Analytics and Advocacy for Service Development

PARTICIPANT WORKBOOK

Based on CARLI Counts: Analytics and Advocacy for Service Development
PROJECT MADE POSSIBLE IN PART BY INSTITUTE OF MUSEUM AND LIBRARY SERVICES
GRANT NUMBER RE-95-18-0084-18

Contents

Introduction

Analytics and Advocacy for Service Development (AASD) is designed to prepare academic librarians to make effective use of research findings on the impact of libraries on student success. Content was originally developed for CARLI Counts: Analytics and Advocacy for Service Development, which was made possible by funding from the Laura Bush 21st Century Librarian Program Grant through the Institute of Museum and Library Services.

This workbook guides AASD participants through developing and completing a case study project that analyzes local library data to improve services and demonstrate their value in alignment with institutional data, goals, and strategic priorities. Workbook content is designed to be completed within a training cohort that offers assigned teams and affinity groups to foster discussion, collaborative learning, and a community of practice.

Modules within this curriculum were originally developed and delivered by Lisa Janicke Hinchliffe as lectures for three cohorts (2019, 2020, and 2021) of CARLI Counts participants. Workbook content from these lectures and the cohort learning management system platform was curated and edited by Cathy Mayer.

How to Cite: Hinchliffe, Lisa Janicke, Mayer, Cathy, & Consortium of Academic and Research Libraries in Illinois. *Analytics and Advocacy for Service Development: Participant Workbook*. Champaign, IL: CARLI, 2022.

Module 1: Program Overview

Required Reading

Read these texts to gain foundational background information and contextualize learning.

- ☐ Value of Academic Libraries: A Comprehensive Research Review and Report – Executive Summary, Overview (pages 26-57), and Research Agenda (pages 101-140)[1]
- ☐ Creating Sustainable Assessment Through Collaboration: A National Program Reveals Effective Practices[2]
- ☐ "Sensemaking for Decision Making." Keynote by Lisa Hinchliffe[3]

Purpose: What and Why

- **Analytics and Advocacy for Service Development (AASD)** is a continuing education library **leadership immersion program** based on the highly successful I-LEAD and Assessment in Action programs
- AASD prepares librarians to **make effective use of research findings on the impact of academic libraries on student learning success** for the twin purposes of service development and library advocacy
- Participants will learn how to **use local library data analytics to improve their services and demonstrate their value** in competitive campus budgeting processes, accreditation reports, and program reviews

Goal

Academic librarians will be able to effectively and systematically leverage national and local data in order to communicate impact narratives that convey to stakeholders how their libraries bolster student learning and success.

Outcomes

1) AASD participants are more confident in their skills and abilities related to service design and library advocacy.
2) Participating libraries are better equipped to demonstrate their value to stakeholders.

Deliverables

1) Local Case Studies
2) Team Posters

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[1] Association of College and Research Libraries. Value of Academic Libraries: A Comprehensive Research Review and Report. Researched by Megan Oakleaf. Chicago: Association of College and Research Libraries, 2010. Available at https://acrl.ala.org/value/

[2] Malenfant, Kara J., and Karen Brown. Creating Sustainable Assessment through Collaboration : A National Program Reveals Effective Practices. Occasional Paper #31. Place of publication not identified: Distributed by ERIC Clearinghouse, 2017.Available at https://files.eric.ed.gov/fulltext/ED590515.pdf

[3] Hinchliffe, Lisa. "Sensemaking for Decision Making." *Library Assessment Conference*. Address presented at the Plenary Address, n.d. http://old.libraryassessment.org/bm~doc/2-hinchliffe-2016.pdf

Structure of Participation

- **Learning Experiences**
  - Professional Development: immersive workshops, webinars, team meetings, and poster session presentation
- **Peer-to-Peer Learning**
  - Assigned Teams: engage in discussion of content from modules & provide feedback on local case study projects
  - Affinity Groups: engage in focused discussion on the area(s) of research for local case studies
- **Community of Practice**

COMMUNITY OF PRACTICE: DEEPER LOOK

Definition: A group of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.

Note, this definition allows for but, but does not assume, intentionality: learning can be the reason the community comes together or an incidental outcome of member's interactions.[4]

[4] Wenger-Trayner, E. and Wenger-Trayner, B. (2015) *An introduction to communities of practice: a brief overview of the concept and its uses*. Available at https://wenger-trayner.com/introduction-to-communities-of-practice

Community of Practice[5]		
The Domain	The Community	The Practice
It has an identity defined by a shared domain of interest. Membership therefore implies a commitment to the domain, and therefore a shared competence that distinguishes members from other people. (You could belong to the same network as someone and never know it.) The domain is not necessarily something recognized as "expertise" outside the community.	In pursuing their interest in their domain, members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other; they care about their standing with each other…[B]ut members of a community of practice do not necessarily work together on a daily basis.	A community of practice is not merely a community of interest–people who like certain kinds of movies, for instance. Members of a community of practice are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short, a shared practice. This takes time and sustained interaction.

Notes or Questions:

[5] Ibid

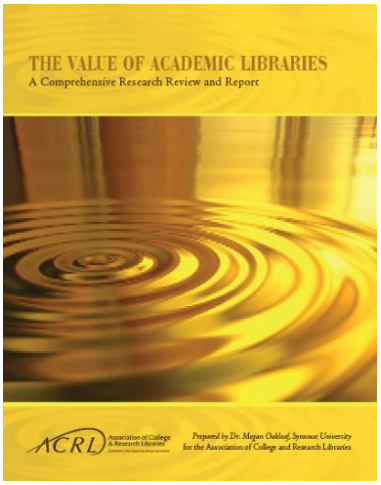
Collective Impact

Definition: The commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem… collective impact initiatives involve a centralized infrastructure, a dedicated staff, and a structured process that leads to a common agenda, shared measurement, continuous communication, and mutually reinforcing activities among all participants.[6]

Collective Impact in AASD

- Centralized Infrastructure: Group/Organization Convening the Training
- Dedicated Staff: Assigned Team
- Structured Process: AASD Learning Experiences
- Common Agenda: Research Pursued to Demonstrate Library Impact on Student Success
- Shared Measurement: Local Project Research Contextualized by Broadly Available Evidence & Research
- Continuous Communication: Team Dialog
- Mutually Reinforcing Activities Among Participants: Shared Learning and Discussion

Conceptual Foundations



"Few libraries exist in a vacuum, accountable only to themselves. There is always a larger context for assessing library quality, that is, ***what and how well does the library contribute to achieving the overall goals of the parent constituencies****?"*[7]

Sarah Pritchard
"Determining Quality in Academic Libraries," Library Trends, 1996

AASD builds upon research and best practices established in the Association of College and Research Libraries **Value of Academic Libraries Report** and **Assessment in Action** program. Publications from these projects can empower libraries by providing insights and examples of how to align with institutional outcomes and contribute to assessment in higher education.

[6] Kania, John, and Mark Kramer. "Collective Impact." *Stanford Social Innovation Review* 9, no. 1 (2011): 36–41. https://doi.org/10.48558/5900-KN19.
[7] Pritchard, Sarah M. "Determining quality in academic libraries." *Library Trends* 44, no. 3 (1996): 572+. Gale Academic OneFile.

Training requirements for academic librarians were first identified by the white paper **Connect, Collaborate, and Communicate: A Report from the Value of Academic Libraries Summits**, which include:

- Develop professional competencies
- Foster collaborative relationships
- Document practices and strategies[8]

Recommended Resources

- ☐ AiA Descriptive Project Reports Database – http://apply.ala.org/aia/public
- ☐ Academic Library Contributions to Student Success: Documented Practices from the Field[9]
- ☐ Documented Library Contributions to Student Learning and Success: Building Evidence with Team-Based Assessment in Action Campus Projects[10]
- ☐ Academic Library Impact on Student Learning and Success: Findings from Assessment in Action Team Projects[11]

Notes or Questions:

[8] Association of College and Research Libraries. Connect, Collaborate, and Communicate: A Report from the Value of Academic Libraries Summits. Prepared by Karen Brown and Kara J. Malenfant. Chicago: Association of College and Research Libraries, 2012. Available at https://acrl.ala.org/value/

[9] Association of College and Research Libraries. Academic Library Contributions to Student Success: Documented Practices from the Field. Prepared by Karen Brown. Contributions by Kara J. Malenfant. Chicago: Association of College and Research Libraries, 2015. Available at https://acrl.ala.org/value/

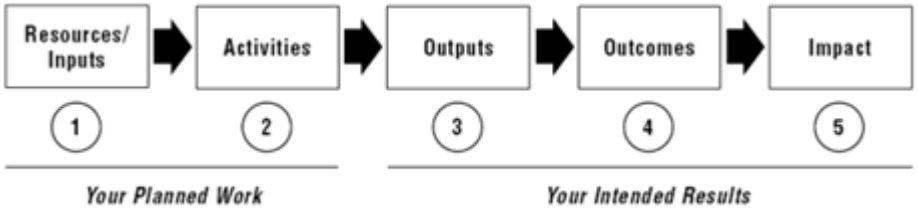
[10] Association of College and Research Libraries. Documented Library Contributions to Student Learning and Success: Building Evidence with Team-Based Assessment in Action Campus Projects. Prepared by Karen Brown with contributions by Kara J. Malenfant. Chicago: Association of College and Research Libraries, 2016. Available at https://acrl.ala.org/value/

[11] Association of College and Research Libraries. Academic Library Impact on Student Learning and Success: Findings from Assessment in Action Team Projects. Prepared by Karen Brown with contributions by Kara J. Malenfant. Chicago: Association of College and Research Libraries, 2017. Available at www.acrl.ala.org/value.

PROGRAM LOGIC MODEL

"A logic model is a systematic and visual way to present and share your understanding of the relationships among the resources you have to operate your program, the activities you plan, and the changes or results you hope to achieve."

Logic Model Development Guide, W.K. Kellogg Foundation[12]



YOUR PLANNED WORK

(What resources you think are needed to implement your program and what you intend to do.)

1. Resources include the human, financial, organizational, and community resources a program has available to direct toward doing the work. Sometimes this component is referred to as Inputs.

2. Program Activities are what the program does with the resources. Activities are the processes, tools, events, technology, and actions that are an intentional part of the program implementation. These interventions are used to bring about the intended program changes or results.

YOUR INTENDED RESULTS

(Include all of the program's desired results-- outputs, outcomes, and impact.)

3. Outputs are the direct products of program activities and may include types, levels, and targets of services to be delivered by the program.

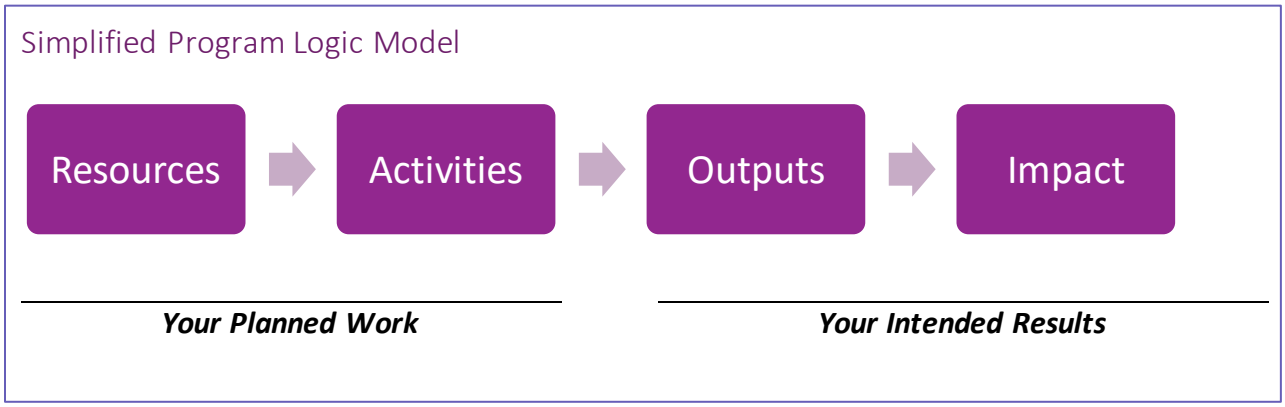
4. Outcomes are the specific changes in program participants' behavior, knowledge, skills, status, and level of functioning. Short-term outcomes should be attainable within 1 to 3 years,

[12] W.K. Kellogg Foundation. *Logic Model Development Guide*. Battle Creek, MI: W.K. Kellogg Foundation, 2004. https://wkkf.issuelab.org/resource/logic-model-development-guide.html

while longer-term outcomes should be achievable within a 4 to 6 year timeframe. The logical progression from short-term to long-term outcomes should be reflected in impact occurring within about 7 to 10 years.

5. Impact is the fundamental intended or unintended change occurring in organizations, communities, or systems as a result of program activities within 7 to 10 years.

Simplified Program Logic Model



Application in Libraries

Libraries and librarians take **resources** and do **activities** (e.g., provide services, collections, programs, and space).

Users engage with activities in varied ways (e.g., reference questions get answered, resources are accessed) which represent **outputs of the library**.

Then, librarians can ask the question: ***"So what?"*** In answering this question, librarians seek to **understand what happened when someone engaged with the library—demonstrating impact**.

Theory of Change

The simplified program logic model also illustrates a theory of change—as it asserts that the investment an institution makes in the library allow the staff to provide resources and do work that creates change in the campus community.

Basis of Claim

The simplified program logic model is also the basis of a claim made for assessment and evaluation through the research process. Using a logic model and undertaking research moves one's understanding of assessment from daily anecdotal forms of evaluation to systematic evaluation, gathering evidence that allows for increased confidence of a library's impact.

ADVOCACY

Definition: Any activity that a person or organization undertakes to influence policies[13]

EVIDENCE-BASED DECISION MAKING

Definition: Leaders make use of research derived from trials, literature reviews, or other activities that provide objective information on issues of concern in order to help determine whether a particular policy or program will work at their organization and to demonstrate its effectiveness.[14]

"We must ensure that our libraries are pursuing evidence-based decision making and not engaging in "decision-based evidence-making."[15]

Lisa Hinchliffe Sensemaking for Decisionmaking, 2016 Library Assessment Conference Address

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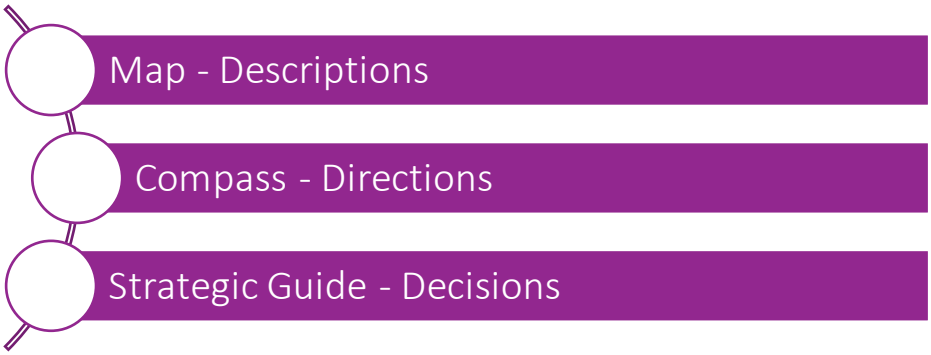
Notes or Questions:

[13] "Lobbying Versus Advocacy: Legal Definitions." Internet Archive: Wayback Machine. NP Action, June 1, 2006. Lobbying Versus Advocacy: Legal Definitions. https://web.archive.org/web/20060601224945/http://www.npaction.org/article/articleview/76/1/248

[14] "Leadership and Management Competencies." Library Leadership & Management Association (LLAMA). American Library Association. https://www.ala.org/llama/leadership-and-management-competencies#Evidence-based%20decision%20making

[15] Hinchliffe, Lisa. "Sensemaking for Decision Making." *Library Assessment Conference*. Plenary Address. http://old.libraryassessment.org/bm~doc/2-hinchliffe-2016.pdf

Assessment Modes



Assessment as a map provides us with the "lay of the land"—a high-level and holistic view of the terrain, climate, and locations of key landmarks. Assessment can tell us what is happening by gathering data points but then also providing analysis and interpretation in order to reveal the patterns and trends in what has occurred over time. This **descriptive information** includes inputs, outputs, outcomes, and impacts—placed in context and in comparison. This assessment work reveals different scenarios and possibilities. And, like the beautifully illustrated maps of bygone eras, it might even reveal where "there be dragons!" to work around and guard against.

Assessment as compass reveals possible **directions**— possibilities for growth, improvement, and new initiatives—and shows these relative to our "north star," our purpose and mission. This data shows us options and choices that can be made. A compass does not, however, tell us which direction to choose; it only illuminates options and pathways and helps us get our bearings. It illustrates what we will walk away from in order to walk towards other directions.

Assessment as strategic guide empowers **making choices and decisions** that align resources and activities with our goals, mission, and purpose. Data is not a decision. But decisions should be based on data. Decision making, based on data, must be firmly grounded in values and mission, maximizing impact and efficiency, in pursuit of a vibrant future, which can only emanate from strategic options chosen today.[16]

Evidence-based Advocacy

- **Definition:** Leaders make use of research derived from trials, literature reviews, or other activities that provides objective information on issues of concern in order to **RECOMMEND** OR **SUPPORT** a particular policy or program at their organization and to demonstrate its effectiveness.

[16] ibid

Sources of Evidence for Advocacy

Team Development Discussion Questions

- What aspects of the purpose, goals, and process of AASD is most exciting or appealing to you? What aspects are most intimidating?
- What hopes and expectations do you have for yourself and your team members for fostering a community of practice?
- How have you seen evidence-based decision making or decision-based evidence-making in your library or institution? Explain.
- Does your library use assessment as a map, compass, and/or strategic guide?
- What sources of evidence do you and/or your library currently use for advocacy? What sources are you hoping to explore as part of AASD?

Notes or Questions:

Module 2: Unpacking Variables and Claims

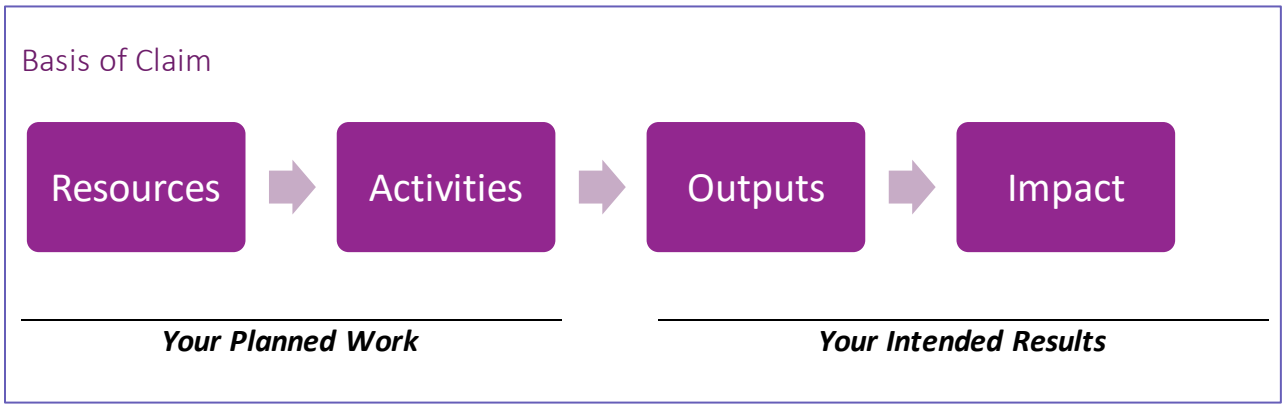
Required Reading

Read this text to gain foundational background information and contextualize learning.

- ☐ Value of Academic Libraries: A Comprehensive Research Review and Report –Research Agenda (pages 101-140)[17]

Review: Simplified Program Logic Model

The simplified program logic model[18] is the basis for research questions and claims as it frames any investigation in a library setting with the question: "Is what I/we believe is happening, actually happening?"



Example: Reference Services

Librarians believe providing students with assistance in reference interactions supports their success, which is why we offer the service. Multiple published studies, across college and university settings, have confirmed this claim by gathering data on these interactions to study outcomes.

Example: Information Literacy Instruction

Librarians believe library instruction supports student success, hence it's staffed and promoted to faculty on most campuses. Yet, thus far, data gathered about the outcomes information literacy instruction interactions is less clear. Although there is less confidence in this research, it is important to recognize that definitive, causal proof may not be possible. Therefore, this claim will use probabilistic statements like: "Data shows this claim is accurate for a specific

[17] Association of College and Research Libraries. Value of Academic Libraries: A Comprehensive Research Review and Report. Researched by Megan Oakleaf. Chicago: Association of College and Research Libraries, 2010. Available at https://acrl.ala.org/value/

[18] W.K. Kellogg Foundation. *Logic Model Development Guide*. Battle Creek, MI: W.K. Kellogg Foundation, 2004. https://wkkf.issuelab.org/resource/logic-model-development-guide.html

population" or "data shows this is true for some students but not others" or "there are confounding factors that don't allow for a definitive statement."

Key Idea: No single study can answer a question or claim independently, but the probability of understanding what is happening increases. The process of assessing data increases understanding and enhances confidence in findings.

Research Questions Drive Program Design

A research question drives program design for AASD!

AASD Framework: What is the relationship between academic libraries and student learning and success?

Local Case Study Topic: What is the relationship between <local topic> and student learning and success?

Local Case Study Research Statement:

Later modules will develop & scope YOUR question.

The research statement starts as a *draft* that can be adjusted as you investigate.

Notes or Questions:

FEELING OVERWHELMED?

If you're not sure where to begin in developing case study topic or research statement-- that's okay! Consider igniting your imagination by reviewing the work and ideas of others in the LIS profession. Here are example Research Agenda Frameworks to stimulate your thinking:

- Academic Library Impact: Improving Practice and Essential Areas to Research[19]
- Research Agenda for Library Instruction and Information Literacy[20]
- Open and Equitable Scholarly Communications[21]
- Valuing Labor in Digital Libraries[22]
- Research Library Impact Framework[23]
- Library Publishing Research Agenda[24]

PHOTO BY SI JANKO FERLIČ ON UNSPLASH

[19] Association of College and Research Libraries. Academic Library Impact: Improving Practice and Essential Areas to Research. Prepared by Lynn Silipigni Connaway, William Harvey, Vanessa Kitzie, and Stephanie Mikitish of OCLC Research. Chicago: Association of College and Research Libraries, 2017. Available at https://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers/academiclib.pdf

[20] "Research Agenda for Library Instruction and Information Literacy." Instruction Section Website. ACRL . Accessed September 5, 2022. https://acrl.ala.org/IS/instruction-tools-resources-2/professional-development/research-agenda-for-library-instruction-and-information-literacy/. Available at https://acrl.ala.org/IS/instruction-tools-resources-2/professional-development/research-agenda-for-library-instruction-and-information-literacy/

[21] Association of College and Research Libraries. Open and Equitable Scholarly Communications: Creating a More Inclusive Future. Prepared by Nancy Maron and Rebecca Kennison with Paul Bracke, Nathan Hall, Isaac Gilman, Kara Malenfant, Charlotte Roh, and Yasmeen Shorish. Chicago: Association of College and Research Libraries, 2019. Available at https://doi.org/10.5860/acrl.1

[22] Digital Library Federation Working Group on Labor in Digital Libraries, Research Agenda: Valuing Labor in Digital Libraries (2018). Available at https://wiki.diglib.org/Labor/Valuing-Labor/Research-Agenda

[23] Assessment Program Visioning Task Force, and Athenaeum21 Consulting. Publication. *ARL Assessment Program Visioning Task Force Recommendations*. Washington, DC: Association of Research Libraries, 2017. https://www.arl.org/wp-content/uploads/2017/12/2017.12.04-AVTF-PublicReport.pdf

[24] Library Publishing Coalition Research Committee. (2020) *Library Publishing Research Agenda*. Atlanta, GA: Educopia Institute. Available at http://dx.doi.org/10.5703/1288284317124

X & Y

Developing a research question or statement examines and articulates the relationship between two variables:

X = Independent Variable (The Library)
Y = Dependent Variable (Student Learning & Success)

Methods of Study to Identify Relationships Between X & Y

Your local case study project could involve quantitative methods that identify a statistical relationship—looking for correlations to move toward developing a causal explanation between variables.

Your local case study project could use qualitative methods—observations, interviews or focus groups—to develop understanding a basis for decision making.

REFLECT: What method (quantitative or qualitative) do you feel most comfortable undertaking for your local case study project? Brainstorm variables (X & Y) and methods you might use.

Questions About Research Questions

When examining LIS literature, use the following questions to help understand the research question(s) and claim(s) being investigated:

1) What research question(s) are identified or implied?

Highlight or underline the research question. Ideally an author has identified their research question, but it may not be explicitly stated.

2) What variables are being examined (*x* and *y*)?

Highlight or underline and then annotate the variables examined. Complex questions can have multiple independent and dependent variables.

3) How robust is the question/claim alignment?

After a researcher asks a question, they gather data, present findings, and make a claim: "Because of this evidence, in service of this research question, here's what we now claim to know."

Ask yourself, are the research question and claim are well aligned? Often, questions and claims are well aligned, but in some instances, there may be a mismatch. Claim findings can overextend beyond what is warranted by data and or underclaim what data reveals.

4) How well is the research question addressed by the methods employed?

Try to understand the structure of the research study and determine if the methods chosen accurately measures the variables.

5) What follow-on research questions are identified or implied?

Identify any follow-on research questions explicitly named or implied. Perhaps your local project can unpack one of these questions!

Notes or Questions

UNPACKING CLAIMS

What is the claim?

- Claim = Findings or Conclusions asserted by Research
  **Some research projects do not assert a claim on account of ineffective methods, imprecise data, sample size, or other factors that led to inconclusive results. When this happens, researchers can provide context that helps future inquirers research the question or claim being made differently.*

What evidence is offered?

- Variables
- Measures

How well are causal conditions met?

- If a researcher asserts a claim of causation, and not simply correlation, then causal conditions must be considered.

- Causal Conditions:

1) Order in time – cause must precede the effect; also known a temporal precedence

2) Covariation – cause and effect vary together consistently; a particular kind of correlation*
   **Correlation is the degree to which variables measured covary. There can be high levels of covariation, meaning high levels of statistical correlation or low levels of correlation, meaning covariance does not exist*
   **A correlation of zero, indicates that there is no relationship between variables being compared– results appear random and there is no covariation.*

3) Credible explanation – a logical argument built on facts, which is typically theory-based, can be presented to account for causation AND we have considered and ruled out alternatives.*
   **Alternative hypothesis often can't be ruled out until/unless further research is conducted. When research is conducted iteratively and multiple studies point to consistent findings, the strength of confidence in a claim increase.*

EVIDENCE: DEEPER LOOK

Focus on the variable being measured to understand the evidence offered.

Independent Variable (X) – Commonly known in research as the intervention.

Application to Libraries: A library intervention is any provision (service or resource) that intervenes and changes conditions (we hope) for the person engaging with it. This variable is independent because it is identified (we claim) as causing and bringing about change by acting upon the dependent variable.

Dependent Variable (Y) – What is impacted (hopefully); the variable is dependent on the intervention.

KEY IDEA: Researchers hope to demonstrate that X has an effect on Y.

Notes or Questions

APPLIED LEARNING ACTIVITIES: LET'S PRACTICE!

We'll start by reviewing two examples as a full group and transition to team-based practice. To view the original artifacts, see link details in the footnotes.

Example 1

Assessment in Action Poster "Library Assessment --the Next Frontier"[25]

1.) What is the research question being investigated in this example? Circle it.

2.) What are the X (dependent) and Y (independent) variables being studied? Circle them.

[25] Glass, Amy. "Library Assessment --the Next Frontier." Assessment in Action Poster: Illinois Central College, June 28, 2014. https://apply.ala.org/attachments/8765

Library Assessment – the Next Frontier!

Our Mission for this Project: How does library instruction impact student success within sections of ENG 111 (Composition II)?

Illinois Central College LIBRARY

Prepared by Amy Glass
American Library Association Annual Conference
June 28, 2014

ASSESSMENT in Action — ACRL Advancing learning Transforming scholarship

About Illinois Central College

- Community college founded in 1967
- Four campus locations
- Enrollment: 17,198 (FY 2013)

Our Guiding Principles

- General Education Goal of "demonstrating information literacy"
- Course level goal of "locate, evaluate, use and document primary and secondary conventionally published research sources"
- Using a rubric to assess improvement

Assessment Team Log…Stardate:

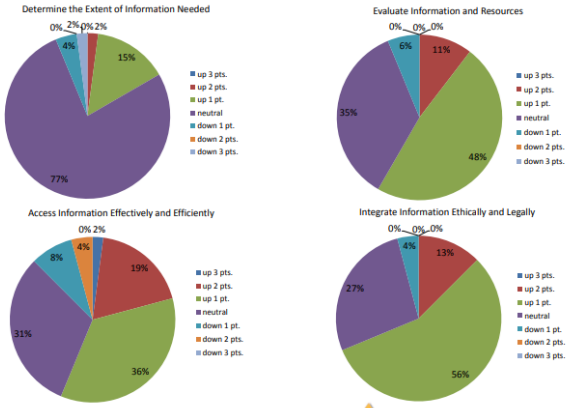
- Fall 2013 – Committee discussions
- January 2014 – Rubric designed
- February/March 2014 – Faculty contacted
- April/May 2014
  - Papers received
  - Assessment of papers
  - Data analyzed

The Federation Members

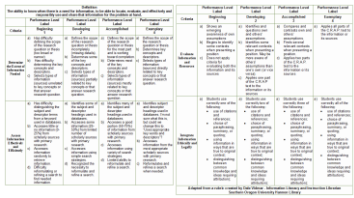
- Traditional college age students
- A few non-traditional students
- Some had previous library instruction; many did not

Methodology

- Two research papers
  - One assigned before the one-shot library instruction session
  - One assigned after the session
- Rubric to assess improvement in four key areas



Our Prime Directive



What we learned

- Evaluation of information and the integration into papers (via citations) improved after instruction significantly
- Accessing information efficiently improved as well, but at a lower percentage than desired
- More assessment work is needed to improve our instruction sessions

What the College Learned About Us

- The Library plays a role in student success
- The Library is interested in assessment
  - Librarians now on the College's Assessment Committee

Live Long…and Assess!

This project is part of the program "Assessment in Action: Academic Libraries and Student Success" which is undertaken by the Association of College and Research Libraries (ACRL) in partnership with the Association for Institutional Research and the Association of Public and Land-grant Universities. The program, a cornerstone of ACRL's Value of Academic Libraries initiative, is made possible by the Institute of Museum and Library Services.

Notes

Example 2

Text below is excerpted from a 10-page article: "Uncovering Meaningful Correlation between Student Academic Performance and Library Material Usage."[26]

Underline or highlight the variables and claims.

Abstract: Academic libraries must demonstrate empirically that library usage does contribute positively to student academic performance and, thereby, to the university's effectiveness. While customary academic library assessment practices may not be sufficient for this purpose, the Hong Kong Baptist University (HKBU) Library undertook an experimental project, which intended to establish a mathematical correlation between student library material usage and their cumulative grade point average (GPA). Taking 2007 to 2009 graduates as samples, with 8,701 pairs of data, the HKBU Library was able to demonstrate its impact on student learning outcomes.

Samples & Populations: The subjects of this study were all HKBU students who had graduated within the last three years (from 2007 to 2009) with cumulative GPA given. A total of 8,701 students were identified. The two selected … variables in this analysis were:

1. Graduation GPA of the students (denoted as "GPA"), ranging from 1.82 to 4.00.
2. The number of times these students had checked out books and AV materials during their study at HKBU, not taking the number of renewals into account (denoted as "CHKOUT"). This data ranged from 0 to 1,054.

Findings: Among the 48 valid sample groups, 31 sample groups (65 percent) were statistically proven to have a positive relationship between GPA and CHKOUT in the corresponding population (see figure 2). These sample groups are listed in table 3. No sample groups were found to have a negative correlation between the two variables. The remaining 35 percent had no clear relationship.

Discussion & Further Investigations:
From the results, we can make two conclusions for the students of Academy of Visual Arts, Faculty of Social Sciences, Faculty of Arts, School of Communication, and Faculty of Science. Either or both of these two conclusions were statistically proven to be valid.
Conclusion One: Most students follow the inference that the more library books and audiovisual materials they use, the higher GPAs they acquire.
Conclusion Two: Most students follow the inference that the higher GPAs they have, the more library books and audiovisual materials they use.

[26] Wong, Shun Han, and T.D. Webb. "Uncovering Meaningful Correlation between Student Academic Performance and Library Material Usage." *College & Research Libraries* 72, no. 4 (2011): 361–70. Available at https://crl.acrl.org/index.php/crl/article/view/16168

(Example 2 continued)

No matter which factor (monograph and multimedia usage or students with higher GPA) is the cause or determinant of the relationship, we proved that these two factors are positively correlated for all or most departments of these five Faculties/Schools.

LET'S PRACTICE: MORE EXAMPLES

Spend more time practicing with your assigned team! Review at least 1 poster and 1 article excerpt but complete more examples as time allows.

Identify:

- Research Question(s)
- Claim(s)
- Variables (X= Independent, Y= Dependent, may be multiple)
- Notes (How robust is the claim alignment and evidence? Are chosen research methods appropriate? What, if any, are the follow-on research questions identified or implied?)

Start with Posters:

- Practice with Claims JJC Example (p. 24-25)
- Practice with Claims LLCC Example (p. 26-27)
- Practice with Claims NWACC Example (p. 28-29)

Move to Article Excerpts:

- Practice with Claims Nebraska Example (p. 30-31)
- Practice with Claims Wyoming Example (p.32-33)
- Practice with Claims Huddersfield Example (p.34-35)

Reflect: What's easy? What's hard? What strategies did you develop?

Impact of Libguides & IL Instruction on Developmental Reading Students

Melvin A. Whitehead, Librarian, Joliet Junior College

Contributions by Michael Sullivan, Professor, Mathematics, Joliet Junior College

Research Question

What impact do the number of library instruction sessions and access to a course Libguide have on the quality of sources students enrolled in developmental reading use for a course project?

Methodology

4 Sections of an ENG 021 Course

- Met during the Fall 2014 semester
- All taught by the same instructor
- Final presentation required use of external web sources

Interventions

- Two sections received two class sessions with a librarian and access to a course Libguide (that provided links to external sources)
- One section received two class sessions with a librarian, but no Libguide
- One section received only one class session with a librarian and access to a Libguide

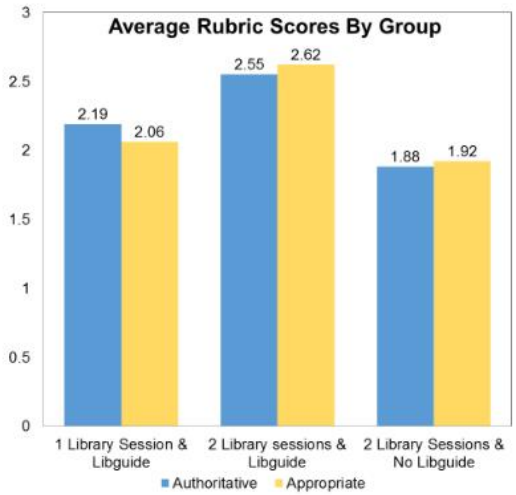
Scoring

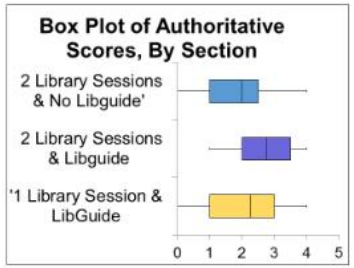
- Developed two rubrics for assessing quality of sources used in final projects (authoritativeness and appropriateness)
- Presentations were not linked to students' class section during the scoring process or final grades
- 42 students' sources were scored

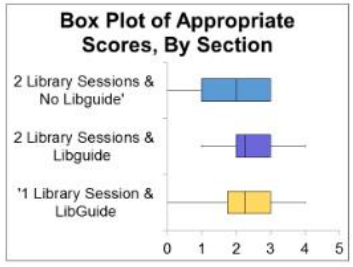
Data analysis

- Conducted One-Way Analysis of Variance tests for each score category (authoritative and appropriate)
- Calculated averages for each score category by section
- Created Box Plots for each score category by section

Data







This project is part of the program "Assessment in Action: Academic Libraries and Student Success," which is undertaken by the Association of College and Research Libraries (ACRL) in partnership with the Association for Institutional Research and the Association of Public and Land - grant Universities. The program, a cornerstone of ACRL's Value of Academic Libraries initiative, is made possible by the Institute of Museum and Library Services.

Results

- Students who received two sessions with a librarian **and** access to a Libguide scored higher than students receiving either one session with a librarian and Libguide or two sessions with a librarian without a Libguide
- The group receiving two sessions with a librarian and a Libguide experienced the lowest variance and highest median in scores.
- The differences in scores are not statistically significant because the sample sizes were too small and unequal.

Conclusion

Although larger sample sizes are needed for future study, results suggest that students enrolled in developmental reading respond best to both repeat class sessions with a librarian **and** Libguides. Based on these results, we hope to:

- increase Library outreach to faculty teaching developmental reading
- share our findings with appropriate administrators and faculty to inform best practices for supporting developmental students
- leverage our findings to advocate for additional librarians to facilitate an increase in IL sessions
- conduct future assessment projects

JJC[27]

Annotate directly on the artifact and/or make notes below.

- **Research Question(s):**

- **Claim(s):**

- **Variables:**
  (X= Independent, Y= Dependent, may be multiple):

- **Notes:**
  (How robust is the claim alignment and evidence? Are chosen research methods appropriate? What, if any, are the follow-on research questions identified or implied?)

[27] Whitehead, Melvin. "Impact of Libguides & IL Instruction on Developmental Reading Students." Assessment in Action Poster: Joliet Junior College. 2014. https://apply.ala.org/attachments/20469

Timing Instruction for Success: A Study Comparing Student Performance on a Common Assignment

Thomas Hyland, Associate Professor, Library; Joanna Paull, Professor, English; and Kathryn Reynolds, Senior Research Associate, Research & Planning
Lakeland Community College

Our Question

What impact does librarian-led, single-session, information literacy instruction (ILI) have on student rubric scores for an annotated bibliography assignment?

Our Methodology

Participants
12 sections of ENGL 1110 across fall & spring semesters taught by the same 3 full-time, English faculty each semester. 6 in test received face-to-face ILI for the annotated bibliography assignment. 6 in control did not receive ILI.

Rubric
Critical evaluation of information: source type; relevance (relation to topic/thesis, intended audience); authority (credentials, affiliations, qualifications).

Artifacts
158 completed, 3 source, annotated bibliography assignments.

Evaluators
3 full-time, faculty librarians used the rubric to score artifacts.

Institutional Research
Applied T-test to the scored rubrics.

Our College: LCC

Total F.T.E.
5000 Students

First-Generation College
56%

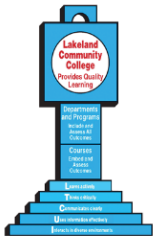
Single-Session ILI
A.Y. 2013-14
Total
4,123 Students
240 Sessions

ENGL 1110
534 Students
45 Sessions

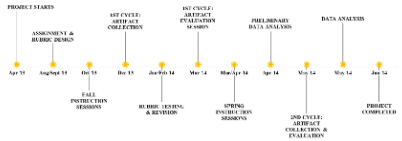
Demographics of Sample

	Control	Test
Age 17 or Younger to Age 21	81%	79%
Employed Full-time or Part-time	61%	56%
New Student	72%	67%
Full-time Student (12 or More Credit Hrs.)	67%	64%

For the literature review, the assignment, the rubric, and additional information about our project, visit http://library.lakelandcc.edu/AiA.pdf.
Contact Thomas Hyland via email at thyland@lakelandcc.edu.

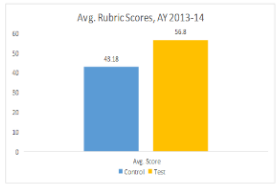


Project Timeline, 2013-14



Students receiving instruction (test) averaged 56.80 points on the rubric, putting them in the Emerging category.

Students who did not receive instruction (control) averaged 43.18 points, putting them in the Initial category.



Rubric Categories: Highly Developed (90), Developing (70), Emerging (50), Initial (30), Not Completed (0)

Our Findings

Our study has demonstrated that properly timed information literacy instruction provided by a librarian and tailored to the assignment positively impacts student performance on research assignments. This positive impact may significantly contribute to course completion and student retention.

We found a statistically significant difference between the rubric scores of students who had library instruction (test group) and those who did not have library instruction (control group). We can say at a 95% confidence level that library instruction impacts student scores.

Our Next Steps

Going forward, our next steps will be to:

- demonstrate the value of the library's instruction program to the college with quantitative data.
- compare data on students from the test and control groups who have enrolled in or completed ENGL 1120, the next course in the composition sequence, to explore whether there is any correlation between library instruction and student retention.
- use the study to demonstrate to faculty the continued importance of the library as a partner in the teaching and learning process.
- use the study as a model to show the library's value as a partner in the assessment process, focusing on key stakeholders such as the Assessment Council, the Learning Outcomes Assessment Committee, the Deans' Council, and the Board of Trustees.
- propose an IL summit with faculty from English and Speech to advocate for increased collaboration in delivering appropriately timed instruction for assignments with clearly defined IL objectives.
- coordinate a First Year Experience Forum with the Completion by Design Task Force to expose faculty teaching the new First Year Experience course to IL best practices.

For more project information & additional project data analysis visit http://library.lakelandcc.edu/AiA.pdf.
Contact Thomas Hyland via email at thyland@lakelandcc.edu.

This project is part of the program "Assessment in Action: Academic Libraries and Student Success" which is undertaken by the Association of College and Research Libraries (ACRL) in partnership with the Association for Institutional Research and the Association of Public and Land-grant Universities. The program, a cornerstone of ACRL's Value of Academic Libraries initiative, is made possible by the Institute of Museum and Library Services.

ASSESSMENT in Action
ACRL Advancing learning Transforming scholarship

LLCC[28]

Annotate directly on the artifact and/or make notes below.

- **Research Question(s):**

- **Claim(s):**

- **Variables:**
  (X= Independent, Y= Dependent, may be multiple):

- **Notes:**
  (How robust is the claim alignment and evidence? Are chosen research methods appropriate? What, if any, are the follow-on research questions identified or implied?)

[28]Hyland, T. Paull, J. & Reynolds, K. "Timing Instruction for Success: A Study Comparing Student Performance on a Common assignment." Assessment in Action Poster: Lakeland Community College, 2014. https://apply.ala.org/attachments/8863

Do the NWACC Library's Information Literacy Instruction Sessions for English Composition I Have a Measurable Effect on Student Success and Retention?

Assessment Team Leader: Joseph Askins, eLearning Librarian
Library Instruction Team: Gwen Dobbs, Library Director; Rachel Ackerman, Head of Reference and Instruction; Nithin Lakshmana, Head of Technical Services; Pawel Szponar, Systems Librarian; Joel Tonyan, Systems Librarian (former); Janelle Weaver, Head of Access Services; Stacy Winchester, Head of References Services (former)
Campus Partners: Lisa Anderson, Director of Institutional Research; Jacqueline Jones, Composition Coordinator, Department of English; Jim Laughton, Chair, Language Arts & Humanities

OUR QUESTIONS

Did students who attended librarian-led information literacy sessions for ENGL 1013, English Composition I, **earn higher grades** for the course than those who did not attend IL sessions?

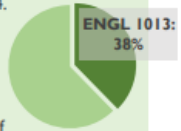
Did attendees **return to NWACC** the following semester in significantly higher numbers than non-attendees?

About ENGL 1013

ENGL 1013, English Composition I, is a prerequisite for all other non-remedial English courses and is a required course for NWACC's Associate Degree programs.

Since NWACC does not offer a mandatory "first-year experience" course for new students or a credit-bearing course on library research, ENGL 1013 often serves as the initial delivery point for information literacy instruction at the college.

Not all English faculty utilize the library's instructional services; just 14 of 35 ENGL 1013 instructors requested IL sessions for their classes in Fall 2014.



Nevertheless, the 29 sessions for ENGL 1013 in Fall 2014 represented a plurality (38%) of the 77 IL sessions held throughout the semester.

OUR PROCESS

Fall 2014: Librarians took attendance at all IL sessions held for ENGL 1013. Students under 18 were not included in study.

Spring 2015: Institutional Research compiled final grades and Spring 2015 enrollment data for attendees and non-attendees.

Best laid plans...

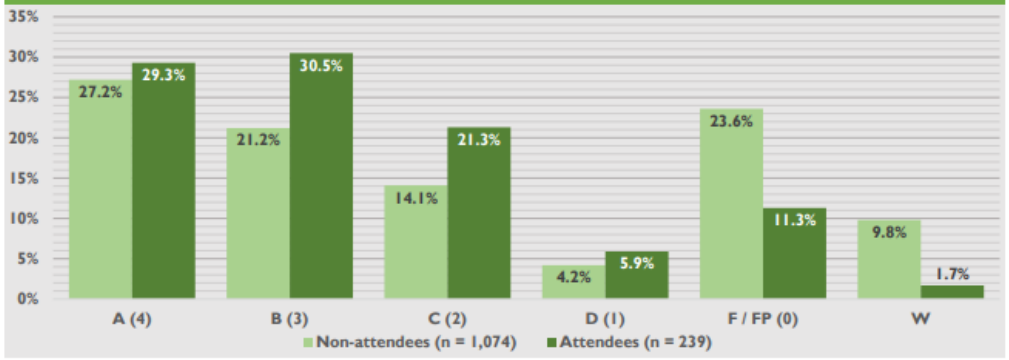
Student participation in pre- and post-tests delivered via Blackboard and email in Fall 2014 proved to be too small to yield any insight into the effect of our IL sessions.

Likewise, a late change of plans regarding the evaluation of attendees' and non-attendees' final papers resulted in sample sizes too small to be representative of either population.

LITERATURE

By studying two academic years' worth of academic and demographic data, **Vance, Kirk, and Gardner (2012)** found a small correlation between library instruction and student performance. **Sanabria (2013)** found "encouraging retention numbers and solid increases in average GPAs of freshmen students" who participated in library-supported Freshman Year Seminars compared with students who did not. **Soria, Fransen, and Nackerud (2014)** reported that "first-year students who used the academic library at least once during the academic year had higher GPAs and retention, on average, than their peers who did not use the libraries."

STUDENT SUCCESS



Average final grade for ENGL 1013:

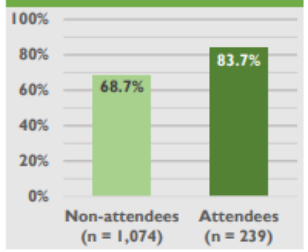
Attendees: **2.62** (SD = 1.28)
Non-attendees: **2.27** (SD = 1.57)

Students earning C or higher in ENGL 1013:

Attendees: **81.2%** (194 / 239)
Non-attendees: **62.5%** (671 / 1,074)

Differences in both the final grades for ENGL 1013 and the percentages of students who earned a C or higher (necessary to advance to ENGL 1023, English Composition II, a required course for many Associate Degree programs at NWACC) are **statistically significant** according to a two-tailed, unpaired t test, $t(1,202) = 3.1507$, $p < 0.0017$, and Fisher's exact test, $p < 0.0001$, respectively.

RETENTION



Enrollment for Spring 2015 semester

Attendees: **83.7%** (200 / 239)
Non-attendees: **62.5%** (738 / 1,074)

The difference in the percentage of returning students is **statistically significant** according to Fisher's exact test; $p < 0.0001$.

REFLECTIONS AND NEW QUESTIONS

No causal links identified
Our study found only minimal positive correlations between attendance at an IL session and student success and/or retention, and too many factors exist for us to identify any causal links. Nevertheless, we're heartened to see positive associations of some kind.

A good start
Despite its limited scope, this project represents a great first step in the exploration of our instruction practices and has encouraged further collaboration between NWACC librarians and English faculty.

What about other IL sessions?
Librarians taught 48 IL sessions for courses other than ENGL 1013 in Fall 2014. It's likely that some students who did not attend sessions for ENGL 1013 did attend sessions for other classes. How did those students perform compared to students who received no instruction whatsoever?

What about multiple IL sessions?
Additionally, more data is needed on students who participate in multiple IL sessions per semester. Do these students perform better than students who meet with librarians only once?

This project is part of the program "Assessment in Action: Academic Libraries and Student Success," which is undertaken by the Association of College and Research Libraries (ACRL) in partnership with the Association for Institutional Research and the Association of Public and Land-grant Universities. The program, a cornerstone of ACRL's Value of Academic Libraries initiative, is made possible by the Institute of Museum and Library Services.

NWACC[29]

Annotate directly on the artifact and/or make notes below.

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- **Notes:**
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[29] Askins, Joseph et al., "Do the WNACC Library's Information Literacy Instruction Sessions for English Composition I Have a Measurable Effect on Student Success and Retention?" Assessment in Action Poster: Northwest Arkansas Community College. 2014. https://apply.ala.org/attachments/20492

Nebraska[30]

Annotate directly on the article and/or make notes in space provided.

Text excerpt from DeeAnn Allison, "Measuring the Academic Impact of Libraries," *portal: Libraries and the Academy*, Volume 15, Number 1, January 2015, pp. 29-40

Abstract

University and college libraries often seek ways to demonstrate their impact for the academic community. This article reports the results from a two-year study that analyzed library use as demonstrated through checkouts and off-campus access to full-text resources against grade point averages (GPAs) of undergraduates and graduates at a large Midwestern library. The study found that undergraduates with a GPA above the mean university GPA used the library more than those with a GPA below the mean. There was a correlation between greater use of the library and increases in GPA between the two years—that is, as one grew, so did the other. The study also showed that students who checked out materials in one year returned for additional checkouts.

Methods

Data were collected from the University of Nebraska–Lincoln (UNL) student information system, including an identification number, grade point average, and class standing for graduate and undergraduate students registered for the academic years of 2011–2012 (N = 20,040) and 2012–2013 (N = 21,564). These data were matched against data from off-campus authentication records from proxy logs and circulation checkout records for the same two time periods. The proxy logs were used to gather off-campus access to electronic materials that included articles and e-books. Four groups of student records were analyzed in the study: 2011–2012 (2011), 2012–2013 (2012), those present in both academic years (N = 14,722), and those present in 2011–2012 but not in 2012–2013 (N=7,078) because they had left the university. The data were then made anonymous by removing the ID number that could be linked back to individual student records. Students identified as professional, or who were not considered part of a degree program, were removed.

Conclusions

This study shows a correlation but not necessarily a cause-and-effect relationship between library use and grade point averages for both graduate and undergraduate students. Undergraduates with a GPA above the mean of 3.11 use the library more than those with a GPA below the mean. For undergraduates, there is a weak but positive correlation between greater use of the library and better grades between the two years of the study. A stronger relationship is shown when the data are analyzed by field of study and include graduates and undergraduates who have improved their grades. This provides evidence that libraries play a role in student performance and that increased use of the library is linked with grade improvements.

The study also found that students who check out materials in one year will return to check out materials in the next year, but there was less evidence that database use correlated with return sessions. This finding may point to the need for better advertising of digital resources. Perhaps, better

[30] Allison, DeeAnn. "Measuring the Academic Impact of Libraries." *portal: Libraries and the Academy* 15, no. 1 (2015): 29-40. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1336&context=libraryscience

Article Excerpt: Nebraska (continued)

branding and marketing of full-text resources will produce higher usage of electronic resources. The good news comes from evidence of the loyalty of students who check out materials and return for more. It seems clear that libraries with programs that attract students into their facilities will have an opportunity to so engage users that they become regular patrons.

This study also shows that library use is lower among the students who leave the university in their freshman through junior years. Because library use is correlated with student retention, libraries should participate in university programs that target at-risk students to help them improve their grades, which can aid efforts for retention at the university. Follow-up studies with such activities will provide valuable evidence for the impact of library services on how many students remain in school.

Overall, this study points to a positive relationship between student use of library resources and academic success as measured through GPAs. The challenges of determining the impact are many, and additional studies are necessary to understand the connections and level of influence between academic libraries and student success. Factors outside of library activities may play a significant role in academic performance, so understanding these outside factors and their relationship to library services will provide a direction for librarians seeking ways to improve the student experience at their institutions. It may well be that the services librarians perform have a greater impact on student success than collection use. This research clearly implies there is a vital connection between student success and use of library resources, which should hearten librarians struggling with the changing landscape of library and information science.

- **Research Question(s):**

- **Claim(s):**

- **Variables:**
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Wyoming[31]

Annotate directly on the article and/or make notes in space provided.

Text excerpt from Melissa Bowles-Terry, "Library Instruction and Academic Success: A Mixed-Methods Assessment of a Library Instruction Program," Evidence Based Library and Information Practice, 2012.

Abstract

Objectives – This study examines the connection between student academic success and information literacy instruction. Locally, it allowed librarians to ascertain the institution's saturation rate for information literacy instruction and identify academic programs not utilizing library instruction services. In a broader application, it provides an argument for a tiered program of information literacy instruction and offers student perspectives on improving a library instruction program.

Methods – Focus groups with 15 graduating seniors, all of whom had attended at least one library instruction session, discussed student experiences and preferences regarding library instruction. An analysis of 4,489 academic transcripts of graduating seniors identified differences in grade point average (GPA) between students with different levels of library instruction.

Results – Students value library instruction for orientation purposes as beginning students, and specialized, discipline-specific library instruction in upper-level courses. There is a statistically significant difference in GPA between graduating seniors who had library instruction in upper-level courses (defined in this study as post-freshman-level) and those who did not.

Conclusions – Library instruction seems to make the most difference to student success when it is repeated at different levels in the university curriculum, especially when it is offered in upper-level courses. Instruction librarians should differentiate between lower-division and upper-division learning objectives for students in order to create a more cohesive and non-repetitive information literacy curriculum.

Aims

The study was undertaken with several research questions in mind:

- What is the relationship between student academic success and information literacy instruction?
- Which students receive library instruction, and which do not?
- Is there a good argument for creating a tiered program of information literacy instruction?
- How can we improve our program of information literacy instruction?

Academic Transcript Analysis

Analysis revealed a statistically significant relationship between students' GPA at graduation and upper-division library instruction. The three comparison groups were: 1) students who received upper-level library instruction, 2) students who received only freshman-level instruction, and 3) students who

[31] Bowles-Terry, Melissa. 2012. "Library Instruction and Academic Success: A Mixed-Methods Assessment of a Library Instruction Program". *Evidence Based Library and Information Practice* 7 (1):82-95. https://doi.org/10.18438/B8PS4D

Article Excerpt: Wyoming (continued)

received no library instruction at all. The mean GPA for each of the three groups is displayed in Table 1; though the variance looks very small, statistical analysis reveals that there is a statistically significant difference. Table 2 shows the results of ANOVA: there is a statistically significant difference between the three groups, $F(2,4486)=3.089$, $p<.0005$. A post hoc analysis was conducted to find where the difference lies. The Dunnett test was used and the "none" group was considered the control or baseline group, as seen in Table 3. Dunnett t-tests treat one group as a control and compare all other groups against it.

The Dunnett test shows that the only group different from the control group is the upper-level instruction group with a mean difference of .0748, $p<.0005$. Thus, students who receive upper-level instruction at the library also have higher GPAs, while there is no significant difference in GPA for students who have only freshman-level library instruction. Because this is ex post facto research, the author cannot claim that the instruction was the cause of the increase; there are too many confounding variables to claim causality in the relationship between information literacy instruction and GPA. Perhaps most notably, there is probably an effect from the repetition of instruction, which was not analyzed in this study. But the analysis shows a statistically significant positive correlation between upper-level library instruction and a higher grade point average at graduation.

- **Research Question(s):**

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Huddersfield[32]

Annotate directly on the article and/or make notes in space provided.

Text excerpt from Stone, Graham & Ramsden, Bryony's article "Library Impact Data Project: Looking for the Link between Library Usage and Student Attainment" From College & Research Libraries, 2013.

Abstract

The Library Impact Data Project was a six-month project funded by Jisc and managed by the University of Huddersfield to investigate this hypothesis: "There is a statistically significant correlation across a number of universities between library activity data and student attainment." Eresources usage, library borrowing statistics, and library gate entries were measured against final degree award for 33,074 undergraduate students across eight U.K. universities. The research successfully demonstrated a statistically significant relationship between library resource use and level of degree result; however, any conclusions drawn are not indicators that library usage and student attainment have a causal relationship.

Table 2
Data requirements for Project Partners
(All data required for at least one academic year, e.g., 2009/10)

Mandatory data:	• academic year of graduation e.g., 2009/10 • course title • length of course in years • type of course, e.g., undergraduate • grade achieved[30] • school/academic department
At least two sets of data are mandatory	• number of items borrowed from library (excluding renewals) » Either the total number borrowed by that student » Or separate values for each academic year • number of visits to the library » Either the total number of visits by that student » Or separate values for each academic year • number of logins to e-resources (or some other measure of e-resource usage) » Either the total number of logins made by that student » Or separate values for each academic year

Results

Quantitative Data

Statistical analysis demonstrated that at a cross-institutional level, there is a positive relationship between book borrowing and degree result, and electronic resource access and degree result, but not between library entries and degree result. Thus, the more a book or e-resource is used, the more likely a

[32] Stone, Graham & Ramsden, Bryony. (2013). Library Impact Data Project: Looking for the Link between Library Usage and Student Attainment. *College & Research Libraries, 74*(6), 546-559. https://doi.org/10.5860/crl12-406

student is to have attained a higher-level degree result. At an institutional level, where institutions were able to provide data, they demonstrated relationships in the same way.

Article Excerpt: Huddersfield (continued)

Qualitative Data

When asked about what they felt led to a good degree result, a combination of personal qualities and referral to resources overall were described, suggesting that students did realize that their use of resources was linked to attainment, but indicating that they did not necessarily always appreciate the varying quality of resources.

Responses varied between institutions, but attendees overall indicated that library resources were of great importance to them, regardless of what they could obtain freely on the Internet. The library was regarded as a resource in itself, as a place in which to not only find information but to use as a learning/ technology space or as a way to meet up with others on the course to discuss their coursework. Some identified the library as being a space that impaired their learning, due to noise levels being too high or low, or preferring proximity to home comforts. Many attendees discussed a formal process of finding the information they required, regardless of the source of information, some with a systematic way of moving between types of resources, and often seeking information away from reading list provision. Technical issues of both access to information and general technology problems were frequently raised, and students did refer to staff for technical and resource support.

- **Research Question(s):**

- **Claim(s):**

- **Variables:**
  (X= Independent, Y= Dependent, may be multiple):

- **Notes:**
  (How robust is the claim alignment and evidence? Are chosen research methods appropriate? What, if any, are the follow-on research questions identified or implied?)

Discussion

- Which poster(s) and article(s) did you select?
- What's easy?
- What's hard?
- What strategies did you develop?

Helpful Hint: Critically Appraise the Source!

Librarians often unconsciously employ critical appraisal skills. If/when information in a source gets overwhelming on account of multiple variables or unclear writing, carefully review the abstract, methods, and findings/results to identify key words. This process can help establish a foundation for understanding the information and assessing its quality.

More (Optional) Practice

If your team is ready to further build confidence and pursue increased difficulty, take the next step of exploring and identifying elements within a full article!

Identify:

- Research Question(s)
- Claim(s)
- Variables (X= Independent, Y= Dependent, may be multiple)
- Methodology (operationalized variables)

  Notes (How robust is the claim alignment and evidence? Are chosen research methods appropriate? What, if any, are the follow-on research questions identified or implied?)

Topical Articles

The following is a listing of sample articles that can be explored as time and interest allow. Articles on other topics or more current publications may be substituted.

Consultations

Koelling, G., & Townsend, L. (2019). Research Clinics: An Alternative Model for Large-Scale Information Literacy Instruction. *Communications in Information Literacy, 13* (1), 75-90. https://doi.org/10.15760/comminfolit.2019.13.1.6

Magi, T.J., & Mardeusz P.E. (2013). Why Some Students Continue to Value Individual, Face-to-Face Research Consultations in a Technology-Rich World. *College & Research Libraries*, 74 (6), 605-618. https://doi.org/10.5860/crl12-363

Reiter, L., & Cole, C. (2019). Beyond Face Value: Evaluating Research Consultations from the Student Perspective. *Reference & User Services Quarterly, 59*(1), 23-30. http://dx.doi.org/10.5860/rusq.59.1.7222

Miller, R. (2018). Information Literacy and Instruction: Reference Consultations and Student Success Outcomes. *Reference & User Services Quarterly, 58*(1), 16-21. http://dx.doi.org/10.5860/rusq.58.1.6836

E-Books

Hoseth, A., & McLure, M. (2012). Perspectives on E-books from Instructors and Students in the Social Sciences. *Reference & User Services Quarterly, 51*(3), 278-288. http://dx.doi.org/10.5860/rusq.51n3.278

Pierard, C., Svihla, V., Clement, S., & Fazio, B. (2020). Undesirable Difficulties: Investigating Barriers to Students' Learning with Ebooks in a Semester-length Course. *College & Research Libraries, 81*(2), 170. https://doi.org/10.5860/crl.81.2.170

Tracy, D. (2018). Format Shift: Information Behavior and User Experience in the Academic E-book Environment. *Reference & User Services Quarterly, 58*(1), 40-51. http://dx.doi.org/10.5860/rusq.58.1.6839

Zhang, T., Niu, X., & Promann, M. (2017). Assessing the User Experience of E-Books in Academic Libraries. *College & Research Libraries, 78*(5), 578. https://doi.org/10.5860/crl.78.5.578

OER

Beile, P., deNoyelles, A., & Raible, J. (2020). Analysis of an Open Textbook Adoption in an American History Course: Impact on Student Academic Outcomes and Behaviors. *College & Research Libraries, 81*(4), 721. https://doi.org/10.5860/crl.81.4.721

Braddlee, D., & VanScoy, A. (2019). Bridging the Chasm: Faculty Support Roles for Academic Librarians in the Adoption of Open Educational Resources. *College & Research Libraries, 80*(4), 426. https://doi.org/10.5860/crl.80.4.426

Schultz, T., & Azadbakht, E. (2021). Open but Not for All: A Survey of Open Educational Resource Librarians on Accessibility. *College & Research Libraries, 82*(5), 755. https://doi.org/10.5860/crl.82.5.755

Todorinova, L., & Wilkinson, Z. T. (2020, November). Incentivizing faculty for open educational resources (OER) adoption and open textbook authoring. The Journal of Academic Librarianship, 46(6), 102220. https://doi.org/10.1016/j.acalib.2020.102220

Space

Brunskill, A. (2020). "Without That Detail, I'm Not Coming": The Perspectives of Students with Disabilities on Accessibility Information Provided on Academic Library Websites. *College & Research Libraries, 81*(5), 768. https://doi.org/10.5860/crl.81.5.768

Hahn, J., & Zitron, L. (2011). How First-Year Students Navigate the Stacks. *Reference & User Services Quarterly, 51*(1), 28-35. http://dx.doi.org/10.5860/rusq.51n1.28

Hegde, A., Boucher, P., & Lavelle, A. (2018). How Do you Work? Understanding User Needs for Responsive Study Space Design. *College & Research Libraries, 79*(7), 895. https://doi.org/10.5860/crl.79.7.895

Scott, R., & Varner, B. (2020). Exploring the Research and Library Needs of Student-Parents. *College & Research Libraries, 81*(4), 598. https://doi.org/10.5860/crl.81.4.598

Tutorials

Bowles-Terry, M., Hensley, M., & Hinchliffe, L. J. (2010). Best Practices for Online Video Tutorials: A Study of Student Preferences and Understanding. Communications in Information Literacy, 4 (1), 17-28. https://doi.org/10.15760/comminfolit.2010.4.1.86

Lindsay, E., Cummings, L., Johnson, C., & Scales, B. (2006). If You Build It, Will They Learn? Assessing Online Information Literacy Tutorials. *College & Research Libraries, 67*(5), 429-445. doi:https://doi.org/10.5860/crl.67.5.429

Mery, Y., DeFrain, E., Kline, E., & Sult, L. (2014). Evaluating the Effectiveness of Tools for Online Database Instruction. Communications in Information Literacy, 8 (1), 70-81. https://doi.org/10.15760/comminfolit.2014.8.1.153

Weiner, S., Pelaez, N., Chang, K., & Weiner, J. (2012). Biology and Nursing Students' Perceptions of a Web-based Information Literacy Tutorial. *Communications in Information Literacy, 5* (2), 187-201. https://doi.org/10.15760/comminfolit.2012.5.2.112

- **Article:**
- **Research Question(s):**
- **Claim(s):**
- **Variables:**
  (X= Independent, Y= Dependent, may be multiple):
- **Methodology**
  (Operationalized Variables)
- **Notes:**
  (How robust is the claim alignment and evidence? Are chosen research methods appropriate? What, if any, are the follow-on research questions identified or implied?)

Team Development Discussion Questions

- What are your overall takeaways from unpacking claims and variables in Module 2?
- Was it easy or hard to analyze a full article? Did you develop any additional strategies in reviewing the lengthier work?

Notes or Questions

Team Development Discussion: Case Study Projects

- Each team member should share (8-10 minutes each) about their idea for a local case study project.
- Take notes of what you hear in the space provided (p. 40-42) – particularly aim to identify any claims, identified variables, or measures.
- Provide feedback to each presenter on ideas for selecting and operationalizing variables.
- What themes or patterns are emerging across the various local case study projects?

Name:		Institution:	
Notes:			
Research Question:			
Claim(s):			
Variables:	X (Independent):	Y (Dependent):	

Name:		Institution:	
Notes:			
Research Question:			
Claim(s):			
Variables:	X (Independent):	Y (Dependent):	

Name:		Institution:	
Notes:			
Research Question:			
Claim(s):			
Variables:	X (Independent):	Y (Dependent):	

Name:			Institution:	
Notes:				
Research Question:				
Claim(s):				
Variables:		X (Independent):	Y (Dependent):	

Name:		Institution:	
Notes:			
Research Question:			
Claim(s):			
Variables:	X (Independent):	Y (Dependent):	

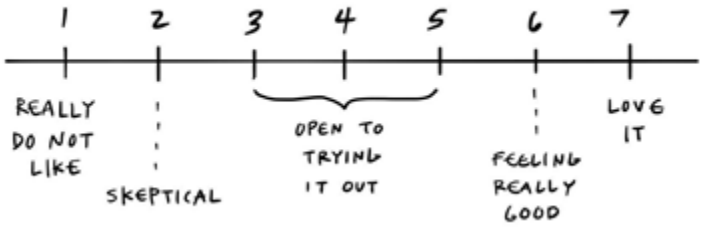
Name:		Institution:	
Notes:			
Research Question:			
Claim(s):			
Variables:	X (Independent):	Y (Dependent):	

Module 3: Research Question Development

Reflect Before You Select

In choosing a focus for the local case study research project, reflect on your feelings! Since the research process will require substantial energy and attention over an extended time period, it's vital that YOU have strong affinity for the topic.

The Gradients of Agreement[33] framing tool below, although typically used in a group decision making setting, can help map your reaction to the topic(s) you consider developing. As you explore and commit to a particular research question, you should move from the center of the scale to the far right—gaining confidence and excitement.

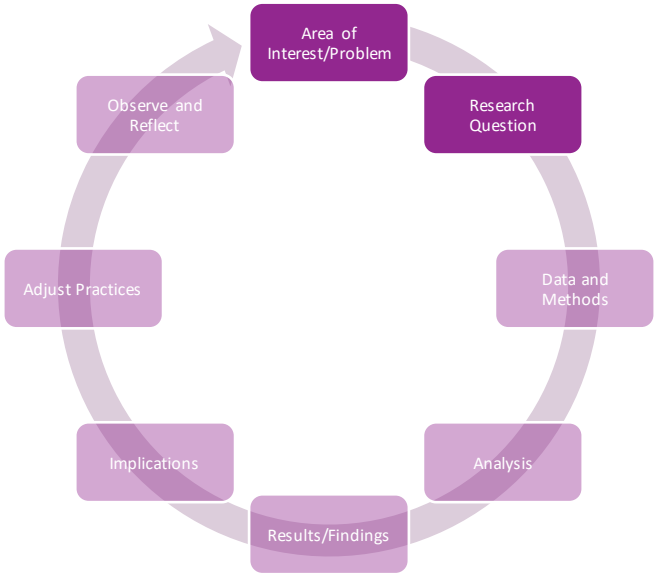


Take a moment to list ideas you are considering for your local case study topic. Where on the Gradients of Agreement framework do these ideas fit best at this stage in the development of your research question?

[33] Kaner, Sam and Lenny Lind. 1996. *Facilitator's Guide to Participatory Decision-Making.* Gabriola Island: New Society.

Cycle of Inquiry

Undertaking a local research project will work through the cycle of inquiry picture below. But at this stage of AASD training, we are still in early stages—1 determining an area(s) of interest and 2, developing a research question.



What Questions Seek

In developing a research question, you will seek one of four purposes:

Explore: These questions seek to expand understanding in a quantitative way. Potential questions starters for exploration might include: How much…? How many…?

Explain: These questions seek to describe mechanisms or relationships and may show causality saying "X impacts Y."

Evaluate: These questions seek to define quality. Potential question starters for evaluation might include: How good is _____ (e.g., a service or resource)? How impactful are _____(e.g., teaching sessions, online tutorials, open textbooks, etc.)?

Experiment: Questions that seek to experiment test a hypothesis. With the exception of user experience research, librarians typically avoid this type of investigation because we don't believe it's ethical to offer certain users access to resources or privileges while denying others (i.e., control group= no access vs. intervention group = access)

KINDS OF QUESTIONS

Exploring different kinds of questions can be a helpful starting point. The table below is part of the "Project Planner" framework outlined in the Sage Research Methods Database.

Why …	seeks causal explanations
When …	locates events in relation to the time at which they happened; processes in relation to when they happened and their duration; and/or setting things in temporal order or sequence
Who …	addresses agency, identifying persons, institutions, or collective bodies responsible for something
How …	seeks mechanisms to describe ways in which things are done which result in a specific outcome
Where …	establishes contextual spaces and circumstances

APPLIED LEARNING: BRAINSTORM

Using the framework shown above, brainstorm potential questions that could be useful to pursue for your institution in the local case study project.

Why …	
When …	
Who …	
How …	
Where …	

Formulating a Research Statement

A research statement is a way of describing a research project—detailing why the research is being undertaken and what it hopes to accomplish. The script below has been extracted from The Craft of Research[34] and offers a mad-lib style approach to writing a research statement.

Topic (We are studying...)

Conceptual Question(s) (because we want to find out who/what/ when/where/whether/why/how…)

Conceptual Significance (in order to help understand how/why/whether…)

Potential Practical Application (so that… will be able to...)

[34]Booth, Wayne C., Gregory G. Colomb, Joseph M. Williams, Joseph Bizup, and William T. FitzGerald. 2016. *The Craft of Research* Fourth ed. Chicago: University of Chicago Press.

Notes or Questions

If you haven't narrowed the focus of your local case study, use the space provided to expand upon the script on the previous page for each of your ideas.

Articulating Project Details

As ideas for your local research project take shape, brainstorm additional details that have not yet been captured! Articulating ideas and considering the feasibility of details relevant to your local context at the outset of research question development can impact the sustainability and success of your work.

What's your theory (or analysis) of the relationship between variables?	
What evidence do you have or need... *locally? *externally?	
How could your idea connect to... *campus priorities? *AiA or other LIS best practices?	
Who could be your collaborators... *in the library? *on campus?	

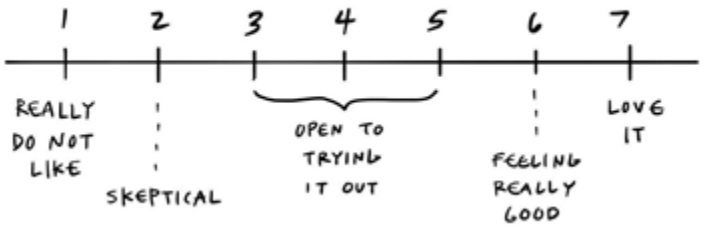
SKETCH AND SHARE

Drawing can unlock creative ideas and tools--try to create a visualization of your research question or statement below.

Photo by KOBU Agency on Unsplash

Reflect and Select

Now that you have spent time brainstorming, reflect on the Gradients of Agreement[35] framing tool and identify where your idea(s) for a local case study project fall on the! So long an idea is feasible within your local context, select and pursue the idea that aligns with the far right.



Notes or Questions

[35] Kaner, Sam and Lenny Lind. 1996. *Facilitator's Guide to Participatory Decision-Making.* Gabriola Island: New Society.

Team Development Discussion Question

- What are your overall takeaways from developing a research question and statement in Module 3?

Team Development Discussion: Case Study Projects

- Each team member should share (8-10 minutes each) about their research question, statement, and visualization.
- Provide feedback to each presenter on the clarity of their question, statement, and sketch.

Notes

Next Steps

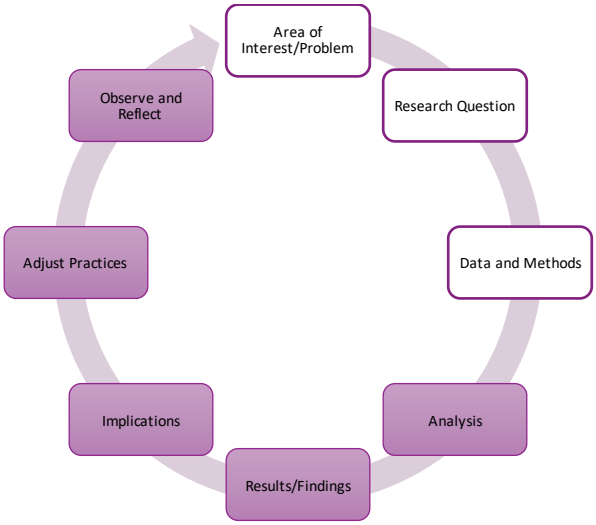
- Revisit your research statement by "socializing" it with stakeholders at your institution.
- Explore available local & AASD resources (i.e., Experts, Tools, Literature, etc.)
- If you're stuck or uncertain about your research question: Review projects from CARLI Counts Cohort One[36] and Cohort Two[37] for ideas

[36] https://www.carli.illinois.edu/products-services/prof-devel/carli-counts/cohort1
[37] https://www.carli.illinois.edu/products-services/prof-devel/carli-counts/cohort2

Module 4: The Research Question, Variables, and Methods

Cycle of Inquiry

This module explores the next step in the cycle of inquiry: data and methods. Data will be the primary focus, but it is nearly impossible to consider what data is needed without also considering the methods of acquisition.



Formulating The Research Statement

Module 3 focused on the development of a research question and statement, introducing a script[38] shown below to prompt your thinking:

Topic
(We are studying …..)

Conceptual Question(s)
(because we want to find out who/what/when/where/whether/why/how ….)

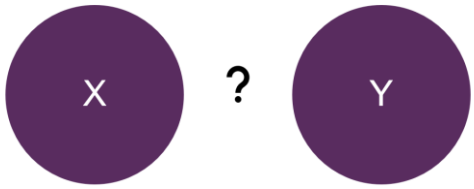
Conceptual Significance
(in order to help understand how/why/whether ….)

Potential Practical Application
(so that … will be able to ….)

[38] Booth, Wayne C., Gregory G. Colomb, Joseph M. Williams, Joseph Bizup, and William T. FitzGerald. 2016. *The Craft of Research*. Fourth ed. Chicago: University of Chicago Press.

Conceptual Question (aka Research Question)

This question identifies the purpose of your local case study research project. The question—which can also be posed as a statement—should explore impact, offering a hypothesis for how (or if) variables relate.



What is your conceptual question (i.e., research question)? Write it below.

Operationalizing Variables: Definition & Measurement

Operationalizing variables involves **precisely defining and measuring variables** to support consistency and accuracy in evaluating and communicating data gathered* in the research process.

*Note: It's important to operationalize variables in a way that facilitates data collection for analysis.

How does operationalizing variables work?

When operationalizing variables, look for indicators or measurements (i.e., data) that define the variables.

For example, if a study wants to understand the impact of how students use an e-book, operationalizing "use an e-book" would require further definition. Does "use an e-book" mean clicking on an access link to open it, reading it, annotating it, quoting it, or something else?

Applied Learning: Brainstorm

Use the prompts below to guide the development of operationalized variables for your local case study.

My research question is:

My study thus entails ___ (#) of variables/concepts.

For each variable/concept complete a row of the table:

Concept/Variable Name	Precise Definition (Dependent or Independent Variable?)	Indicator/Measurement (Data)

METHODS

The research method is derived from the research question; thus, different questions require different methods.

Also, there may be multiple methods of solicitation that yield meaningful data and multiple methods of investigation within a single study can provide richer perspective.

Three Common LIS Research Methods

Surveys: Surveys may be created in-house or recycle tools created by other organizations. ALA's Project Outcome[39] is a free product available for use in conducting surveys within academic library settings.

Observation: Observational research studies observe and record participant behavior. This might involve observing the use of a space or could involve studying an artifact or object to analyze identified elements

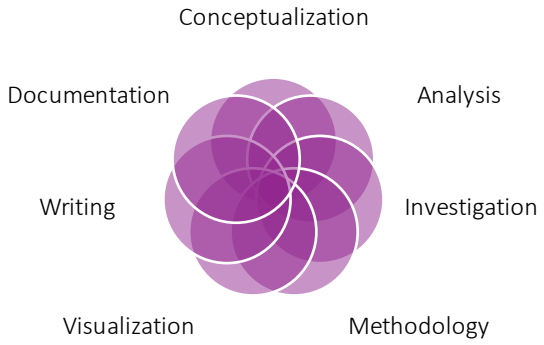
Interview or Focus Group: These conversational solicitation methods include interviews, involving a 1:1 deep dive conversation with an interviewer or focus group in which a people converse with each other—not influenced by and—ideally—unaware of the facilitator.

What research method(s) do you anticipate using?

[39] https://acrl.projectoutcome.org/

Research Roles & Tasks

As your local project takes shape, identify stakeholders needed to support successful implementation. The diagram below represents overlapping and intersecting tasks and roles that will be needed to implement the project.



Clearly communicate the role(s) and task* expectations for campus partners before launching into the project to help ensure shared commitment to the research being undertaken.

*Note: Not everyone will need to work on every aspect of the project and needs may change as project work gets underway. Strive to maintain open communication and foster dialog throughout the project.

Applied Learning: Brainstorm

Who are the stakeholders in your local context that need to be involved in your local case study project? Use the table below to list stakeholder associated with each role.

TASK	STAKEHOLDER(S)
Conceptualization	
Methodology	
Investigation	
Documentation	
Analysis	
Writing	
Visualization	

INSTITUTIONAL PROJECT ABSTRACT

Now try to complete this Institutional Project Abstract for the topic you have selected for your local case study. Another mad-lib style tool, the text below offers a detailed structure, for formulating a means of clearly communicating the research for your AASD campus project.

Abstract: The purpose of this project is to _____

[understand? explore? develop? discover? demonstrate?] the impact of

_____ [library] on student learning and success at

_____ [institution].

The claim being investigated is _____.

The independent variable(s) in this study are _____.

The dependent variable(s) in this study are _____.

This study is _____ [aligned with? informed by?]

_____

[findings in literature? components of professional standards? findings from AiA? college student development theory? educational theory?].

This study will be undertaken in partnership with _____

and supports the campus priority/ies for _____.

Notes or Questions

Team Development Discussion: Questions

- What are your overall takeaways from developing operationalized variables in Module 4?
- What local stakeholders will be engaged to accomplish your local project?

Team Development Discussion: Case study Projects

Each team member should share (8-10 minutes each) about their concept/variable definition and proposed methods for gathering data.
Provide feedback to each presenter on the clarity of their definitions and methods.

Notes or Questions

Next Steps

Complete assigned readings to prepare for Module 5.

Module 5: Respect for Human Subjects in Advocacy Work

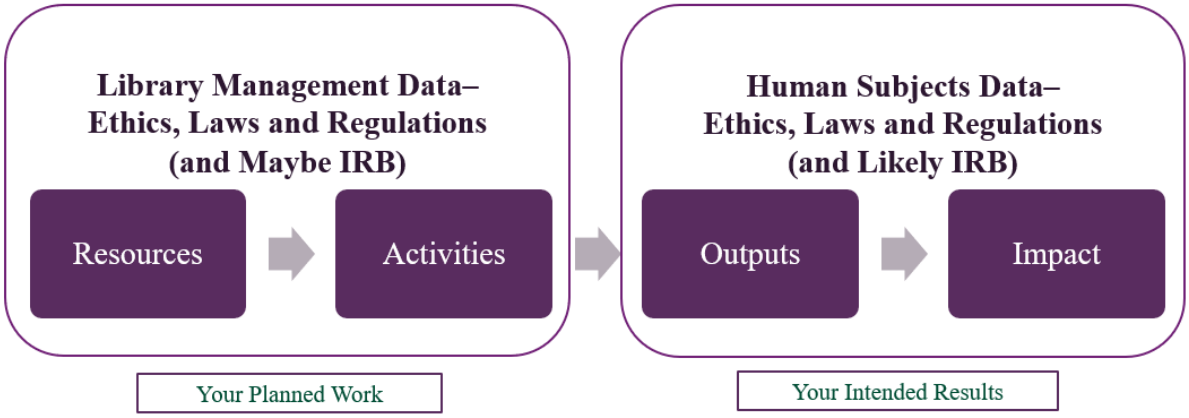
Required Reading

Complete the assigned reading below prior to the start of module 5.

- ☐ Identify and Read Local Institutional Review Board Policies & Documentation
- ☐ American Library Association's Professional Ethics[40]
- ☐ American Library Association's Privacy & Confidentiality FAQ - Questions 1-3, 10-12, 21-22[41]
- ☐ "Privacy in User Research: Can You?" The Scholarly Kitchen Blog post by Lisa Janicke Hinchliffe[42]

Library Management & Research Requires Data

To provide services and resources beneficial to a campus community, academic library management and research requires data. Within the framing of the program logic model shared in Modules 1 and 2, library management data relates to resources like budgets or total number of employees. Research data is generated when studying outputs and impact and typically requires data about people, known as "human subjects." All data is subject to ethics and regulations, but any human subjects data gathered—typically about students—may also be subject to Institutional Review Board review and approval.



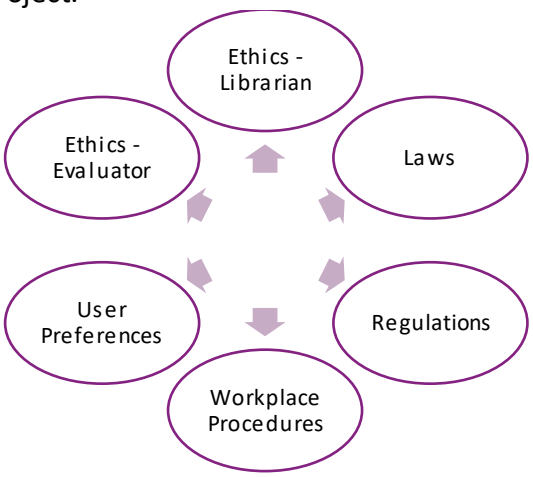
[40] "Professional Ethics." Tools, Publications & Resources. American Library Association, July 21, 2021. https://www.ala.org/tools/ethics.

[41] "Privacy and Confidentiality Q&A." Advocacy, Legislation & Issues. American Library Association, November 10, 2021. https//www.ala.org/advocacy/intfreedom/privacyconfidentialityqa.

[42] Hinchliffe, Lisa Janicke. "Privacy in User Research: Can You?" The Scholarly Kitchen. The Society for Scholarly Publishing, September 4, 2018. *https://scholarlykitchen.sspnet.org/2018/09/05/privacy-in-user-research-can-you/*.

Multiple Ethical Frameworks

Many frameworks can and should be simultaneously explored when considering the ethical implications of a research project.



Ethics in Research

Library and Information Science does not have an explicit code of ethics for research, but most research undertaken is an example of applied sociology.

Example: American Sociological Association

Below are two sample principles from the **American Sociological Association's Code of Ethics**[43] that can help guide AASD project work.

- **Principle C: Professional and Scientific Responsibility**
  Sociologists adhere to the highest scientific and professional standards and accept responsibility for their work…

- **Principle D: Respect for People's Rights, Dignity, and Diversity**
  Sociologists respect the rights, dignity, and worth of all people. They strive to eliminate bias in their professional activities, and they do not tolerate any forms of discrimination … They are sensitive to cultural, individual, and role differences in serving, teaching, and studying groups of people with distinctive characteristics…

Important Note: If/when human subjects research involves vulnerable populations, researchers must not exacerbate the population's vulnerability or put them at risk.

[43] ASA Committee on Professional Ethics. "Docs-#29726-V3-1999 Code of Ethics - American Sociological Association." Code of Ethics. American Sociological Association. Accessed September 15, 2022. https://www.asanet.org/sites/default/files/savvy/images/asa/docs/pdf/CodeofEthics.pdf

Example: American Evaluation Association

The ethical code of the **American Evaluation Association**[44] offers another example of principles for research, providing further context and ethos:

- **Systematic Inquiry …** conduct data-based inquiries that are thorough, methodical, and contextually relevant.
- **Competence …** provide skilled professional services to stakeholders.
- **Integrity…** behave with honesty and transparency in order to ensure the integrity of the evaluation.
- **Respect for People …** honor the dignity, well-being, and self-worth of individuals and acknowledge the influence of culture within and across groups.
- **Common Good and Equity …** strive to contribute to the common good and advancement of an equitable and just society.

Notes or Questions

[44] Guiding Principles for Evaluators. American Evaluation Association. Accessed September 15, 2022. https://www.eval.org/About/Guiding-Principles.

Example: American Library Association Code of Ethics

The American Library Association[45] has a code of ethics, shown below, that features 9 principles that guide to the practice of librarianship—including research.

As members of the American Library Association, we recognize the importance of codifying and making known to the profession and to the general public the ethical principles that guide the work of librarians, other professionals providing information services, library trustees and library staffs.

Ethical dilemmas occur when values are in conflict. The American Library Association Code of Ethics states the values to which we are committed, and embodies the ethical responsibilities of the profession in this changing information environment.

We significantly influence or control the selection, organization, preservation, and dissemination of information. In a political system grounded in an informed citizenry, we are members of a profession explicitly committed to intellectual freedom and the freedom of access to information. We have a special obligation to ensure the free flow of information and ideas to present and future generations.

The principles of this Code are expressed in broad statements to guide ethical decision making. These statements provide a framework; they cannot and do not dictate conduct to cover particular situations.

1. **We provide the highest level of service to all library users through appropriate and usefully organized resources; equitable service policies; equitable access; and accurate, unbiased, and courteous responses to all requests.**
2. We uphold the principles of intellectual freedom and resist all efforts to censor library resources.
3. **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.**
4. We respect intellectual property rights and advocate balance between the interests of information users and rights holders.
5. We treat co-workers and other colleagues with respect, fairness, and good faith, and advocate conditions of employment that safeguard the rights and welfare of all employees of our institutions.
6. We do not advance private interests at the expense of library users, colleagues, or our employing institutions.
7. We distinguish between our personal convictions and professional duties and do not allow our personal beliefs to interfere with fair representation of the aims of our institutions or the provision of access to their information resources.
8. We strive for excellence in the profession by maintaining and enhancing our own knowledge and skills, by encouraging the professional development of co-workers, and by fostering the aspirations of potential members of the profession.
9. We affirm the inherent dignity and rights of every person. We work to recognize and dismantle systemic and individual biases; to confront inequity and oppression; to enhance diversity and inclusion; and to advance racial and social justice in our libraries, communities, profession, and associations through awareness, advocacy, education, collaboration, services, and allocation of resources and spaces.

[45] "Professional Ethics." Tools, Publications & Resources. American Library Association, July 21, 2021. https://www.ala.org/tools/ethics.

Important Note on ALA Principle 1: Librarians cannot create an experimental design that establishes a control group that is denied access to a service or resource.
Important Note on ALA Principle 3: This principle can be challenging in a research setting when establishing what it means to uphold privacy and confidentiality. This topic is explored further below.

Key Ideas: Librarians, as professionals, place high value on confidentiality in a way that other professions may not. Thus, first and foremost we should make decisions about research within the framework of our professional ethics.

Notes or Questions

Privacy and Confidentiality

ALA provides a more detailed definition of privacy and accountability on their Privacy & Confidentiality Q&A page[46], excerpted below:

"In a library, **user privacy is the right to open inquiry without having the subject of one's interest examined or scrutinized by others**. **Confidentiality exists when a library is in possession of personally identifiable information … about users and keeps that information private on their behalf**. Confidentiality is a library's responsibility. This responsibility is assumed when library procedures create records including, but not limited to closed-stack call slips, computer sign-up sheets, registration for equipment or facilities, circulation records, what websites were visited, reserve notices, or research notes.

Libraries should limit the degree to which personally identifiable information is collected, monitored, disclosed, retained, and transmitted while fulfilling their duty to comply with their state's library confidentiality statute. Libraries involved in training volunteers, new employees, student assistants, or trustees should inform them of the requirements that they not abuse confidentiality and that they protect library users' rights of privacy."

[46] "Privacy and Confidentiality Q&A." Advocacy, Legislation & Issues. American Library Association, November 10, 2021. https://www.ala.org/advocacy/intfreedom/privacyconfidentialityqa.

ALA's page Privacy: An Interpretation of the Library Bill of Rights[47] also asserts:
"Regardless of the technology used, **everyone who collects or accesses personally identifiable information in any format has a legal and ethical obligation to protect confidentiality."**

Key Ideas: Privacy is what a user gets when interacting with a library. Confidentiality is what a library provides when protecting **personally identifiable information (PII)** and keeps this data private on behalf of patrons. Libraries strive to eliminate unnecessary data to minimize risk for privacy or confidentiality to be compromised.

Personally Identifiable Information (PII)

PII is vital to library operations and assessment. To better understand PII, read the excerpt of ALA's Privacy & Confidentiality Q&A Page[48] below.

"In all libraries, **it is the nature of the service rather than the type of the library that should dictate any gathering of personally identifiable information** (PII). Some common library practices necessarily involve close communication with — or monitoring of — library users. Services such as bibliographic instruction, reference consultation, teaching and curriculum support in school libraries, readers' advice in public libraries, and preservation of fragile or rare library materials in special collections libraries are just a few instances of services that require library staff to be aware of users' information-access habits.
As part of serving the user, it is often necessary for staff to consult with each other. Staff must be careful to conduct such conversations privately, keep strictly to the purpose, and only divulge PII if necessary. In all types of libraries, **any compromise of user privacy by library staff carries with it ethical, professional, and often legal obligations to protect the confidentiality of that PII. Most important, all gathering of PII should be done in the interests of providing, or improving, particular library services. Any knowledge gathered should not be put to use for anything other than providing service to library users**."

Key Ideas: The word "anonymous" does not appear above because Library users are not promised anonymity. A library cannot circulate items without knowing to whom items are being lent and a library cannot know if it provides equitable or effective services unless use data can be assessed.

Notes or Questions

[47] "Privacy: An Interpretation of the Library Bill of Rights." Advocacy, Legislation & Issues. American Library Association, February 5, 2020. https://www.ala.org/advocacy/intfreedom/librarybill/interpretations/privacy.
[48] "Privacy and Confidentiality Q&A." Advocacy, Legislation & Issues. American Library Association, November 10, 2021. https://www.ala.org/advocacy/intfreedom/privacyconfidentialityqa.

Want to explore more? Check out these resources on privacy…

- Prioritizing Privacy: Data Ethics Training for Library Professionals
  https://prioritizingprivacy.org/
- Licensing Privacy
  https://publish.illinois.edu/licensingprivacy/
- Privacy Protections in Public Libraries
  https://publish.illinois.edu/public-library-privacy-protection-forum/

Institutional Review Board (IRB)

Policies and Procedures

IRB is a federally regulated process that institutions are obligated to uphold and administer. Federal regulation establishes minimum expectations for a college or university, but the institution can expand the scope– which results in variation among IRB policies. Core IRB policy is the same, but almost all institutions build additional scope.

Institutional Variations in Implementation

- Interpretation of Guidelines
- Procedures* and Forms
- Staffing and Timelines

*Training or some sort of certification is often required before an IRB application is submitted. CITI Training (The Collaborative Institutional Training Initiative) is a subscription program commonly used, though alternative in-house training options may be offered.

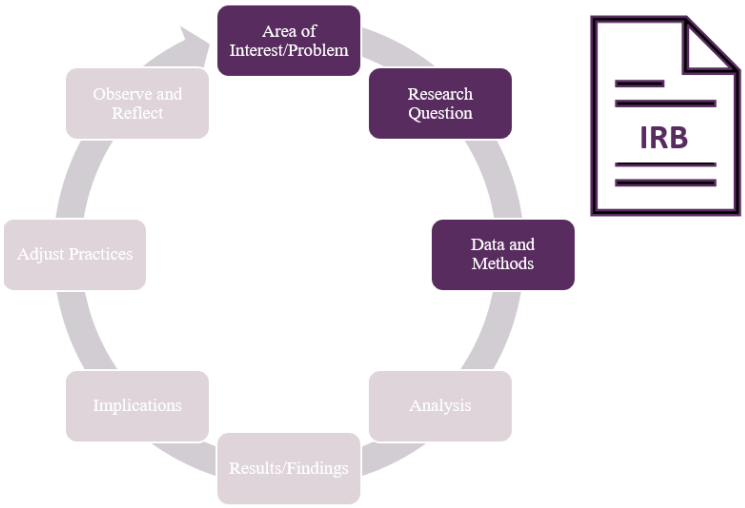
Want to see the foundational government document for IRB?

Search: **"The Common Rule" (CFR Part 46: Protection of Human Subjects)**

Contextualizing IRB

IRB sits alongside development of the research question and data methods within the cycle of inquiry.

Clarity on these two steps is essential to completing IRB paperwork and gaining approval before research with human subjects can move forward.



Belmont Report Principles

The *Belmont Report* was written by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The Commission, created as a result of the National Research Act of 1974, was charged with identifying the basic ethical principles that should underlie the conduct of biomedical and behavioral research involving human subjects and developing guidelines to assure that such research is conducted in accordance with those principles. Informed by monthly discussions that spanned nearly four years and an intensive four days of deliberation in 1976, the Commission published the *Belmont Report*, which identifies basic ethical principles and guidelines that address ethical issues arising from the conduct of research with human subjects.[49]

The Belmont Report identifies three key principles:

1. **Respect for Persons** - individuals should be treated as autonomous agents; persons with diminished autonomy are entitled to protection
2. **Beneficence** - treating persons in an ethical manner by respecting their decisions and protecting them from harm and making efforts to secure their well-being, including an evaluation of risk* against benefit
3. **Justice** - benefits and burdens of research are distributed fairly

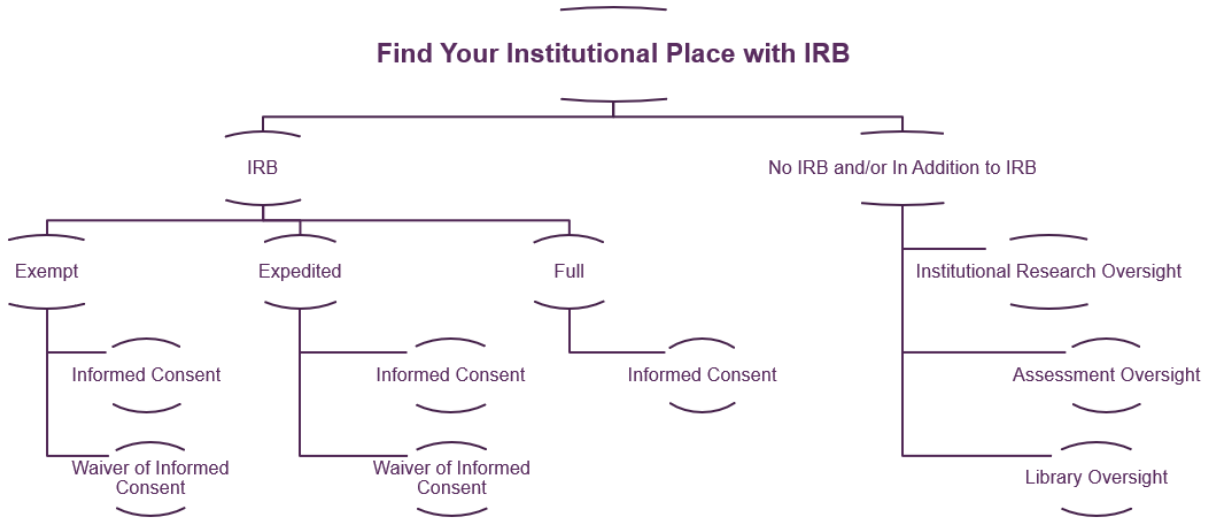
**Note:* In library research, researchers can almost always claim that this key phrase applies: "risks encountered are no greater than what participants encounter in daily life."

Notes or Questions

[49] Office for Human Research Protections (OHRP). "Belmont Report." HHS.gov. U.S. Department of Health and Human Services, September 8, 2022. https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html.

IRB: Deeper Look

Prior to this session, you were tasked with reviewing IRB policies for your institution. Can you identify where you anticipate your research fitting on this flow chart?



3 Categories of IRB Review

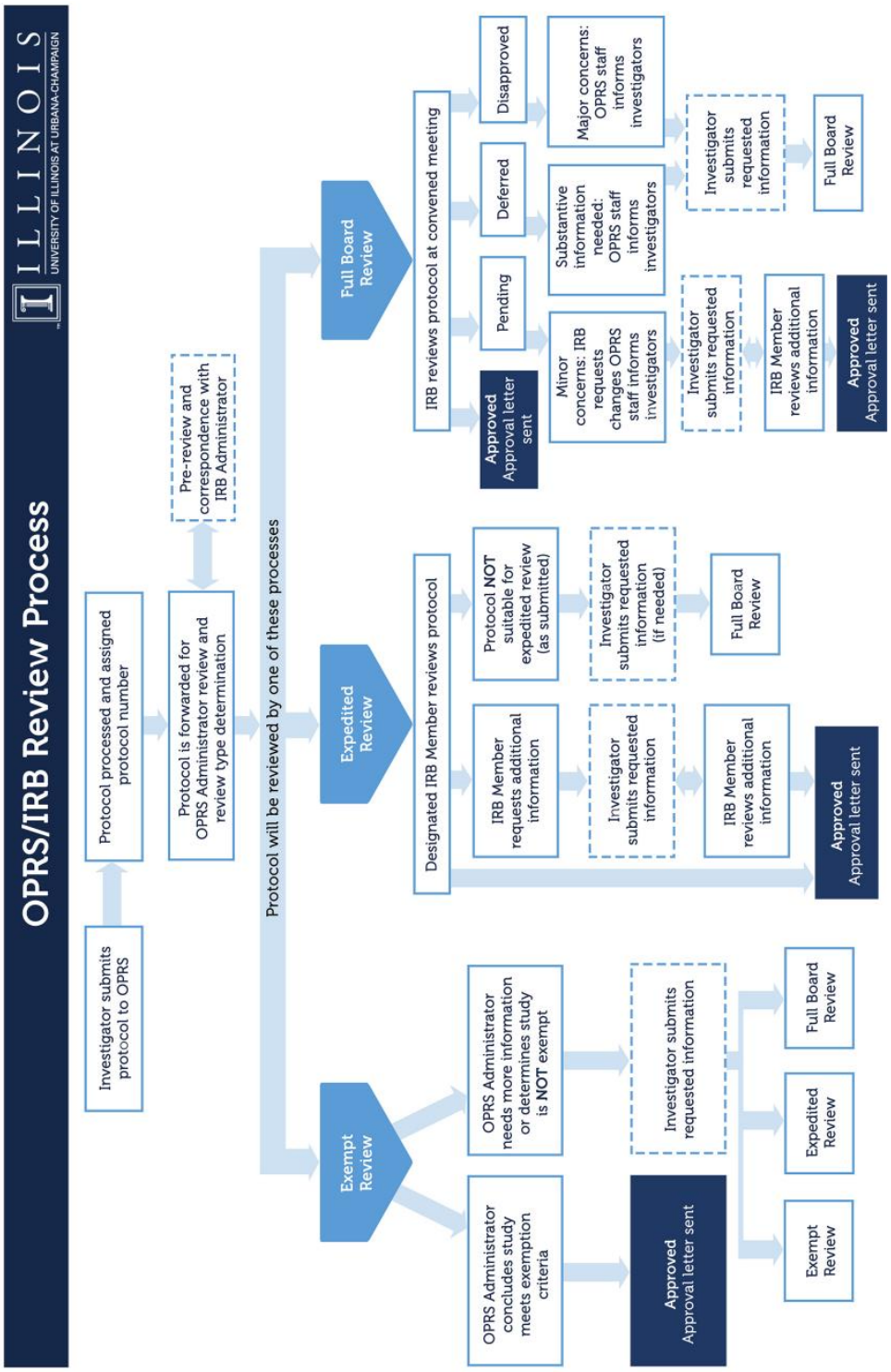
Exact definitions and variations of the categories below may vary by institution.

1. Exempt (most LIS research is classified as exempt)
2. Expedited
3. Full

Check your institutional policies to determine what kind of review is needed for your local case study project. If your institution does not offer extensive guidance, consider exploring tools provided by a larger institution, like those shown below from the University of Illinois at Urbana-Champaign. These resources can help you think through the process and foster more informed dialog with your local IRB committee.

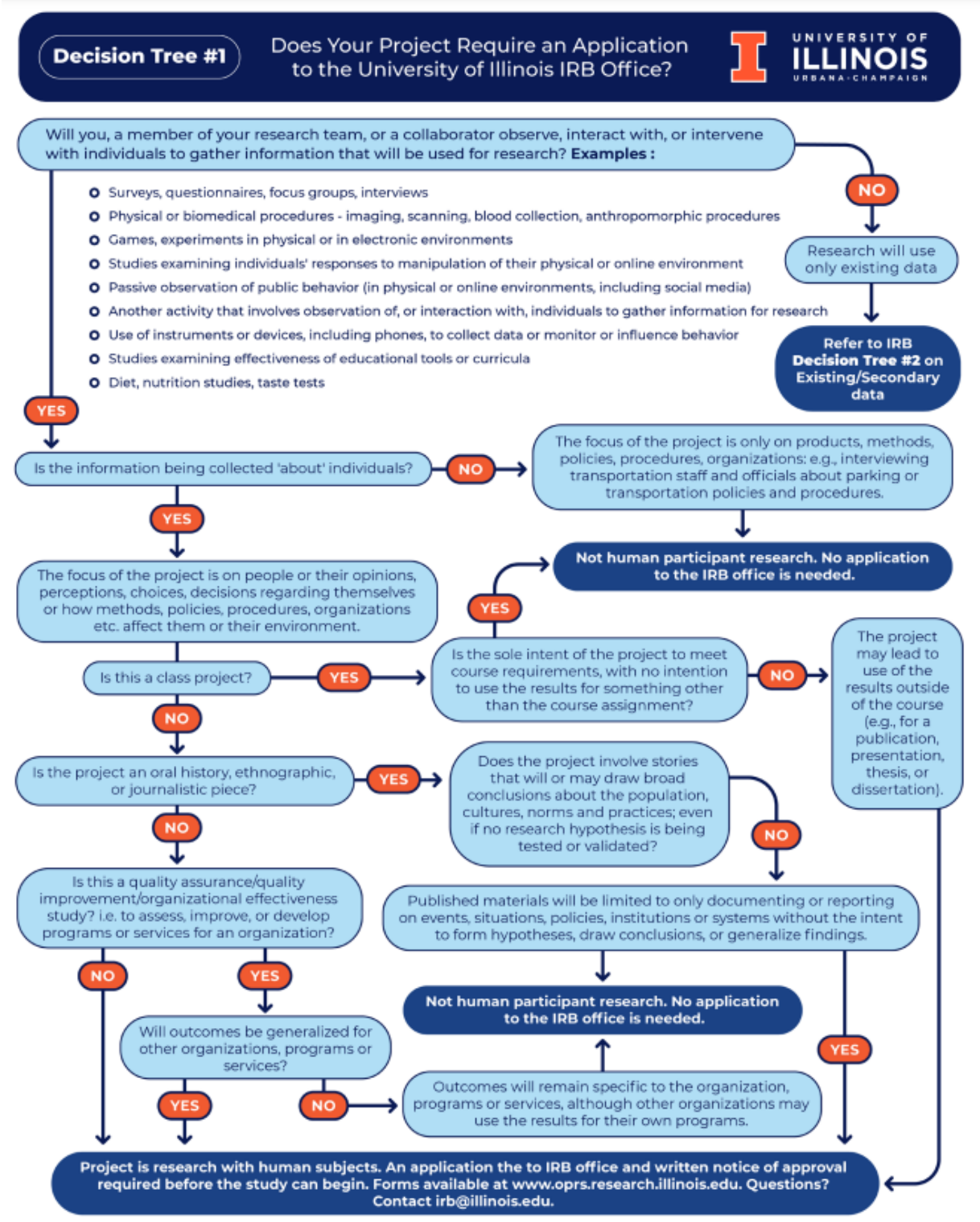
Notes or Questions

Office for the Protection of Research Subjects Process[50]



[50] "Review Processes and Checklists: Office for the Protection of Research Subjects." Review Processes and Checklists - Office for the Protection of Research Subjects. University of Illinois, Urbana-Champaign. Accessed September 15, 2022. https://oprs.research.illinois.edu/review-processes-checklists.

Office for the Protection of Research Subjects Decision Tree[51]



[51] Ibid.

IRB Application and Documentation

To fill out an IRB form, be prepared to offer the following detailed information:

- Investigator(s)
  - Qualifications
  - Training Documentation
- Description of Investigation
  - Purpose and Rationale
  - Participants - Recruitment, Informed Consent, Compensation
  - Methodology and Procedures - Data Collection, Data Analysis
  - Confidentiality/Privacy and Data Security
  - Dissemination Plans
  - Timeframe

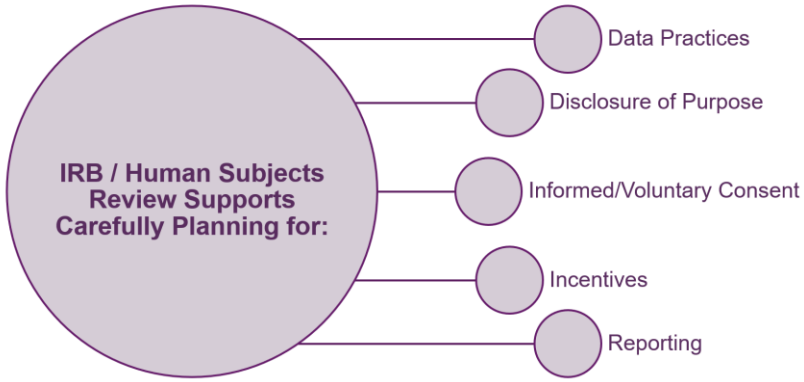
Key Idea: A clear research question and plans for operationalizing variables are essential to completing IRB forms and gaining approval. Reporting on forms is done in a technical writing style and forms can be daunting in length and complexity. Be literal and repetitive as duplicated information may be used for different purposes in different segments of the documentation.

Notes or Questions

IRB Review Process

IRB is a multi-step process. After submitting to IRB, reviewers may ask for revisions and resubmission before approving an application to ensure compliance with Federal and local regulations.

Where are you in the process of engaging with IRB? Place an asterisk (*) above the segment representing your current status.



Notes or Questions

Team Development Discussion: Questions

- What are your overall takeaways from getting an overview of IRB in Module 5?
- Has anyone in your team been involved with IRB approved research in the past? If so, what tips can your share?

Team Development Discussion: Case study Projects

- To what extent have you begun to interact with IRB at your institution?
- What questions do you need to ask about your local IRB policies and procedures?
- Based necessary information required for completing IRB paperwork, do you need to further clarify your research question or operationalized variables? If so, discuss/brainstorm with your team for help.

Next Steps

- Complete Required Reading for Module 6

Notes or Questions

Module 6: Methods and Participants

Required Reading

Complete the assigned reading and task below prior to the start of module 6.

- ☐ Browse the open textbook *Principles of Sociological Inquiry: Qualitative and Quantitative Methods*
  - Read Chapters 8 (surveys), 9 (interviews), 11 (observation) and 12 (focus groups)
- ☐ Explore ACRL Project Outcome
- ☐ Complete IRB training (if required)

Common Methods of LIS Research: Deeper Look

In Module 4, we encountered the idea that the research method for a local case study project should be driven by the research question selected. Four common methods for gathering data in LIS research were introduced, including: surveys, interview, focus groups, and observation.

Surveys

Definition: "Survey research is a quantitative* method whereby a researcher **poses some set of predetermined questions to an entire group, or sample, of individuals**."[52]

*Note: surveys with open-ended questions also gather qualitative data.

Tip: Surveys are the most common tool used but avoid defaulting to this method! Consider how each method could be beneficial and consider using multiple methods of inquiry.

[52] Blackstone, Amy, and Amy Blackstone. Principles of Sociological Inquiry: Qualitative and Quantitative Methods. Minneapolis: *Open Textbook Library,* 2012. *https://open.umn.edu/opentextbooks/textbooks/principles-of-sociological-inquiry-qualitative-and-quantitative-methods*

Common Types of Survey Questions

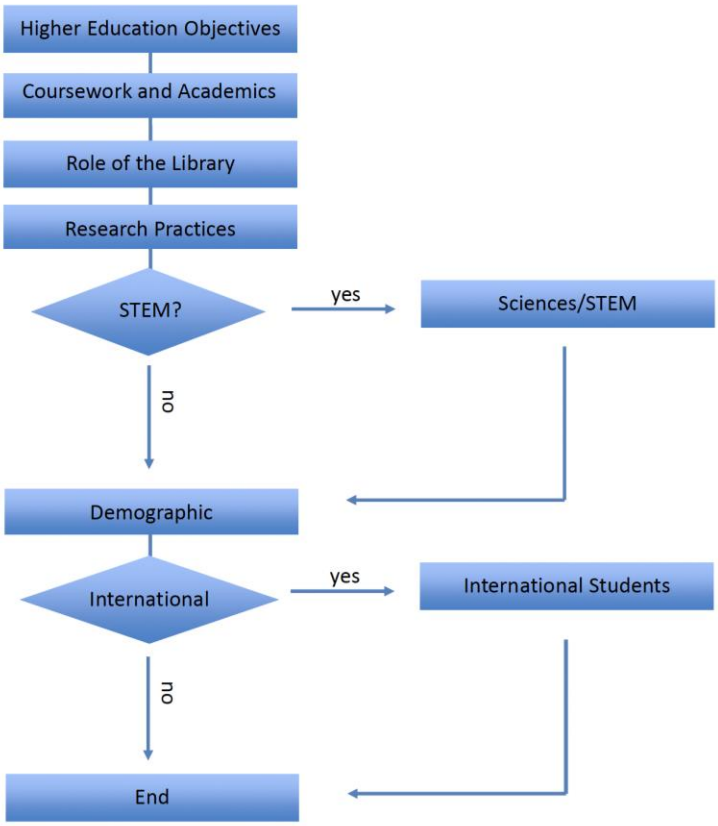
Question Type	Examples
Dichotomous Choice	- Yes/No - Used/Didn't Use
Rating/Likert Scale	- Satisfaction - Ease of Use - Useful - Important - Expectations - Recommend
Multiple Choice/ Nominal Short-Answer	- Check One - Check all
Comparative Ranking	- Ordering a list by priority
Demographic	- Information about respondents
Open Ended	- Fill-in-the-blank

Common Survey Mistakes

Questions that are…	Answers that are…	Survey logic that…
Leading or Loaded - Respondents intuit a desired answer to a question and may want to give the perceived "right" answer Example: Don't you agree that the library is important to you?	**Not Exclusive** -Responses fail to clearly delineate one answer Example: Age ranges of 20-30, 30-40, 40-50	**Loops** -Survey redirects respondents to a prior point and can't move to a subsequent question
Double Barreled - Questions ask about 2 things in the question. Example: Was this easy to use and helpful to you?	**Not Comprehensive** - Not all possible responses are represented Example: Age ranges of 18-24, 25-30, 31-36, 37-45, but a 50-year-old has no accurate way to answer	**Dead Ends** -Respondents lack a response or get a question they can't answer. Rather than answer inaccurately, they stop the survey

Example of Survey Flow: Contingencies and/or Skip Logic

Each student taking the Ithaka Graduate Student Survey (UIUC 2016) was presented with 5 core modules of questions. Those who indicated they were studying STEM and/or were international students were presented with additional modules. This is a flow chart of how the survey was presented and complements the *Report of Findings* produced by Ithaka S+R.



Notes or Questions

INTERVIEWS

Definition: "Interviews are a method of data collection that **involves two or more people exchanging information through a series of questions and answers**. The questions are designed by a researcher to elicit information from interview participant(s) on a specific topic or set of topics."[53]

FOCUS GROUPS

Definition: "Focus groups, on the other hand, are **planned discussions designed to elicit group interaction** … The researcher's aim is to get participants talking to each other and to observe interactions among participants … The researcher takes the role of moderator, posing questions or topics for discussion, but then lets the group members discuss the question or topic among themselves."[54]

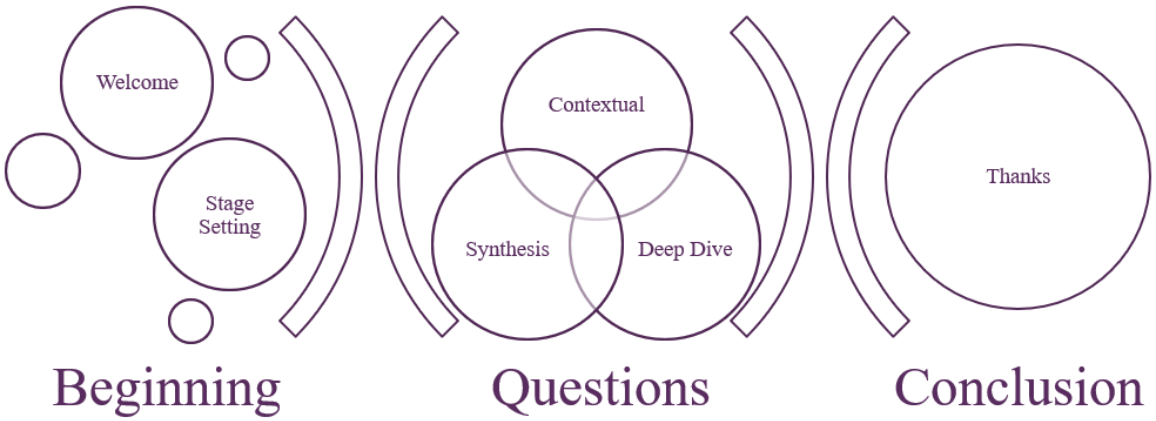
Considerations for Interviews & Focus Groups

	Question to Consider	Tips
Interviewer(s) or Moderator(s)	How many?	No more than 2 for interviews. Focus groups may have 2-3. Clearly define roles.
Setting	In-person or virtual? In the library—where?	Location may affect attendees state of mind/attitude.
Script	How will you guide interaction?	Have an plan – details below.
Open or Closed Questions	Are the questions clear?	Most questions should be open-ended, though select close-ended questions can confirm understanding between participants and researchers.
Vocabulary/ Jargon	Are you using unfamiliar terms?	Include definitions or explanations in your script.
Tone	Formal or informal/relaxed?	Arrangement of furniture, location, and presence or type of food can shape ethos.
Visual Prompts	Are visual aids necessary or helpful?	Prompts or props can help clarify, but they may also be loaded/leading.
Recruitment/ Selection	Who will be invited to participate?	Consider how invitations can influence participation.
Participants/ Group Composition	Who will participate?	Consider how sampling can influence data—details below.
Recording/ Transcription	How will a record of the event be captured? Notes, audio, video, etc.?	Time will pass quickly—be sure to predetermine what data to record/pay attention to.

[53] Ibid.

[54] Ibid.

The Script



Notes or Questions

OBSERVATION

Definition: "Field research is a qualitative method of data collection aimed at **understanding, observing, and interacting with people in their natural settings***."[55]

"Unobtrusive research refers to methods of collecting data that don't interfere with the subjects under study … Unobtrusive methods share the unique quality that they do not require the researcher to interact with the people he or she is studying … humans create plenty of evidence of their behaviors … activities leave something behind … are all potential sources of data for the unobtrusive researcher."[56]

*Note: Natural setting(s) is where people are of their own choosing.

Notes or Questions

Considerations (Questions & Tips) for Observation

Where and when?

Who will observe?

What is the focus?

Which data to collect?

How to collect?

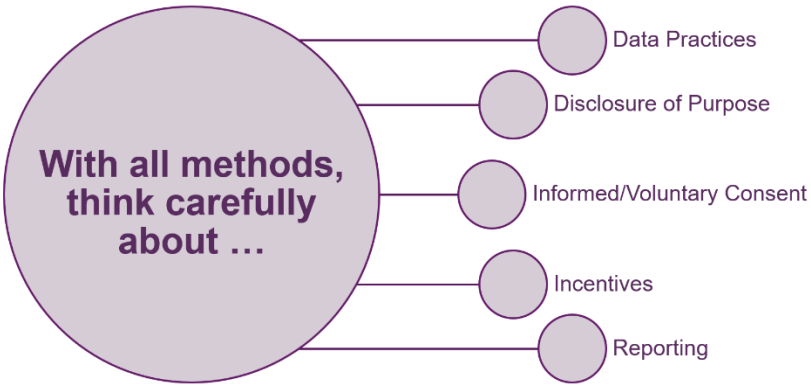
[55] Ibid.
[56] Ibid.

Additional Tips & Hints

- **Document the Methodology:** What did you decide to do? Why? What did you consider doing but reject? Why?

- **Pilot Test Methods:** Review your methods with another librarian or colleague (at minimum). It's preferable to test your methods with a representative group of your target participants.

- **Anticipate the Data:** What do you think you will find? Will it answer your research question?



PARTICIPANTS

Research requires designation of a **unit of analysis**—the entity being studied that your findings will say something about. A unit of analysis may be person or people (library users, students, and/or faculty), an organization (library unit or institution), or an object (online tutorial or website).

Recruitment

How will you identify, invite, and select participants? Analysis of objects simply requires identification and selection of research subjects. For human subjects, the process is more complex—requiring identification, invitation, and selection of participants. considering how to identify, invite, and select typically involves one of 2 types of sampling.

Sampling[57]

Sampling involves selecting a group of people or objects from a larger population. The type of sampling utilized affects claims that can be made from collected research data.

Probability sampling is a selection method for which the likelihood of selecting a person, object, or event for inclusion in the sample is known.

Four types of probability sampling include: simple random, systematic, stratified, and cluster.

[57] Ibid.

Nonprobability sampling is a selection method for which the likelihood of selecting a person, object, or event for inclusion in the sample is unknown. Nonprobability sampling is what's likely to be used by most local cast study projects.

Four types of nonprobability sampling include: purposive, snowball/referral, quota, and convenience.

- Purposive: Unit of analysis is selected based on characteristic needed in a sample
- Snowball/Referral: Recommendations for additional participants are provided by those already in the sample
- Quota: A tailored sample that is formed as a representation of a larger population. Typically includes a particular number of participants and data gathering isn't complete until quotas are met
- Convenience: Sample is drawn from easily population that is readily accessible

Notes or Questions

Team Development Discussion: Questions

- What in Module 6 engaged or surprised you?

Team Development Discussion: Case study Projects

- What type of method(s) are you developing for your local case study project?

Next Steps

- Develop Finalized Assessment Methods/Tools
- Apply for IRB Approval

Notes or Questions

Module 7: Data Analysis and Data Narratives

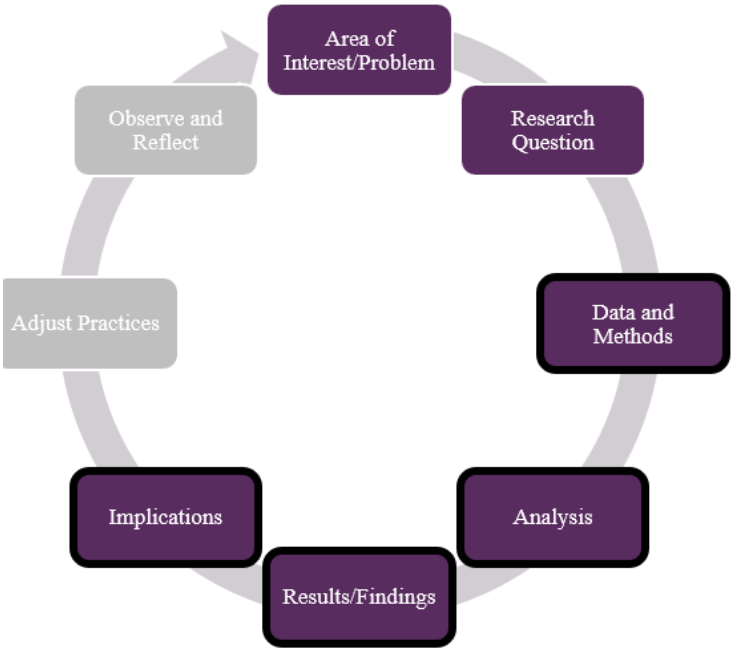
Required Reading

- ☐ Storytelling As Information Part 1: The S-DIKW F*ramework*[58]
- ☐ Storytelling As Information Part 2: Future S-DIKW Research[59]

Data Analysis

Cycle of Inquiry

Analyzing data moves us further in the cycle of inquiry. Before data can be effectively analyzed, researchers must process data.



Data to be processed can take a variety of forms and will be unique to the research question and methods selected for your local case study project. Moreover, data generated may be quantitative, qualitative or both! Regardless of the type of data collected, nearly every researcher must follow four steps to ensure it's ready for analysis.

Data Analysis Process

1) **Clean** – fix or remove incorrect, corrupted, duplicate, or incomplete data
2) **Code** – create or assign codes to categorize data; quantitative data is typically coded while collected while qualitative data requires high-level thematic descriptions or groupings
3) **Describe** - allows for understanding and contextualizing data collected; quantitative data involves descriptive statistics while qualitative data lists themes and observations
4) **Analyze** –involves looking for meaning and interpreting data to see what evidence supports

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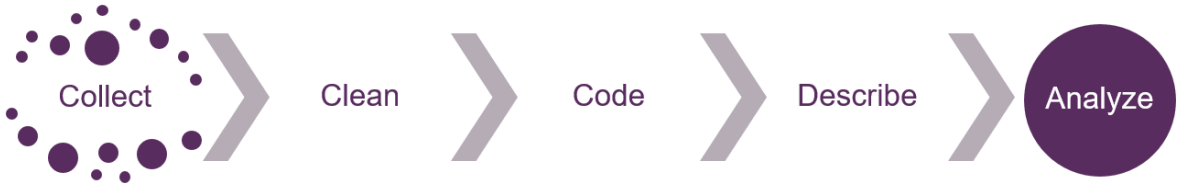
[58] McDowell, Kate. (2021, October 19). Storytelling as information part 1: The S-DIKW framework. Information Matters. Vol.1, Issue 10. https://r7q.22f.myftpupload.com/2021/10/storytelling-as-information-part-1-the-s-dikw-framework/

[59] McDowell, Kate. (2021, October 19). Storytelling as information part 2: Future S-DIKW research. Information Matters. Vol.1, Issue 10. https://r7q.22f.myftpupload.com/2021/10/storytelling-as-information-part-2-future-s-dikw-research/

*Note: Although the graphic below visualizes the process of dealing with data as linear, it's important to recognize that researchers frequently move through these steps iteratively to ensure accuracy in their assessment and findings.



DATA ANALYSIS STRUCTURE: DEEPER LOOK

A useful framework for data analysis can be taken from LIS professional literature. Peer reviewed journal articles exhibit a structure that can help ensure your local case study project thoroughly addresses questions about the research undertaken that could be raised by stakeholders in your campus community and beyond.

Results/Findings	Descriptive Not interpretive or evaluative
Discussion	Interpretive and/or evaluative Response to research question/hypothesis Relationship with literature
Conclusion	Contribution to the literature Implications for future research

Notes or Questions

Considering Possible Findings

Based on data gathered in your research, there are five primary options for what you might anticipate your findings will show:

- We know x works, so we should keep doing x.
- We should start doing x more, because y.
- We should start doing x less, because y.
- We should study x in a different way.
- We now know the issue is not x or y, therefore our next step should be z.

Each of these possibilities are helpful and can inform knowledge and learning in the LIS profession and your local context.

Reflect

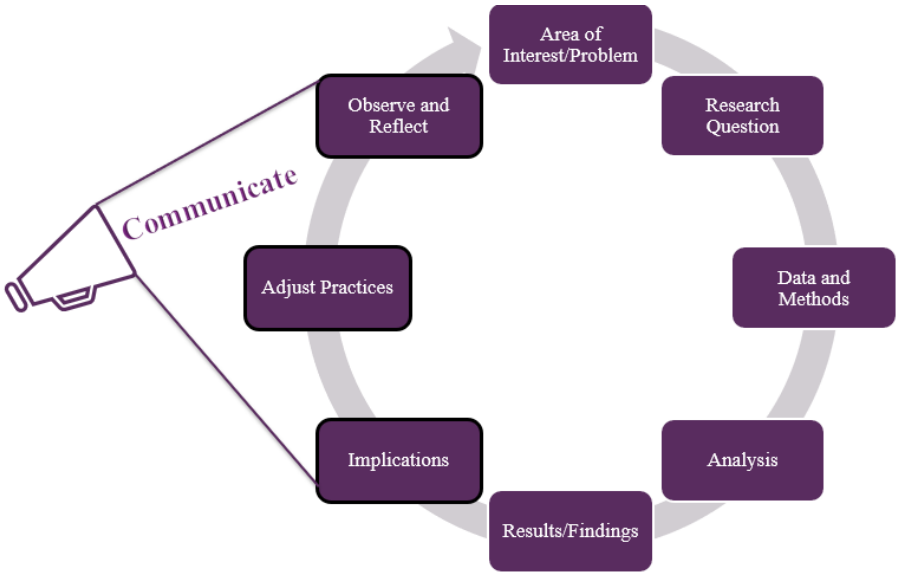
Which of the options above do you anticipate for your local case study? Use the template below to articulate the possible findings you might encounter and how you could respond.

Research Question:		
Possible finding?	**How to interpret/evaluate?**	**What would come next?**

DATA NARRATIVES

Once analysis is complete and findings are clear, use the final stages in the cycle of inquiry to formulate a narrative that gives meaning to your data!

Communicating the implications, adjusted practice, and observations or reflections that resulted from your project ties back to the original goal for undertaking the entire project: advocacy!



ADVOCACY:
ANY ACTIVITY THAT A PERSON OR ORGANIZATION UNDERTAKES TO INFLUENCE POLICY.[60]

To be an effective advocate requires thoughtful strategies for sharing your findings! According to Fenton Communications, a public relations firm that works with non-profits, foundations, and brands advocating for social change, " Good communication cuts through the clutter, it doesn't add to it. It does this by getting the **right message**, in the **right medium**, delivered by the **right messengers**, to the **right audience."**[61]

In advocacy work, we are seeking to influence a person or organization by making a case for what we believe in, but belief is not enough. We must work to…

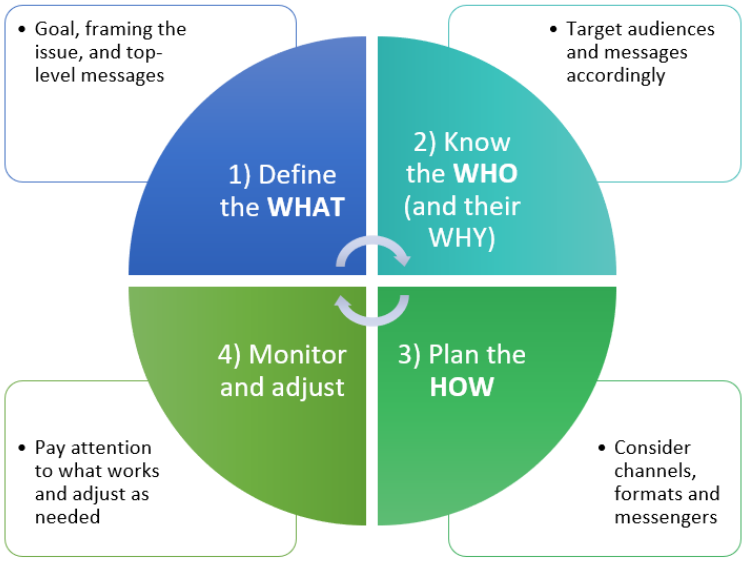
- inspire others to take action, too
- understand those who may oppose our desired change

[60] "Lobbying Versus Advocacy: Legal Definitions." Internet Archive: Wayback Machine. NP Action, June 1, 2006. Lobbying Versus Advocacy: Legal Definitions.
[61] Fenton Communications. *Now Hear This: The Nine Laws of Successful Advocacy Communications*. New York, NY: Fenton Communications, 2009.

To accomplish advocacy work…

- We need a full toolkit to get the right messages to the right audiences
- We need to recruit others to our effort

Building a Case for Change: Communications Toolkit



Let's explore the process of building a case by breaking the process into 4 steps as represented by the graphic above. Under each step, space for brainstorming ideas connected to your local case study project has been provided.

Step 1: Define the WHAT

Identify a clear and measurable goal to answer the question: **What change do you want to see?**

Frame the issue by answering the questions below to create high-level messages that can be tailored to varied audiences:

- What's wrong?
- Why does it matter?
- Why does it matter *now*?
- What's the solution?

Step 2: Know the WHO and their WHY

Your advocacy message should **inform, persuade, and inspire**! Consider the identify of decisionmakers (i.e., change-makers) as primary targets for your advocacy, but also identify stakeholders—a secondary audience—who can *influence* the change you hope to see. It can also be helpful to consider both allies for your cause and opponents.

Tailor your messages according to each audience, but keep the meaning and ideas consistent across audiences and channels

- Who is your audience?
- What is their "Why" – what motivates them?
- What do they care about (or not)?

Consider Re-framing[62]

Re-framing an issue or message can be a powerful way to change the conversation, especially when responding to opponents.

Tips for Re-framing:

- Be solutions-oriented
- Find common ground and values
- Define how a problem affects "us", not just "them"
- Avoid jargon or politically charged terms

- Do you anticipate opposition? How might you use reframing to change conversation from going "head-to-head" to a dialog of shared concern?

[62] *Framing in Race-Conscious, Antipoverty Advocacy: A Science-Based Guide to Delivering Your Most Persuasive Message.* https://www.law.berkeley.edu/files/thcsj/Framing_in_RaceConsciousAntipoverty_Advocacy.pdf *(pp. 418-421)*

Step 3: Plan the HOW

When conveying your advocacy idea or message, select a channel and format that will be effective. Identify where you audience is engaged and target delivery of the message in that space or place to help ensure they will listen.

Channel Examples:

- Social media
- Signage – posters or displays
- Campus or professional e-mail listservs
- Conferences
- Campus newspapers, newsletters, or alumni publications

- What is the optimal channel and format to approach your audience?

- Will the scope of the message be broad or personalized (i.e., 1-on-1 calls, meetings, or emails)?

- Do you have access to the chosen channel/format and ability to pull off? How might your allies/supporters broaden access to convey a message?

- What can you afford? (think of both staff time & marketing budget)

If someone else is better positioned to connect or resonate with your audience or you lack direct access to them, consider partnering with a messenger to deliver and advocate on your behalf. If this is relevant to your situation, consider…

- Who has the ear/the trust of the change-maker you need to reach? Who has the best access?
- Who is a trusted/insider if you are an outsider?
- Are they "upstream" from the change-maker you need to reach?
- Who has the most reach, and/or influence?
- Who can get folks' attention?

Step 4: Monitor and Adjust

Effective advocacy requires monitoring and adjusting messaging when needed. The process of building a case for change is iterative and may require updated methods, tools, and partners over time.

STORYTELLING

> *"Storytelling polishes stories like editing polishes essays, with the audience serving as editor. S-DIKW is a new framework, based on the well-known data, information, knowledge, and wisdom hierarchy (DIKW), for analyzing storytelling as information (McDowell, 2021)."*[63]
>
> *Kate McDowell*
> *"Storytelling as Information" Part 1, 2021*

S-DIKW FRAMEWORK[64]:

- **S-Data:** Ability to identify and interpret data from which information emerges that can be communicated in story.
- **S-Information:** Ability to inform audiences by communicating data with context as story, in both form and narrative experience.
- **S-Knowledge:** Ability to convey knowledge as complex actionable information through the construction and telling of a story, incorporating cultural and contextual cues. S-knowledge is shared frequently in innovative or experimental contexts.
- **S-Wisdom:** Ability to know which story to tell—including when, how, and to whom—in order to convey wisdom.

- How can storytelling and the S-DIKW framework enable you to effectively shape the data narrative of your local case study project?

[63] McDowell, Kate. (2021, October 19). *Storytelling as information part 1: The S-DIKW framework*. Information Matters. Vol.1, Issue 10. https://r7q.22f.myftpupload.com/2021/10/storytelling-as-information-part-1-the-s-dikw-framework/
[64] Ibid

Team Development Discussion: Questions

- Who needs to hear the results of your local case study project?
- How will share the story of your project and results?

Team Development Discussion: Case Study

- What findings do you anticipate?
- Where are you at in the process of dealing with data: collecting, cleaning, describing, or analyzing?

Additional Resources

Explore more of University of Illinois Associate Professor Kate McDowell's work, including additional articles and video lectures, on her website: https://www.katemcdowell.com/

Notes or Questions

Module 8: Community Communication

Team Posters

Each team within the community of practice will mark the conclusion of AASD training by creating a team poster that serves as a visual reflection on your time in this program. The team poster is intended to convey some aspect of your team's experience as a community of practice. The poster can be shared at a culminating AASD cohort session or with a broader supporting community for professional development.

Ideas and Questions to Consider

Ideas

- Motivations
- Surprises
- Obstacles
- Advice, Tips, or Hints
- Lessons Learned
- Wish we had known
- What comes next

Questions

- What concepts motivated us in starting our projects?
- What obstacle did we all find we had in common, and what did we do to overcome it?
- What tips and hints would we pass on to the next cohort?
- What were some of the most helpful lessons that we learned? From the in-person sessions? From the webinars? From each other?
- What is something we wish we had known before starting our projects?
- What do we plan on taking from what we learned during CARLI Counts and applying to our next project? How do we plan on expanding the projects that we started with the program?
- Did anyone on our team find anything surprising in their project? How did that compare with what other team members found?

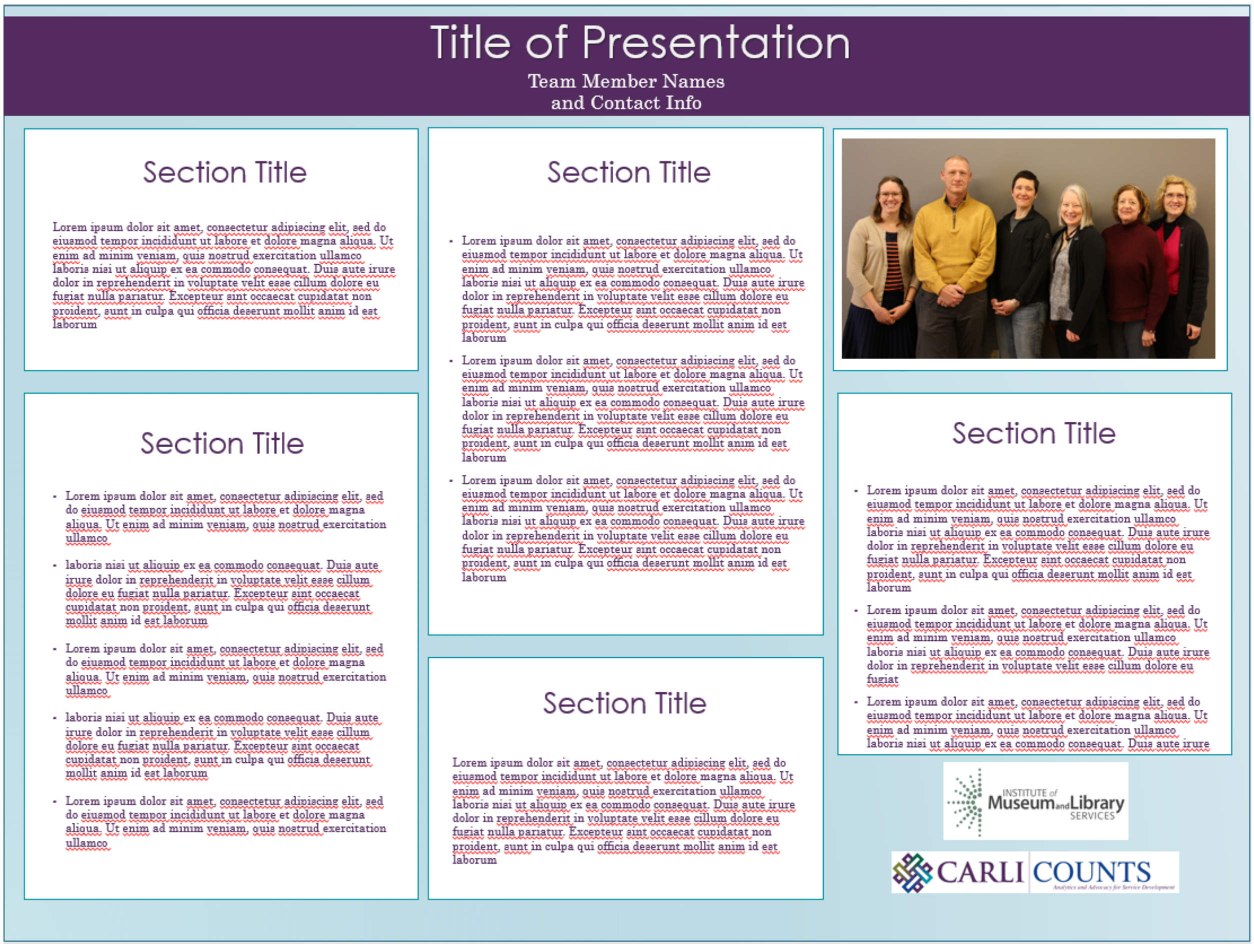
Caution: Team posters are NOT a report of individual projects! The goal is to reflect on the group's shared learning as a community of practice.

Design Parameters

The following are a list of suggested design parameters for creating your team poster:

- PowerPoint Slide
- Black/Dark Text on White/Light Background
- 32 Point Font (Or Larger)
- Avoid Background Images
- Size: 48" x 36" (Including Margins) – relevant if poster will be printed for an in-person event

Example Poster: Template



Presentation Delivery Options

In-Person Poster Session

For the in-person format, 1-3 members of a team should be stationed at the poster display. Poster presenters should be prepared to provide a 1-3 minute high level summary of the poster and allow those who approach the poster to pose questions. Presenters should rotate during the session to allow everyone the opportunity to present and view the posters of other teams.

Virtual Poster Session

For the virtual poster session, a 5–8 minute presentation covering the poster content and any relevant background information should be shared by no more than 2 team members. An additional 2-5 minutes should be offered for Q&A.

Team Development Discussion: Questions

- What will be the focus of your team poster?
- Answer as many of the "Questions to Consider" posed in Module 8 as are beneficial/ and time allows.
    - What concepts motivated us in starting our projects?
    - What obstacle did we all find we had in common, and what did we do to overcome it?
    - What tips and hints would we pass on to the next cohort?
    - What were some of the most helpful lessons that we learned? From the in-person sessions? From the webinars? From each other?
    - What is something we wish we had known before starting our projects?
    - What do we plan on taking from what we learned during CARLI Counts and applying to our next project? How do we plan on expanding the projects that we started with the program?
    - Did anyone on our team find anything surprising in their project? How did that compare with what other team members found?

Next Steps

- Draft a Poster
- Identify the Format for presentation and assign presenter roles

Notes or Questions