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Previously, Megan served as Librarian for Instruction and Undergraduate Research at North Carolina State University. In this role, she provided and assessed information literacy instruction; she also trained fellow reference librarians in instructional theory and methods. Megan earned her PhD in library and information science at UNC-Chapel Hill and her MLS at Kent State University. Prior to a career in librarianship, she taught advanced composition in Ohio public secondary schools.

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Abstract

An Essential Partner: The Librarian's Role in Student Learning Assessment

The authors argue that librarians, both independently and in partnership with other stakeholders, are systematically and intentionally creating learning outcomes, designing curriculum, assessing student achievement of learning goals, using assessment results to identify practices that impact learning, and employing those practices to positively impact student experience. Focusing on information literacy as a student learning outcome, Gilchrist and Oakleaf begin by outlining ideas behind information literacy and how it connects with general education, credit course, and discipline outcomes. Librarians can contribute to information literacy and subsequent learning in a variety of ways that can be documented through surveys, standardized tests, and other methods. Examples are provided throughout of how institutions have developed student learning assessment processes. Gilchrist and Oakleaf conclude with possible challenges and solutions of librarians engaging in student learning assessment and contributing to overall student success.

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An Essential Partner: The Librarian's Role in Student Learning Assessment

Debra Gilchrist & Megan Oakleaf

Librarians are essential partners in efforts to improve student learning. Both independently and in collaboration with campus colleagues, librarians articulate learning outcomes, craft instructional experiences, assess student achievement of learning goals, use assessment results to identify practices that impact learning, and employ those practices in future instruction. Traditionally, academic libraries have enjoyed a symbolic “heart of the university” role. Today, changing higher education environments mean stakeholders not only expect academic institutions to achieve high learning goals, they also require them to demonstrate evidence that they have achieved them. The same is true for academic librarians; they, too, need to provide evidence of their value and direct contributions to student learning and success through well-designed outcomes assessment processes. Thus, community college, college, and university librarians no longer rely on their stakeholders’ belief in the importance of libraries. Rather, they embrace the challenge of demonstrating the effectiveness of their instructional programs and partnerships.

This paper highlights the learning outcomes, instructional strategies, and assessment methods academic librarians employ to help students achieve their learning goals, increase their level of academic success, and progress further and faster through coursework. It describes the leadership role librarians play in campus wide assessment activities; finally it outlines common challenges they face in seeking to effect instructional change.

The Academic Library and Student Learning Outcomes

Academic libraries have successfully navigated a paradigm shift from information repositories to learning enterprises (Bennett, 2009) by embedding innovative library education, resources, and services in the teaching and learning activities of their institutions and designing facilities that increasingly engage students in learning. In this student-centered paradigm, librarians emphasize information proficiency in addition to information access (Bundy, 2004) and embrace a fully-engaged educator role (Bennett, 2009) instead of limiting themselves to a support service or resource model.

Academic librarians focus on “information literacy” as a student learning outcome—a concept defined by the Association of College and Research Libraries (ACRL) in the *Information Literacy Competency Standards for Higher Education (Competency Standards)* as the ability to identify a need for information and then locate, evaluate, and use information ethically and responsibly to meet that need. Information literacy has been described as the core literacy of the 21st century (Garner, 2006, p. 68) and is included as a key component of 21st century skills (Institute of Museum & Library Services, 2009). The Association of American Colleges and Universities (AAC&U) lists information literacy as an “Essential Learning Outcome” (AAC&U, 2010). To be prepared for academic study, life, and work, students must become critical consumers and users of information. Inherent in the construct of information literacy is the recognition of inquiry as central to learning as well as fluency with the systems and strategies that facilitate that quest. Information literacy and analogous terms appear often in general education outcomes; in a survey of institutional learning outcomes statements, 74% of institutions report that their general learning outcomes include critical thinking, 59% include information literacy, and 51% include research skills (Hart Research Associates, 2009, p. 5). Students who learn the most information literacy skills come from institutions that communicate the importance of information

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literacy (Kuh, 2008). Similarly, because “what gets measured gets learned,” it is reasonable to believe that institutions that assess information literacy outcomes might also produce students with greater information literacy ability.

Clearly, the major goal of postsecondary education across multiple institution types—community colleges, colleges, and universities—is learning. Therefore, to be successful contributors to their institutions, academic librarians are maximizing their impact on student learning and success. Librarians have a unique and varied teaching role; in addition to teaching traditional credit courses, they also provide students with one-on-one instruction at the reference desk and collaborate with other faculty to teach research methods in discipline-focused courses across the curriculum. Termed “course-integrated instruction,” the latter approach teaches students to access, evaluate, critically analyze, and ethically use information and prepares them to successfully complete course assignments. The challenge of course-integrated information literacy instruction is that it is often at the request of individual professors rather than logically placed within the scope and sequence of disciplinary curriculum. Indeed, very few departments or programs include formal information literacy outcomes in their disciplinary curriculum. This means students are often left to their own initiative or past learning experiences to achieve a level of information literacy that matches course research requirements. Moreover, faculty may not practice the same scaffolded, developmental approach to information literacy outcomes that they employ in the teaching of their own discipline; for instance, many faculty utilize the research paper as a method of assessing student work in the disciplines, yet most do not teach the information literacy concepts students need to be fully successful with course assignments. Consequently, they may require first-year students to meet the same research paper requirements as their third- and fourth-year counterparts with few systematic learning opportunities to develop research skills. Instead, students are asked to execute search strategies, retrieve relevant journal articles and books, distinguish peer-reviewed from mainstream sources, determine the authority of authors, and evaluate the credibility of publications and websites at the earliest levels of their academic experience and without the benefit of sufficient instruction.

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Educational Outcomes Assessment

Mirroring the academy’s shift of the last decade, library assessment efforts have similarly evolved to focus on student learning outcomes. In an effort to make learning outcomes the keystone of their teaching activities, academic librarians routinely state specific instructional goals, explain rationales for teaching methods, identify ways they expect students to be impacted by information literacy instruction, and detail the effect of library instruction, facilities, resources, and services on student success. Due to their unique role serving the entire academy and the diverse structure of each college or university curriculum, librarians have developed or assisted in developing learning outcomes on several levels:

Institution or Degree Level	Outcomes for general education information literacy requirements or campus-wide definitions of information literacy
Program Level	Outcomes for the library’s information literacy program or discipline-specific information literacy outcomes
Course Level	Outcomes for information literacy credit courses
Individual Session Level	Outcomes for course-integrated instruction sessions

Incorporating information literacy outcomes at each of these levels adds significant benefit to student achievement. The following sections provide examples of how institutions have developed each of these types of outcomes as well as the wide variety of assessment methods currently being utilized.

General Education Outcomes

Recognizing the value of information literacy to overall student success, many colleges and universities have incorporated information literacy as a part of their general education curriculum. As a general education outcome, information literacy reaches across the curriculum and facilitates connections between other general education and program learning outcomes. Some institutions have included information literacy concepts within broader general education outcomes such as critical thinking, inquiry and analysis, and problem-solving. The following examples illustrate the variety of approaches institutions have taken in the design and assessment of general education outcomes.

Pierce College, Washington (<http://www.pierce.ctc.edu>)

Assessments of general education outcomes are classroom-based and normed with a common rubric. Faculty independently develop assessments appropriate to the content and instructional methods of their courses. Student scores and samples of student work are reported to a central campus database for analysis by an interdisciplinary faculty team. Librarians and faculty utilize the overall results to adjust curriculum across all courses. Student learning outcomes for information competency include:

As a general education outcome, information literacy reaches across the curriculum and facilitates connections between other general education and program learning outcomes.

Information Competency Outcomes	Example Assessment Methods
Values inquiry and information needs in order to engage in lifelong learning.	Criminal Justice students identify key sources for remaining current in their field and describe how and when they will utilize professional and scholarly literature in their professional practice.
Applies a repertoire of creative and flexible information seeking strategies in order to navigate the unfamiliar, take action, or solve a problem.	In advance of writing a research paper, students submit a plan for a search strategy that is then reviewed with the faculty member. Students execute the strategy and, along with the research paper, submit a critical evaluation of how well the strategy worked in investigating the topic.
Identifies appropriate sources in order to access relevant information.	Early Childhood Education students review a book, a peer-reviewed journal, a parents' magazine, and a professional teaching publication and describe and how each would provide information on a topic related to sibling rivalry.
Uses technological and organizational tools in order to access and manipulate information.	In groups, students develop a database of relevant articles on key topics important to exploration of a class topic. Each resource is analyzed and subject headings are assigned for the resource's perspective, the extent of its coverage, and its overall score for quality and relevance.
Analyzes information for quality, relevance, or perspective.	In the bibliography, students evaluate the top three resources most critical to the development of their paper according to criteria including currency, reliability, authority, and purpose.
Examines the issues and policies related to information in order to use it responsibly.	Political Science students examine the role of information in a democratic society. What are the issues? How is information relevant or important to them?

James Madison University, Virginia (<http://www.jmu.edu>)

All students enrolled in first-year General Education Cluster courses are required to pass the Information-Seeking Skills Test (ISST) during the freshman year. The ISST requirement ensures that all students develop the necessary knowledge and skills early in their university career by requiring them to demonstrate the following outcomes:

- Identify and locate library services and collections.
- Formulate and conduct an information search that includes a variety of reference sources, such as encyclopedias, library catalogs, indexes, bibliographies, statistics sources, government publications, and resources available on the Internet.
- Evaluate information in terms of accuracy, authority, bias, and relevance.
- Employ efficient database-searching techniques, such as use of Boolean operators, truncation, phrase searching, nesting, and field-specific searching.
- Identify the bibliographic elements essential for properly citing an information source.
- Apply appropriate ethical guidelines to the use of information.

Weber State, Utah (<https://www.weber.edu>)

At Weber State, a two-credit required general education information literacy course guides students in their learning. Transfer students are required to demonstrate they have met the following course outcomes via an online exam:

- Demonstrate an understanding of academic integrity, which includes all of the skills involved in being able to appropriately document your research.
- Employ techniques such as paraphrasing, summarizing, and quoting to avoid plagiarism.
- Properly cite information sources using APA or MLA style.
- Clearly summarize and evaluate the quality of a variety of print and online resources.
- Develop a focused research question or thesis statement in order to clearly define a topic.
- Develop and apply search statements using keywords, Boolean logic, and other advanced search techniques.
- Demonstrate an understanding of library collections, resources, and services in order to access information.
- Use library catalogs to identify and locate information in the library.
- Use article databases to find information from journals, magazines, and newspapers.
- Use internet search engines to find high quality websites.
- Find information, borrow materials, and get help in the library.

University of Missouri, Columbia (<http://www.missouri.edu>)

At the University of Missouri, Columbia, student learning outcomes are developmental, with foundational abilities established for first- and second-year students and more advanced outcomes developed for third- and fourth-year students—an acknowledgement that

A variety of institutions are engaged in designing and assessing the general learning outcome of information literacy including:

Pierce College, Washington

James Madison University, Virginia

Weber State, Utah

University of Missouri, Columbia

University of Puget Sound, Washington

conducting effective research is a progressive skill. Instruction and assessment is accomplished in a small set of common courses to reach all students. First- and second-year instruction focuses on foundational information literacy skills, instruction, and practice. Third- and fourth-year instruction involves a discipline-specific curriculum, integrating skills and expanding knowledge of specialized, discipline-specific resources, advanced searching and evaluating skills, and ethical matters in the context of each of the disciplines.

University of Puget Sound, Washington (<http://pugetsound.edu>)

Core outcomes are embedded in two required courses at the University of Puget Sound: Seminar in Scholarly Inquiry I and II. These seminar courses introduce students to the academic community and engage them in the process of scholarly inquiry, fostering in them the intellectual habits necessary to write and speak effectively and with integrity. Students increase their ability to develop effective arguments by learning to frame questions around a focused topic, to assess and support claims, and to present their work to an academic audience. Over the course of the two seminars, students—with increasing independence—contribute to these conversations and produce a scholarly project. In Seminar I, students engage challenging texts and ideas through guided inquiry. In Seminar II, students learn to craft research questions, search for and retrieve information, and seek appropriate assistance in the research process. Students produce a substantive scholarly paper or project that involves independent research. Information literacy outcomes for the scholarly paper include the following:

1. Students frame a problem or question, develop a thesis, defend their thesis effectively, and think critically about arguments—their own and those of others.
2. Students address important conventions of written argumentation (including audience, organization, and style) and writing as a process.
3. Students present arguments orally through discussion and more structured presentation.
4. Students engage concepts of academic integrity.
5. Students learn to distinguish between different types of information sources and learn to evaluate sources of information for bias, reliability, and appropriateness.

Credit Course Outcomes

Credit-bearing information literacy courses are prevalent throughout U.S. higher education, providing students the opportunity to delve deeply into research methods and information literacy topics. However, most for-credit information literacy courses are not required, and, consequently, students' experiences and opportunities to engage literature and research are inconsistent. While some courses focus on information literacy in general, other courses are discipline-specific and provide students with the opportunity to develop information-seeking strategies in the context of their major or field of study. Including general and discipline-specific information literacy courses as part of learning communities and listing information literacy courses as co-requisites to research-intensive content courses represent two additional tactics of increasing student engagement with information and of fostering student success. In community colleges, to bolster the abilities of high-risk students, information literacy courses are often linked to developmental pre-college and threshold courses. Examples of the variety of approaches include:

Including general and discipline-specific information literacy courses as part of learning communities and listing information literacy courses as co-requisites to research-intensive content courses represent two tactics of increasing student engagement with information and of fostering student success.

Information Literacy course for science majors: University at Albany, State University of New York. To meet the university's General Education Information Literacy requirement, which students are obliged to fulfill within their first two years, students majoring in the sciences can take a specialized information literacy course designed to explore the unique research methods required in these disciplines.

Linked upper division courses for majors: Augustana College, University of Alberta, Canada. Students choose from 21 credit-bearing discipline-specific information literacy courses. They are strongly encouraged to co-enroll in a companion course in the same discipline that includes a research paper component. Students use the topic of the paper in the secondary course as the focus for the information gathering, assessment, and citation exercises in the information literacy course.

Learning community that includes information literacy course: University of Baltimore, Maryland. A learning community named "True Life: I'm from the 19th Century," pairs a history course with an information literacy course to approach information literacy student learning thematically.

Lower division course in two-year professional/technical program: Pierce College, Washington. At the request of the program's advisory committee, which is comprised of potential employers, the criminal justice program contains a required two-credit information literacy course focused on the sources and strategies students need to be successful in this profession.

Focused standards enable librarians and faculty partnerships to impact student learning through discipline- and profession-specific assignment design.

Discipline Outcomes

To assist institutions with discipline-specific outcomes for information literacy, ACRL (2012) has published several focused sets of information literacy standards (<http://www.ala.org/acrl/issues/infolit/ilcc/ilcc-standards>). These standards provide outcomes describing what students need to do to be effective researchers in their fields as well as the key behaviors that information-literate students demonstrate. They also integrate the ethical considerations particular to the discipline. For example, the stated purposes of the *Information Literacy Standards for Anthropology/Sociology Students* seek to:

- provide a common ground for faculty to work with librarians in helping students become more critical researchers and to offer faculty a basis for integrating the outcomes into their courses,
- help librarians design the content of instruction for students and plan information literacy initiatives in anthropology and sociology, and
- make possible an evaluation of the information literacy abilities of anthropology and sociology students by providing standards and competencies to assess (ACRL, 2008, Introduction, para. 3).

Examples of sources and research situations provided throughout the document are "intended to spark ideas and make concrete what the standards mean in the two disciplines" (2008, para. 4). Focused standards enable librarians and faculty partnerships to impact student learning through discipline- and profession-specific assignment design. For example, in an assignment focused on appropriate investigative methods, anthropology students completing culture context papers strive to meet both the general ethical standards for information collection and retrieval and those of the American Anthropological Association displayed in the table below.

General Information Literacy Standards	Anthropology/Sociology Information Literacy Standards
Outcome: Select the most appropriate investigative methods or information retrieval systems for accessing the needed information.	Outcome: Select the most appropriate investigative methods for researching the topic.
<p>Key behaviors for success:</p> <ul style="list-style-type: none"> a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork). b. Investigates benefits and applicability of various investigative methods. c. Investigates the scope, content, and organization of information retrieval systems. d. Selects efficient and effective approaches for accessing the information needed from the investigative method or information retrieval system. 	<p>Key behaviors for success:</p> <ul style="list-style-type: none"> a. Identifies and evaluates anthropological and sociological qualitative and quantitative research methodologies applicable to the project that will provide the kind of data or information needed. Examples: fieldwork, participant observation, data analysis, interviews, survey research, literature review, software for linguistic text analysis, and spatial databases for archaeology. <p>Ethical, sociocultural, and legal dimensions and behaviors:</p> <ul style="list-style-type: none"> a. Discusses and demonstrates an understanding of institutional policies related to human subjects research, including access to subjects, informed consent, and institutional review board requirements. b. Identifies and discusses privacy, confidentiality, security, and other ethical issues related to the research methodology employed in accordance with principles in the American Anthropological Association Code of Ethics or the American Sociological Association Code of Ethics.

Today, many librarians have moved toward greater use of authentic, integrated assessments of student learning.

The Academic Library and Information Literacy Learning Assessment

Librarians have implemented a variety of outcomes-based assessments of student learning. Initial assessments focused on surveys, standardized tests, pre- and post-tests, and other single-dimensional measures of learning. For example, Project SAILS (Kent State University, 2012)—a standardized test approach to information literacy assessment—mapped multiple choice questions to the ACRL *Competency Standards* and influenced librarians nationwide to implement basic assessment, in large part because of the ease of administering the instrument, its validity and reliability, and the ability to obtain benchmark data. Today, many librarians have moved toward greater use of authentic, integrated assessments of student learning. Regardless of format, information literacy assessments are typically employed by instructors and students at the course and culminating experience levels.

Course-Integrated Assessments

Librarians routinely collaborate with classroom faculty to integrate information literacy assessment into course assignments. For students, authentic assessment is meaningful because it replicates information behaviors they will employ after graduation, in the workplace, and in life. The underlying philosophy is that the more students can observe evaluation of information as a key component of their biology curriculum, the more chance there is that critical information-seeking and analysis will be permanently integrated into their future actions as professional biologists. As an added bonus, incorporating authentic assessment of information literacy into assignments can assist faculty in limiting plagiarism. When students are asked to explain their research process, to evaluate their sources for quality, or to compare/contrast a peer-reviewed article with a periodical article, they are more likely to do original work. Therefore, assessing the thought process behind the research paper, rather than limiting the focus to a final product, benefits faculty by reducing plagiarism and, perhaps more importantly, helping students learn process skills that are transferable to other learning contexts. Examples of course-integrated information literacy assessments include the following:

- Anthropology.** For an anthropology paper, students analyze their inclusion of multiple voices, perspectives, and viewpoints other than their own.
- Nursing.** An instructor presents a public health problem to a nursing class. Each student team supports its solution to the problem. As part of their report, teams describe how they acquired and used information to solve the problem.
- History.** As a component of their history research paper, students incorporate both primary and secondary sources, explain the characteristics of each type, and describe what the use of each source lends to the depth/breadth of their topic.
- Physical Therapy.** Students are asked to locate ten reliable consumer health websites on a topic and to create a patient education brochure on that topic based on information from those sites. They must include an evaluation of each site they utilized and describe why it is credible.
- Biology.** Emulating the laboratory process, biology students submit a research log documenting the search strategy they pursued in the construction of their research paper. The log includes an analysis of their search language and how it changed throughout the process, the databases consulted and why they were an appropriate choice, the factors considered in developing the topic (key people, dates, issues) and why they were important to the results of the work, an evaluation of key sources, and tips for other researchers.
- Sociology.** Students conduct a literature search in *Sociological Abstracts* and a general periodical database. They detail how the search results are different and similar, which is better for their topic, and why.
- General.** Students organize their bibliography in order of the importance of the source to the development of their topic. The first three items include a paragraph evaluating the source based on criteria for quality and explaining the key ideas included in the paper that emerged from that source. The fourth item is a source retrieved during the research process that they rejected with an explanation of why it was not appropriate.

Assessing the thought process behind the research paper helps students learn process skills that are transferable to other learning contexts.

Assessments of Culminating Experiences

Assessment within culminating or capstone experiences provides opportunities for students to demonstrate the extent to which they have integrated and can apply information literacy strategies and skills in the context of their discipline. Below are examples of capstone courses that embed information literacy outcomes:

Wartburg College, Iowa. Students receive information literacy instruction in five core courses and in several major courses via a course-integrated, developmental process. Assessment occurs in the capstone course in the major.

Bay Area Community Colleges, California. The project developed an information literacy assessment instrument that is based on specific performance outcomes at the two-year level and that is criterion-referenced to national standards. The project purpose is to develop a challenge-out or credit-by-exam instrument that can be used and/or modified at community colleges with an information literacy general education graduation requirement.

William Paterson University, New Jersey. Using common rubrics, faculty evaluate student artifacts from general education and capstone courses to measure student information literacy. The approach actively involves faculty in the assessment process and motivates them to use the results of the assessment to improve their courses and programs.

Self-Assessment

Through self-assessment, students reveal their self-perceptions as researchers and their feelings of self-efficacy. Since information-literate students seek to be continuous learners, this type of assessment exposes self-reflection and internalization of the use and value of their skills. In an information literacy self-assessment, students respond to questions such as these:

- How will you use, analyze, and synthesize information while on the job as a social worker?
- What are the important parts of this research assignment? How well have you done them? How do you know?
- Describe the three to five most important things you learned about the research process and yourself as a researcher while doing this assignment.

Self-assessments teach students that the inquiry methods utilized in their courses are crucial to success after graduation. Through the metacognitive self-assessment process, students become conscious of the research strategies, critical thinking steps, and other transferrable skills that they employed to complete the assignment. Using this strategy, faculty can observe elements of the student's thinking process and extend their grading to include the quality of the process followed by the student as well as the end product of student learning. Librarians can partner in the evaluation of the information literacy portion of the assignment and collaborate to enhance future instruction based on student performance.

Best practices in faculty/librarian assessment collaborations focus on both the team effort and the design of the assignment. Quality assessments examine student performance, knowledge acquisition, information literacy skills, transfer to new contexts, and attitude appraisal. They are fully integrated and presented to the student as a unified assignment. Assessing the many decision points that students encounter while developing an assignment as well as the intellectual journey that reveals why choices were made adds value over an analysis limited to the content of the final product. Finally, the best assignments emerge from fully-articulated collaborations involving faculty and librarians working together to identify information literacy outcomes, to determine the instructional approach, and to evaluate student work.

Best practices in faculty/librarian assessment collaborations focus on both the team effort and the design of the assignment.

Rubric Assessments

Course-integrated assessments, assessments of culminating experiences, and self-assessments are often authentic in nature and involve the use of rubrics for consistent scoring and provision of student feedback. Rubrics are descriptive scoring schemes created by educators to guide analysis of student work (Oakleaf, 2009). Information literacy rubrics describe what information literacy skills and concepts look like when applied in context. They assist in leveling the skills and describing them in a developmental manner, clarifying to students where their work falls along a continuum, and providing librarians and faculty with a common point of understanding. Examples of information literacy rubrics include the following:

California State University System:

http://www.calstate.edu/LS/1_rubric.doc

St. Johns University, New York:

<http://www.stjohns.edu/media/3/154036ce417b49678d1882aab8d27487.pdf>

Augustana College, University of Alberta, Canada:

<http://openedpractices.org/files/Info%20lit%20rubric%20Augustana.pdf>

RAILS (Rubric Assessment of Information Literacy Skills):

<http://railsontack.info/rubrics.aspx>

National Learning Assessment Initiatives

Academic librarians' interest in learning outcomes is not limited to teaching and assessing students at individual institutions. Academic librarians also support their institutions by engaging in national learning assessment initiatives such as the Valid Assessment of Learning in Undergraduate Education (VALUE) project, a part of the AAC&U Liberal Education and America's Promise (LEAP) initiative. The VALUE project provides higher education with a set of rubrics that assess Essential Learning Outcomes using students' authentic work, including research projects and papers, lab reports, creative products, internships, service learning activities, capstone projects, and e-portfolios (AAC&U, 2010; Jones, 2009; Maki, 2009). This approach offers several benefits, including capitalizing on existing rubric assessments and data sources (Rhodes, 2008), adapting rubrics locally to reflect individual campus cultures, reinforcing the skills institutions want students to learn (Smart, Feldman & Ethington, 2006), and drawing internal and external comparisons (Rhodes 2008). To support and investigate this approach to assessment, librarians have developed Rubric Assessment of Information Literacy Skills (RAILS), a grant-funded project investigating the interrater reliability of the information literacy VALUE rubric. The RAILS project is focused on information literacy and driven by academic library research, but it will yield broadly applicable lessons about rubric development, norming, and application that can inform the use of rubrics across all AAC&U Essential Learning Outcomes (Oakleaf, 2012).

In their efforts to increase their leadership role in the national assessment arena, academic librarians not only participate in and contribute to higher education learning assessment activities, they also develop new assessment initiatives. ACRL, in partnership with the Association of Public and Land-grant Universities (APLU), the Council of Independent Colleges (CIC), and the Association of Institutional Researchers (AIR), recently provided the leadership to host national summits on the ways in which academic libraries can contribute to institutional missions. These grant-funded summits brought 22 institutional teams made up of chief academic officers, institutional researchers, and senior librarians together to discuss issues of national significance in higher education; efforts are currently under way to act on the findings of these summits.

Academic librarians support their institutions by engaging in national learning assessment initiatives . . . and developing new assessment initiatives.

The Academic Library and Faculty Engagement

While academic libraries support student learning assessment both institutionally and nationally, they also provide value for faculty. Instructional content, methods, and assessments “can no longer be the sole province of individual academic teachers”; instead, librarians become instructional partners and help faculty “improve the quality of their courses...develop innovative curricula, and save time on teaching-related activities” (Simmel, 2007, p. 91). A sequenced information literacy curriculum ensures that faculty know which courses include information literacy outcomes, and can therefore expect, reinforce, and build on these outcomes just as they would with disciplinary courses designed in a series. As students become more sophisticated researchers, they are able to delve more deeply into their topics, creating the potential for course outcomes to be more fully achieved.

Faculty-librarian collaborations have positive results for both partners. One study describes the results of course-integrated library instruction from a faculty perspective; in this study, 100% of faculty members who spent time with librarians to determine how to integrate information literacy instruction into their classes considered the time well spent. According to faculty members, librarians improved the quality of courses by providing “a higher caliber of discipline-based research instruction” that allowed faculty to “1) develop and implement new curricula by targeting and customizing access to relevant information resources; 2) improve their own research productivity since they learn new techniques and become familiar with new resources; and 3) save time in preparing research classes, interacting with students about information resources, and grading both individual assignments and group projects” (Simmel, 2007, p. 90). Research also indicates that faculty valued librarians’ assistance in guiding their students toward appropriate information for course assignments, and nearly half said that librarians had supported their teaching outcomes (Dickenson, 2006). Similar numbers reported the positive impact of library resources on their instructional goals, including preparation of lectures, student reading assignments, and conceptual frameworks for courses.

Librarians can also be valuable resources to institutions seeking to anticipate and design future teaching and learning approaches. As higher education increasingly emphasizes competencies over courses and utilizes technology and instructional modalities that accentuate individualized learning, students will experience learning environments that are less structured—making it even more important for them to be self-directed learners with strong information literacy skills. Process-learning pedagogies such as resource-based learning, inquiry-based learning, and problem-based learning help faculty move from a content model to the incorporation of techniques that help students “learn how to learn” (Gilchrist, 2007). Inquiry is at the heart of these models, and the library is a natural place for that investigation to occur. In the future, librarians can expand their support for faculty in developing curriculum and designing interesting assignments, engaging questions, and complex problems for students to analyze.

Demonstrating Student Success

In past decades, much of the assessment of information literacy instruction and student use of library resources and services produced “micro-level studies” (Streatfield & Markless, 2008, p. 103) that were limited to “narrow and momentary glances” at the impact of instructional efforts on individual library instruction classes or guest lectures (Schupe, 2007, p. 54). These studies, while useful to the librarians, were limited when viewed from a faculty perspective. Moreover, the voluminous body of literature on one-shot information literacy assessments in some ways became an obstacle; one researcher states that the “sheer quantity of examples in the literature...can make it hard...to find examples of best practice” (Walsh, 2009, pp. 19-20). In recent years,

Academic libraries support student learning assessment both institutionally and nationally and provide value for faculty.

research assessing the impact of libraries on student learning has accelerated to explore broader, more coherent demonstrations of the impact of libraries and librarians on information literacy learning within institutional contexts. Indeed, librarians have recognized the need for rigorous, larger-scale assessments that emphasize “changes in levels of student competence, ... changes in student behavior, ... effects of information literacy based changes in the curriculum, ... the comparative efficacy of different levels and types of information literacy interventions, ... [and] the overall value of library based information literacy work to the academic community” (Streatfield & Markless, 2008, p. 104). As a result, there is a growing list of research that correlates surrogates of student learning such as grades (Jager, 2002; Julien & Boon, 2004; Zhong & Alexander, 2007) with library-related interactions (Dickenson, 2006) and behaviors (Poll, 2003; Poll & Payne, 2006). For example, one research study employed a control group approach to investigate the impacts of an information literacy program, especially library workshops and courses. This study found that students who passed the information literacy course had higher GPAs, completed more semester hours, and were more likely to persist—even taking self-selection bias into account (Glendale Community College, 2007; Moore, Brewster, Dorroh, & Moreau, 2002).

Some of the latest studies on this topic have emerged from non-U.S. institutions. Librarians at the University of Huddersfield found statistical correlations between book and e-resource use and student “attainment” (University of Huddersfield, 2011). Researchers at the University of Wollongong found similar correlations between book borrowing and database usage and student “marks” (Cox & Jantti, 2011). At Hong Kong Baptist University, librarians documented either positive or no correlation (no negative correlation) between book and AV circulation and grades as well as between participation in library instruction classes and grades (Wong & Cmor, 2011; Wong & Webb, 2011).

Even more research studies investigating academic library impact are in progress or in press in the U.S. Fresno State University, for example, is documenting many types of student library interactions to investigate correlations with student learning outcomes. At the University of Minnesota, librarians are leveraging library data to determine whether the use of library print and digital collections positively correlate with course pass/fail rates, grades, GPA, retention, four-year graduation rates, and completion of graduate degrees and/or dissertations. And the University of Wyoming has found a statistically significant difference in GPA between graduating seniors who had library instruction in upper-level courses and those that did not (Bowles-Terry, 2012). It is worth noting that, while these early studies correlate student library interaction and instruction with GPA as a surrogate for student learning, they do not purport to establish causative links. Future investigations will be necessary to explore and find causative relationships between academic libraries and student learning.

The Academic Library and the Way Forward: Challenges and Strategies

Librarians engaging in learning outcomes assessment face a few challenges, including developing assessment knowledge, expanding access to students, balancing the desire to “prove” with the need to “improve,” and resourcing assessment activities. However, librarians have developed a number of strategies to surmount these obstacles.

Developing Assessment Knowledge

Like many higher education professionals, librarians need to expand their existing assessment skills. At the recent ACRL national summits, institutional teams brainstormed and categorized the abilities librarians need to acquire to assess student learning more effectively and demonstrate the impact of the academic library on aspects of their institutional missions. They determined several areas in which librarians should develop their assessment knowledge:

In recent years, research assessing the impact of libraries on student learning has accelerated to explore broader, more coherent demonstrations of the impact of libraries and librarians on information literacy learning within institutional contexts.

- Librarians can expand their awareness of the overarching context of higher education, including national issues like accountability and accreditation as well as local efforts to achieve institutional missions.
- By viewing the academic library as part of the larger institution, librarians can increase their role on campus as visible “connectors,” capable of crossing traditional boundaries between disciplinary programs and organizational units. To achieve this goal, librarians can expand their capacity for developing partnerships on campus and adopt shared assessment vocabularies.
- Librarians can increase their awareness of the student learning data maintained on other areas of campus. Armed with that knowledge, they can then integrate library information systems with enterprise-level systems, a crucial first step toward mining, analyzing, correlating, and triangulating student assessment data.
- Librarians can augment their basic assessment skills including writing assessable outcomes, developing authentic and integrated assessment tools, using project management principles to keep assessment projects moving forward efficiently, and following accepted principles of action research.

To address their learning needs, librarians seek out professional development at national assessment conferences including the Association of Research Libraries (ARL) Library Assessment Conference and intensive workshops like the ACRL Assessment Immersion Program. Librarians also contribute to higher education conferences such as the IUPUI Assessment Institute, Texas A&M Assessment Conference, and EDUCAUSE, AAC&U, and Association for the Assessment of Learning in Higher Education (AALHE) conferences.

Expanding Access to Students

A second challenge librarians face is a lack of documented interactions with students. Unlike faculty who interact with students officially enrolled in their courses or student affairs professionals who can identify which students participate in their programs, librarians do not have as many formalized, documented connections with specific students. Consequently, librarians must seek out interactions with individual students that can be recorded for assessment purposes. For this, they depend on collaborations with their faculty and co-curricular professional counterparts to gain access to groups of students. In many cases, these collaborations provide the only venue for librarians to deliver instruction and gain opportunities to record and track the impact of that instruction on student learning.

For many years, librarians have tried to assess the learning of student groups, but they have little access to data about the individual students that make up those groups. Without individual student-level data, librarians are stymied in their efforts to discover connections between the ways students interact with libraries and librarians and the difference those interactions make to their learning.

When academic libraries collaborate with faculty and student affairs professionals to collect data on individual students who participate in library instruction activities or demonstrate information literacy skills through classroom discussions, individual consultations, online tutorials, peer group discussions, artistic performances, project demonstrations, plans or rehearsals for projects (Saunders, 2008), they can use other institutional data sources to explore possible correlations with other forms of student data such as major, GPA, test scores, or time to graduation. In fact, “until libraries know that student #5 with major A has downloaded B number of articles from database C, checked out D number of books, participated in E workshops and online tutorials, and completed courses F, G, and H, libraries cannot correlate any of those

Unlike faculty who interact with students officially enrolled in their courses or student affairs professionals who can identify which students participate in their programs, librarians do not have as many formalized, documented connections with specific students.

student information behaviors with attainment of other outcomes” (Oakleaf, 2010, p. 96). Because they recognize the limitations of using data that does not allow for tracking of discrete students, librarians are now moving forward with research that uses individual student data, while still maintaining student privacy.

Balancing Desire to “Prove” with Need to “Improve”

Like their campus colleagues, librarians face the challenge of balancing the external demand to “prove” their impact on student learning with an intrinsic desire to “improve” their impact on student learning. While these two purposes—to respond to calls for accountability and to engage in continuous improvement—are complementary, oftentimes they are not treated as such. Especially in times of economic downturn, higher education is required to show evidence that it is “worth” the investments made by students, parents, employers, governmental bodies, and other stakeholders. Likewise, librarians feel pressure to “prove” that library expenditures are warranted and provide a positive return on investment. On the other hand, librarians also seek to conduct assessments that will help them learn how to provide continuously improving services and resources to their campuses. These two needs sometimes drive different assessment approaches.

To reconcile these two motivations, librarians focus on developing assessments that will help them make decisions for improvement and “closing the loop.” Librarians use assessment cycles to guide their work (see Figure 1) and to keep their emphasis on actionable results (Oakleaf, 2009), regardless of the impetus for assessment. In addition, they also use a library impact model (see Figure 2) to maintain their focus on areas of institutional mission—especially student learning—and to continue reflection and continuous improvement throughout the documentation and stakeholder communications processes (Oakleaf, 2011).

Librarians use assessment cycles to guide their work, keep their emphasis on actionable results, and maintain their focus on areas of institutional mission—especially student learning.

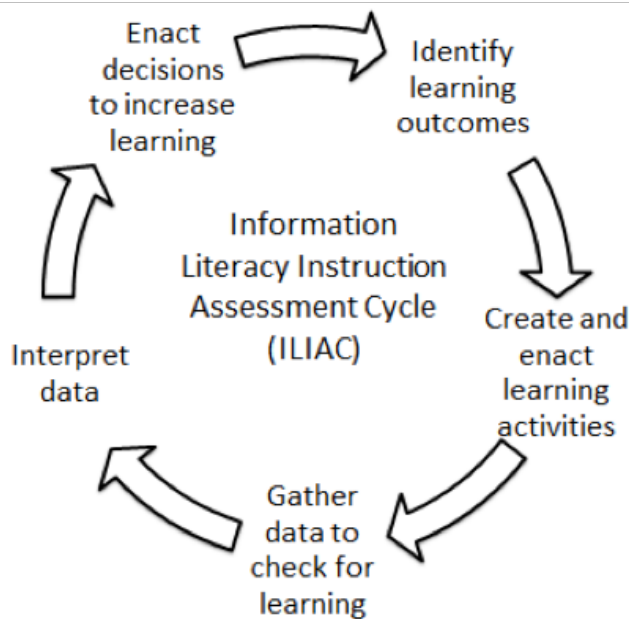


Figure 1. Information Literacy Instruction Assessment Cycle

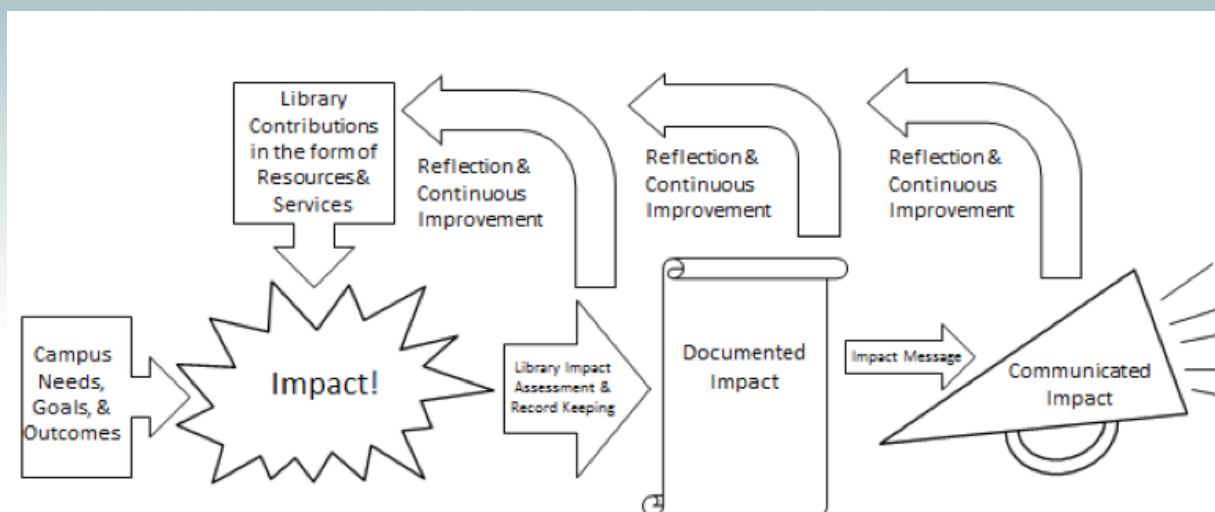


Figure 2. Library Impact Model

With these conceptual frameworks to guide them, librarians can avoid focusing exclusively on “how good” a library is and keep the emphasis firmly placed on efforts to increase “how much good” the library can do.

Resourcing Assessment Activities

Finally, librarians are challenged by a lack of resources for assessment activities. Like other higher education professionals, librarians cite time constraints, insufficient personnel, and budgetary limitations as obstacles to planning, conducting, analyzing, communicating, and acting on assessment data. To surmount these difficulties, librarians have reflected on ways to “make time” by letting go of underutilized legacy services to “find time” for assessment efforts and to make changes based on what those assessments reveal. They have designed “assessment librarian” positions and formed library assessment committees and task forces that can spearhead initiatives within the academic librarian and partner with other assessment personnel campus wide. Finally, librarians have integrated assessment into library overarching strategic plans as well as more specific assessment plans to ensure that sufficient financial and other resources are available to develop a culture of assessment and evidence-based decision making throughout the library.

Conclusion

Academic librarians have long been dedicated to the teaching and learning of information literacy to increase students’ academic success. To be confident students are learning, they have established learning outcomes, used multiple pedagogical methods, and assessed student information literacy levels. In recent years, the current higher education environment has offered academic librarians even greater opportunities to accelerate change and re-conceptualize their expertise and roles in the context of student learning—the cornerstone of institutional mission. Academic librarians today continue to expand their role in the teaching, learning, and assessment activities that are core to academic life and that demonstrate their institutional value. Through their traditions of instructional collaboration and strong interdisciplinary perspective, librarians continue to advance meaningful campus-wide pedagogical change; likewise, librarians’ commitment to engaging in learning assessment efforts at the classroom, program, discipline, and institutional levels offers a model for future assessments partnerships in higher education.

Appendix A: The Early Development of Assessment in Academic Libraries

The development of student learning outcomes assessment in academic libraries is well documented in seminal works by two key associations, the American Library Association (ALA) and the Association of College and Research Libraries (ACRL). In 1989, the ALA Presidential Committee on Information Literacy issued a white paper that initially defined information literacy as the ability to recognize when information is needed and to locate, evaluate, and use effectively the needed information (American Library Association [ALA], 1989). This definition set the stage for librarians to consider what these abilities looked like in student performance. In 1998, the publication of the *Taskforce on Academic Library Outcomes Assessment Report* framed the opportunity for deeper thinking about assessment, challenging librarians to focus their outcomes assessment work as “the ways in which library users are changed as a result of their contact with the library’s resources and programs” (Association of College and Research Libraries [ACRL], 1998). This shifted the profession’s sights well beyond the notion that student satisfaction and evaluation were sufficient measures and focused instead on much meatier questions such as:

- Is the academic performance of students improved through their contact with the library?
- By using the library, do students improve their chances of having a successful career?
- Are undergraduates who used the library more likely to succeed in graduate school?
- Does the library instruction program result in a high level of “information literacy” among students?
- As a result of collaboration with the library staff, are faculty members more likely to view use of the library as an integral part of their courses?
- Are students who use the library more likely to lead fuller and more satisfying lives? (ACRL Task Force on Academic Library Outcomes, 1998)

Publication of the *Information Literacy Competency Standards for Higher Education* (ACRL, 2000) set the stage for the transition from a conceptual definition to authentic assessment of student progress toward information literacy, outlining five standards, twenty-two performance indicators, and a range of outcomes focusing on the essential needs of students in higher education. Designed to “serve as guidelines for faculty, librarians, and others in developing local methods for measuring student learning in the context of an institution’s unique mission,” these standards provided a framework in which librarians could work together with faculty throughout the academy to “develop assessment instruments and strategies in the context of particular disciplines, as information literacy manifests itself in the specific understanding of the knowledge creation, scholarly activity, and publication processes found in those disciplines” (ACRL, 2000, p. 6). The *Competency Standards* were subsequently endorsed by the American Association of Higher Education and the Council of Independent Colleges (ACRL, 2000). Seeking these endorsements demonstrated the profession’s philosophical approach and goal to integrate the teaching and assessment of information literacy into developmental, general education, and upper division curricula instead of teaching it as a stand-alone subject.

For over 25 years, the assessment of information literacy has strengthened programming and instruction in college and university libraries. The foundational work of Barr and Tagg (1995), Chickering and Gamson (1987), and other influential scholars inspired librarians to examine their impact on student learning and success. The curriculum of academic libraries, as outlined in the ACRL *Competency Standards*, centers on information literacy, critical inquiry, and all aspects of information production and use. Teaching students to be independent thinkers, to value their own questions, and to critically synthesize and analyze information prepares them to be lifelong learners. Consequently, assessment efforts have focused on student knowledge and performance in these areas.

Other organizations that also value information literacy concepts have developed standards and curricular expectations that relate to and complement the *Competency Standards*. Comparing the *Competency Standards* to the AAC&U LEAP Essential Learning Outcomes and VALUE Rubrics, the ISTE NETS-S Standards, the NCTE 21st-Century Curriculum and Assessment Framework, and the Partnership for 21st-Century Skills, for example, illustrates that other associations also have information literacy goals (Oakleaf, 2011). Librarians develop outcomes that capitalize on these shared values and, thereby, are extending their reach across discipline, campus, and national initiatives.

More recently, academic libraries have joined the institutional effectiveness efforts of their colleges and universities, examining the impact of their role on all elements of student success and how the library’s contributions lead to broader mission fulfillment. The *ACRL Standards for Libraries in Higher Education* (2011) advance that effort by designating principles libraries can use to develop outcomes of significance. These standards are “designed to guide academic libraries in advancing and sustaining their role as partners in educating students, achieving their institutions’ missions, and positioning libraries as leaders in assessment and continuous improvement on their campuses” (p. 5). The nine principles and their related performance indicators establish guidelines relevant to all types of academic libraries while providing

the flexibility needed for a library to “respond to its unique user population and institutional environment” (p. 5). Examining the impact of library programs, facilities, resources, and services on student learning and success, as well as key indicators such as student connection with the college/university, student engagement, and graduation rate, means libraries can identify ‘high-impact’ activities and then focus their efforts in those areas.

Prior to the publication of the *Standards for Libraries in Higher Education*, academic library assessment efforts focused on descriptive measures including inputs, outputs, tallies, surveys, and evaluations principally designed to measure the level of use as well as the “effort” of using the library’s infrastructure to meet the academic community’s information needs (Dugan & Herson, 2002). By examining gate counts, seat counts, hours, collection size, collection relevancy to curriculum, and circulation counts, it was evident that libraries realized the importance of their role in the academic enterprise, but librarians were more focused on how they set the stage for student learning rather than on their impact on the student experience.

As in all areas of higher education, growth in methods, standards, philosophies, tools, and understanding has assisted academic libraries in progressing to more impactful and significant outcomes and assessment efforts. Going forward, librarians in all types of academic institutions—community colleges, colleges, and universities—look forward to being essential partners in the future of student learning assessment.

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NILOA Mission

NILOA's primary objective is to discover and disseminate ways that academic programs and institutions can productively use assessment data internally to inform and strengthen undergraduate education, and externally to communicate with policy makers, families and other stakeholders.

NILOA Occasional Paper Series

NILOA Occasional Papers are commissioned to examine contemporary issues that will inform the academic community of the current state-of-the art of assessing learning outcomes in American higher education. The authors are asked to write for a general audience in order to provide comprehensive, accurate information about how institutions and other organizations can become more proficient at assessing and reporting student learning outcomes for the purposes of improving student learning and responsibly fulfilling expectations for transparency and accountability to policy makers and other external audiences.

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About NILOA

- The National Institute for Learning Outcomes Assessment (NILOA) was established in December 2008.
- NILOA is co-located at the University of Illinois and Indiana University.
- The NILOA website went live on February 11, 2009.
www.learningoutcomesassessment.org
- The NILOA research team has scanned institutional websites, surveyed chief academic officers, and commissioned a series of occasional papers.
- One of the co-principal NILOA investigators, George Kuh, founded the National Survey for Student Engagement (NSSE).
- The other co-principal investigator for NILOA, Stanley Ikenberry, was president of the University of Illinois from 1979 to 1995 and of the American Council of Education from 1996 to 2001.
- Peter Ewell joined NILOA as a senior scholar in November 2009.

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