

WHAT ARE THEY LEARNING? PRE- AND POST-ASSESSMENT SURVEYS FOR
LIBR 1100, INTRODUCTION TO LIBRARY RESEARCH

ABSTRACT

Articles reporting the experiences of librarians in assessing what students are learning in information literacy classes are as of yet not as well represented in the professional literature as they should be. This is especially the case for library skills courses that are for-credit. Librarians who have experience assessing student learning should share what they have learned with colleagues who, in turn, need to know what methods are working, and how the assessment process can be used to improve teaching and learning. This article reports on the experience gained by librarians at Texas Tech University Libraries while developing and implementing pre- and post-assessment surveys that were administered in eleven sections of a library research course taught in the fall of 2008.

INTRODUCTION

In recent years, higher education in the United States has been endeavoring to prove through empirical evidence that it is committed to improving student learning. Much of this effort is directed at learning-outcomes assessment. Margaret Spellings, United States Secretary of Education, created the Commission on the Future of Higher Education in late 2005 and charged it “with developing a strategy for higher education to meet the needs of America’s population and address the economic and workforce needs of the future.”¹ In 2006, the Commission issued its final report, *A Test of Leadership: Charting the Future of United States Higher Education*. The report makes several recommendations for reform, grouped into five categories. “Transparency and Accountability” is one of the categories. The Commission noted in its summary of this category that “improved accountability is vital to ensuring the success of all the other reforms we propose. Colleges and universities must become more transparent about cost, price, and student [learning] success outcomes, and must willingly share this information with students and families.”² Though the Commission’s report was not necessarily an early wake-up call for learning-outcomes assessment, since articles on the need and importance of outcomes assessment in higher education had been published in the professional literature of higher education for at least six years before 2006, it was nevertheless an important document on the topic from a political and administrative perspective and has had a significant impact on campuses across the nation.³

Responding to the Department of Education’s report, the regional accreditation organizations made changes in their standards, and these have been primarily responsible for the trend toward outcomes assessment. Not unexpectedly, some of the standards of several of these regional organizations relate to academic libraries and have changed the way they are assessed, especially their information literacy programs. Because of this new emphasis on student learning-outcomes assessment and the inclusion of information literacy in the efforts of many colleges and universities to assess their programs and courses, librarians are now using outcomes assessment methods in their information literacy classes, whether these are credit courses or traditional one-shot sessions that support a course taught in an academic department. The resulting data collected from these assessment efforts is being used to improve the content of information literacy courses and sessions and the teaching skills of librarians. Unfortunately, articles reporting the experiences of librarians in assessing what students are learning in information literacy classes are as of yet not well represented in the professional literature. This is especially the case for library skills courses that are for-credit. Librarians with this experience should share their assessment findings with colleagues who

need to know what methods are working and how the assessment process can be used to improve teaching and learning. This article reports on the experience librarians at Texas Tech University Libraries gained while developing and implementing pre- and post-assessment tests that were administered in eleven sections of a library research course taught in the fall of 2008.

LITERATURE REVIEW

Searches in several bibliographic resources yield a large number of articles, books, documents, and other materials on the assessment of information literacy skills. Many of these materials are guides, manuals, or action plans; articles on the need to integrate information literacy assessment into general education; or reports of accreditation trends in higher education. Also, some of these materials discuss strategies used to gain support for or to develop information literacy assessment programs, or report on state-wide assessment programs of higher education curricula without the details of any particular assessment projects. However, the author found a number of articles that, to one degree or another, report the experiences of librarians in actually assessing student learning of information literacy competencies either in academic department courses or in the information literacy programs of their libraries. Only one of the articles assesses learning in a for-credit course dedicated to teaching library skills.

A majority of these articles report the results of pre- and/or post-assessment surveys. Pamela Jackson reports in an article published in 2006 on pre- and post-test results that revealed students' understanding of plagiarism. The 2,829 students studied were Computer Science majors at San Jose State University. The results of the study indicated that the students had "difficulty grasping concepts related to paraphrasing."⁴ Also, the post-test results showed a six percent improvement in student scores over the pre-test results. Karl Woodworth and Linda Markwell report in a 2005 article on the results of an Ovid MEDLINE pre-test given to incoming residents at Emory University's School of Medicine.⁵ Several of the students received low scores, and the librarians administering the pre-test hoped that these low scores would motivate the students to learn more about library research. Similarly, Jonathan Heimke and Brad Matthies discuss their library's attempt at pre-instruction assessment of incoming Butler University (Indianapolis) freshmen in an article published in 2004.⁶ Librarians developed a survey that was administered in all sections of English 102, an English composition course. It did not assess what the students would learn in the course, but what they had learned about library research before enrolling in the course. The librarians used the results as a base line measurement of the students' basic library skills and attitudes. The findings led to the development of instructional goals for an online tutorial that would introduce students to basic library skills and services.

James Nichols and others report in their article published in 2003 on pre- and post-tests that compared student learning in an online tutorial with learning in a traditional lecture and demonstration class. The students were enrolled in a freshman English composition course that offered basic information literacy instruction.⁷ The results of the tests in terms of both student learning and student satisfaction were comparable for both methods of instruction. In her 2002 article, Elizabeth Carter discusses the experiences of librarians at the Citadel, a military institution of higher education in South Carolina. The librarians developed pre- and post-tests that measured the information-seeking skills of first-year students.⁸ The tests were administered in a required one-hour freshman-experience course that included sessions where information literacy skills were taught.

Earlier studies used similar methods for assessing student library skills. Heidi Julien and Stuart Boon report in an article published in 2001 on data collected during an ongoing study of information literacy instruction in Canadian academic libraries.⁹ In phase one of the study instructional librarians and library administrators were interviewed at two universities and one college in different regions of Canada, and instructional documentation was collected and analyzed. Phase two included pre- and post-tests of students' information literacy skills. The tests were administered at the three institutions to groups of students who had attended relatively short "one-shot" information literacy classes, ranging from 50 minutes to three hours long. Julie Rabine and Catherine Cardwell, the authors of an article published in 2000, describe two assessment tools used at Bowling Green State University for several years as a means of fulfilling the University's requirements for program and classroom-level outcomes assessment. The tools were a brief survey given to a large number of students and an in-depth, multipart tool used with a limited number of students.¹⁰ The survey, referred to in the article as a five-minute mini quiz, was administered in English 112, the Freshman composition course. Though librarians did not teach any sections of this course, they developed materials that were included in the students' course packet.

In another article published in 2000, Carol Germain and others report the results of pre- and post-tests taken by students enrolled in "First-Year Experience" classes at SUNY, Albany. In an attempt to find an effective way to meet the demands placed on SUNY Albany's librarians to teach library skills to large numbers of students enrolled in these classes, the library developed a Web-based instructional module and used it in one section of the course taught by a faculty member. Another section received a lecture on library instruction from a librarian. The test results of the students in these two sections were comparable. Analysis of the scores also showed that library instruction, regardless of format, made a big difference.¹¹ In a 1998 article, Barbara Bren, Beth Hillemann, and Victoria Topp discuss research that focused on the effectiveness of using hands-on instruction in a workstation laboratory. Two groups of

students—one receiving hands-on instruction and the other a lecture and demonstration—were tested at the conclusion of the class.¹² The researchers found that students receiving hands-on instruction did better on the test. In an article published in 1986, Joan Kaplowitz reports the results of pre- and post-tests taken by students enrolled in the English-3 Library Instruction Program at the University of California at Los Angeles.¹³ Changes in library usage, attitudes toward libraries and librarians, and understanding of basic library skills were studied. Analysis revealed that the students scored significantly higher on the post-test than on the pre-test.

Pre- and post-assessment testing has also been used to assess learning in distance courses. Lana Ivanitskaya and others review the results of tests that assessed the information literacy skills of off-campus students in their article published in 2008.¹⁴ A “Research Readiness Self-Assessment” survey was used as a pre- and post-test in an off-campus Master’s degree class at Central Michigan University. In particular, the authors of the survey investigated the impact that pre-tests have on the effectiveness of library instruction when students are given feedback on their pre-test performance. Similarly, Elizabeth Mulherrin and others review the results of pre- and post-tests taken by distance students in their article published in 2005.¹⁵ Unlike all the tests reported in the previous articles, the tests reviewed in Mulherrin’s article were taken by distance students enrolled in LIBS 150, a one-hour credit, elective library skills course offered at the University of Maryland. The tests were administered as one phase in the development of the course and proved to be an important factor in its eventual success. Ten of the pre- and/or post-assessment tests discussed in the preceding paragraphs measured the library skills students learned in a course. Only one was administered in a for-credit library research course.

Articles reporting on the use of rather unique tools or methods for assessing information literacy have also been published. Donald Gilstrap and Jason Dupree report in their 2008 article on the use of a critical incident questionnaire at the Southwest Oklahoma State University Libraries as a qualitative instrument for assessing information literacy skills throughout the institution’s curriculum. The questionnaire was administered to a sample population of 348 students enrolled in English Composition II. The results of their study showed that the questionnaire was an effective instrument for assessing critical reflection.¹⁶ In an article published in 2007, Lynn Cameron, Steven Wise, and Susan Lottridge report on the Information Literacy Test (ILT) developed at James Madison University Library. The test was developed to “meet the need for a standardized instrument to measure student proficiency regarding the ACRL Information Literacy Competency Standards for Higher Education.”¹⁷ The authors of the test expected that it would eventually be adapted for use at other institutions. It made frequent use of graphics, documents, and Web page images. “The One-Minute Paper and the One-Hour Class,” published in 2006 and authored by Elizabeth Choinski and Michelle Emanuel,

investigates the use of a technique that had students write brief answers to specific questions, “thus providing instant feedback from students on the lesson of the day.”¹⁸ The authors maintain that this technique is an effective way to assess outcomes in one-shot library instruction sessions. Margy MacMillan reports on an assignment tool that asked students to create individual resumes that listed their information skills in her article published in 2005.¹⁹ The purpose of this resume project was to encourage students to reflect on and assess their library research skills.

Additionally, the use of portfolios and rubrics in assessment is reported in the literature. In their 2008 article, Karen Diller and Sue Phelps investigate the use of portfolios with rubrics for evaluation in the beginning phase of an outcomes assessment program undertaken at Washington State University at Vancouver.²⁰ Librarians participated with faculty in assessing the University’s General Education Program which is based on the institution’s learning goals, including information literacy goals. Similarly, Davida Scharf and others investigate writing portfolio assessment of student information literacy skills in an article published in 2007.²¹ In this study, graduating seniors taking a capstone seminar in the Humanities at the New Jersey Institute of Technology were required to create a writing portfolio. These portfolios included term papers that were assessed for this study. In addition, Lorrie Knight discusses, in an article published in 2005, the use of a scoring rubric based on course learning objectives and the ACRL Information Literacy Competency Standards in Higher Education.²² The rubric was used to score students’ course bibliographies. As with the great majority of studies discussed in this article, none of the unique assessment tools and methods discussed above was used in a library skills course. However, most did assess, at least to some extent, the library skills students learned in a particular class.

AIM AND SCOPE

For several years now, Texas Tech University has offered a one-hour credit course titled “Introduction to Library Research” (LIBR 1100) to undergraduates. The course teaches the basics of library research and targets freshmen, though sophomores, juniors, seniors, and even an occasional graduate student enroll in the course. Teaching the course is voluntary, and most of the Information Services librarians participate. Several sections are offered each fall semester, and two or three sections in the spring. Early on, each section was taught by two librarians, but, starting in the fall of 2008, the number of sections offered was increased, and one librarian was assigned to teach each section.

Every year, since LIBR 1100 was first offered, each section has been evaluated by its students in terms of the course content and instructor. However, the student evaluations have always been subjective, and what students were learning in the course was never objectively assessed. The librarian instructors of LIBR 1100 decided to begin measuring student learning outcomes with pre- and post-assessment surveys in the fall of 2008.

The purpose of the pre- and post-assessment surveys was to determine as objectively as possible whether students enrolled in LIBR 1100 were learning what the instructors teaching the course intended for them to learn. Though there were several hands-on practicums in the course that required the performance of skills and students had to compile an extensive annotated bibliography on a topic of their choice, the assessment surveys focused on determining what students had learned, or more precisely what they knew.

BACKGROUND

In addition to the practicums and annotated bibliography, LIBR 1100 had several assignments that involved reading documents available on the course's WebCT site. The documents were titled "Campus Libraries and an Introduction to the Research Process," "Writing a Thesis Statement," "Search Strategies," "Controlled Vocabulary," "Proper Citing," "Ethical Use of Information," "Introduction to the Information Cycle," "Newspaper Articles," "Popular Magazines and Scholarly Journals," "Documents and Books," "Encyclopedias," and "Critical Evaluation of Sources." The "Information Cycle" document was used as a means of providing a structure for the three readings that followed it. These readings provided information and instruction on how to search databases. The students used these databases to find sources on the topic they chose for their annotated bibliography. The LIBR 1100 instructors authored all of these reading assignments.²³ Short quizzes following the required readings were used not only to assess comprehension but to reinforce course content. The questions in the pre- and post-assessment surveys also addressed the content of the readings. (The questions in the survey are available in Appendix 1 at the end of this article.)

The goals and outcome objectives of LIBR 1100 addressed the ACRL Information Literacy Competency Standards for Higher Education. The course's four goals served as a general framework for the outcome objectives.²⁴ Each of these objectives more specifically addressed one or more of the Standards. (See Appendix 2 for the ACRL Information Literacy Competency Standards for Higher Education and their performance indicators.) Objective one, "Students will understand the general principles and procedures associated with library research and the proper use of information . . .," was large in scope and covered all five Standards, including

most, if not all, of the performance indicators listed under the Standards. Objective two, “Students will apply effective search strategies and techniques and cite information sources properly . . . ,” was meant to respond to all of the performance indicators in Standard two, and performance indicator 5.3 in Standard five. Objective three, “Students will effectively use both print and online resources to find appropriate materials for their assignments . . . ,” addressed standard two, performance indicator 2.3. Objectives four, “Students will use critical thinking skills and will effectively employ evaluative criteria in the selection of sources . . . ,” and five, “Students will show evidence of interpreting information and revising queries . . . ,” were meant to respond to all the performance indicators of Standard three. Finally, objective six “Students will understand and practice the ethics of information use, including copyright and intellectual property rights, and the need for proper citation of sources to avoid plagiarism . . . ,” addressed all of the performance indicators of Standard five.²⁵

Similarly, each pre- and post-assessment survey question addressed particular ACRL Information Literacy Competency Standards, their performance indicators, and course outcome objectives. Questions one and five addressed Standard two, performance indicator 2.2 (course outcome objectives 1 and 2). (See Table 1 for the relationships between the survey questions, course outcome objectives, and the Standards, and for the measurements of success in teaching the course content, as delimited by the outcome objectives and based on what the student answers to the survey questions indicated they had learned.) Questions two, eight, nine, ten, and eleven were meant to respond to Standard two, performance indicator 2.1 (course outcome objectives 1 and 2). Questions three and seven addressed Standard three, performance indicator 3.2 (course outcome objectives 1, 4, and 5). Questions four and fifteen responded to Standard two, performance indicator 2.3 (course outcome objectives 1, 2, and 3). Questions six and thirteen addressed Standard one, performance indicator 1.2 (course outcome objective 1). In addition, Questions twelve and fourteen addressed Standard two, performance indicator 2.5 (course outcome objectives 1 and 2).

Table 1 shows the relationships of the assessment survey questions to the course outcome objectives and the ACRL Information Literacy Competency Standards for Higher Education, along with their performance indicators. Each pair of pre- and post-assessment scores (the pre-assessment score before the slash, followed by the post-assessment score) corresponding to the question number in that row is meant to serve as a rough measure of how well the students knew or had learned a particular outcome objective and standard. A higher score on the post-assessment survey question than on the pre-assessment question would indicate that the students had learned this outcome objective and Standard performance indicator through classroom teaching.

METHODOLOGY

The findings of this study are based on analysis of the input of all those students who took both the pre- and post-assessment surveys. Eleven sections of LIBR 1100 were taught in the fall of 2008. One hundred and seventy-six of the 310 students enrolled in the course's eleven sections at the beginning of the semester took both the pre- and post-assessment surveys. All of these students were treated as a single group, with the resulting frequencies and percentages of correct and incorrect answers pertaining to the entire group of participating students. The students' answers on both surveys were downloaded from each course section to a Microsoft Excel spreadsheet, and formulae available on the Excel software were used to tabulate all the data and determine the averages.

The instructors involved in teaching the course developed the survey questions as a team and agreed to have their students take the pre-assessment survey on the first day of class and the post-assessment survey on the last day of class. The surveys were not graded and therefore were not a factor in the determination of final grades. However, the students in all sections were told that they had to take both surveys and answer the questions in a conscientious manner in order to complete the course. The instructors felt that the possibility of an incomplete grade would be sufficient motivation to take the surveys. Whether the questions were answered conscientiously is problematic. Better and more astute participation may have occurred if the surveys had been graded. The fact that they were not graded may possibly be considered a weakness of the study.

Both the pre- and post-assessment surveys contained the same questions. The instructors felt that the fourteen weeks between taking the surveys was a sufficient length of time for their students to forget the questions answered in the survey at the beginning of the semester. They plan to update the survey regularly and use it every semester. The order of the questions will also be regularly changed.

Each question in the survey has one correct answer. The instructors agreed upon the correct answers before the survey was implemented. Because the study's findings are based on comparisons of pre- and post-assessment answers, both individually and in the aggregate, and since no cross tabulation tables are used to test relationships between variables, no statistical analysis other than the determination of totals and averages is necessary for this study.

The level of participation varied from one course section to another. Several students took the pre-assessment survey but not the post-assessment survey, and there were a few students who took the post-assessment survey but not the pre-assessment survey. The data of these

