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Don't they teach that in high school? Examining the high school to college information literacy gap

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A B S T R A C T

College librarians express concern over incoming students' information literacy skills and lack of skills preparing them for college-level research. However, it is unclear whether information literacy skills are not being taught at the high school level, whether they are not being retained or transferred as students move on to college, or whether there is a disconnect between the skills taught in high school and those expected of incoming college students. This study explores these questions through a set of parallel surveys sent to a national sample of high school and college librarians. Findings suggest that high school and college librarians agree on the importance of most skills though they vary in their emphasis on their importance, and that information literacy skills are being taught in high school but do not seem to transfer to college. The paper concludes with suggestions for increased communication and collaboration to bridge the high school to college transition.

1. Introduction

Higher education faculty and librarians often express concern over incoming students' academic preparedness for the rigor of college-level work. In addition to areas such as writing and quantitative literacy, educators are often skeptical of undergraduate students' information literacy abilities, defined as the capacity to locate, access, evaluate, and use information legally and ethically. In particular, educators lament students' overreliance on resources such as Google and Wikipedia as well as their inability to apply sophisticated search strategies, to critically evaluate information, and to correctly cite sources. Not surprisingly, higher education instructors tend to blame the K-12 education system for not adequately preparing students, suggesting that gaps in incoming student knowledge reflect gaps in their previous education. But is information literacy really absent from the K-12 curriculum?

Common core standards include the expectation that students can "delineate and evaluate the argument and specific claims in a text, including … the relevance and sufficiency of the evidence" (Common Core State Standards Initiative, 2017a). Further, students in grades 11 and 12 are expected to "integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem" (Common Core State Standards Initiative, 2017b), which implies the ability to find the relevant information as well. Considering the influence of common core and state standards on public school curricula, it seems reasonable that high schools would address information literacy competencies. Yet if such skills are being taught, why do incoming students in higher education apparently lack information literacy abilities? Are high schools addressing information literacy learning outcomes? Is there a discrepancy between what instructors in higher education are expecting and what is being taught in previous grades?

2. Problem statement

Despite widespread concern over incoming students' information literacy skills, few studies examine the arc of instruction and expectations from high school to college in order to determine whether information literacy is taught in high school and whether that instruction aligns with the expectations and assignments students encounter in their early college career. This study addresses these issues through the analysis of parallel surveys administered to high school and academic librarians, providing results that are extremely valuable to both. High school librarians and faculty can learn what is expected of students who transition to higher education and which skills these students often lack. Librarians and faculty in higher education can see which skills are actually taught at the high school level and how high school librarians frame their information literacy instruction. Improved understanding of these issues can catalyze increased communication and even collaboration between high school and college librarians. Education

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departments at the local and even national levels can see the actual expectations for information literacy at the college level and where the gaps in instruction exist. Ultimately, the findings of this study will have implications for information literacy curriculum development at both the high school and college level.

3. Literature review

3.1. Information literacy abilities

Substantial literature exists documenting the information literacy skills and abilities of young adults spanning high school and college. Sometimes referred to as "digital natives" or "Millennials," current high school and college students are the first generation to grow up with computers and online access to information, leading some educators to expect a high degree of technical competency from them. As Zimerman notes, although digital natives may have "more than adequate computer skills, their relationship, via technology to information literacy may be underdeveloped" (2012, p. 178). In his study, Zimerman (2012) asked participants aged 18 to 79 years old to find an article online using any method. Of 27 participants, five gave up without finding the article. Four of the five unsuccessful searchers were Millennials. Similarly, in a study of first year college students by Dempsey and Jagman (2016), only 17 of 70 students were able to virtually locate and check out a library book on their own without encountering any obstacles. Furthermore, some authors have suggested that current students are relatively "uncritical consumers of online information and content" (Harlan, 2013), and have started to question some of the stereotypes and assumptions surrounding Millennials (Combes, 2009).

Indeed, research suggests that most young adults, including those entering college, lack solid information literacy skills. In 2006, the Educational Testing Service administered an information literacy test to over 6300 college students and high school seniors from 63 institutions. The results suggested that only 14% of these students were information literate (Foster, 2006). More specifically, just over half of the students were able to evaluate the objectivity of a web site, while 65% assessed authority correctly. Only 44% of students were able to select a research statement that accurately reflected the parameters of a sample class assignment, and only 12% were able to select points directly related to an argument for a sample presentation. In terms of searching, 35% of students were able to select an appropriate revision for narrowing an overly broad search, and 40% used multiple search terms to narrow results during a web searching exercise. When searching databases, 50% of students used strategies to improve precision and reduce the number of irrelevant results (Katz, 2007), and college students tended to rely on simple keyword searches and to misuse Boolean logic (Holman, 2011). More recently, the Stanford History Education Group surveyed over 7000 students in middle school, high school, and college, and summed up their ability to evaluate information as "bleak" (2016, p. 4). The group suggests that while digital natives might be comfortable with different devices and platforms, they lack the ability to assess content and decide what is real or credible.

According to a study by the Pew Research Center, middle and high school students conduct research almost exclusively through free online Web services. According to their teachers, these students turn to Google most often (94%), followed by Wikipedia or another online encyclopedia (75%), YouTube and other social media sites (52%), and their peers (42%) (Purcell, Rainie, et al., 2012). While college students also tend to begin their research online, they first turn to course readings, library databases, and their professors when working on course-related assignments (Head, 2007). Both high school and college students tend to rely on resources with which they feel comfortable and have had success in the past, and both groups have trouble evaluating resources (Head & Eisenberg, 2009; O'Sullivan & Dallas, 2010). Head and Eisenberg (2009) also found that college students were particularly challenged by conducting the background research needed to understand and narrow a topic.

Most people feel confident in their ability to search for information and indicate that their searches are successful nearly all of the time (Purcell, Brenner, & Rainie, 2012). However, Gross and Latham (2013) suggest that students, in particular those with low proficiency, tend to over-estimate their abilities. They found that students who scored below average on a standardized information literacy test perceived themselves to have better skills than they did. Further, after attending an information literacy workshop, students "demonstrated a significant increase in their self-evaluations of their ability that does not correspond with gains in their actual skill level" (Gross & Latham, 2013, p. 188). Indeed, several studies reveal that most college students rely on unsophisticated search methods: They use simple keyword searches with one or two search terms per query, and either do not use Boolean logic at all or use it incorrectly (Bernard & Spink, 2006; Brusilovsky, Ahn, & Rasmussen, 2010; Jansen & Pooch, 2001; Lau & Goh, 2006; Yu & Young, 2004). Catalano's (2013) review found that even graduate students have trouble using advanced search strategies. Keyword searches and time limiters are the most frequently used search options, while Boolean logic, truncation, and proximity are rarely, if ever, used. Hoffman, Antwi-Nsiah, Feng, and Stanley (2008) found that choosing keywords and refining searches were some of the most difficult aspects of information seeking for students.

3.2. High school to college transition

A few studies have examined information literacy competencies during the high school to college transition. One study at Rutgers involved over 250 undergraduate students from 143 different high schools enrolled in a first year course which included graded library research assignments. Students were asked where they went to high school and whether they completed any assignments requiring library research in high school. The researchers followed up by interviewing school librarians at the high schools that students had attended. Their research showed that the majority of the high schools required students to write a paper using library resources, and that many of the librarians offered support for this assignment through some sort of library instruction. Nevertheless, after comparing student performance on the college assignment with information about their high school preparation, the researchers were unable to find a clear connection between characteristics of the high school and student performance on the college library assignment. Indeed, the students who performed best on the college assignment went to a high school that did not uniformly require a research-based paper (Varlejs & Stec, 2013).

Smith, Given, Julien, Oullette, and DeLong (2013) tested 103 high school students in 12th grade in Alberta, Canada and compared their test scores to college-level expectations for information literacy based on an audit of information literacy practices at the University of Alberta. Their study indicated very poor information literacy skills among high school students, especially regarding developing search strategies and understanding scholarly sources.

Fitzgerald (2004) reviews and summarizes three studies of first-year college students. She notes a range of faculty expectations with regard to information literacy, including basic search skills and the ability to research across different disciplines and subject areas, to synthesize knowledge, and to evaluate information. Similarly, Saunders (2012) found that college faculty across disciplines believe their students lack sophisticated search skills, over-rely on free web-based resources such as Google and Wikipedia, and are concerned about their students' ability to assess information content and sources. To begin to address these issues, Fitzgerald (2004) concludes with a number of recommendations to high school librarians, including networking and collaborating with other professionals, even academic librarians.

Indeed, a number of researchers and practitioners advocate for increased collaboration between high school and college librarians. Oakleaf and Owen (2010) analyzed syllabi of first-year college courses