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Factors Influencing Information Literacy Competency of College Students

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A B S T R A C T

This paper analyzes multiple factors from current university students' high school experiences, including demographic, educational, and economic factors, and current standing and grade point average (GPA), to evaluate the students' information literacy skills associated with a 1000 level course on information literacy which is part of the university's general education requirement. The pre-test indicates that students lack sufficient skills needed to do college-level research. Results of regression analyses demonstrate that only current university GPA and standardized test scores have any influence on information literacy test scores.

Introduction

Incoming college freshmen have varying levels of information literacy skills. Many students do not seem to have the skills necessary to succeed in college. At Southern Utah University, all students take Library Media 1010-Information Literacy (LM 1010) to ensure that they learn the research skills they will need. LM 1010 is a one-credit, freshman-level course that is required as part of the general education program.

The course not only serves as an introduction to information literacy but also as an introduction to online learning. The eight-week course guides students through the creation of a research question, development of a Boolean search statement, searching a general database, finding specific types of material, evaluating the information that is found, and citing the information typically using the MLA format. LM 1010 is taught by the library faculty. With large numbers of students, the instructors meet with the class once in person to familiarize the students with the Learning Management System and course basics. The course is self-contained, and after that initial meeting, students are on their own to complete it. Students are expected to contact their instructor or visit the reference desk in the library if they have questions, and instructors send regular reminders to students about due dates. The majority of instructors are available on-campus to meet with students during office hours. The course at the time of the study consisted of the pre-test, four chapters, a quiz and assignment for each chapter, and the final exam which is also the post-test. Only the quizzes grade automatically. Instructors have to grade the assignments, and the research process questions of the pre- and post-test by hand. The pre-test must be taken in order to open the rest of the course. The pre-test assesses the

students' current Information literacy skills upon entering the course. The post-test establishes how much they have learned by taking the course.

All students are encouraged to take the course as early as they can in their college careers. The program is designed for freshmen, and they make up the majority of students taking this class; sophomores make up the second largest group of students, as these students either could not fit the course in freshman year or are transfer students; juniors and seniors make up the smallest group of students in the course, and are usually transfer students or those who neglected to take the class previously.

The primary purpose of this research is to investigate and identify the high school, demographic, and economic factors that may enable students to do well on the LM 1010 pre-test, and by extension, well on college-level research projects. Secondly, students' current standing and GPA were also included in the analysis. To that end, the literature review focuses on educational factors that lead to success in college, and student behaviors that hurt information literacy skills.

Literature review

High school librarians work to improve the information literacy skills of students. They face complicated battles with teachers who are not as invested in raising the research skills of their students, and with students who do not place importance on evaluating the sources they find on the internet, believing them at face value (Varlejs & Stec, 2014). This confidence evaporates for many first-year college students, and is replaced by library anxiety caused by a lack of information literacy skills; however, one-third of their friends voluntarily opted out of

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attending information literacy training sessions and library orientations (McPherson, 2015). Students who seem to possess more experience with library research are assumed to utilize the library databases more often, but this has been disproven. The underutilization of library databases continues on beyond first-year students through all undergraduate classes (Van Scoyoc & Cason, 2006), and serves as an indicator of low information literacy skills.

There is a great need to teach students information literacy skills. Today's students will first turn to Google and Wikipedia in their search for information (Griffiths & Brophy, 2005; Thompson, 2003), and are unaware of the limitations of those resources. Even students who might be considered more advanced researchers, such as graduate and Ph.D. level students, have been shown to use Google first, before library resources, and do not differentiate between the different electronic resources (Williamson, Bernath, Wright, & Sullivan, 2008). They display a lack of knowledge of Boolean and other advanced search strategies (Bloom & Deyrup, 2013) that could improve their search results with Google. Even students who come to the library because of familiarity and a history of receiving good service, do not know what search tools exist or reject them because they perceive them to be more difficult to use than Google (Becker, 2009).

Students may be comfortable using the internet, but that familiarity does not necessarily translate into information literacy skills. They still struggle with college-level research; knowing where to start their research; narrowing broad topic searches; and determining credible sources, internet sources in particular (Head, 2007). Faculty exacerbate the problem by believing that students will develop information literacy skills independently through their research, even though they, the faculty, do not have a clear expectation of how the students will specifically gain this knowledge (McGuinness, 2006).

Early in the digital information age, a discussion on research revealed that undergraduate students, as novices, started their research by using the library, asking for help from people they are already comfortable with (e.g. friends, family, or classmates), and reaching for familiar resources, such as an encyclopedia or newspaper, despite the fact that they might not be the best or most useful resource available (Leckie, 1996). As internet and database research has grown, it has been documented that students' skills in locating, evaluating, and synthesizing information have decreased and students are not feeling adequately prepared to find and use information ("Academic Literacy", 2002; Conley, 2003; Dunn, 2002; Fitzgerald, 2004; Thompson, 2003). While faculty assume that students will learn information literacy skills independently, students have demonstrated that they will not spend time learning these skills if it is not a specific graded part of the assignment (McGuinness, 2006), which points to the need for formal training of information literacy skills. Faculty should support this effort as research has shown that library utilization increases students' academic performance (Wong & Webb, 2011).

As we have discussed, there is a large body of research that students need, but do not have information literacy skills. The factors that predict generalized success in college of high school students as opposed to information literacy success have been identified in many studies. Standardized test scores and grade point average lead the literature. For example, in a study of students taking online classes in Louisiana, the students with higher ACT math scores were more successful in passing quantitative courses, and the students with higher ACT reading scores were more successful in passing conceptual classes (Guidry, 2013). An early study of student success in online courses surveyed students in the southeastern United States, and indicated that two of the most significant predictors are, first some prior college-level academic success, and second, an expectancy for learning (Bell, 2007).

There are a number of studies that examine how high school related factors influence freshmen achievement, measured by grade, in college. A study by Huerta and Watt found high school GPA and taking AP courses were the best predictors of success in college (Huerta & Watt, 2015). Morrison and Schmit found that a high school GPA of 2.5 and an

ACT math score of 20 could predict a grade of C in a college math course with a 47% probability (Morrison & Schmit, 2010). A study of Maryland high school graduates in college found the best predictors of success were, first high school GPA, second SAT verbal, and third SAT math scores (Keller & Maryland State Higher Education Commission, 2006). In a study published in 2000, which was sponsored by the College Entrance Examination Board found a very high degree of correlation between college success and SAT scores that increased when combined with a high school GPA (Camara & Echternacht, 2000). However, some studies have found the SAT I to have no predictive value but did find that high school GPA was the "strongest predictor of college success" (Geiser, 2009). A study sponsored by the ACT found that students with an ACT English score of 18 had a 50% probability of earning a B in a freshmen English composition course. It took an ACT mathematics score of 22 to have the same 50% probability of earning a B in college algebra (Allen & Sconing, 2005). A recent meta-analysis with 50 institutions and almost 200,000 students found a correlation of 0.51 between ACT score and first-year GPA, and a correlation of 0.58 between high school GPA and first-year GPA. Socioeconomic factors did not present as strong a connection as GPA and ACT scores to college success (Westrick, Le, Robbins, Radunzel, & Schmidt, 2015).

In a study most similar to our own, the Educational Testing Service (ETS) created an Information and Communication Technology (ICT) Literacy Assessment to judge the preparedness of undergraduate students. In the spring of 2016 at the New Jersey Institute of Technology, approximately 300 students from all classes completed the assessment, although the majority of those selected were first-year students. The assessment was given to students enrolled in classes that were not related to information literacy or technology, mostly first-year writing and cultural history classes, and not a stand-alone information literacy class as in our study. Their results found that students generally received scores of 50% on the exam with the freshmen students performing the weakest. Their analysis illustrated that scores on the test had a higher correlation with college work than with their SAT scores. Furthermore, the poor results on the test itself establish a need for students to gain stronger information literacy skills. While students almost always understood that a .gov or .edu website would return more credible results than a .com, when evaluating a set of websites exclusive of the URL, they only accurately judged the objectivity, authority, and timeliness correctly 52%, 65%, and 72% of the time respectively (Katz, 2007; Katz et al., 2008).

Further study on first-year freshmen conducted using the ICT assessment from ETS at the University of Nevada, Las Vegas (UNLV) found that students averaged in the 50% range again, while the cumulative high school GPA for the test group surpassed the 3.0 needed for admission to UNLV. The results revealed that students who completed honors classes in high school, particularly those who completed 5–12 honors classes, had the best results on the ICT assessment (Fabbri, 2015). That said, the students who joined the study self-selected to be part of a program to achieve higher academic success, which can provide an unintended correlation to a high number of students in honors classes. Students who had completed honors programs in high school might be more motivated to join a program for higher success at the university level.

While these results relate to our program, they did not have the specific information literacy course requirement that is in our program. It is with this in mind that we undertook a research project to better understand any possible relationship between our course and our students' prior experiences. We wanted to find the factors, primarily from their high school experience, but including their current university GPA, that could have an influence on success in our information literacy course.

Background

When students first begin LM 1010, they take a pre-test, and if they

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