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Ecological Study of Graduation Rates and GPA in a Library Credit Course

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ABSTRACT

The purpose of this ecological study was to examine the impact of a library credit course on graduation rates and GPA using pre-existing records. Over 20 years of aggregate institutional data were analyzed to evaluate the course's impact on first-time-full-time, white, and black students. Results were mixed: students who took the course were less likely to graduate than their peers who did not take the course but enjoyed slightly higher GPAs at graduation. It was discovered that students taking the course are not representative of the overall student body and struggle academically. Implications for revisions to the library credit course are discussed.

Introduction

CI 199: Introduction to College Research (CI 199) has been offered since 1990 and has been taught with the goal of preparing first-year students to conduct library research at the college level. It has generally enjoyed solid enrollment – 4–6 sections per semester with as many as 20 students per class – thanks in large part to how it has been delivered. As an 8-week course, it is popular among students who dropped a class and need an additional credit to graduate or maintain full-time status. Demand for CI 199 is particularly high in the second 8 weeks of each semester because our course fills an unusual niche: CI 199 is one of the few one-credit courses offered that is academic, rather than athletic, in focus. Resulting from its role as an introductory-level course and a convenient emergency credit, CI 199 was typically populated by a mix of first-year students and seniors. When the librarian who taught most of the sections of CI 199 retired, we needed to decide whether to continue offering it, and if so, what changes should be made.

Assessing the value of a library credit course is a miserable and punishing undertaking. To yield a productive sample size from credit-bearing library courses you want many large classes, many semesters to draw from, and preferably both. A multi-year mixed methods assessment of CI 199 would have been ideal, but we needed to make decisions quickly, within a semester. For that reason, we chose to leverage our pre-existing institutional data for our initial study with the intention of expanding our future data collection practices based on the findings (Oakleaf, 2010, pp. 106–107).

We pulled what data were available in the university's archives, which extended back to the inception of CI 199. The data that had been collected, however, varied from year to year, and even student to student. Consequently, despite having decades of data, it was challenging to assemble a useful dataset for analysis. In the end, we were able to examine graduation rates, GPA, and differences between White and Black students. To be clear, these are not the only variables we hoped to analyze; they are the variables we were able to analyze with the available data. We had hoped to include first-generation students and students from other races in our analysis, but the populations were too small.

It is also important to note that Morris Library at Southern Illinois University, Carbondale (SIUC) has been offering this course since 1990, which presented advantages and drawbacks. Having > 50 semesters of student data is helpful, especially considering the spotty record-keeping, but over the decades the curriculum was revised in reaction to the changing landscape of information literacy. The rise of the World Wide Web, library databases, and social media had to be accounted for to keep the curriculum relevant to student needs. The purpose of the course, however, has remained unchanged: to prepare first-year students to conduct college-level library research. We see this purpose as a unifying force, and while we recognize that an unchanging curriculum would have made for a superior study, we feel the unchanging purpose lends enough continuity to the course for the span of its existence to be examined.

Based on our findings, we decided to continue to offer CI 199 for the foreseeable future, but with some changes to instructional design and course policy. We had hoped the data collected by the university would yield valuable insights, and they did, just not in the way we expected. Rather than learning about the value of the course and how taking it might relate to future academic performance, we learned that our students, as a group, are struggling. Rather than being representative of

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our student population, they are among the lowest-performing students at SIUC, roughly the bottom 20%. Knowing our students are at risk of failure was alarming and, while there are no panaceas for this problem, we were able to identify four actions we could take. The first was to maintain high standards in our course materials and grading practices. Our philosophy is that students benefit from rising to a challenge and suffer from lowered expectations. Any student in CI 199 who gets a good grade should be confident it was earned. The second action was to review our instructional design. Our expectations as teachers should be transparent, or at least not mystifying, and good instructional design reduces the likelihood of confusion and wasted effort. Our students should be focusing on meeting our expectations in CI 199; not figuring out what those expectations are.

For our third action, we instituted a common annotated bibliography assignment across all sections in an effort to bring a culture of formal assessment to the program. We added questions to the end-of-semester course evaluation form asking students about their motivations for taking the course, which we hope will help lay groundwork for a future mixed-methods study. Our fourth action was to cease to market the class to juniors or seniors. The curriculum in CI 199 is, and always has been, focused on addressing the needs of first-year and transfer students. But the demand for a one-credit, 8-week, academically oriented course provided an opportunity for the library to reach more students, so we created a new, upper-division course only available to juniors and seniors that focuses on lifelong information literacy. This additional course separates the upper-division students from the lower-division students, making it easier for librarians to address the needs of each group individually.

Literature review

Much of the research that assesses the impact of library instruction on student success has been summarized by Matthews (2015), Oakleaf (2010) and, most recently, the Association of College and Research Libraries' (ACRL) report *Academic Library Impact: Improving Practice and Essential Areas to Research* (2017). The methods, findings, and even the definitions of "student success" have been consistently inconsistent within the literature since the 1960s. This literature review uses a broad definition of student success to include student performance, skill retention, course grades, graduation rate, and grade point average (GPA).

Library instruction impact on student performance

Overall, the research suggests that students who receive information literacy instruction surpass their peers who do not (Emmett & Emde, 2007; Fain, 2011; Hardesty, Lovrich, & Mannon, 1979; Holliday et al., 2015; Rinto & Cogbill-Seiders, 2015; Wang, 2006; White-Farnham & Gardner, 2014; Wood, 1984). The research also indicates that increasing levels of library intervention benefit student performance, regardless of the type of instruction; which may be direct, such as one-shot sessions, or indirect, such as librarian collaboration with subject faculty in the design of a research-oriented assignment (Booth, Lowe, Tagge, & Stone, 2015; Ferrer-Vinent, Bruehl, Pan, & Jones, 2015; Greer, 2015; Hardesty, Lovrich, & Mannon, 1982; MacMillan, 2014; Stonebraker & Fundator, 2016; Wong & Cmor, 2011). The more librarian involvement, the more students benefit. Booth et al. (2015) observed that "the quantity of librarian engagement was a clear correlate to the quality of student learning" (p. 635). Findings from their rubric analysis of first-year student research papers showed that more intensive library intervention had a statistically significant positive impact on students' information literacy performance. Hardesty et al. (1982) also found that amount of exposure to library instruction was positively associated with student information literacy skills. Using GPA and SAT verbal scores as proxies for "inherent intellectual ability," they found that amount of library instruction was a greater predictor of research skills than academic background (p. 43). Regardless of student academic achievement or instruction method, the findings of these studies suggest library instruction has a positive impact on student performance.

This is not to suggest the benefits of library instruction on student achievement enjoy unanimous support. Catalano and Phillips (2016), for example, found that library instruction did not have a significant impact on student skills. Instead, there was a positive correlation between student test scores and writing assignments. Their findings demonstrated that, although libraries and writing programs are natural partners, library instruction might not be as beneficial to student success as assignments that feature robust research and writing components (Catalano & Phillips, 2016). Matthews (2015) presents a thorough and skeptical perspective of the literature's ability to demonstrate the efficacy of library instruction. He contends that, at least where library instruction is concerned, few studies demonstrate a positive effect, and those that do suffer from a variety of methodological problems. He calls for future research on library instruction programs to move from an internal focus, such as grades achieved in library credit courses, to an external focus, such as impact on university missions or goals. Matthews states that this shift in focus is necessary to create strategic assessment initiatives that are more meaningful to administrators, and thus more effective at demonstrating the value of libraries (Matthews, 2015).

Library instruction impact on skill retention

After library instruction, students retain the skills they learned and even transfer those skills to their other courses, suggesting they have internalized library instruction concepts so they may be later applied to discipline-specific research (Daugherty & Russo, 2011; Ferrer-Vinent et al., 2015; Greer, 2015; Lebbin, 2005; MacMillan, 2014; Stonebraker & Fundator, 2016). Daugherty and Russo (2011) surveyed 2147 students who had taken their credit-bearing library course within a three-year period. Seventy-nine percent of respondents indicated they have used information resources they learned in class for their other academic courses (Daugherty & Russo, 2011, p. 323). Furthermore, students reported that they were able to apply what they learned in the library credit course to their other classes, and those who took the library course reported greater skill retention and application in their other classes (Daugherty & Russo, 2011). Although asking students to comment on their own research processes can yield inflated testimonies, their reflections can also offer insights into their behavior. For example, MacMillan (2014) analyzed five years of student reflections from a scaffolded, course-integrated, information literacy instruction program. Although the depth and breadth of student knowledge naturally increases as they progress through their program, their reflections indicated that the scaffolded library instruction program had a broader impact: students applied information literacy skills to their personal and professional lives. This self-reported behavior indicates students internalize information literacy instruction over time, implying retention and transference. MacMillan surmises that students benefitted from the library instruction program because it provided guidance as they adapted knowledge across multiple contexts.

Library instruction impact on course grades

Library instruction generally has a positive impact on students' grades, although the size of the effect varies from study to study (Burgoyne & Chuppa-Cornell, 2015; Lundstrom, Martin, & Cochran, 2016; Shao & Purpur, 2016; Wang, 2006). When narrowing the focus of our search to library credit courses, we were only able to locate two studies. Burgoyne and Chuppa-Cornell (2015) compared nine sections of a one-credit online lab to their previous embedded librarian model. In this two-semester study, they found increases in semester grade distribution for students in the credit-bearing lab (Burgoyne & Chuppa-Cornell, 2015). Overall, their findings suggest that the library credit