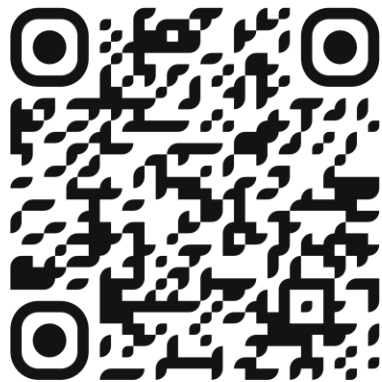


Diving for Sunken Treasure:

**How and Why to Go from Anecdotal
to Iterative Quantitative Assessment**



Presented by

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Florida)**

<https://canva.link/quantitativeassessment>

Institutional Context & Who We Are

- Open enrollment community college
 - Programs: 2 year (AA or AS) with some baccalaureate programs
 - Diverse student population
 - Part-time: 67.1% of students
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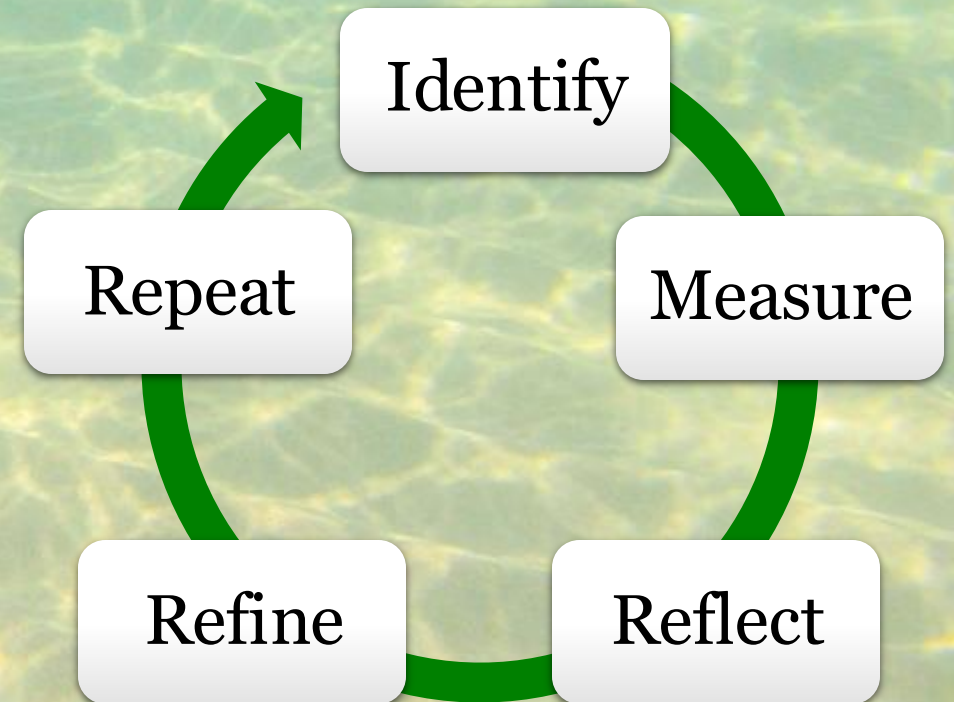
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- Claire A. Miller, MLIS:
 - Research and Instruction librarian, full-time
 - Rae Mair, MTS, MLIS:
 - (at the time) part-time librarian

What Is Iterative Quantitative Assessment?

A cyclical process of measuring student learning outcomes and experiences with data, reflecting on results, and refining instruction and assessment instruments in response — repeated across multiple semesters or years. Also known as **Action Research**.

Anecdotal refinement = we think it worked.

Action research = we can show what worked, and by how much.



Iterative Quantitative Assessment Matters: Benefits



Students

Balances the potential for instructor biases in instructional design

Ensures students are getting the skills they need

Each cycle of assessment produces instruction more precisely targeted to actual student needs



Faculty

Builds relationships by identifying and addressing faculty pain points directly

Shared investment in improvement over time deepens the partnership beyond a single session

Potential to add to their scholarship portfolio



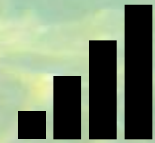
Librarians

Reveals trends a single snapshot misses

Provides data for decision making

Targets limited resources toward actual skill gaps

Provides data to advocate for new and continued services



Administration

Documents library contribution to student learning outcomes in terms administrators and accreditors recognize and value

Shows intent for continual improvement

Step-by-Step Process

Walk-through with Examples and Tips

1. Identify an Area for Improvement: Our Anecdote

Start with a problem worth solving: anecdotal evidence from faculty, research consultations, or your own teaching.

Our context: English professor came to us with concerns about the quality of sources in Comp 1 and Comp 2 courses

- Comp 1 Assignment: Argumentative research paper responding to a specific theme/essay from textbook with 6 or more sources.
- Comp 2 Assignment: Biographical criticism research paper requiring 2 biographical sources and 2 literary critical sources from the library databases



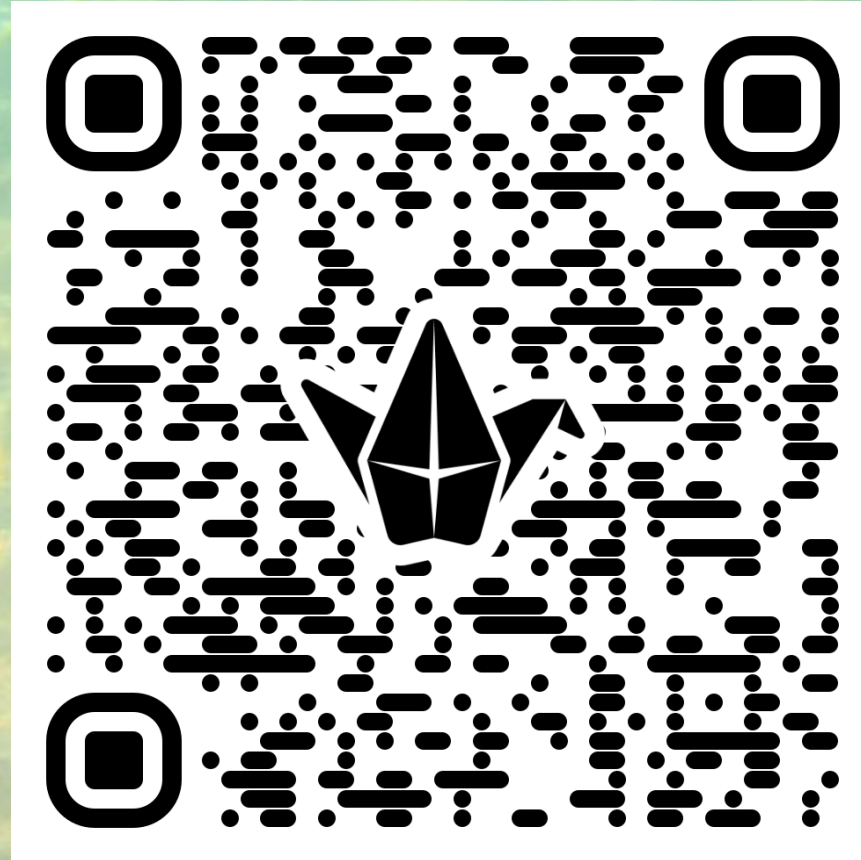
Faculty pain points are an entryway into partnerships.

Other Ways to Identify Potential Improvements

Use Data You Already Have in New Ways

- Give an exit ticket after instruction asking what the most challenging part of the activity or process was for the student
- Ask a student to walk through their process with the assignment instructions at the start of each research consultation to see where they get stuck
- Take note of student misunderstandings in one-shots, research consultations, or reference transactions
- Use pre/post surveys to find areas that need additional support
- Look back at chat logs to identify trends in student struggles with assignments or instruction
- Analyze Libguide usage (especially time on page combined with hits) to identify the content students find helpful. Then apply it to instruction

Share one instructional challenge or student misunderstanding in your own teaching.



2. Explore and Evaluate Current Instruction

- Ask the professor (or students) for a copy of the assignment and any current instructional content
- Check if instruction covers the skills gaps, misunderstandings, or challenges you collected in step 1 and identify areas for improvement
- Check whether current materials use the same language and goals as the instructor



- Approach faculty with collaborative mindset
- Express support for the intent of the professor and their goals. Ask what the ideal assignment would look like
- Constructive criticism lands better if you're working towards a shared goal
- Emphasize student misunderstandings over criticism of instruction if the instructional content is the professor's

2. Explore and Evaluate Current Instruction

Audit what students are already receiving before designing anything new

Our context: Current instruction was a mishmash of general library instructional videos with no structure, contextual information, or explanation for how to apply it to their assignment

- Required students to transfer general knowledge to discipline specific and assignment specific contexts
 - General website evaluation video using CRAAP needed to transfer to evaluating database sources and biographies
 - How to search Primo video needed to transfer to how to search a literary database
- Students were using unreliable websites as sources despite requirements for database sources
- Assignment instructions were confusing and assumed student prior understanding about source credibility and skills for finding sources

3. Determine Desired Student Outcomes: Backward Design

Wiggins & McTighe, Understanding by Design

Traditional Design

Content → Activity → Assessment

Backward Design

Results → Acceptable Evidence →
Learning Experiences & Instruction

Four questions to guide assessment design:

1

What skill or thinking do we want to see demonstrated?

2

What assessment shows the skill?

3

What activity helps students get there?

4

What content do students need for the activity?

3. Determine Desired Student Outcomes

Start with the end in mind. What should students be able to do after instruction?

Our context: We wanted students to be able to find and incorporate credible sources in their final projects

- No need to be complex! Clearly express what you want for your students to direct the rest of the process
- Align outcomes to the specific assignment, not just general information literacy goals
- Don't worry about proper wording or formal learning objectives at this step

4. Determine Acceptable Evidence:

Decide what counts as proof that students have met outcomes before you design instruction

Our context: Goal was authentic assessment of student work, so we chose to use the Works Cited for their final project

- Other potential choices for evidence:
 - Well-designed multiple-choice questions
 - Graded formative assignments:
 - Worksheets
 - Draft list of sources/annotated bibs
 - Paper worksheets for in-class instruction
 - Pre/Post quiz scores in a module
- Make sure the evidence demonstrates your outcome. For example, if you want to know students are using credible sources in their project, a multiple-choice question won't do
- Evidence could be retrospective, such as a previous semester's assignments as comparisons

Assessment: Untying the Ropes

- FERPA: If personally identifiable information is not released outside the institution, FERPA does not apply (FERPA, 20 U.S.C. 1232g(b)(1) and (b)(2))
 - Librarians, as part of the educational institution, are permitted to access student data
- IRB: Assessing effectiveness of instructional techniques falls under Program Evaluation/Non-Human Subjects Research (NHSR) as long as:
 - Intent is for internal improvement and not to produce generalizable knowledge
 - Everything gathered from students is part of the instruction, and not only for research purposes
 - Data collected is either completely de-identified, anonymous, or aggregate
 - It does not involve experimental or untested interventions (45 C.S.R. pt 46)
- Check with your IRB to see if you can make the NHSR designation or need to apply for the IRB to make it

5. Write Learning Objectives

Translate outcomes into specific, measurable, observable statements that drive instruction and assessment design

- Should be outcomes rather than agenda or content items
- Actionable and assessable verb
- Specific, measurable, observable and matches evidence collected
- Program, course, and assignment objectives may differ in specificity

Not Measurable:

Students will understand how to evaluate sources

Improved:

Students will select sources that meet multiple criteria, such as publication date, source type, and topic relevance

6. Create/Select Assessment Tools

Design rubrics, assignments, quiz questions, or other tools that directly reflect your learning objectives and are practical to apply

Our context: we chose to create a rubric to evaluate the learning objective separate from the professor's grading

- Collaborate with the professor on assignment design and instructions so the assessment better reflects the outcomes
 - For example, we collaborated with the professor to change source requirements in the assignments



Sometimes it takes the trust building of a few iterations before a professor may be open to some of your recommendations

Our Rubric

Our Program Outcome: Students will discover relevant information/sources by using a search strategy appropriate for the need.

- **Advanced:** Locates information/sources that meet **all** of the following criteria: meet assignment guidelines, are relevant to the topic, include a useful depth of information, are credible, and have an appropriate date of publication for the topic/discipline
- **Proficient:** Locates information/sources that meet **most** of the following criteria: meet assignment guidelines, are relevant to the topic, include a useful depth of information, are credible, and have an appropriate date of publication for the topic/discipline
- **Developing:** Locates information/sources that meet **some** of the following criteria: meet assignment guidelines, are relevant to the topic, include a useful depth of information, are credible, and have an appropriate date of publication for the topic/discipline.
- **Attempts:** Locates information/sources that meet **few or none** of the following criteria: meet assignment guidelines, are relevant to the topic, include a useful depth of information, are credible, and have an appropriate date of publication for the topic/discipline



7. Develop Instructional Content

Design instruction that directly addresses the problems you identified in Step 2, aligned to your learning objectives

Our context: We focused on finding and evaluating sources specifically for their assignment rather than more generic instruction

- Use the same vocabulary, examples, and assignment language the faculty member uses
- Add content and step-by-step processes in areas students expressed were challenges
 - Comp. 2 example: we gave step-by-step screenshots of searching a specific database using assignment relevant keywords and criteria
- Write explanations or design activities addressing misunderstandings you identified in previous steps
 - Comp. 1 example: we added research question design to frame student evaluation of relevance
- Apply information literacy concepts to their specific assignment
 - Comp. 2 example: we explained how to evaluate biographies specifically vs. sources in general



7. Don't Forget Motivation

Keller (1987) ARCS theory: Attention, Relevance, Confidence, and Satisfaction

- Primary motivational barrier: perception that research instruction does not apply to them
- Students motivated to engage content with concrete, immediate connection to assignment
- Use extrinsic hooks to get them to interact long enough for intrinsic motivation to kick in:
 - Active, relevant learning and immediate feedback
 - Stickers, prizes, gamification
 - Ask the professor to assign points to assignment or activity
 - Narrative framing with connection to life
- Incorporate application, active learning works better than content alone

8. Conduct Instruction and Assessment

Deliver instruction and collect evidence

- Don't overthink this one. It's just doing what you planned to do
- Keep noting misunderstandings, in and out of class
 - If possible, spot-check formative assignments and graded work
 - Also consider research consults as data
- Everything doesn't need to happen at once: retrospective assessment is still valuable
- Now's a good time to consider what improvement threshold is worth the investment of time

9. Evaluate Instruction and Assessment Tool(s)

After each cycle, ask whether the instruction and the tool are doing their jobs. What can be improved?

- Does the assessment tool accurately reflect what we are seeing in the student work?
- Do students understand the questions if using a quiz?
- Are there areas students are still struggling that need further refinement?

Our Context: During the first pass through student work, we realized the rubric did not reflect student work

Small changes to the assessment tool can mean exponentially less time and frustration while grading

9. Iterating Our Rubric

Before: General

- 0-3 categories
- Advanced (3 pts): Locates required number and types of information that are HIGHLY relevant to the project, problem, or need

After: Specific

- 0-4 categories
- Advanced (4 pts): Locates information/sources that meet ALL of the following criteria: meet assignment guidelines, are relevant to the topic, include a useful depth of information, are credible, and have an appropriate date of publication for the topic/discipline

9. Was it worth the effort? We think so!

Composition 1:

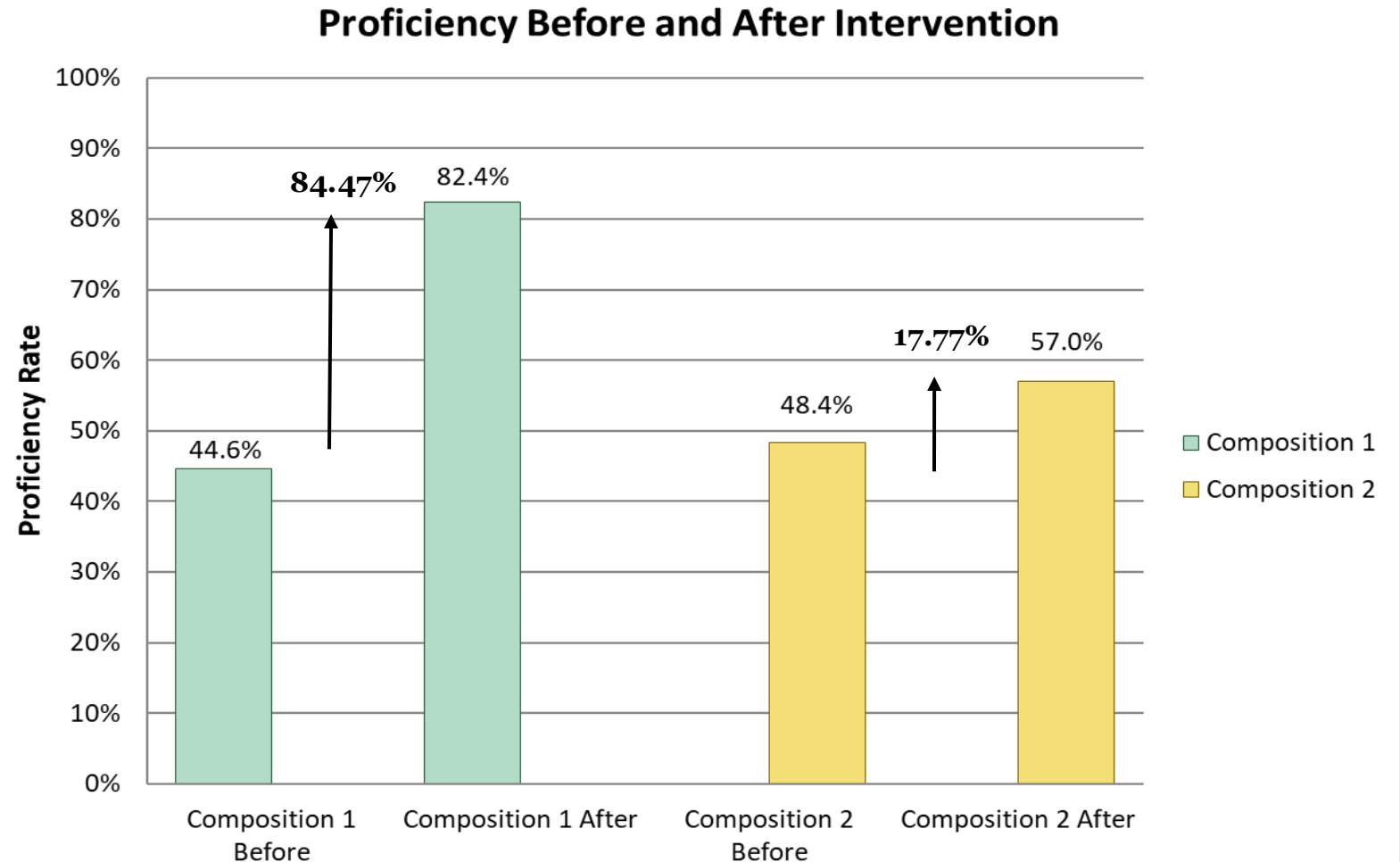
$\chi^2(1, N = 180) = 24.853, p < .001, \phi = .372$

Effect size:
medium

Composition 2:

$\chi^2(1, N = 256) = 1.896, p = .168, \phi = .086$

Effect size: not
significant



10: Reflect, Refine, Communicate, and Celebrate

Use what you learned to improve instruction, assessment tools, and faculty partnerships in the next cycle

- Document changes so you can track what worked across iterations
- Share data with administration to advocate for your work and the library
- Don't forget to celebrate your process, no matter how it turns out



Share data with faculty to deepen collaboration and advocate for new partnerships

10: Reflection on Our Results

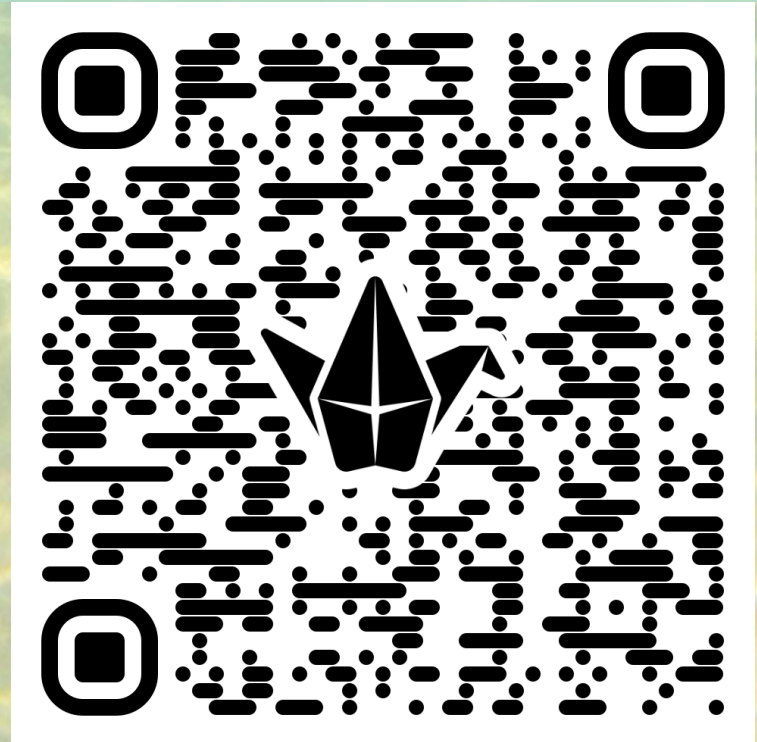
Factor	Composition I 84.47% Increase	Composition II 17.77% Increase
Formative Strategies	Intermediary graded assignment with instructor feedback	Formative & summative quiz only
Source Requirements	Database sources only	Web sources allowed for biographies
Content Delivery	Canvas pages — screenshot-heavy, click-by-click detail	iSpring module — broader literary research cycle approach
In-Person Contact	Two one-shots + online module	Online only (except F2F sections)

Lessons for Scaling Up College-Wide

- Consider who will score work from the beginning
 - If done during grading by professors, sometimes data is not collected or is inconsistent
 - Make sure scorers are comfortable applying the rubric
 - We edited the language of the rubric and levels in each subject to fit the language of the discipline
- Test data collection before full implementation
- Going college-wide: accreditation offers opportunity to advocate for assessment with administration due to external pressure to assess

Padlet: How could you apply one or more steps to a current instructional challenge at your library?

1. Identify an area of improvement
2. Explore and evaluate current instruction
3. Determine desired student outcomes
4. Determine acceptable evidence
5. Write learning objectives
6. Create/select assessment tools
7. Develop instructional content
8. Conduct instruction and assessment
9. Evaluate instruction and assessment tool
10. Refine and reflect



Questions?

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