CARLI | COUNTS
Analytics and Advocacy for Service Development

Cohort 4 – Final Report

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Project Name/Title

Assessing the impact of library instruction on student learning outcomes and student retention.

Abstract

I analyzed historical data about first-year/first-time students who received two library instruction sessions during the fall semester of their freshman year and found that while their retention rate was the same as those who did not receive instruction, the rate of GPA decline was smaller in the group receiving instruction between grades posted for first semester and grades for second semester. The GPA was slightly higher for the group receiving instruction ("the treatment") than for the full cohort at the end of each semester.

Motivation for Project

The administration at Concordia University Chicago have stated that improving student GPA and retention is a high priority. Providing library instruction to students during their first semester has been shown in many studies to be correlated with higher grades and retention, as well as with a greater sense of connectedness to the institution, and more favorable opinions of the institution on the part of the students. I was attempting to demonstrate in a trial or pilot study that this effect could be observed at Concordia, in order to encourage a wide-spread adoption of library instruction sessions in first-year core courses.

Partners and Stakeholders

Partners included instructors of Communications 1100 and English 1100 courses, Liesl Cottrell, the library director, and David Thomas, Senior Institutional Data Analyst. I had hoped to partner with the director of the Freshman Colloquy 1100 courses which include

most first-year/first-time students (also known as traditional freshman, and not including returning students or accelerated degree program participants) to include an introductory library instruction session during one class session. It is my understanding that honors students take a different course instead of COLL-1100. Unfortunately, I was not able to finalize the inclusion of library instruction in the syllabus so the sessions did not take place.

Inquiry Question

What is the impact of two library instruction sessions in the fall semester on grade point average and retention of first-year/first-time students in a small faith-based liberal arts university?

Study Participants

There were 64 freshman who were in their first semester (first-year/first-time) who received two library instruction sessions. Their grades and retention rates were compared to the full cohort of freshmen and to those in the cohort who did not receive two instruction sessions.

Method of Data Collection and Analysis

I used anonymous historical data related to the students who were in the course sections that I visited to provide library instruction during the fall semester of 2022. Dave Thomas of our Institutional Technology department was able to access the information about these 64 students and compile the data about the average GPA, the rate of change of the GPA between the first and second semesters, and re-enrollment of the treatment group, the cohort as a whole, and the non-treatment group.

Findings

The retention rate between the treatment group and the full cohort is identical, with both at 61%.

The full cohort had an average GPA of 2.46% at the end of the fall semester, and 2.24% at the end of the spring semester. The treatment group had a GPA of 2.59% at the end of fall and 2.46% at the end of spring. The GPA of the full cohort declined by 9% but the treatment group declined by 5%, a small but possibly significant difference.

This difference was examined for statistical significance using Cohen's D evaluation, yielding a score of 0.095. This score indicates the difference between the two falls between

Very Small (0.01) and Small (0.20) on the Cohen's D scale, which means the difference could also be the result of random chance.

The dataset was very small, and although these results do not conclusively show any correlation between library instruction and a smaller decline in GPA from the first to the second semester, a larger study with more participants would provide more conclusive data.

Use of Findings

I am hoping that a library instruction session can be incorporated into the first-year colloquy class next year, and that a more focused instruction session for students in English 1100 and Communications 1100 can be given as well. This was my initial intention, to compare GPAs and retention of first-year/first-time students who receive the basic instruction session in the colloquy courses with the GPAs and retention of first-year/first-time students who receive a second instruction session in their communications or English class in the same semester. The person who coordinates the colloquy was initially very receptive and positive about my proposal and I was under the impression that the easier part would be to present the basic instruction to all freshmen in the colloquy. I was given an oral agreement to add a one-time half-hour library instruction session to the course. However, despite repeated attempts to finalize the plan, and receiving no replies, I had to drop the idea. Next year the design and oversight of the colloquy course will be under the Academic Dean, and I am hopeful, for the students' sake, that this plan can be reintroduced.

Next Steps and Other Results

In October I transitioned from Reference & Instruction to Technical Services and my involvement with instruction has been greatly reduced. I will be happy to share the data and information that I gathered during my time with CARLI Counts with the librarians who will be conducting instruction.

In my role in working with PrimoVE, the catalog discovery layer, I may try to conduct some user experience studies to improve patron comfort with using the interface. I would hope to collaborate and draw on the experiences and expertise of my colleagues in CARLI Counts to design any studies I might attempt.

Additional Reflections

The CARLI Counts program was a supportive and collaborative approach to learning about research methods and design. I appreciated learning with and getting to know other librarians from around the state. Our team worked very well together; we each had

different areas of concentration in our work roles, and different sets of skills and expertise that complemented each other nicely. Our mentor was helpful in guiding us when we were floundering, and encouraging us to set our own paths and expectations. She was responsive to our needs, answered our questions or sought out answers for us from the mentor team and reported back to us promptly. It was truly a delight to work with not only my team but everyone in Cohort 4 as well as our leaders from CARLI. My project may not have given me publishable results, but my experience in the process expanded my skills and my confidence in my understanding of librarianship. I am grateful to have had the opportunity to participate in CARLI Counts.

Classroom instruction is a collaborative effort, and relationships with faculty should be in place first before trying to design a research study. (In my case, the commitment should have been in writing and listed in the syllabus!) As it is, there are many other factors that could have bearing on the results I did see. I believe it is very difficult to isolate library instruction as a variable from other influences on a student's performance. Much depends on how faculty perceive library use and resources – whether using library resources for assignments is required, how the faculty speak of the library and its resources and staff, if time during class is available for doing library research. I was encouraged to see that there was a noticeable difference in the rate of decline in GPA between the first and second semesters for the students who received the library instruction sessions. The decline can be attributed to many factors, most notably that the first semester courses are generally foundational and review material, and new, more challenging information is introduced in the second semester. Having the knowledge of library resources and a connection with a librarian could have given the students confidence in their ability to do research and in citing sources, which could present as a correlation with the smaller grade decline. Obviously, a larger sample size is needed to see if this pattern is repeated.

Timeline

March 2023 – begin the CARLI Counts program with a three-day intensive at the University of Illinois.

April – May 2023 – review literature, review university's student success goals, determine what library services can be evaluated to show how they contribute to the goals. Meet with IT personnel to discuss possible projects. Discovered that a project about instruction could be devised using existing data, and expanded in the fall to include more students to see if trends identified in first sample could be replicated with a larger sample size.

June – August 2023 – Attended ALA in June, and went to many presentations about assessment. Completed IRB training. I fine-tuned and discussed project with library director and appropriate faculty, received oral confirmation that library instruction would be included in freshman colloquy course. Unfortunately, was not able to get in touch with

this person again and library instruction was not included in the course. CARLI Counts in-person meeting in mid-August.

September – October 2023 – decided to complete the project only using historical data, rather than trying to devise a new project. Work on project suspended while CARLI Counts team worked on our poster for the CARLI annual meeting. Attended ILA in Springfield.

November, 2023 – January 2024 – finished work on project; received final data from IT January 30th. Had been told it would not be ready until January because the fall, 2023 data would not be available until after the 10th of January; however, data includes only data for the 2022-23 school year. This is sufficient for this report.

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Appendix

Report from David Thomas comparing first-year/first-time students who received two library instruction session during the fall semester of 2022 with the full cohort of first-year/first-time students.

Basic statistics

Fall to Fall Retention			
	Fall 2022 Cohort	Fall 2023 Completion	Fall to Fall Retention Rate
Full Cohort	267	163	61%
Treatment Group	64	39	61%

The is no difference between the treatment group and the full Cohort with respect to fall to fall retention.

Academic Performance				
	Fall 2022 Overall GPA	Spring 2023 Overall GPA	Difference	Rate of change
Full Cohort	2.46	2.24	-0.22	-9%
Non-Treatment Group	2.74	2.53	-0.21	-8%
Treatment Group	2.59	2.46	-0.13	-5%

However, a noticeable impact can be seen in academic performance for the conclusion of the first two semesters. The treatment group did not slide nearly as much as either the full cohort or the non-treatment group.

This is examined further for statistical significance with the Cohen's D evaluation, common in the social sciences.

Cohen's D calculation for statistical significance:

This is a test between two means to see if the difference between them is statistically significant.

Results:

cohen's d 0.095

 p-val 0.482

The test for statistical significance between the treatment and non-treatment academic performance is poor, very likely the result of too little data. The cohen's D estimation of 0.095 means that the difference between the two means is small; the probability (p-val) of 0.482 can be interpreted to mean that the results above could have occurred by random chance alone.

The results will become more telling when there are at least three times the number of students to examine (3 x 249), and random samples from each group can be drawn multiple times to evaluate means and standard deviations.

Cohen's D scores can be broadly interpreted as

Very small   0.01

Small   0.20

Medium   0.50

Large   0.80