Millennial Students’ Mental Models of Search Tools
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Introduction

There is ongoing debate about the ways in which college students approach information gathering and which tools they use to find information. Since the advent of online research methods, librarians have advocated databases with complex search mechanisms that employ controlled vocabulary and require highly stylized queries. However, as public search engines now dominate the market, younger students may be more likely to use them in their research with fewer considerations for the quality or accuracy of the information retrieved. This research attempts to examine the types of queries students create and to understand their mental models of search in order to determine how tools can be designed to better meet their needs.

Methodology

The study used a contextual inquiry methodology to examine students’ approach to research and their mental models of information retrieval. Contextual inquiry is a field research method where participants are observed in their natural environment while they complete a task that is familiar to them. The participant’s use of categories such as search engines and databases while engaged in a task is then recorded and analyzed. In the current study, a team of two graduate students and the lead researcher observed each session and recorded the queries and pathways taken. The data was then analyzed using NVivo, a qualitative data analysis software.

Participants

This study observed 21 students in their first semester at the University of Baltimore (UB). UB’s first-year curriculum revolves around the concept of learning through hands-on web-based information. This study has a built-in connection to the first year curriculum and therefore provides a relevant and authentic context for the study of digital literacy. The participants were primarily undergraduate students enrolled in the first-year curriculum at 3 AM, 8 AM and 3 PM. All participants had at least one computer at home, 57% had two or more. Ninety-one percent had a profile on a social networking site. Figure 1 shows their daily internet use.

Results

The students performed a total of 208 discrete searches, 129 were in search engines, and 80 were in library databases. An overwhelming majority of searches (77%) were in Google. Most database searches (74%) were in Academic Search Premier (See Figure 2).

Of the seven students who did use Boolean logic and truncation, five used only the AND operator, and two used it incorrectly. Of the two who used both AND and OR operators, one student used them frequently and the other used them infrequently with many small errors in the application of logic. In both cases, students were better at the search term than they were at applying the logic operators.

Although small in sample size, this study demonstrates some prevailing thoughts about students’ search skills and their performance with both search engines and library databases. While college students perceive that they retrieve relevant information by matching keywords, most did not demonstrate a strong conceptual model of search such that they could effectively narrow or focus a search to retrieve relevant materials. Furthermore, they were often unable to recognize a problem (incorrect Boolean logic, spelling errors, etc) and resolve it for searches. Although they considered themselves successful, their skills were rudimentary at best.

Discussion

As more and more students use search engines to find information, there has been a growing calls for more research to understand the ways in which students use these tools. Research has shown that students are more likely to use search engines than library databases, but there is little research on how to design effective search interfaces for these tools. This research only begins to discover how students perceive and understand search tools and how they use them in research. As developers and librarians design new search interfaces and retrieve systems for this and future generations of students, continued research in the search habits of students is vital.

Literature Review

A recent study found that 96% of college students use search engines to find information for at least some of their assignments; 37% use them for all assignments and 42% use them for assignments with specific search tasks. Students are taught to develop interfaces that are more clearly related to millennials’ mental models of Internet-based information retrieval engines with engines that more accurately parse a simple, more natural language query? If developers choose to do the latter, what are millennials’ mental models of information retrieval? How do today’s college students differ from the generations who preceded them and how can developers design interfaces that more closely relate to millennials’ mental models of information retrieval engines that more accurately parse a simple, more natural language query? If developers choose to do the latter, what are millennials’ mental models of information retrieval? How do today’s college students differ from the generations who preceded them and how can developers design interfaces that more closely relate to millennials’ mental models of information retrieval engines that more accurately parse a simple, more natural language query? If developers choose to do the latter, what are millennials’ mental models of information retrieval? How do today’s college students differ from the generations who preceded them and how can developers design interfaces that more closely relate to millennials’ mental models of information retrieval engines that more accurately parse a simple, more natural language query? If developers choose to do the latter, what are millennials’ mental models of information retrieval? How do today’s college students differ from the generations who preceded them and how can developers design interfaces that more closely relate to millennials’ mental models of information retrieval engines that more accurately parse a simple, more natural language query? If developers choose to do the latter, what are millennials’ mental models of information retrieval?