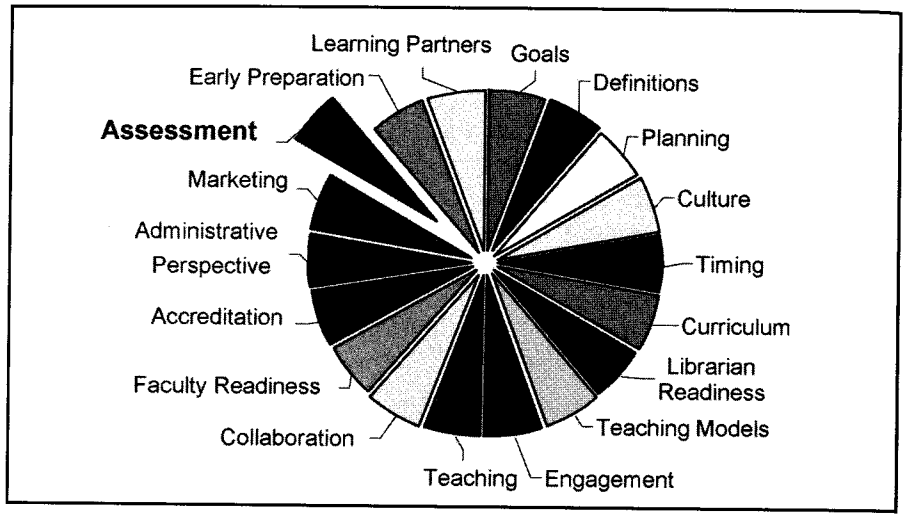
Proven Strategies *for* Building *an* Information Literacy Program

Edited by Susan Carol Curzon
and Lynn D. Lampert

Neal-Schuman Publishers, Inc.
New York London



ASSESSMENT

A Word from the Editors

How do we know that our instructional activities have affected learning? That is the question that Bonnie Gratch-Lindauer answers in this comprehensive and clear look at the role of assessment in the development, revision, and refinement of information literacy programs. Bonnie, currently the Coordinator of Instructional Services at the Rosenberg Library, City College of San Francisco, is a well-known author in the field of information literacy and outcomes assessment. Bonnie's M.L.S. is from Syracuse University and she also has an M.P.A. from the State University of New York, Brockport. Bonnie also has a secondary teaching credential from San Francisco State University. Her article "Defining and Measuring the Library's Impact on Campus-Wide Outcomes" won both the K.G. Saur Award as well as the Association of College and Research Libraries Instruction Section publication award. Drawing from her extensive experience in such activities as the Bay Area information competency assessment project or her service on the executive committee of ACRL's Institute for Information Literacy, Bonnie covers in this chapter the elements of developing an assessment plan, an overview of assessment methods and measures aligned with IL program components, and the importance of communicating assessment results. Bonnie demystifies the features of program assessments, provides a primer for the uninitiated in assessment, and brings forward many thoughtful points for those who already have some background in this area. Writing to the editors, Bonnie cited a quote from Patricia Ianuzzi speaking on "Information Literacy—Laying the Foundations" at the Library Association of the City of New York (LACUNY) Institute in 2000. Bonnie felt this quote summed up the right attitude towards assessment: "Assessment is the means for learning, not just the method of evaluation."

Chapter 16

Information Literacy Program Development: The Role of Assessment

By Bonnie Gratch-Lindauer

THE ROLES OF ASSESSMENT

In this chapter, the terms evaluation and assessment are used interchangeably, although the author recognizes that for some these terms have different meanings. Assessment with a small "a" and a capital "A" is part of all aspects of a vital information literacy program, from development to revision and refinement. As the chapter quote points out, the primary reason to do assessment is to learn how our instructional activities affect learning. In fact, one of the distinguishing characteristics of an information literacy program plan, as opposed to a bibliographic instruction plan, is the degree to which the statement of student learning outcomes, and learning and assessment opportunities are integrated within the curriculum, demonstrating the shared responsibility required for teaching and assessing information literacy. This chapter covers elements of developing an assessment plan, assessment of specific program components, an overview of assessment methods and measures, and a brief mention about communicating assessment results. Since in-depth coverage of the how-to of assessing student learning outcomes cannot be adequately developed in a chapter, the reader will be referred to several useful books on assessment of learning outcomes that have been published in the past five years.

There are at least three major roles that assessment plays in an information literacy program. Undoubtedly the major purpose is to improve learning—not

just student learning, but also faculty and librarians, and others who have a part in designing and revising information literacy learning activities. Moreover, information literacy is integral to learning in any area of study, thus assessment of what learners know and can do related to how they use information is fundamental to their academic achievement, careers, and lifelong learning. Assessing learning and the learning-teaching dynamic is what drives the small "a" in the assessment of IL programs. It is the daily feedback gained from teaching and observing learners engaged in doing information research in the classroom or in the library, as well as the more formal evaluation of instructional program components.

Another role that assessment often plays in information literacy program development and revision relates to building and improving external communication and collaboration, as well as improving internal communication. Information literacy assessment at the course, program, and institutional levels involves outreach and communication, raising awareness, and faculty-librarian collaboration in the design and implementation of assessment activities. This external role has the potential to directly contribute to valued course and program goals and priorities, especially when information literacy abilities/skills are infused in academic programs (e.g., within a major/vocational program); in targeted student programs (e.g., first-year programs, retention programs); and are a part of institutional learning outcomes (e.g., general education/core abilities).

A third role relates to how assessment findings can improve overall services making the library more accessible and responsive. James Madison University's well established program illustrates such service changes. Its online IL tutorial and assessment instrument kept being revised to better reflect IL competencies that faculty came to recognize were important based on assessment findings and curriculum change. The benefits of this several-year process include: "Assessment has influenced decisions from the choice of an online catalog to the design of the library's homepage. It has guided allocation of resources, causing us to bolster important services and keeping us from cutting services that are more useful than we had realized" (Cameron, 2004: 234). To illustrate these roles at one institution, an example is used of how the library staff at Pierce College in Washington used an assessment cycle approach internally and externally to improve communication and collaboration within the library and across campus.

Pierce College Library established a departmental assessment process which "led to identifying public outcomes, assessments, and criteria for all library departments, and setting up a standard assessment process library-wide" (Miller and Pellen, 2004: 192). Starting with rewriting the library mission as outcomes and then specifying indicators of how the outcome would be measured, the staff more clearly recognized their connections and contributions to student success. As one example, the reference librarians identified the following outcome and indicator related to information literacy:

> Outcome: Respond appropriately and pedagogically to individuals' reference questions, in order to develop confident, competent and independent information seekers.
> Indicator: Model and teach appropriate information-competent behavior and practices. (Miller and Pellen, 2004: 194)

Using periodic student surveys, they found after a year that 90 percent of students, which is 10 percent higher than the assessment criterion they had established, stated that they learned something of value they can apply in the future and that the learning will positively enable their completion of their current project. After a year of various assessment activities, analysis, and discussions about the findings, the library staff found that "once staff members were invested in the assessment cycle, outcomes became a seamless part of how we work instead of the work itself" (Miller and Pellen, 2004: 195).

Pierce College is fortunate to have information competency defined as one of the five core abilities described in the college's strategic plan, and an institutional goal of increasing the number of campus constituents who teach and model the five core abilities. Through a series of workshops, the library faculty worked in collaboration with discipline-based faculty to establish a clearer definition and understanding of information competency within their own disciplines with the goal of increasing the number of courses, assignments, and programs that integrate information competency. After a couple of years of outreach and collaboration, the results have been impressive: in 2002, 42 out of 48 departments (80 percent) participated in integrated library instruction, reaching an increasing number of students and building stronger relationships between librarians and discipline-based faculty (Miller and Pellen, 2004: 202).

The roles and effects of assessing information literacy are many: assessment fuels improvements in learning and teaching; it can help grow and strengthen relationships among all the constituents in the organization; and with time, it offers the potential to change the organizational culture so that it truly becomes the means for learning and change.

PROGRAM ASSESSMENT AND ASSESSING STUDENT LEARNING: KEY FEATURES

Assessment with a capital "A" encompasses an entire instruction/information literacy program and is most commonly needed for program review, annual reports, and accreditation self-studies. Institutions with information literacy integrated in general education/core competencies and those with IL graduation requirements and/or system-wide or state-wide competency-based requirements, may have an even greater assessment responsibility, and in some cases their institutions' level of funding may even be related to demonstrated IL competencies. Two examples describing this type of state-wide, competency-based situation

and the role of assessment include James Madison University Libraries' experience with revising the online tutorial "Go for the Gold" and the development and revision of the information seeking skills test (Cameron, 2004) and the Citadel's Daniel Library, South Carolina, where funding for colleges and universities is determined by how well each meets a set of 37 performance indicators (Carter, 2002).

All program assessments take place in the context of a development-feedback-revision loop process. Nearly all writers on assessment planning describe a cycle of assessment, grounded in the institution's mission and overall educational objectives, which includes the steps of:

> Identifying objectives → Gathering evidence → Interpreting evidence → Implementing changes and improvements → Publicizing/reporting findings → Reviewing/revising objectives → and so on, repeating the cycle.

Even when the focus of the assessment is student learning outcomes, it is useful to also look at how other program components may have affected learning. Indeed, the "Principles of Good Practice for Assessing Student Learning" direct attention to not only assessment of student learning outcomes, but also the experiences that lead to learning (Astin, accessed: 2006). Especially at the program level, those experiences that directly contribute to the development of information literate individuals are just as important to measure and assess; such as aspects about the quality of the learning environment, the effectiveness of the instructor and the learning materials, and the quality of the learning opportunities. Assessing the changes and accomplishments of an entire program, or several of the program components at specific points in time, and combining a variety of use data, qualitative data about users' perceptions of specific program components, and findings from different types of evaluations of student learning constitute IL program assessment. In short, the focus is on the whole instead of only one or two of its parts.

Over the past ten years or so outcomes assessment has been emphasized in all segments of education, largely because of accountability concerns and the revised regional and professional association accreditation standards. Outcomes assessment focuses on the achievement of outcomes that have been identified as desirable in the information literacy program's goals and objectives, along with identifying performance measures that indicate how well the program or learner is doing in relation to the stated goals and objectives. Our profession has mirrored the outcomes assessment movement with the publication of several standards and guidelines that include outcomes assessment, such as the "Standards for Libraries in Higher Education," which includes considerable amount of text describing the importance of outcomes and outcomes assessment along with

other more traditional measures of program effectiveness (ACRL, 2004); and the "Characteristics of Programs of Information Literacy that Illustrate Best Practices: A Guideline" which distinguishes between assessment of an IL program and student learning outcomes.

For program evaluation:

- establishes the process of ongoing planning/improvement of the program
- measures direct progress toward meeting the goals and objectives of the program
- integrates with course and curriculum assessment, as well as institutional evaluations and regional/professional accreditation initiatives
- assumes multiple methods and purposes for assessment/evaluation
  - formative and summative
  - short-term and longitudinal

For student outcomes:

- acknowledges differences in learning and teaching styles by using a variety of appropriate outcome measures, such as portfolio assessment, oral defense, quizzes, essays, direct observation, anecdotal, peer and self review, and experience
- focuses on student performance, knowledge acquisition, and attitude appraisal
- assesses both process and product
- includes student-, peer-, and self-evaluation (ACRL, 2003a)

Still another is the ACRL document, "Guidelines for Instruction Programs in Academic Libraries," which specifies the need for systematic ongoing assessment and describes five practices essential to good information literacy assessment:

- There should be a program evaluation plan addressing multiple measures or methods of evaluation; such measures may include needs assessment, participant reaction, learning outcomes, teaching effectiveness, and overall effectiveness of instruction.
- The criteria for program evaluation should be articulated in readily available documents pertaining to the program's mission, description, and outcomes.
- Specific learning outcomes should be addressed and specific assessment methods should be identified.
- Coordination of assessment with teaching faculty is important because learning outcomes are a shared responsibility.
- Data for both program evaluation and assessment of specific learning outcomes should be gathered regularly and brought into the program revision process so that the program can be improved continuously, and

specific learning deficits addressed in an ongoing, formative manner (ACRL, 2003b).

The ACRL guidelines/best practices documents referenced above reinforce several key elements that are essential to assessing information literacy programs:

- having an on-going assessment process and/or evaluation plan based on goals and objectives tied to institutional goals and educational priorities and with specified criteria for program evaluation which integrate with course, curriculum/program and institutional assessments
- identifying specific student learning outcomes that focus on student performance, knowledge acquisition, and attitude appraisal and that is addressed by a variety of assessment methods
- using the results of assessment activities for continuous improvement
- coordinating assessment activities with discipline-based faculty and other relevant academic staff because IL and its assessment is a shared responsibility

THE ASSESSMENT PLAN/PLANNING PROCESS

Developing an assessment plan, like all planning, guides the process and helps to ensure improvement of program and student learning goals and objectives. In fact, creating or revising the information literacy plan is the perfect time to incorporate thinking about how the instructional objectives and expected outcomes will be evaluated, thus linking instructional planning and assessment planning. Depending on the size and nature of the institution, libraries might:

1. develop a separate IL assessment plan—e.g., Indiana University—Bloomington Libraries, www.indiana. edu/~libinstr/Information_Literacy/assessment.html *or* Gustavus Adolphus College Library, www.gustavus.edu/oncampus/ academics/library/Pubs/AssessmentPlan.html *or* Suffolk University, Mildred F. Sawyer Library, www.suffolk.edu/ sawlib/plandocs/current_student_assessment_plan.htm
2. integrate assessment plans within a variety of courses and programs—e.g., Weber State University Library, http://faculty.weber.edu/chansen/libinstruct/ILProgram/assessment.htm *or* King's College's Comprehensive Assessment Program, www.kings.edu/ Academics/cpprogramcomponents.htm#6 *or* Wartburg College Library, www.wartburg.edu/library/infolit/
3. embed assessment objectives and strategies within an information literacy program plan—e.g., University of Arizona Libraries, http://dizzy.library.arizona.edu/library/teams/InfoLit2000/InfoFluencyProgram%20Plan%20July%202004.pdf

4. integrate information literacy assessment activities in the library's assessment plan or institutional plan—e.g., Paradise Valley Community College Library, www.pvc.maricopa.edu/library/assessment/PVCCLibraryAssessmentPlanSpring2004-Spring2006.pdf *or* University of Northern Colorado Libraries, www.unco.edu/library/assessment/plan.pdf *or* University of Iowa's Strategic Plan 2004–2009, which has a piece relating to information literacy outcomes and assessment, www.lib.uiowa.edu/admin/strategic-plan.html

Peggy L. Maki, higher education consultant on learning assessment, has written extensively about planning for assessment. She refers to an "assessment guide" that can help institutions to conceptualize a plan that integrates assessment into their organizational cultures (Maki, 2002: 12). The elements of this guide are quite comprehensive, containing three major parts with sub-activities that are not necessarily linear or lock-step, but suggest areas about which discussion points need to occur and decisions need to be made:

1. determining the institution's expectations
   - state expected outcomes
   - identify where expected outcomes are addressed in the instructional program
   - determine methods and criteria to assess expected outcomes
   - state institution's or program's level of expected performance (e.g., score on an examination or culminating project)
   - identify and collect baseline data/information
2. determining timing, identifying cohort(s), and assigning responsibility
   - determine who will be assessed
   - establish a schedule for assessment
   - determine who will interpret results
3. interpreting and sharing results to enhance institutional effectiveness
   - interpret how results will inform teaching/learning and decision-making about need for revision (e.g., revise freshman orientation program to include more active learning activities)
   - determine how and with whom you will share findings and interpretations
   - decide how your institution will follow up on implemented changes (Maki, 2002: 9–12)

She provides useful explanations, examples and advice regarding each of these sub-activities. Throughout she stresses the partnerships across the campus that are involved in these sub-activities and the importance of knowing the local organizational culture.

Developing an assessment plan or planning process doesn't have to be overly complicated. An example cited in Hernon and Dugan (2002: 34) captures

advice from Suffolk University, which based its plan on ACRL's "Objectives for Information Literacy Instruction: A Model Statement for Academic Libraries":

1. identify goals
2. identify specific objectives for each goal
3. develop performance criteria for each objective
4. determine the practices to be used to achieve goals
5. select assessment methods for each objective
6. conduct assessments
7. determine feedback channels
8. evaluate whether the performance criteria were met and objectives achieved

When a library is getting started with assessment planning, it's useful to explore connecting with other assessment processes and offices/staff at the institution. For example, contact with the staff in the institutional research and testing offices should make it clear what types of assessment plans and activities exist at the institutional and program/department levels. These staff can also advise and share their expertise about survey development and other instruments. Often, they are receptive to librarian review and suggestions of items for institutional, regional, or national student experience questionnaires. Contact with campus curriculum committees is also important for exploring improved linkages of information literacy with the curriculum. For example, the University of Maryland University College is reported to have followed these seven steps in connecting externally with other constituents about its assessment planning process:

1. Establish an information literacy study group. Ensure wide representation from librarians and faculty.
2. Charge the study group to devise a definition of IL, identify standards, and develop a plan for implementation, assessment, and on-going evaluation of IL standards across the curriculum.
3. Present the plan to the curriculum committee for formal acceptance.
4. Implement the recommendations of the study group.
5. Develop an initial course and revise upper-level courses as appropriate.
6. Devise assessment measures and review and evaluate the effectiveness of current offerings.
7. Use assessment results to revise the learning process and improve assessment efforts. (Middle States Commission on Higher Education, 2003: 46)

No matter how comprehensive or basic the assessment plan for an information literacy program is, the following questions should be addressed in the plan or in the choice of assessment approaches:

- Are the assessment goals tied to the institution's mission and goals?
- Will the assessment of information literacy occur at one level or on several levels?
- How will the current bibliographic instruction program be made part of the overall information literacy assessment effort and linked to the course, program, or institutional levels?
- Are there any similarities between the IL assessment efforts and other programs (e.g., writing across the curriculum)? Do these similarities overlap or offer opportunities for coordinated activities?
- Are the goals, benchmarks, and timelines for accomplishing the IL assessment plan reasonable?
- What will be the feedback loop? That is, how will the assessment results be reported and used to improve current practice? (Middle States Commission on Higher Education, 2003: 45)

The structure and content of information literacy assessment plans or assessment sections of the library's information literacy program plan reflect the variety of their host institutions. Most of those examined contain:

- a mission or purpose statement
- overall goals and objectives, typically referring to the "Information Literacy Competency Standards for Higher Education" (ACRL, 2000)
- specific student learning outcomes, sometimes specified by level
- learning opportunities (program components), sometimes linked to specific levels, such as basic skills orientation, first-year program, instruction in the majors, and graduate courses
- specific measures or evaluation methods, sometimes linked to learning outcomes or program component

Assessment plans should also include mention of how the results and findings will be analyzed, used, and disseminated, and who is involved and/or responsible in assessment. An excellent example is Weber State University's Stewart Library's "Information Literacy Program Assessment Plans and Data" that lists and provides links to assessment plans for credit courses, library skills orientation, subject-specific course-integrated instruction, first-year experience, and the entire information literacy program assessment. Each assessment plan has a standard format and includes priority outcomes, how assessed by measures and criteria, and a schedule of data and reports. What is most helpful is the information about how and where the findings will be reported (Weber State University, 2003).

Because collaboration is critical to effective information literacy program development and assessment, it is being singled out here. Evidence of collaboration is found in the increasing number of institutions that are including

information literacy among their core abilities in first-year programs, general education courses, and/or identifying information literacy as a graduation requirement. The following statement illustrates this shared role:

> Student learning is a campus-wide responsibility, and assessment is a way of enacting that responsibility. Thus, while assessment efforts may start small, the aim over time is to involve people from across the educational community. Faculty play an especially important role, but assessment questions can't be fully addressed without participation by student-affairs educators, librarians, administrators, and students. Assessment may also involve individuals from beyond the campus (alumni/ae, employers) whose experience can enrich the sense of appropriate aims and standards for learning. Thus understood, assessment is not a task for small groups of experts but a collaborative activity; its aim is wider, better-informed attention to student learning by all parties with a stake in its improvement. (Gardiner et al., 1997: 11–12)

There are many examples of how librarians have collaborated with discipline-based faculty in designing information literacy assessment approaches and instruments. An exemplary program is the King's College comprehensive assessment program, which has an information literacy component. Information literacy, as one of the college's seven core skills and abilities, is integrated throughout the four parts of the assessment program. The first element of the program is the development of educational goals, where faculty and librarians identify and articulate how the transferable core skills and abilities apply to their discipline. The second part of the program is the development of competency growth plans, which are four-year plans that each department develops to "map out how students will transfer skills from the core curriculum into the major and then design pedagogical strategies and assessment criteria to ensure cumulative student growth" (Association of American Colleges and Universities, 2005: 2). The librarians have been involved in designing the assessments in the core curriculum and the faculty have played a key role in the design of assessments in the majors. Brian Pavlac, a history professor who headed King's information literacy project team, notes that "the most significant challenges faced by the program hinge on the involvement of faculty" (AACU, 2005: 2). There are two assessments of information literacy in the major: a sophomore-junior diagnostic project and a capstone seminar project.

Those readers seeking more information about the King's College program and other examples are referred to the AACU news article and the King's College comprehensive assessment program's Web page; the chapter, "Using the Assessment Cycle as a Tool for Collaboration" in the 2004 Miller and Pellen book; the many summary descriptions in the Avery (2003); and the chapter "Assessing Information Literacy" in Rockman (2004).

WHAT CAN BE ASSESSED?

Newly formed, revitalized, and seasoned information literacy programs are comprised of basically the same five components: learners and learning opportunities, learning materials, instructors, and learning environments. Each of these components can be evaluated as part of a library's assessment plan. As explained above, a complete program evaluation would include all of these components for program review, annual reports, and accreditation self-study reports. Similar to other curricula/learning programs, the emphasis should be on measuring the learning outcomes. As pointed out earlier, one of the differences between bibliographic instruction programs and information literacy programs is the adoption and program implementation of student learning outcomes that are broader and connected to institutional goals, which frequently reflect locally defined adaptations of the national "Information Literacy Competency Standards for Higher Education" (ACRL, 2000).

What exactly do these components consist of? The various components are separated below for assessment purposes, but of course they overlap and work together in practice:

Learners—the recipients of instruction programs can be assessed in a variety of ways. Evaluation methods are available to focus on knowledge acquisition/retention; performance as revealed through the process of research and application, whether they are course-embedded assignments, research diaries, papers, multi-media projects, portfolios, etc. One can also measure the effects or impact of these learning experiences on attitudes, behaviors and values, often captured by student self-reports (e.g., journals) and rating scales on surveys. If programs also include faculty and staff/administrator training, they are part of the learners to be assessed.

Learning Opportunities—include separate information literacy courses and those linked to learning communities, group presentations/workshops either linked to the curriculum or as stand-alone offerings, and independent offerings such as reference desk instructional interactions and librarian-developed IL tutorials. Other independent learning opportunities are harder to identify and assess, but they may be even more prevalent, especially with NetGen learners and some adult learners who prefer to figure things out themselves and work in groups to learn from each other. Examples include independent browsing of materials, peer-to-peer learning, help/search tips, information provided by search tools, and other types of Web information that learners find by themselves. Possibly, it might be useful to include a survey item or rating by students about the value and relationship of these types of activities to learning.

There may also be co-curricular formal and informal learning opportunities sponsored by student affairs staff that relate to some aspects of information

literacy (e.g., career research skills workshops); by student organizations (e.g., history club session on genealogical research methods); and departmental offerings (e.g., legal studies department about copyright law related to music downloading; or an art department exhibition with handouts on legal use of images for multi-media projects). Being aware of these for potential collaboration and assessment activities is yet another avenue.

Learning Materials—are the various handouts, assignments, online guides/tutorials, course textbook/readings, and so on. Online tutorials and instructional Web pages are included in both the learning opportunities and materials components, since they can be used as a primary component of an instruction program, such as a required multiple-module online tutorial for first-year freshmen or they can be pieces of something larger and used as supplemental learning materials.

Instructors—include both the librarian/library staff presenters and discipline-based instructors who may co-teach the learners as well as observe presentations. In either situation it's important to evaluate the presentational and teaching abilities of whoever is doing the instruction.

Learning Environment—is the physical facilities (e.g., space/room, computers for hands-on practice, projection equipment, types of seating, etc.) and networked facilities (e.g., interactive technologies, wireless network, campus with online courseware such as Blackboard), and the institutional mission/values, organizational culture, and the formal curriculum. It also includes the informal learning environment both in the library and external to the library, such as reference transactions and assistance and handouts provided by other library departments (e.g., archives or government publications); lecture and curriculum-related programs, exhibitions, computer lab training resources, tutorial and writing center lab resources, and so on.

SPECIFIC MEASURES AND METHODS FOR PROGRAM COMPONENTS

Assessment data and documentation about students' information literacy skills can come from many quantitative and qualitative measures as well as direct and indirect methods of measuring students' skills. Quantitative measures can be represented numerically (e.g., data coming from tests or surveys), while qualitative measures generally relate to quality or kind, such as narrative or text coming from observations, interviews, focus groups, or open-ended items on questionnaires. Direct methods refer to approaches that measure performance and/or knowledge coming directly from what learners know or can do, such as assignments or observation of search behavior. Indirect methods refer to approaches that generate findings related to learning, such as perceptions or self-ratings, but

do not measure the learning itself. While nearly all measures will be based on program goals and student learning outcomes, there are other approaches to evaluation, such as goal-free and naturalistic evaluation. Goal-free evaluation refers to the collection and analysis of information related to actual results, rather than pre-established objectives. In fact, a literal understanding of the phrase "learning outcomes" means actual outcomes, not necessarily what was desired or expected. Common usage, however, does not always make this distinction. Naturalistic evaluation usually refers to such qualitative methods as case study, participant observation, and other sociological methods to comprehensively describe program processes and results. Whatever the method used, the measures are designed to yield data and other types of evidence to inform program planning and needed improvements.

Evidence is the data and other findings upon which a judgment or conclusion may be based. The following are characteristics of good evidence:

- It is purposeful and related to specific questions.
- It has been interpreted and reflected upon, not offered in its raw or unanalyzed form.
- It is integrated and presented in the context of other information about the institution that creates a holistic view of the program.
- It is cumulative and is corroborated by multiple sources of data. (WASC, 2004: 10–11)

The data collection methods and types of measures are secondary to the questions that drive the assessment. Spending time clarifying the purpose, the audience and what one wants to learn from the assessment is critical. Figure 16-1: Program Elements with Potential Assessment Methods and Measures illustrates the various program elements with possible methods and measures for collecting data/documentation. The instruments and methods listed include both direct and indirect methods and they yield quantitative and qualitative data and documentation.

There is a great variety of information literacy assessment instruments and measures currently in use. If the 2001 College Library Information Packet Committee (CLIP) "Survey on Assessment in College Library Instruction Programs" were administered today, this author is certain there would be more institutions reporting that they do formal assessments and more would be course-embedded than the 2001 findings, which reported that 59 percent of the 158 responding institutions doing formal assessments cite multiple choice/short answer tests as the most frequently used assessment tool (Merz and Mark, 2002). Activity and lesson-based assessment examples are commonly used in junior/middle and high school settings.

There are several national tests, some standardized, that assess aspects of information literacy. The Information and Communications Technology exam,

Program Elements	Measures/Methods
Learners—What do they know? What can they do? How do they perceive their abilities and what do they value? Do students who participate in IL program opportunities have higher GPAs? —> Start with instructional objectives and desired learning outcomes and match to appropriate assessment measure/method to generate data and/or qualitative information Selection of measure/method also depends on the instructional setting/learning opportunity (e.g., course, workshop, online tutorial, etc.) and overall purpose of assessment **Examples of desired learning outcomes and instructional objective:** • Knows how information is formally and informally produced, organized, and disseminated • Demonstrates an understanding that date, sponsor, or publisher of the information may affect its value in selecting appropriate sources for assignment • Values the variety of information resources and investigative methods, including the librarian and other experts. • After attending two instructional sessions, students will conduct effective searches using two online search tools to find two scholarly sources to compare and contrast in a 500-word essay	Performance (scores, grades, ratings) of: • Standardized or local test/quiz • National licensure examination • Quiz and task items embedded in online tutorial • Course-embedded assignments, papers/projects • Moral/ethical choice exercises • Simulated task performance • Concept mapping • Capstone experience (paper, field project, presentation) • Portfolio analysis of research products using established criteria on checklists or rubrics • National or locally developed freshman survey compared to senior survey • Classroom assessment techniques (CATS) • Online monitoring of searching • Direct observation of research behavior Analysis of: • Self-reflection documented in research log, journals, reflective essays • Items on national or local survey of student engagement/experiences • Items on alumni, employer or graduate surveys • Interviews and focus groups of learners, librarians, course instructors, employers • Correlation studies of GPA of students who do/do not participate in IL workshops, tutorial, courses
Learning Opportunities—What are the learning opportunities, how many, who do they reach and in what programs/curricula? How are they rated by participants?	• Description of variety/number of learning opportunities with usage data and % of curriculum participating in IL instruction • Analysis of assignments based on survey or syllabus/course outline review • Unsolicited feedback from letters, e-mail; anecdotal evidence • Course, workshop, tutorial survey evaluations completed by learners, librarians and/or course instructors

Figure 16-1: Program Elements with Potential Assessment Methods and Measures

Program Elements	Measures/Methods
Learning Materials—What are the learning materials, how are they used and how are they rated?	• Description of types of learning materials and how used to accommodate variety of learning styles and student needs • Student and/or faculty survey of online tutorial and other learning materials • Expert rating of online tutorial/materials
Learning Environment—What is the nature and quality of the learning environment's physical and virtual space? How are instructional technologies used to support teaching and learning? What is the institutional, program and/or course support for information literacy? For example, are there specified learning outcomes related to information literacy in the general education or other academic programs? Is there an IL requirement? What is the extent to which the use of library and information resources is included in course or program descriptions? What is the extent of collaboration between librarians and course instructors and other academic staff? What other campus facilities and services exist that provide assistance related to information literacy?	• Description of aspects of the physical learning environment and how it's used and for which groups of learners; identification of barriers to effective IL instruction and assessment • Description of the institutional and program curriculum linkages to IL • Description of the course linkages to IL and use of library/information sources, possibly based on a syllabus study • Description of the types of collaborations between librarian and faculty/academic staff with a summary of the outcomes of these relationships • Description of other campus facilities and services that provide assistance/training related to IL.
Instructors—How do peers, discipline-based faculty and students rate the teaching and presentational skills of librarians and others doing the IL instruction?	• Peer feedback about teaching and presentation skills, using a checklist of effective behaviors • Student and faculty ratings of presentations • Self-rating of presentation • Self and/or peer analysis of video of presentation • Expert rating of presentation
Note: Many of the methods assessing learners could be administered pre and post to compare performance. The use of a control group and appropriate research design strengthen the findings. A multi-methods approach strengthens evidence. Examples of CATS are the "one-minute" paper, "the muddiest point," "the one-sentence summary," "what's the principle?," etc. See T. A. Angelo and P. Cross. 1993. *Classroom assessment techniques: A handbook for college teachers*, 2nd. ed. San Francisco: Jossey-Bass.	

Figure 16-1: Program Elements with Potential Assessment Methods and Measures *(Cont'd.)*

developed by Educational Testing Service, uses scenario-based tasks to measure both cognitive and applied information literacy skills. The reader is referred to the ETS information literacy Web site for more information about the outcomes this exam is designed to assess (Educational Testing Service, 2006). Another is the "Information Literacy Test," developed at James Madison University as a generic version of their instrument for sale to other institutions through the university's Center for Assessment and Research Studies. It is a 60-item, multiple-choice Web-based test that measures all of the ACRL competencies, with the exception of the standard four, although 68 percent of the test items measure knowledge and 32 percent of the items measure application of IL concepts (James Madison University, 2006). One other is Project SAILS, a test of knowledge of information literacy skills, based on ACRL "Information Literacy Competency Standards for Higher Education." This Web-based tool allows libraries to document information literacy skill levels for groups of students and to pinpoint areas for improvement. Currently, the test is administered from the Project SAILS Web site twice a year at a minimal cost per student, and test administration training workshops are offered at sessions during ALA summer and midwinter (Project SAILS, 2006).

Moreover, national student experience surveys, such as the National Student Survey of Engagement (NSSE), can also yield useful data when addressing assessment questions such as the relationship between certain student behaviors and engagement in learning. The 2006 NSSE contains several experimental items directly related to information literacy and library use. The findings are expected to be analyzed and shared in late 2006. These instruments usually allow institutions to add some of their own items, so that benchmarks can be established and compared over time with local and national norms or institutionally selected peer groups.

Quite a few organizational information literacy Web sites include a section on assessment, some with links to instruments, or a listing of publications including assessment, such as those Web pages created by ACRL sections and the Institute for Information Literacy (e.g., the Institute for Information Literacy's Information Literacy Web site, which has links to "Assessment Bibliography," and "Assessment Issues"); the DORIL Web site ("Directory of Online Resources for Information Literacy"); the National Forum on Information Literacy; the Association for Research Libraries' "ARL New Measures Initiatives"; the Library Instruction Round Table's annual "Top Instruction articles"; and the American Association of School Librarian's "Planning & Assessment," one of the *Resource Guides for School Library Media Program Development.*

The reader is referred to the following publications listed in the "References" section for information about methods and types of instruments, as well as examples of specific instruments and scoring checklists/rubrics: Avery (2003); Grassian and Kaplowitz (2001); Hernon and Dugan (2002); Merz and Mark (2002); Neely (2006); and Shonrock (1996).

In summary, IL program assessment goals, learners, organizational culture, curricular practices, and local expertise are all factors in determining which program components are assessed, how and when. The use of multiple measures, especially when assessing student learning, is essential to generate more robust evidence. Course-embedded assessments, such as research assignments, papers, and other products of student performance are rich sources of student learning at both the course and the program level, and the findings are strengthened when combined with indirect measures of self-ratings or reflections about the information-seeking/research process. When the entire IL program is being evaluated, one should consider having the following combination of measures/methods:

- Descriptive narrative and statistics about progress made in meeting program goals and objectives, as well as use statistics for program components
- Description of the learning environment, especially how changes to it have affected IL offerings and outcomes
- User surveys, and other types of feedback and observational measures about quality of IL instruction, learning materials, and specific learning opportunities
- Learner performance and other Student Learning Outcome (SLO) measures
- Indirect beneficial effects, such as increased awareness and visibility of library/librarians; increase in partnerships between library and its external audiences; inclusion of IL competencies in general education and other program objectives/outcomes

RESEARCH DESIGN AND ANALYSIS

At times, specific components of an IL program may be subjected to a more rigorous assessment study. This type of assessment might occur after earlier, smaller-scale formative assessments have been accomplished and the findings used to improve instructional materials or learning opportunities, laying the groundwork for a research study of the effects of a particular instructional method/mode of delivery, for example, on learning of specific IL competencies. A more formal research study might be undertaken when one hopes to produce evidence that demonstrates the effect between an instructional "treatment" and a resulting outcome by trying to control certain variables so that a causal relationship can be established. Such studies involve more planning, the use of a research design, often a sampling schedule and statistical analysis. A full explanation of this type of assessment is beyond the scope of this chapter, and the reader is referred to the following titles in the "References" which provide chapters

about research design, data-gathering instruments, and statistical analysis: *Evaluating Bibliographic Instruction: A Handbook*, authored by Avery, Hernon, Dugan, Schwartz, Powell, and Connaway. One should not be discouraged from undertaking a more formal assessment, even though it will be more time-consuming, as there is always local expertise to help plan the research, design, develop instruments, and conduct the statistical analysis.

COMMUNICATING ASSESSMENT INFORMATION

The assessment cycle discussed above in the section "Program Assessment and Assessing Student Learning: Key Features" makes it clear that assessment findings need to be analyzed, reflected upon and then used to inform program revision and change. As Palomba and Banta (1999: 297) point out, "Assessment information is of little use if it is not shared with appropriate audiences and used in meaningful ways. Much of the value of assessment comes from the systematic way it makes educators question, discuss, share, and observe." Also important to internal and external audiences is to be informed about how the findings have been used to make program improvements. This information not only gives information literacy more visibility in the institution, it also documents how the library is contributing to institutional goals relating to educational excellence, student success, and becoming a learning institution. In fact, one of the most convincing ways to publicize the value of information literacy and assessment is to make others aware of how findings have been used to improve assignments and instruction in particular courses or programs, so that faculty and administrators can better understand the connections between information literacy and the curriculum. Small successes once shared can generate more interest in information literacy and raise the level of faculty commitment. Communication also reinforces the commitment made by faculty who may have been the early innovators, and who may become the models to help prepare other faculty.

Finally, sharing assessment results can lead to recognition at the local, regional, state, and national levels. Communicating with peer or "sister" institutions can help to generate new ideas and approaches, even stimulating collaborative interinstitutional initiatives. Excellent advice about how to communicate assessment findings is found in the Middle States publication "Developing Research & Communication Skills":

> Making the connections between assessment findings, recommendations, or implications and what they may mean for "their students" helps faculty to put a human face on the findings. Disaggregating institutional data and making comparisons by student subgroups or major programs also may assist readers in understanding the information and reflecting on the larger message. (Middle States Commission on Higher Education, 2003: 59)

CONCLUSION

Assessment is as inextricably linked to IL program development and revision, as it is linked to teaching. Assessment findings and results are the raw material for instruction librarians to learn more about students, faculty, and themselves as teachers. What we learn from assessment feeds directly into how we teach, how we design instructional activities and materials, the kind and quality of services we offer, and ultimately it can transform our organizational culture into a culture of outcomes assessment. Outcomes assessment has, in some cases, even redefined how librarians view their role and relate to their institutions. It's a wonderful opportunity for librarians to connect with their colleagues in other programs and departments to help shape the future of teaching and learning. So, there's no question that it's worth the effort and time. Ensuring that assessment is an integral part of an information literacy program can be facilitated by having an assessment plan or regular assessment planning process. The actual development and administration of assessment instruments can be shared with local faculty experts or other appropriate staff. Thanks to the professional development opportunities specifically targeted to information literacy assessment, more librarians are becoming involved with assessment planning and implementation. Some of these professional development opportunities include regional, state and local workshops, and conferences; Association of Research Libraries Institutes; ACRL's immersion program and ACRL's e-learning online seminars, such as "Creating a Comprehensive Plan for Information Literacy," and "Assessing Student Learning Outcomes," and ACRL-TLT Web-seminars and Webcasts, such as "Information Literacy and Assessment."

The roles of assessment in information literacy programs are several and the future looks bright for even more participation in assessment, hopefully with increased sharing of information about findings, both expected and unexpected, so that information literacy programs and learners benefit.

REFERENCES

Association of American Colleges & Universities. 2005. "Feature: AAC&U member innovations: King's College takes a multi-tiered approach to information literacy assessment." *AAC&U News* (January-February). Available: www.aacu.org/aacu_news/AACUNews05/February05/feature.cfm (accessed April 5, 2006).

Association of College & Research Libraries. 2003a. "Characteristics of programs of information literacy that illustrate best practices: A guideline." Available: www.ala.org/ACRLPrinterTemplate.cfm?Section=acrlstandards&Template=/ContentManagement/HTMLDisplay.cfm&ContentID=75392 (accessed April 5, 2006).

Association of College & Research Libraries. 2003b. "Guidelines for instruction programs in academic libraries." Available: www.ala.org/ala/acrl/acrlstandards/guidelinesinstruction.htm (accessed April 5, 2006).

Association of College & Research Libraries. 2000. *Information literacy competency standards for higher education.* Chicago: American Library Association. Available: www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.htm (accessed April 5, 2006).

Association of College & Research Libraries. 2004. "Standards for libraries in higher education." Available: www.ala.org/ala/acrl/acrlstandards/standardslibraries.htm (accessed April 15, 2006).

Astin, A.W., et al. "Nine principles of good practice for assessing student learning." Available: www.nwhealth.edu/ctl/asmnt/ninepgp.html (accessed April 15, 2006).

Avery, E. F., ed. 2003. *Assessing student learning outcomes for information literacy instruction in academic institutions.* Chicago: Association of College & Research Libraries.

Bibliographic Instruction Section Research Committee, Subcommittee on Evaluation. 1983. *Evaluating bibliographic instruction: A handbook.* Chicago: Association of College and Research Libraries.

Cameron, L. 2004. "Assessing information literacy." In I. F. Rockman & Associates, *Integrating information literacy into the higher education curriculum* (pp. 207–236). San Francisco: Jossey-Bass.

Carter, E.W. 2002. "Doing the best with what you have: Lessons learned from outcomes assessment." *The Journal of Academic Librarianship*, Vol. 28, no. 1–2: 36–41.

Carter, E.W., and R. N. Jefferson. 2006. "Collaborating on information literacy." In P. Hernon, R.E. Dugan, and C. Schwartz, eds., *Revisiting outcomes assessment in higher education* (pp. 303–326). Westport, CT: Libraries Unlimited.

Educational Testing Service. 2006. "Information & communication technology literacy." Available: www.ets.org/portal/site/ets/menuitem.435c0b5cc7bd0ae7015d9510c3921509/?vgnextoid=b8a246f1674f4010VgnVCM10000022f95190RCRD (accessed September 28, 2006).

Gardiner, L., C. Anderson, and B. Cambridge, eds. 1997. *Learning through assessment: A resource guide for higher education.* Washington, DC: American Association for Higher Education.

Grassian, E., and J. Kaplowitz. 2001. "Assessing, evaluating, and revising ILI programs." In *Information Literacy Instruction: Theory and Practice* (pp. 265–288). New York: Neal-Schuman Publishers.

Hernon, P., and R. E. Dugan. 2002. *An action plan for outcomes assessment in your library.* Chicago: American Library Association.

Hernon, P., R. E. Dugan, and C. Schwartz, eds. 2006. *Revisiting outcomes assessment in higher education.* Westport, CT: Libraries Unlimited.

James Madison University. 2006. "Information literacy test." Available: www.jmu.edu/assessment/wm_library/ILT.pdf#search=%22%22information%20litereacy%20test%22%22 (September 28, 2006).

King's College. "Comprehensive Assessment Program." Available: www.kings.edu/Academics/capprogram.htm (accessed April 5, 2006).

Maki, P. L. 2002. "Developing an assessment plan to learn about student learning." *The Journal of Academic Librarianship*, Vol. 28, no. 1–2: 8–13.

Merz L. H., and B. L. Mark. 2002. *Assessment in college library instruction programs.* CLIP Note #32. Chicago: Association of College and Research Libraries.

Middle States Commission on Higher Education. 2003. *Developing research and communication skills: Guidelines for information literacy in the curriculum.* Philadelphia, PA: Middle States Commission on Higher Education.

Miller, W., and R. M. Pellen, eds. 2004. *Libraries within their institutions: Creative collaborations.* Binghamton, NY: Haworth Press.

Neely, T. Y. 2006. *Information literacy assessment: Standards-based tools and assignments.* Chicago: American Library Association.

Palomba, C. A., and T. W. Banta. 1999. *Assessment essentials: Planning, implementing and improving assessment in higher education.* San Francisco: Jossey-Bass.

Powell, R. R., and L. S. Connaway. 2004. *Basic research methods for librarians.* 4th ed. Westport, CT: Libraries Unlimited.

Project SAILS. 2006. "About the test." Available: www.projectsails.org/abouttest/aboutTest.php?page=aboutTest (accessed April 5, 2006).

Rockman, I. F. & Associates. 2004. *Integrating information literacy into the higher education curriculum.* San Francisco: Jossey-Bass.

Shonrock, D. D., ed. 1996. *Evaluating library instruction: Sample questions, forms, and strategies for practical use.* Chicago: American Library Association.

WASC–Accrediting Commission for Community and Junior Colleges. 2004. *Guide to evaluating institutions.* Novato, CA: Western Association of Schools and Colleges.

Weber State University. 2003. "Information literacy program assessment plans and data." Available: http://faculty.weber.edu/chansen/libinstruct/ILProgram/assessment.htm (accessed April 5, 2006).