Measuring Student Learning in Library Information Literacy Instruction Programs

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Abstract. Librarians play numerous roles in a mushrooming world of information. In academic libraries, they answer questions, manage collections of books and periodicals, and daily assist students and faculty to find information on every imaginable topic. One of their primary goals is to assess the effectiveness of the library's instruction program by using both qualitative and quantitative measurement tools to validate the need for student information literacy instruction.

Information literacy is the ability to gather relevant information, to process it, to choose the best of it, and to present it in a new format to a selected audience. Assessment of library information literacy instruction has not always been a priority in higher education, but as budgets tighten, universities and colleges are finding it necessary to supply evidence of student learning in order to satisfy financial supporters and accreditation requirements. Appalachian State University in Boone is one of the sixteen institutions of higher education in the North Carolina State Educational System. As available information sources proliferate, undergraduates are finding it increasingly difficult to keep up with new innovations in the modes of the delivery of information and to live up to the expectations of academia for research papers and projects.

This paper enumerates specific strategies that librarians in the Information Literacy Instruction Program at Belk Library and Information Commons are using to take the lead in the qualitative and quantitative measurement of student learning outcomes on the campus of Appalachian State University. Tools for the measurement of data for assessment are suggested, and there is a discussion of possible methodologies of incorporating information literacy instruction and assessment of student learning into the curricula of academic institutions.

Information literacy librarians teach students skills for a life-long learning experience. They are passionate about the need for incorporating information literacy instruction and assessment of student learning into the curricula of academic institutions and have devised methods to measure the student learning outcomes of their information literacy instruction.

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1. Introduction

There is a fundamental need for professors to know that students have the skills necessary to accomplish academic work. As a service to the campus community, most academic libraries offer information literacy instruction, once referred to as "bibliographic instruction." Information literacy is quite different from bibliographic instruction. Finding the information is no longer enough; students must be able to find, assess, organize, and present information in an original way. The goal for the current university student is to prepare them, not only for the challenges they will face in college, but also throughout their lives.

Assessment of student learning is crucial to the academic institution of the 21st century. It is essential, and usually required, in order to determine if graduates of the institution are ready to assume a productive role in today's world. This paper presents the kinds of assessment that can be conducted and explains the central role of assessment in teaching information literacy. A research librarian might ask, "Can't we just teach students about resources for history, business, etc. without going through the complicated and time-consuming process of assessment?" We know they come to the library to learn what we have to teach." Well, maybe, but how will we know they are learning?

2. Kinds of Assessment

The Assessment Immersion Track is a relatively new program, first offered in 2008, sponsored by the Association of College & Research Libraries for teaching librarians around the country. It follows the other successful Immersion Tracks, one for instructors and one for program development, to complete the cycle of training for librarians who teach information literacy in higher education. Admission is highly competitive for all of the Immersion Tracks.

Librarians attending the Immersion Assessment Track learn that there are two main kinds of assessment: *Formative* assessment that is used to prove, or provide evidence, that students are learning the concepts needed to conduct research on an academic level, and *Summative*, more general assessment, is used to inform and plan future programs.

Formative assessment furnishes evidence of student learning, with the student and professor involved; it's purpose is to improve the process of information literacy instruction. Summative assessment is more familiar. It is part of the grading process relative to the standards for the course, and might help decide where the student should be placed in the program, or how well the program is working.

3. Assessment Tools

As the purpose is different for the types of assessment, the tools are different as well. To determine student learning outcomes, specific exercises are conducted to judge whether students were able to use the concepts presented for a specific purpose, for instance:

- Completing exercise Worksheets in the class session,
- Testing to determine if the student retained specific skills taught,
- Observing student engagement
- Asking questions
- Group work & peer evaluation

A more general approach to assessing student achievement is summative:

- How many questions did the student answer correctly?
- How many students believed the library session was useful?
- Pre-tests and post-tests
- Report cards
- Exams
- Surveys after class
- Consultations with professors

One of the members of the faculty at Immersion, Megan Oakleaf, has published widely on the subject of information literacy and assessment. In 2008, she wrote "Dangers and Opportunities: A Conceptual Map of Information Literacy Approaches." The article enumerates examples of the three kinds of assessment methods most often used to assess the information literacy instruction of librarians, with the benefits and dangers of each. In a nutshell, the methods are:

- The fixed choice test: pretests and post-tests: testing before and after a class, or surveying students and/or faculty to see what parts of the session were most useful,
- Performance assessment: exercises to determine if the student grasped the concepts presented in the class, and
- Rubrics, used primarily to grade a course assignment that is a requirement for the students in the course.

Examples of assessment tools can include:

- An evaluation form, either in paper or online, that each student or faculty member completes, either during or after the class, can be used to determine which parts of the instruction were most useful and what concepts were <u>not</u> covered that the student needed to know to complete the assignment. For example, a Student Evaluation of Library Instruction, asking:
    - Librarian Name
    - Class Number
    - Teacher Name
    - What information did you find most useful in this session?

  Check all that apply:
    - Tips on finding books in the Library Catalog
    - Library Research page with links to help, guides and "how to" pages
    - Tips on best electronic databases for finding articles
    - Hands-on exercises and handout
    - Tips on finding primary documents and good websites
    - What would you have liked to know that wasn't included?

- Exercises used in the instruction session, which should address the learning outcomes needed to complete the course assignment and may be:
  - evaluation of web sites,
  - finding journal articles,
  - finding books and their call numbers,
  - determining the difference between scholarly and popular publications,
  - paraphrasing of text.
- Exams, quizzes, and rubrics, used to determine what the student has learned in a course. Rubrics are especially valuable when grading a final project which encompasses several skills and competencies. Following is part of a rubric for an assignment that requires that students create a web page on a chosen topic for their final project:

Goals for Web Page Assignment	Excellent	Good	Terrible
Text of web page: *Students will define their information needs: decide on a topic, find information on it, and synthesize it.*	*Asks a research question that addresses the topic and draws a conclusion.*	*Presents a topic with some issues about it and draws a conclusion.*	*Presents a topic but has no real research question or problem and no conclusion.*
Sources: at least one book, one article, and one web page in the bibliography: *Students will use a variety of sources to explore a topic in order to produce documented material from a reliable source.*	*Identifies several formats and types of information most likely to answer their research question.*	*Identifies one or two information sources.*	*Uses only one source of information.*
Bibliography of web page in citation format: *Students will document their sources in order to demonstrate research ethics and give credit to the original author.*	*Creates a complete works-cited list or bibliography and acknowledges the use of all sources, using quotation marks when using someone else's work.* *Shows mastery of an accepted citation style.*	*Creates a works-cited list and acknowledges the use of most sources.* *Uses a citation style, but is inconsistent in its use.*	*Works-cited list is incomplete and sources are not acknowledged.* *Sloppy citation style.*
Overall appearance and clarity of words and images: *Students will organize and illustrate the information on their topic to focus on the most important ideas and the conclusions they have drawn.*	*Weaves together ideas, facts, and opinions, and draws conclusions based on information gathered.*	*Presents ideas found and draws conclusions, but has difficulty organizing them.*	*Presents information without weaving together the ideas, lets information found stand alone, and draws no conclusions.*
Information is presented in the [illegible] article: *Students will synthesize and integrate the information found in order to create new knowledge or understanding.*	*Presents own conclusions based on the information gathered in a way that is informative and interesting to an audience of college students.*	*Has difficulty combining information [illegible] with supporting evidence in an interesting and informative way.*	*Constructs a web page that does [illegible] informative to an audience of college students.*

4. Assessing Student Learning Outcomes

ACRL provides a long list of desired learning outcomes, but the teaching librarian has to choose a few for a particular class and should design the exercises that will demonstrate that the students achieved them (or not!). The key formula for creating an assignment in order to assess a student learning outcome is:

- The student will _________ in order to _______________.

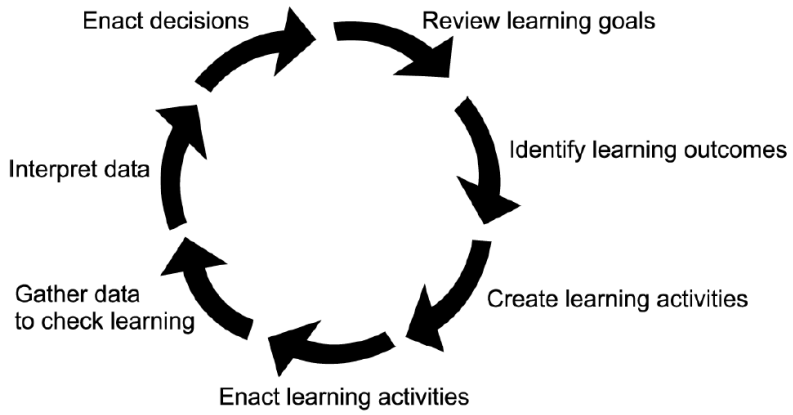
In other words, what the student will do >>>>> and the student learning achieved. Following are suggested steps to planning an instruction session:

- Begin with the student learning outcomes you hope to achieve,
- Plan the activities that will result in the student's achievement of the outcomes,
- Then find a way to measure the student learning outcomes:
  - How many articles did the student find?
  - Were the citations correct?
  - Did the student write down the correct call number of a book?
  - Did the student's web page provide reliable information?

Depending on the assignment that the professor has required for the class, suggested student learning outcomes for information literacy classes are:

- The student will choose a topic and develop some questions to answer about the topic in order to construct a research thesis.
- The student will build a search strategy and record key words and subject headings in order to search for information on a topic.
- The student will search library databases in order to find two journal articles and will cite them using APA citation style.
- The student will construct a concept map in order to expand the vocabulary used in the search for information on a topic.
- The student will locate an article containing a case study of scholarly research in order to describe the research method used.
- The student will select a web site in order to explain that will convey reliable information for research for an academic project.

The following model is a visual path of the Information Literacy Assessment Cycle. Starting with the ACRL standards for information literacy competency in higher education, the teaching librarian designs instruction classes, conducts them, determines if the learning goals have been met, then adjusts the goals and outcomes as needed.



(Oakleaf 2009, 543)

5. Conclusions

Assessment always informs teaching. Teaching librarians have evolved from conducting bibliographic instruction sessions, with incidental encounters with students and instructors, to teaching information literacy as a necessary component of the university curriculum and the student's life-long learning. The teacher's goal is to determine if the student is learning *what* he needs to know *to do* what he needs to do.

Constructivist pedagogical theory maintains that learning is best accomplished by doing; that students learn best when they think critically and figure things out for themselves. They are *guided* by the teacher, rather than *listening to* the teacher. Before planning a class, the information literacy instructor determines what the desired outcome is: what do you want the student to be able to do? Find scholarly journal articles? Find primary sources? Then: what does the student need to know in order to complete the assignment? Library databases? Historical newspapers?

For every information literacy class, the teaching librarian designs the student learning outcomes to be accomplished in the time allotted. Rarely should there be more than two or three desired outcomes in an hour-long session. Remember, it takes longer for the students to think through the process of finding journal articles in a library database than it does for the librarian to conduct a lecture on the subject. Measurement of learning outcomes assures that the instruction was productive and of lasting value to the student.

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