

Information Literacy: Reinvention for Digital Natives

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Introduction

What do students know? Have the information literacy skills of university students improved over the last 5 years? Have university librarians' efforts to improve the information literacy skills been successful? Or, do students now come to post-secondary institutions with a higher skill set than we assumed when we first developed library instruction programs based on the ACRL Information Literacy standards?

The Association of College and Research Libraries include the following skills in their definition of an information literate individual:

An information literate individual is able to: determine the extent of information needed, access the needed information effectively and efficiently, evaluate information and its sources critically, incorporate selected information into one's knowledge base, use information effectively to accomplish a specific purpose, and understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.¹

In an effort to promote the information literacy skills of university students, the librarians at the University of Nebraska at Omaha (UNO) implemented an information literacy program in 2002. In 2007, UNO began an assessment of information literacy skills in the English Composition II classes. Over the past six semesters, the scores for the pre- and post-tests have increased. We decided to investigate the reasons for the increase in the scores. The goal of this study is to identify the information literacy skills that new students bring to UNO. Our findings will inform the redesign of our information literacy program.

Sample Size

Our study had 128 respondents from undergraduate transfer students and new graduate students who have never attended the University of Nebraska at Omaha. We compared our results to a previous UNO study, "Information Literacy Assessment" with 200 respondents from English Composition II classes. Our objective was to use this variation in classification status to identify information literacy skills at different stages of the academic cycle. These categories of students were selected to identify the skills that stu-

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dents bring to UNO before attending any information literacy library instruction classes.

Literature Review

Information Literacy through the Year

The concept of information literacy started at the end of the 19th century. At this time, librarians taught students lower order skills of searching for information using the resources at the library. Bibliographic instruction has evolved to teaching higher order information skills where college graduates learn how to find, analyze, represent, evaluate and use information.²

History of Information Literacy Assessment

Assessment of information literacy instruction programs has been of increasing importance as librarians try “to determine the effectiveness of their instruction efforts and assessment is required by academic accrediting agencies.”³ There have been many documented forms of assessment for information literacy including assessment of library instruction and student information literacy skills. The documented forms included pre- and post-tests, surveys, and information on how to write and conduct surveys and questionnaires.

Several factors or changes have contributed to the increase in information literacy assessment: “the higher education assessment movement, the rise of strategic planning and total quality management in higher education and the evolution of information literacy.”⁴ The rise of library assessment, specifically library instruction assessment, began with the publication of the 1983 *Nation at Risk* report. This report listed reasons for the declining state of education in the United States and recommended assessing teaching and learning in colleges and universities which eventually spread to include academic libraries.

Along with the factors mentioned above, academic libraries began adopting the customer service component and the strategic planning portion of the Total Quality Movement. The assessment and evaluation segment of strategic planning and TQM added motivation for librarians to study their services including library instruction. Information literacy helped to form new standards, programs and outcomes to academic library’s instruction programs with definitions of information literacy skills, information literacy standards and the addition of critical thinking and ethical use.

What do Students Know – Other Studies

The literature contained extensive research articles studying how students use their information literacy skills to conduct research. Several studies found that students turned to the Internet as their initial source for information, specifically Google, before using any other tool. Students turned to the Web first before using the library and Millennial, or Next-Gen undergraduates, used the Web as the path of least resistance and select the Web as their tool of choice.⁵ Librarians ranked low when students were asked who they turned to for research assistance. Students preferred to ask their instructor first, then turned to their peers or family members before asking a librarian.⁶

Students overestimated their research abilities on many skills, but did a good job evaluating the Web. Students rated their comfort level high on developing search strategies, but were unfamiliar with basic search concepts such as Boolean operators, truncation and controlled vocabulary.⁷ They had a high level of comfort in evaluating information, but ranked dissertations below less scholarly resources.⁸ When evaluating the Web, students looked at currency of the web page, the URL or domain, the reliability of the author, and the quality and design of the page.⁹ Another study compared first-year students to senior level or capstone students. First-year students cited the Web and newspapers more often than capstone students, whereas capstone students used more critical thinking skills to evaluate information and used more subject specific databases like JStor, Business Source Premier and Science Direct.¹⁰

Implications for Library Instruction

Studies have shown that students were overwhelmed with the research process and have had a hard time starting research.¹¹ Students tended to use resources that are familiar and look for quick solutions to meet deadlines and responsibilities.¹² These findings suggested that librarians should modify the traditional library instruction, which uses an organized and linear approach of locating information, and focus on the research preferences and activities of undergraduate students.¹³ These ideas included explaining to students the information in a catalog record or a periodical index, describing the scope and diversity of library resources, and including active learning lessons to explain how the students can use their critical thinking skills to select appropriate sources or develop search

strategies.¹⁴ Other suggestions for use during library instruction included the avoiding the use of library “lingo” and teaching the meanings of such terms as “citations” and “abstracts”. Librarians can help with an understanding of Boolean search strategies and demonstrating the use of subject specific databases for a particular topic.¹⁵

Methodology

We developed a survey which was approved by the University’s IRB Board. We administered an online survey through Survey Monkey. One section of the survey was constructed to identify the information literacy skills that students bring to UNO before receiving instruction from UNO reference staff. In addition, we designed the questions to allow comparison to existing data from surveys administered to students in English Composition II classes. The second part of the survey contained several questions from the Sample Survey in the report written by Char Booth, *Informing Innovation: Tracking Student Interest in Emerging Library Technologies*.¹⁶ The survey was distributed by email in two mailings and resulted in a response rate of only 6%. Based on this low response rate, we cannot generalize our findings. However, the results can inform the design of future surveys and pre-planning for our information literacy program.

Population

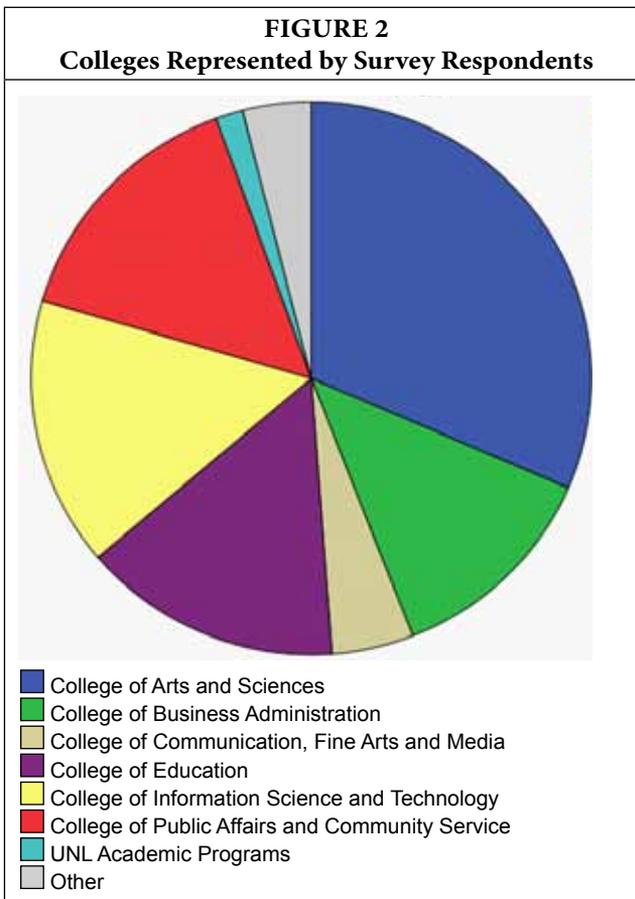
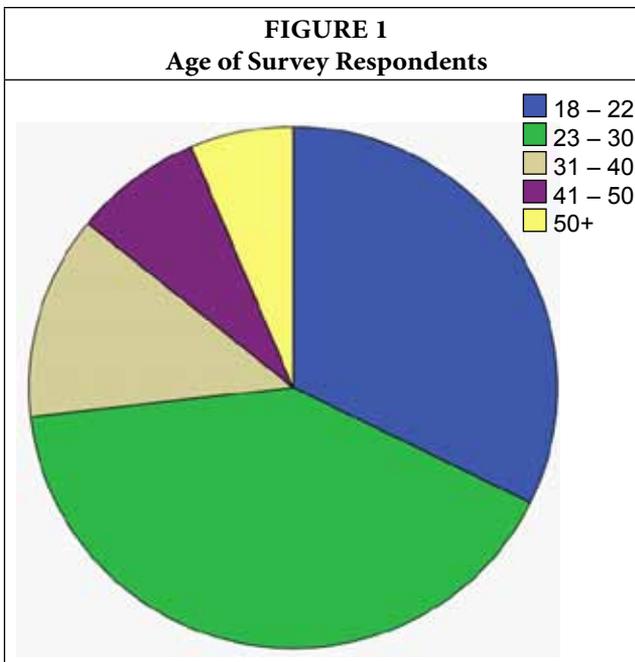
Our population consisted of 1981 undergraduate transfer students and students entering graduate school who had never before attended UNO.

Demographics

Who answered the questions? There were a total of 128 respondents: 66 undergraduate students and 61 graduate students.

Comparing Graduate/Undergraduate Students with English Composition II Students

Looking at the average total score on the survey information literacy questions, the survey respondents, graduate and transfer students who have not attended UNO before, had a lower average score than students enrolled in UNO English Composition II classes who take the survey before attending library sessions. The survey respondents’ average score was 18.1 out of a total score of 28. The English Composition II students had average scores of 19.31 for fall 2009, 18.48 for



spring 2010 and 19.83 for fall 2010. We will continue analysis of these average scores to determine if the differences are statistically significant.

Several questions in the information literacy survey were used to understand students' ability to evaluate information and its sources critically; the third standard outlined in the ACRL Information Literacy Standards. Four questions that addressed this standard in the Graduate/Undergraduate survey revealed students' inability to recognize primary or scholarly literature find helpful information in a catalog record or select a journal article citation. When students were asked to select characteristics of a primary source, they correctly selected "an eyewitness to an event" but 40% missed the second selection of "field research, artwork, letters." Another question asked students to select the characteristics of a scholarly journal. One of the answers was "contains advanced vocabulary" and only 35% of the respondents correctly selected this answer. Only 20% of the respondents correctly answered the question that asked them to identify the Library of Congress subject listings from a catalog record and less than half of the students correctly selected the journal citation from a list of citation examples. The English Composition II students who take the same survey before library instruction struggle with the same four questions that resulted in low scores for the graduate and transfer students. Only 38% of the English Composition II students can identify a journal article citation, under half could identify a Library of Congress Subject Heading, and 56% correctly selected the correct answers for the characteristics of a primary source.

Observations

We grouped our observations of the results into the following categories: Start Research, Ease of Use, Comfort Level, Quality, Research Activities, and Library Instruction.

Start Research

While reviewing current literature of the research habits of university students, we found that our data show the same patterns. Students were overwhelmed with the number of resources and amount of information and struggle with getting started on their research.¹⁷ Studies showed that students "opt for efficiency and predictability to manage and control a staggering amount of information."¹⁸ Another study stated undergraduates "choose the path of least resistance" and select online, full-text articles over print journals and use the web first as their tool of choice.¹⁹ The Head

and Eisenberg study noted that students turn to their course readings first with Google and research databases coming second and third.²⁰ Our research found that the top two choices for undergraduates and graduates beginning a research assignment were Google and article database searches. Undergraduates were more likely to begin with Google. However, a higher percentage of graduate students (64%) began with an article databases compared to undergraduates (48%).

Several articles pointed out students seldom, if ever, start their research by asking a librarian or using a librarian for further assistance. Two studies found that students prefer to ask their peers or professors for information rather than rely on library staff or students infrequently ask librarians for assistance.²¹ Again, our study experienced similar results. Forty percent of graduates and almost half of the undergraduates selected that they were unlikely to ask a librarian for assistance when beginning research.

Ease of Use

Undergraduate students indicated that it is easier to use Google to find resources than it is to find information in article databases. However undergraduate students seemed to recognize that the quality of information found on Google searches may not match the quality of information found in databases.

Comfort Level

When asking students their comfort level while using different search tools, Head and Eisenberg found that students use the same tools and sources in a customary order employing familiarity and habit to help them quickly and efficiently find information.²² One of our survey questions asked the comfort level of completing tasks involving searching for information. Almost half of the undergraduate respondents felt very comfortable in finding quality information on the Internet, but 44% were uncomfortable choosing a specific database to search for their topic. A strong majority were comfortable selecting or narrowing a topic and finding appropriate subject terms. Other comfortable categories for undergraduates were finding subject terms for the library catalog, searching databases on a computer in the library, accessing the library's website from off-campus and accessing the electronic databases from the library's webpage.

One observation we can draw from this question has been that the graduate respondents may have more

experience conducting research and as a result higher a higher comfort level searching for information. The graduate students who answered the survey selected very comfortable in four more categories than the undergraduate respondents. The two highest choices for very comfortable were finding background material and accessing the library's webpage from off-campus followed closely with searching databases on a computer in the library. The only uncomfortable answer was in knowing which periodical database to search for their topic and the respondents were only 34% uncomfortable.

Quality

Our survey did not ask how students evaluate the quality of information they use for their research, but several studies looked at how students evaluate information. Students were aware of the need for evaluation and the studies identified several criteria for web evaluation: currency, author's credentials, URL, interface design, and bibliography included.²³ Our survey asked students to rate the overall quality of information they find from different sources. Undergraduates rated the quality of information found in the library catalog and article databases as high. Undergraduate respondents did not use Google Scholar. Students rated information from Google, their instructor and the librarians as medium quality. Graduates agreed with undergraduates on the quality of information found in the library catalog and article databases as high, but their percentages were higher. Graduates used Google Scholar more often than undergraduates and 40% of the respondents rated the quality of information as high.

Research Activities

The vast majority of graduate students who responded to our survey did not use mobile devices for homework (74% checked never) or research (67% checked never). Twenty-eight percent never asked a librarian for help, while 49% asked for assistance once per semester. Based on their responses to frequency of studying with friends, socializing, and listening to music, half of the graduate respondents preferred working independently. Daily activities of graduate students included using their personal laptops, doing research for assignments, using the library's online databases, and studying alone.

A smaller percentage of undergraduate students checked Never on the question about the frequency

of using mobile devices for homework (58% checked never). However, the undergraduates were similar to graduates in never using mobile devices for research, 66% for undergraduates, 67% for graduates. More undergraduates (57%) used their laptops daily compared to 35% for graduate students. Thirty-nine percent of the undergraduates never asked a librarian for help. A similar percent, 39% asked for assistance once per semester. A higher percentage of undergraduates (29%, 41%) compared to graduates (9%, 9%) socialized and listened to music on a daily basis.

Our survey included questions about the frequency of visits to the physical library building and virtual visits to the library website. Forty-one percent of the responding graduate students visited the library building once per semester, compared to 24% of the undergraduates. Sixty-five percent of the graduate students visited the physical building monthly, weekly, or daily, compared to 53% of the undergraduates. Thirty-eight percent of the graduate students visited the website weekly, 12% of the undergraduates.

Library Instruction

Thirty-four percent of graduate students responded that they have had no library instruction; thirty-nine percent of the undergraduates had not received instruction in using the library. Forty-one percent of the graduate students have had assistance at a reference desk compared to 27% of undergraduates. Both graduate and undergraduate students have received similar amounts of orientation by a library staff member, library tours, and instruction in the use of the library in amounts ranging from 18% to 29%.

Conclusion

Our findings were similar to those of other studies. We need more information about our patrons. The survey results will serve as a baseline for future studies. The information literacy data collected by UNO since 2007 are about undergraduate students. This survey is the first data collection endeavor that included UNO's graduate students. Later this year we will have more information about our dual enrollment students (high school students who are taking UNO courses for college credit).

The information provided in this survey points to future needs.

- The UNO Library needs to gather more information about graduate students in order

to include their needs in our strategic plans for our information literacy program.

- We need to do additional analysis about why students do not ask librarians for assistance.
- Based on the problems that students had in interpreting bibliographic records, we need to decide if our library instruction classes need to provide increased emphasis on the differences between journal and book citations.

Notes

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