Developing an Assessment Plan for 100-level Information Literacy Courses at the University of Northern Colorado

Brianne Markowski, Lyda Fontes McCartin, and Stephanie Evers
University of Northern Colorado, USA

Introduction

This paper describes the University of Northern Colorado Libraries' approach to assessing shared student learning outcomes (SLOs) in 100-level information literacy courses. The following SLOs are used in all 100-level courses:

- SLO 1: Students will be able to develop a research process
- SLO 2: Students will be able to demonstrate effective search strategies
- SLO 3: Students will be able to evaluate information
- SLO 4: Students will be able to develop an argument supported by evidence

In fall 2015, we began work on a plan to assess these SLOs across courses and instructors using signature assignments. Though assessment of information literacy has become widespread in recent years,[1] few examples describe assessment of SLOs in information literacy credit courses. Those that do typically look at one course rather than assessing SLOs across multiple sections and instructors.[2] This paper aims to address this gap. While the assessment process described here was used to assess shared credit course SLOs, the authors believe that the process we used to develop the assessment plan, the signature assignments and analysis procedures will be relevant to libraries looking to assess library-wide SLOs for one-shot or embedded information literacy instruction programs.

Context and Challenges/Opportunities

The University of Northern Colorado Libraries' credit course program began in the early 2000s with one course, LIB 150: Introduction to Undergraduate Research. The program now includes seven distinct credit courses which are part of degree requirements for programs across campus. Library faculty in the Information Literacy & Undergraduate Support Department teach both 100 and 200-level courses. The department teaches 15 courses each semester with an annual enrollment of approximately 300 students. The 100-level courses are considered a "program" and all six share the four core SLOs noted above. These outcomes are used as both course and program outcomes and may be assessed differently for each context. The six 100-level courses that make up the 100-level program include:

- LIB 123: Introduction to Library Research. Undergraduate research course designed for students in the Center for Human Enrichment program, a federally funded TRIO program. This course introduces effective library research techniques designed to increase the student's ability to identify, access, and evaluate information and to participate in scholarly discourse.
- LIB 150: Introduction to Undergraduate Research. Undergraduate research course designed for Athlete Academic Bridge. This is one of three courses in the Athlete Academic Bridge program, which is focused on preparing incoming student athletes for college through an intensive summer session.
- LIB 151: Research Skills for Beginning Researchers. Undergraduate research course designed for students in the Honors Program. This course is the first of four courses in the Independent Project sequence—LIB 151, LIB 251, HON 351, and HON 451—which supports students as they develop and complete their Honors Theses.

- LIB 160: Criminal Justice Library Research. Undergraduate research course designed for criminology and criminal justice majors. LIB 160 is a corequisite of CRJ 380: Justice Research & Statistics I.
- LIB 170: Audiology & Speech Language Pathology Library Research. Undergraduate research course designed for audiology and speech language sciences majors.
- LIB 180: History Library Research. Undergraduate research course designed for history majors. LIB 180 is a corequisite of HIST 280: Sophomore Seminar.

Before 2015, the department had no formal assessment of the credit course program. Each instructor developed their own course with similar learning outcomes, but no standardized outcomes or required assessments existed. The lack of a formal assessment process resulted in three issues: (i) we could not compare courses and learning across the different sections of courses since outcomes and assessments varied, (ii) we were not able to provide data to our campus partners requiring the courses, and (iii) we were not able to share data on the effectiveness of our credit courses to campus administration.

In order to gain knowledge and skills in the area of assessment, a team of library faculty participated in our university's Assessment Leadership Institute, a program that provides "faculty and academic units with the knowledge and skills necessary to conduct effective program-level student learning assessment."[3] This team focused on one-shot instruction, but our department used these skills to begin considering assessment of the credit courses. Participation in the Assessment Leadership Institute allowed us to begin formalizing our assessment processes. Our participation in the institute also showed teaching faculty that the library is involved in student learning assessment and provided us with the same baseline knowledge as teaching faculty. The latter was especially important since our university's Office of Assessment and Accreditation uses different language and processes than some library literature suggests. Participation in the Assessment Leadership Institute meant that we could speak the language of the teaching faculty on our campus around assessment.

With the baseline knowledge and skills gained from the Assessment Leadership Institute, the department went through a process of developing shared student learning outcomes for our 100-level information literacy courses using the Association of College & Research Libraries (ACRL) Framework as our guide.[4] At that time, the outcomes were used for course-level assessment only; library faculty developed their own courses and assessments for these outcomes and the assessment process was still not standardized. While many faculty collaborated on assessment development, this was not required. In order to standardize assessment across the 100-level courses we determined that those courses would serve as a "program" with the same learning outcomes and assessment across the courses. Thinking about these courses through a program assessment lens allows us to compare learning across sections of a course and across disciplines and provides data for our stakeholders and administrators. The process for moving from course assessment to program assessment is detailed in the next section.

Developing the Assessment Plan

The assessment plan for the shared 100-level SLOs was developed using a five step process. This work was accomplished collaboratively by the libraries' Curriculum Committee, composed of all librarians who teach in the information literacy credit course program. The Curriculum Committee established this process by working through how to assess the first SLO and then refined the process to develop the assessments for the remaining three SLOs.

Step 1: Develop signature assignment. A signature assignment is a course-embedded assignment, activity, project, or exam that is collaboratively created by faculty to collect evidence for a specific learning outcome. To develop the signature assignment, each Curriculum Committee member proposed assignments for the SLO based on how we were already assessing an outcome in our courses; we also

looked to the literature for assessment ideas. After vigorous debate, we agreed upon a signature assignment to pilot. Teams of two worked on developing the signature assignment including the assignment instructions and scoring plan. The draft was brought back to a meeting where it was discussed and edited before moving to the next step.

Step 2: Pilot signature assignment. In order to evaluate how the proposed signature assignment would work in the classroom, the two librarians who developed the signature assignment embedded it in their courses the following semester and collected data from students in their course sections. After the assignment was graded, they reported any issues and we revised the assignment as needed.

Step 3: Determine analysis procedure. While the pilot was underway, we discussed how we would analyze the data once collected, looking for examples of how others had assessed similar learning outcomes and modifying those procedures to fit our needs. This resulted in the development of a rubric of some kind. At the end of the semester, we tested the analysis procedure on data collected from the pilot.

Step 4: Set achievement benchmark. After discussing the results from the pilot, we agreed upon an initial benchmark level of achievement for the SLO. This would be used to measure our success in achieving the SLO beyond the pilot phase. For example, the benchmark for SLO 1 is 75% of students will achieve surface or deep learning.

Step 5: Document the assessment method for the SLO. We kept detailed notes on our discussions and decisions throughout the process. Then we finalized official documents on the signature assignment, data collection processes, and analysis processes after the pilot phase was complete.

After completing this process for the first SLO, we implemented the signature assignment in all sections of the 100-level courses and began collecting and analyzing data for that SLO. We then began the process again for the next SLO.

Assessment Plan

The assessment plan documents our process for assessing 100-level learning outcomes on a regular basis. The plan outlines the method of assessing each SLO, a schedule for when data are collected and analyzed, who is responsible for this work, and how the results are shared.[5] It is important to note that we used our university's assessment plan template and recommend using your institution's template, if available.

In our assessment plan, we collect assessment data for each SLO every semester through the course embedded signature assignments described in the next section. Instructors are responsible for collecting the student artifacts for each signature assignment; this primarily involves exporting student responses from the learning management system. Instructors give the student artifacts to an administrative assistant, who deidentifies and organizes student artifacts in preparation for analysis.

The Curriculum Committee is responsible for analysis in our assessment plan. SLO 1 and 3 are analyzed one year and then SLO 2 and 4 are analyzed the following year, so only two SLOs are analyzed in any given year. This analysis takes place primarily at the Curriculum Committee's annual daylong assessment retreat, usually held at the end of the spring semester.

Finally, the assessment plan also addresses who is responsible for reporting the results of the assessment. After the Curriculum Committee has analyzed and discussed the data collected from the signature assignments, the Curriculum Committee Chair writes a report summarizing the assessment results that is shared with committee members and library administration.

Signature Assignments

The signature assignments provide the foundation for our program-wide assessment plan. Each signature assignment is embedded in the course, typically as a graded assignment or ungraded in-class activity. Though we use standardized rubrics for program assessment, grading a signature assignment for course credit is at the discretion of the instructor. Here we provide an overview of the signature assignments used to assess each SLO.

SLO 1: Develop a Research Process

The signature assignment for SLO 1 asks students to map their research process at the beginning of the semester based on their prior experience with research. At the end of the course, students create a second map reflecting on what they have learned about the research process. Our 100-level information literacy courses are structured around an iterative research process, moving students from selecting a topic to submitting a final research-based product. By the end of the course, students have engaged in the research process, but examining the final research-based product does not provide sufficient evidence to determine what students have learned about that process. This reflective assignment helps us see what students think about the research process.

Figure 1. Research process map
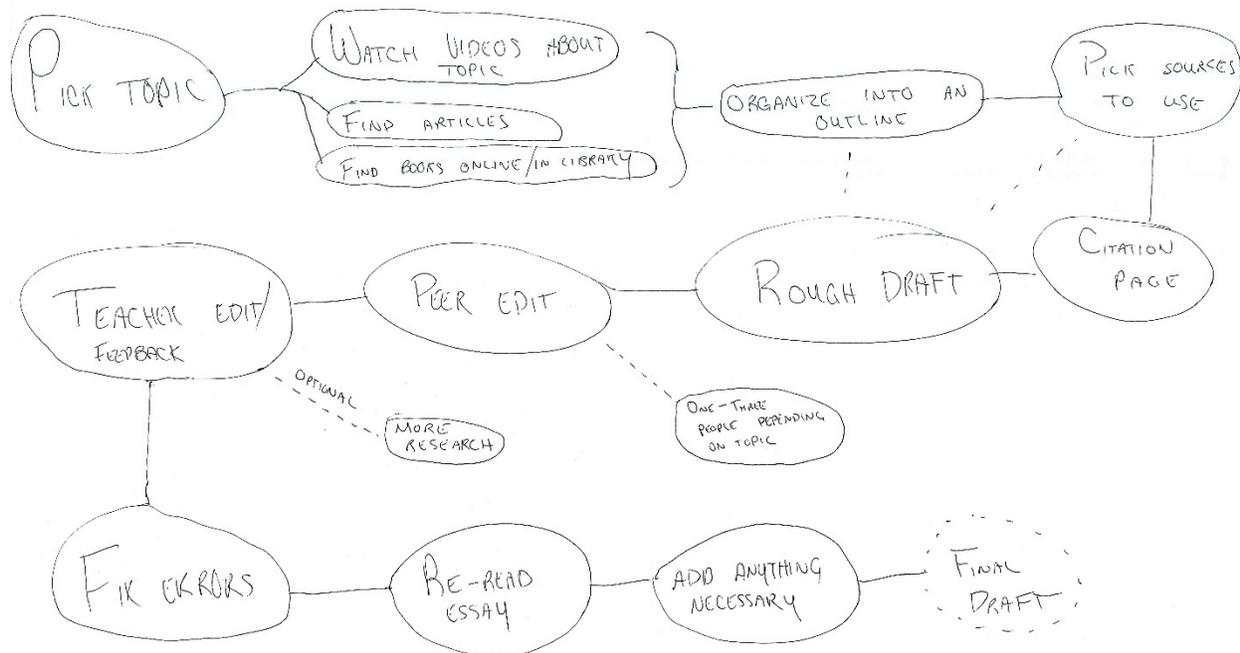
For the purpose of program assessment, we are interested in how the student's understanding of the research process changes from the pre- to post-map. The analysis procedure is based on a qualitative approach developed by educational researchers. First, maps are categorized into one of three basic knowledge structures: spoke, chain, or net.[6] Then, maps are analyzed using a framework for measuring learning quality that characterizes the change in the pre- and post-maps as indicative of non-learning, surface learning, or deep learning.[7]

SLO 2: Demonstrate Effective Search Strategies

For SLO 2, we want to evaluate how well students could select databases, choose keywords, and determine search tools to help them locate sources. The signature assignment is a reflective exercise where students are asked to share their research question, which databases they used and effective search strategies for their topic, including keywords, limiters, or other methods of finding sources. Students complete this exercise in the last two weeks of the course so that they can reflect on all that they had done while researching their topic. Because we want to know if the search strategies employed are appropriate for the research question, our analysis compares several criteria to the student's stated research question. The criteria we use to analyze these student reflections are:

1. Keywords—Did students mention keywords relating to their topic or the use of synonyms, narrowing or broadening terms, and/or the use of controlled vocabulary?

2. Search Tools—Did students identify the source for their searching, whether a research or library database or government or other credible web resource?

3. Exploration—Did students indicate other methods they used to find sources, such as using database limiters, the use of bibliographies to find related sources, or taking advantage of linking features in databases for related content?

To assess this SLO, individual student reflections are evaluated and determined to either meet or not meet the three criteria.

SLO 3: Evaluate Information

The signature assignment for SLO 3 measures whether students can select appropriate sources for a research topic. When developing the assignment, we considered the varied disciplines of our credit courses and the complexities of assessing an assignment while considering the contextual nature of evaluation. Ultimately, the assignment we developed provides students with a sample research scenario and question and six sources to skim. Students then select three sources that they would use for the research question and write a paragraph justifying why those sources were chosen. In the justification paragraph, students are asked to address the evaluation criteria discussed in class: relevancy, currency, and authority.

For program assessment, we evaluate a sample of student responses and indicate on a tally sheet if the students addressed all three evaluation criteria in their justification. We also evaluate whether critical thinking is applied in relation to the research question—so a student might address only one or two of the three criteria but demonstrate that they are taking into account the context of the sample research question as they discuss authority, relevance, or currency. This signature assignment, and the process for analyzing it, has had several iterations over the years as we have tweaked it for clarity and applicability to different subject areas.

SLO 4: Develop an Argument Supported by Evidence

The final assignment for our 100-level information literacy courses is a research-based product. The specific task varies by instructor; some assign essays or annotated outlines while others assign presentations or posters, but all require students to answer their research question based on available evidence. This final research-based product serves as the signature assignment for SLO 4.

For program assessment purposes, we had to develop a process that could be used for all types of final research-based products. We developed an overarching rubric that we apply to a sample of final products. The rubric outlines three levels of achievement (exceeds expectations, meets expectations, and needs

improvement) in the content areas of argument, evidence, and attribution. *Argument* looks at the connections between the sources and the argument, evaluating the degree to which the student's research question has been answered. *Evidence* evaluates the amount of relevant evidence presented. *Attribution* looks at the ethical use of sources and citation style.

Figure 2. Rubric for SLO 4

Criteria	Exceeds Expectations	Meets Expectations	Needs Improvement
Argument	Clear connections between all sources and argument in order to answer research question fully	Clear connections between most sources and argument in order to answer research question adequately	Few or no connections between sources and argument and/or inadequate answer to research question
Evidence	Ample amount of relevant evidence presented	Sufficient amount of relevant evidence presented	Insufficient amount of evidence and/or irrelevant evidence presented
Attribution	Ethical use of sources with few or no errors in use of citation style	Ethical use of sources with some errors in use of citation style	Unethical use of sources and/or many errors in use of citation style

Next Steps

At the end of the 2019–2020 academic year, we completed one full cycle of the assessment plan, successfully assessing all shared SLOs in our 100-level information literacy courses. Though we were happy to have finally finished assessing the SLOs for the course, assessment is an on-going process and an assessment plan should not be a static, unchanging document. At the Curriculum Committee's annual assessment retreat in 2020, we revisited our assessment processes to determine if any adjustments were needed at this time. We discussed if the plan was providing information that was meaningful to us, specifically whether it helped answer questions that we still wanted to know about student learning and whether we felt the information produced was useful for improving our teaching and student learning. We also discussed whether the plan was manageable and sustainable for students, faculty, and administrators. Based on these discussions, we determined that the assessment plan had led to valuable conversations among librarians about what we teach and why. The plan also encourages us to discuss effective strategies for teaching as we look at student achievement across courses. Ultimately, implementing this plan for systematically assessing SLOs in our courses has improved teaching and student learning. We did decide on one change to our assessment plan to make it more manageable. Moving forward, we will focus on one SLO or signature assignment in an academic year instead of two.

In 2021, we will participate in a campus-wide pilot program to collect assessment data for University of Northern Colorado's Institutional Learning Outcomes. We will be working with the university's Office of Assessment and Accreditation to demonstrate alignment between the SLOs for our 100-level information literacy courses and the Institutional Learning Outcomes. Through this project, we hope to assist the university by collecting data on student learning that is required for accreditation and show how the library plays a role in student success.

Acknowledgements

Endnotes

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[6] Ian M. Kinchin, David B. Hay, and Alan Adams, "How a Qualitative Approach to Concept Map Analysis can be used to Aid Learning by Illustrating Patterns of Conceptual Development," *Educational Research* 42, no. 1 (2000): 47, https://doi.org/10.1080/001318800363908.

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