One Small Step: An Evaluation of a Library Big Data Project and the Wicked Questions that Remain

LOEX 2018 | Houston, TX
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https://2.umn.edu/LOEX2018_OneSmallStep

Prioritize privacy
Collect student library data

Disclaimer #1
*Warning: Not an assessment librarian*

Disclaimer #2
“neoliberal corporatization of our work as academic librarians” ahead

Thoughtful Critics
Zoe Fisher
April Hathcock
Ian Beilin
Maura Seale
And more!

Agenda:
- College Student Development Models
- Our Project
- Correlation Research Techniques
- Should we even be doing this?
- What have we learned?
- What haven’t we learned? The Wicked Questions
College student development models

*Inputs* What you come with: family background, experiences, education, etc. Measures: demographics, quasi-pretest measures, pre-college knowledge/experiences

*Environment* College experiences, interactions, events, conversations, classroom environment, etc. Measures: attendance, reflection, surveys, counts

*Outcome* Changed behavior, beliefs, values, perceptions, knowledge, growth Measures: GPA, student success, student development, retention

Our Project

*Library Data and Student Success*

First a quiz

1. What are three words students use to describe how they feel when assigned a research paper?

2. What is the cost of undergraduate attendance per semester at your institution?
3. How many undergraduate students are at your institution?

What % of undergraduates are students of color?
First Generation?
Pell Eligible?

4. What % of undergraduates “used” the Library/website in Fall 2017?

5. Does using your Library/website correlate to higher GPA?

6. Does using your Library/website correlate to higher retention?

Why did we start this?
“Trackable” Data*

- Circulation (including ILL and renewals)
- Digital (website, e-journal, database, e-book)
- Reference (online and consulting, when an ID was captured)
- Instruction (workshops, course-integrated, Intro to Library Research)
- Workstation (only “library as place” measure)

*Privacy Considerations

Counts

- 5896 students were in a class with course-integrated instruction (fall 2016)
- 4218 students booked a group study room (spring 2017)

Each semester = ~1,500,000 total counts

Layers of Data - Demographics

- 87.9% of undergraduates used “the Library/website” in Fall 2016 (2012 was 77%)
- College of Liberal Arts students checked out 21,899 items (fall 2016) and 26,204 items (Spring 2017)
- 44,381 “used” the library vs. 14,558 didn’t “use” Fall 2016 (includes 8,000+ non-degree students)
Layers of Data - Performance Data

- Using the library correlated to .23 increase in GPA (controlling for variables) (2012)
- Using the Library correlated to 1.54 times like to be re-enrolled increase in retention from first semester to second semester (2012)

“But can you say that library use CAUSED* better outcomes?”

*Anyone up for a double-blind study where a random set of students is denied library services and resources?

Correlational research techniques

T-Test & Chi-square Test - 2013

Findings:
First-time, first-year undergraduate students who use the library have a higher GPA for their first semester and higher retention from fall to spring than non-library users.


Least Squares Regression -2014

Findings:
“Students who used academic library services and resources at least once during the academic year had higher GPA and retention on average than their peers who did not use library services.”

Factor Analysis SERU data -2017

Findings:
Students’ use of academic libraries is positively associated with four academic outcomes:
- academic engagement
- engagement in scholarly activities
- academic skills development
- grade point average

https://doi.org/10.5860/crl-160154

Propensity Score Matching -2017

Findings
- Using Propensity Score Matching and the 2011 First Year cohort, our results suggest that using the library at least one time in the first year of enrollment significantly increased the odds that a student would graduate in four years or remain enrolled after four years as opposed to withdrawing from the university.
- Students who used electronic resources during their first year were almost twice as likely to graduate in four years than those who did not.

https://dx.doi.org/10.5860/crl-151686

Propensity Score Matching -2017

Library Users
Control Group

Should we even be doing such a project?

FERPA (Family Educational Rights and Privacy Act)

FERPA resources
FERPA policies on access to student records
Federal law, state law, and regiment policy govern access to student records. The federal Family Educational Rights and Privacy Act (FERPA) and the laws of the state of Minnesota Data Practices Act form the backdrop for the University’s policies on access to student records.

The Board of Regents Policy: Student Education Records governs our directory information and access to student records. Additional relevant University policies include Information Security policy and Managing Student Records.

FERPA tutorial and handout
Review the online tutorial to familiarize yourself with FERPA and the importance of protecting student educational records.
For a one-page overview of FERPA, view AGC’s FERPA: What faculty and staff need to know handout.
IRB - Exempt

Protecting Research Participants
The Institutional Review Board (IRB) reviews research projects involving human participants, working with investigators to ensure adequate protection and informed, voluntary consent.
Learn more about the Institutional Review Board.

ALA Code of Ethics

“We protect each library user’s right to privacy and confidentiality with respect to information sought or received and resources consulted, borrowed, acquired or transmitted.”

EU - General Data Protection Regulation (GDPR)

47% of Minnesota public schools do NOT have school librarians! More cuts expected.

Budgets based on Student Success

Undergraduate education focused performance measures in legislative appropriation for FY2016 and FY2017
1. Increase the systemswide 4-, 5-, or 6-year undergraduate freshman graduation rate of students of color by at least 1% (average of fall 2014, fall 2015, and fall 2016 over average of fall 2012, fall 2013, and fall 2014 reported rates)
2. Increase the number of baccalaureate STEM degrees awarded systemwide by at least 2% (average of fiscal years 2014, 2015, and 2016 over average of fiscal years 2012, 2013, and 2014)
3. Increase the systemswide 4-year undergraduate freshman graduation rate by 1% (average of fall 2014, fall 2015, and fall 2016 over average of fall 2012, fall 2013, and fall 2014 reported rates)
Do students need to use the “library/website” (a.k.a. scholarly sources) to “succeed” (grades, graduation) at a research institution?

Hidden Curriculum

Not part of “student success” literature

Outcomes of Our Project
Expanded Orientation/Welcome Week

*new* First Year Experience Courses
- College of Liberal Arts (CLA) 1001 -- Libraries “Tour”
  - 1073 students in week 2 of Fall semester
  - Fall 2017 -- hosted a “Learning Support Fair” in week 5 with 300 students attend
- In fall 2017, four librarians taught four sections of College of Science and Engineering (CSE) 1001
- In Spring 2018, four librarians taught 2 sections of CLA 1002 - “research” spotlight

Academic Advisors

The Nudge
- “a nudge is a small change in an environment that can make it easier for people to act and to make decisions that support their goals, without taking away choice.”

What is important about the “nudge”
- Context-specific
- Actionable
- Personalized
- Timely

Student interest in analytics-powered personalized matriculation facilitators
- at least 8 in 10 students are interested in
  - Personalized support and information on degree progress: 92%
  - Personalized dashboards that give you real-time feedback about your progress: 89%
  - Suggestions for how to improve performance: 88%
  - Personalized quizzes or practice questions: 88%
ECAR Study of Undergraduates and Information Technology, 2015

Use with care:
The nudges had an “almost double-digit negative impact.”

Importance of sending messages when students have academic successes, not just when failure is on the horizon.

Assignment Calculator

https://www.lib.umn.edu/ac/

IPAS (Integrated Planning and Advising System)

Testy McTest

Questions still to be answered

- We don’t know what we don’t know
  - What could additional data points tell us?
- Library access and use prior to higher education?
- Does order or timing matter? Instruction earlier? Later? Both?
- What impact do fine have?
- Which database/website students in a specific major are using?
- Which Colleges/majors are using which books?

Imagine

What are your wicked problems?

Final thought:

Privacy advocates say the best way to protect users data is to not collect the data in the first place.

Yes, yet we don’t yet know what is most meaningful/most impactful on library data and student success. So we need to keep collecting so we can stop collecting in the future….

Read more:

- Library Data and Student Success Project Publications: [http://p.umn.edu/lesspubs](http://p.umn.edu/lesspubs)

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