of the intellectual and cultural community.

LITERATURE REVIEW

According to an OCLC (2002) study, students learn about library online resources through a variety of sources: professors and teaching assistants 49%, look it up themselves 45%, library-user classes 34%, and through librarians 27% (students selected all applicable ways in which they learned about the resources, so the sum of the percentages exceeds 100%). When seeking help, 61% asked their friends while 36% asked their professor or teaching assistant, and 21% asked a librarian. Those who asked a librarian rated the help 7.8 on a scale of 10. Considering the teaching faculty's influence on students, coupled with students' satisfaction with help from librarians, teaching faculty can collaborate with librarians to help the students in their transition from searching on the World Wide Web to scholarly databases. Faculty can include inquiry-based assignments in their curriculum and provide opportunities for students to consult with librarians. Such assignments would satisfy the general education guidelines while encouraging students to be independent learners.

Recognizing that more students find out about online library resources from teaching faculty and friends than from librarians presents challenges and opportunities for libraries. While appreciating librarians' passionate outreach activities in promoting information competence, the Office of Academic Affairs at California State University (1995) evoked research that suggested that ad-hoc attempts cannot reach this goal. They echoed the American Library Association's (1989) report that suggested that a consistent and coherent education process was necessary to ensure that students were self reliant in their research process. In its far-reaching recommendations, the California State University's Office of Academic affairs laid out a two tier strategy approach:

1. Library orientation for freshmen and transition students, and
2. Competencies in general education which would be implemented by faculty in the various programs.

Integration of information literacy in the general education guidelines is increasingly widespread. For instance, it is part of the accreditation requirements for the Middle States Commission on Higher Education (2003). The Commission has a membership of over five-hundred institutions. It defines the concept of information literacy broadly as emphasis on critical thinking and the use of information to produce understanding and new knowledge. Nevertheless, various scholars (Elmborg, 2006; Luke & Kapitzke, 1999; Norgaard, 2003) have noted that librarians' perception of the concept as presented by the Association of College and Research Libraries (2000) has been centered primarily on teachable and measurable skills. As a result, opportunities of meaningful engagement with faculty have been lost.

For example, librarians were represented in the various policy making bodies of the Academic Senate of the San Jose State University (Reynolds, 1989). Through this membership and with support from both the University President and the Vice President for Academic Affairs, the library obtained approval from the Academic Senate Executive Committee to integrate information literacy in the general education curriculum. Nevertheless, the library proposal ended up being a one-hour library lecture "unit in the basic composition course which will familiarize students with basic strategies for locating information" (p. 78).

Although this effort was pioneering and far reaching in attempting to reach all the students, it only addressed the lower-level rudimentary information literacy skills; more specifically, information seeking abilities. The upper-level more sophisticated skills are better addressed through faculty/librarian collaboration at the discipline level. Additionally, the Middle States Commission on Higher Education (2003) cautioned against overemphasizing "one-shot" courses, saying:

An institution that relies entirely on a single session of traditional library instruction to fulfill its information literacy requirements is placing itself at the lower end of information literacy delivery. It is also likely that in this situation there is little demonstrable collaboration. In fact, the relationship is likely to have the appearance of a "hands off" approach, relegating to the librarian what the faculty member perceives as information literacy (p. 21).

LIBRARIAN/FACULTY COLLABORATION

The Middle States Commission suggested the following shared roles in respect to the educational process recommended by the American Library Association's (1989) Presidential Committee on Information Literacy: