Workshop
Building a Strong Foundation: Selecting the Right Statistical Analysis and Methods

IFLA Statistics and Evaluation - Satellite Meeting 2023 -

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Assistant Professor and Assessment Coordinator
University of Illinois Chicago Library
ABOUT PRESENTER

Education
• PhD in Educational Psychology
• MEd in Measurement, Evaluation, Statistics, and Assessment

Current Position/Responsibilities
• Planning, designing and implementing library assessment initiatives,
• Leading regular internal and external surveys (e.g., student and faculty surveys)
• Conducting staff training and creates development opportunities for library staff related to assessment
• Providing consultations: Customer satisfaction/ User experience/ Usability testing/Quality Improvement projects; Research projects/ Classroom/workshop/training / Program evaluations

Research Project
• Project Director, Developing Assessment Tools, ($250,000), IMLS 2022-2024

Service
• Research Scholar, ARL DEI Institute Task Force 2021-2023
• Chair, ACRL Value of Academic Libraries Committee 2022-2023
• Column Editor, Strategic Planning and Assessment, Journal of Library Administration, 2022-Present
LEARNING OUTCOMES

Participants will gain practical skills in selecting appropriate methods and analysis techniques for different assessment projects.

Through the workshop, participants will gain a comprehensive understanding of the benefits and limitations of a specific method, enabling them to make informed decisions about when and how to apply it in their own work.

By the end of the workshop, participants will be able to identify and integrate multiple data sources into their decision-making process with confidence and accuracy, thereby improving the quality of their decision-making outcomes.
Organized assessment projects into three themes

1) Demonstrating impact, 2) understanding students’ characteristics, 3) identifying patrons’ needs

Themes will be presented guided by the questions next.

Research questions
Dataset used
Statistical analysis and tool
Implications
Limitations

Exercise and Discussion:

How could you have approached the research or project differently to address the research questions?
How does this apply to your work at your library?
What questions does this prompt for you?
Background

Public research university
  • 33,000 students enrolled in 16 colleges

About students (as of spring 2023)
63% Undergraduates
55% Female
93% Commuters
20% First generation college student
30% Pell Grant recipients
31% White, 26% Hispanic, 18% Asian, 11% International, and 8% Black

Locations:
  • Daley Library - Chicago
  • Library of the Health Sciences - Chicago
  • Law School – Loop campus
  • Regional health science locations in Peoria and Rockford
Ongoing Assessment

UIC Students Library Experience Biennial Survey since 2016 (shown graph)

UIC Faculty Library Experience Biennial Survey since 2017

Outcomes:
- Being able to track changes over time
- Using findings to gain a better understanding of student’s needs and enhance decision-making
- 10 Publications (from 2019 to 2022)
Theme 1: Demonstrating impact


Theme 1: Demonstrating impact (1)


Research questions:
Q1. What are the relationships among students’ library visits, use of library resources, and their students’ Grade Point Average (GPA)?
Q2. How do students perceive the academic library impact on their learning?
DEMONSTRATING IMPACT (1)

Research questions:
Q1. What are the relationships among students’ library visits, use of library resources, and their students’ Grade Point Average (GPA)?
Q2. How do students perceive the academic library impact on their learning?

Methods:

• Online survey in Qualtrics (9 multiple choice questions and 1 open-ended question)
• Students’ demographics including GPA from Office of Institutional Research
• Independent variable: Library visits, use of library resources (Ordinal variable- 0. Never to 4. Daily)
• Dependent variable: GPA (Continuous variable)
• Statistical analysis and tool:
  • Q1. Spearman’s rank correlation in SPSS
  • Q2. Thematic analysis in Nvivo
Key findings:
Q1. student library visits and library space satisfaction were negatively associated with their GPA, whereas most students’ use of library resources (e.g., journal articles and databases) was positively associated with their GPAs.
Q2. Students perceived the library as a place where they can concentrate and complete their work.

Implications:
1) Being able to track changes over time
2) Using findings to gain a better understanding of student’s needs and enhance decision-making

Limitations:
No casual relationship
## EXERCISE 1

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Questions</th>
<th>Statistical analysis</th>
<th>Independent variable</th>
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<tbody>
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**Research questions:**

Q1. How many users visited the EBM guides during a specific time period?
Q2. Are there any differences in the mean scores of confidence between first-time and repeat users in the EBM guides?
DEMONSTRATING IMPACT (2)

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Q1. How many users visited the EBM guides during a specific time period?
Q2. Are there any differences in the mean scores of confidence between first-time and repeat users in the EBM guides?

Methods:
• Usage statistics from Google Analytics and online survey in Qualtrics
• Statistical analysis and tool:
  • Q1. Descriptive statistics
  • Q2. Independent Samples T-test (differences between first time users and repeated users) in SPSS
• Independent variable: first time users vs. repeated users (one categorical variable)
• Dependent variable: confidence scores (one continuous scores)
Key findings:
Q1. During fall 2019, the EBM guide was visited by 45,324 Users, for 53,616 Sessions, and 67,405 Pageviews
Q2. The mean scores of confidence between first-time and repeat users have a statistically significant difference on three guide pages.

Implications: The high number of non-UIC, educational users and the self-reported successful learning outcomes reinforce the conversion of the EBM guide to a fully Open Educational Resource (OER).

Limitations:
Low response rate
DISCUSSION

How could you have approached the research or project differently to address the research questions?

How does this apply to your work at your library?

What questions does this prompt for you?
Theme 2: UNDERSTANDING STUDENTS’ CHARACTERS


Research questions:
- Are there significant differences in students’ perceptions of the importance of library resources and services between undergraduate students in STEM and non-STEM disciplines?
UNDERSTANDING STUDENTS’ CHARACTERS

Research questions:
• Are there significant differences in students’ perceptions of the importance of library resources and services between undergraduate students in STEM and non-STEM disciplines?

Methods:
• Reanalyze the data that were collected from the research project
• Statistical analysis and tool:
  • Independent variable: STEM and non-STEP disciplines (categorical variable)
  • Dependent variable: perceptions of the importance (continuous variable)
  • Mann–Whitney U(MWU) test in SPSS
UNDERSTANDING STUDENTS’ CHARACTERS

Key findings:
STEM respondents considered specific library resources (subject and course guides, library instructions and library workshops) less important than non-STEM respondents. However, there were no statistical differences in how STEM and non-STEM respondents value other resources.

Implications:
The current study’s finding provides evidence that students’ preference of specific library resources varies between STEM and non-STEM disciplines

Limitations:
Lack of implications
EXERCISE 2

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## ANSWERS FOR EXERCISE 2

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DISCUSSION

- How could you have approached the research or project differently to address the research questions?
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Theme 3: IDENTIFYING USERS’ NEEDS & DECISION-MAKING


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[https://doi.org/10.1080/01930826.2021.1906554](https://doi.org/10.1080/01930826.2021.1906554)

**Purpose of the assessment project:** To understand students’ concerns about safety and health and use those findings for its reopening plans for Fall 2020.
IDENTIFYING USERS’ NEEDS & DECISION-MAKING

Methods:
- 12 focus group sessions (56 participants) in June 2020
- Thematic analysis in Excel with task force members
- Focused on reliability of the coding

Key findings:
- Security guards monitoring compliance with safety guidelines in the library
- Participants: Half of the participants were strongly against having security guards in the library: they argued that guards are intimidating, aggressive, and make students uncomfortable. They also expressed that there should not be policing in the library at this time. The other half felt that security guards were acceptable with some conditions, saying they were in favor of having security guards as a “last resort,” “not all the time,”

Implications
- Assigned staff and train compliance monitors
- The student focus group responses strengthened the library’s commitment to enforcing health safety guidelines and contributed to important decisions on how to monitor and maintain compliance with new protocols in ways that would be acceptable to patrons
DISCUSSION

How could you have approached the research or project differently to address the research questions?

How does this apply to your work at your library?

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Articles used during workshops

Theme 1: Demonstrating Impact (1-2)


Theme 2: Understanding students’ characters


Theme 3: Identifying users’ needs & decision-making


RESOURCES

• Assessment Proficiencies: https://www.ala.org/acrl/standards/assessment_proficiencies

• ACRL Learning analytics Toolkit: https://acrl.libguides.com/val/latoolkit

• ACRL Library Advocacy Toolkit: https://acrl.libguides.com/advocacytoolkit
CONTACT

Jung Mi Scoulas, jsco12@uic.edu for questions, future collaboration or submitting contribution to column of strategic planning and assessment at the Journal of Library Administration.