

Information Literacy in Academic Libraries:

Content Delivery and Future Impact

Assignment 3

Team 4

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Abstract

This study considers how an academic library might effectively deliver information literacy (IL) content to students in modern society. The paper relies on an analysis of the findings from a number of current library scholars who have identified and assessed the effectiveness of a variety of previously implemented IL teaching methods. In addition, approaches to evaluating the long-term impact of IL instruction on the lives of students are explored. Overall, the paper draws on a number of studies that have examined the latter issues using opinion surveys, knowledge tests, educational curricula evaluation, and/or information-seeking behavior observations. Finally, recommendations are given on how IL instruction may be enhanced in light of recent developments in the concept of information literacy.

Introduction

While much research and evaluation has been done to assess the instructional methods of IL, little emphasis has been placed on the essential need for librarians to work with academic and school educators to design instruction that is tailored to the educators' expectations for learning outcomes. Repeated use of library services, encouraged by educators as a necessary component of required assignments, may lead to students becoming lifelong library users. And, while studies regarding the benefits of information literacy instruction are inconclusive, evaluation methods will most certainly shift from an instructional focus to an examination of the impact such instruction has on students' lives.

Over time, the concept of IL has evolved in light of changing demands in society's information needs. While bibliographic instruction has been emphasized in the past, information literacy or "the skills needed to handle and manipulate information in an online and Internet era" is the new focus (Matthews, 2007, p. 237). Instead of simply teaching students how to use the library catalog, physical collection, and primary sources, students are taught how to critically apply these IL skills to conduct research for papers and to supplement course learning (Matthews, 2007).

Determining the long-term impact of IL training on the lives of students who have received literacy instruction remains a challenge. A variety of unanswered questions remain regarding the best methods for delivering instruction and how to measure the results of such training. Emphasis should, therefore, be given to the effect of literacy instruction and the application of information skills to work or real life environments (Rader, 2002).

Literature Review

Over the years, a variety of terminology has been used regarding library instruction. Historically, the most common terms are *library orientation*, *library instruction*, *bibliographic instruction* and *information literacy* (Bopp & Smith, 2001). *Library orientation* was developed to introduce users to the collection, services, building layout and organization of materials held to make the user feel comfortable using the services the library provided. *Library instruction* focuses on the instruction in the use of the library, with a detailed explanation of reference sources, catalogs, indexes and policies. Beginning in the mid-1970s, *Bibliographic instruction* taught users to go beyond the physical boundaries of the library to locate and use information by employing a *search strategy*, or a systematic approach to identify, locate and evaluate information (Bopp & Smith, 2001). The most recent theory is that of *information literacy* instruction, which focuses on the actual process of learning. The American Library Association Presidential Committee on Information Literacy Final Report states:

Ultimately, information literate people are those who have learned how to learn. They know how to learn because they know how information is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for life-long learning, because they are they can always find the information needed for any task or decision at hand. (ALA IL Final Report)

Current practices in IL instruction have come under criticism. Quality IL instruction cannot be provided through the simple bibliographic instruction of the past. In fact, Johnston and Webber (2003) discovered a variety of difficulties related to modern practices of teaching information literacy. Most troubling was the idea that the Association of College and Research Libraries (ACRL) standards could be viewed as a simple checklist of skills that “once taught are

labeled as completed, without consideration of transfer of knowledge or reinforcement of skill” (Macklin & Culp, 2008, p. 78). Moreover, Whitson also rejected this method of both teaching and evaluating important IL skills “as superficial and likened it to memorizing important facts or applying a list of rules, rather than gaining a deeper understanding of the resources and competencies to use them” (as cited in Macklin & Culp, 2008, p. 78). Therefore, information literacy standards are only effective when used in conjunction with content-based curriculum that has clearly defined course objectives where learning complex concepts can result in relevant “personal connections...among ideas, context, and perspectives” (Macklin & Culp, 2008, p. 78).

Effective IL training requires that teachers and librarians work closely to integrate information literacy as part of the total instructional program for students in an academic setting (Rader, 2002). “Consultations between librarians and professors are necessary to ensure that information literacy learning objectives will be relevant to students and closely tied to whatever subject matter is studied” (Buck, Islam, & Syrkin, 2006, p. 64). Although “teaching students to find, evaluate, and use information is still often viewed by faculty and librarians as the role of the librarian alone” (Buck et al., 2006, p. 73), designing IL instruction that prepares students for success in the classroom and going forward is a collective effort of the educator and librarian.

Technology plays an enormous role in information literacy, and this places great demand on librarians and library support staff to stay informed on industry change and best practices. Developing lessons for skill progression in IL can be difficult. And, methods for delivery of IL content can often depend on student amenability. “A study assessing information literacy at the University of California, Berkeley, found that students think they know more about accessing information and conducting library research than they are able to demonstrate when put to the test” (Matthews, 2007, p. 239). Additionally, “students in higher education often believe

themselves to be competent users of information resources”, which “can lead to students' disinterest in learning skills to improve their use of search engines and electronic research databases”(Macklin & Culp, 2008, p. 53). Thus, Macklin and Culp (2008) found:

Educators who accept the challenge of teaching information literacy skills must be prepared to: find a strategy to reach users who believe they are already proficient; make the learning relevant to the users' needs, including using the technologies the students already know to anchor the learning in something familiar; create learning opportunities to keep the students on task; and assess the impact of instruction on learning outcomes. (p. 53)

Furthermore, Warnken (2004) contends, “if libraries are to continue as the universities' intellectual and educational hubs, they must further extend this ability to transform by adapting their instructional programs to the changing nature of technology” (p. 156).

In 1989, the ALA Presidential Committee on Information Literacy released its final report and definition that states, "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (Warnken, 2004, p. 151). To employ the best methods of delivering information literacy, a collective effort by faculty, educators, and libraries must exist. “Focusing on a prescribed set of skills is not assessing the impact of instruction on actual use and behavior in a library” (Matthews, 2007, p. 233). Because it is ultimately the job of the librarian to measure and share the impact of information literacy for students in the long-term, “librarians need to take a more proactive approach to market their unique expertise” and “constantly educate themselves and teach faculty about information literacy concepts, standards, learning outcomes and objectives” (Buck et al., 2006, p. 75).

Methodology

Evaluating the effect of IL instruction is elusive, as concepts such as *learning*, *knowledge*, *critical thinking*, and *retention* have been difficult, if not impossible, to measure. Previous evaluation methods have focused on measuring the effectiveness of IL instruction as opposed to the resulting effect such instruction has on the “lives of the recipients” (Matthews, 2007, p. 232). These methods, however, help to illuminate both the pros and cons related to each evaluation technique, and identify measures that may be used to assess the impact of IL instruction on students’ lives.

One method used to evaluate bibliographic instruction is opinion surveys. Using opinion surveys and skills testing to evaluate bibliographic instruction have offered unreliable results. Because bias can influence the types of questions asked on these surveys, difficulties arise in capturing the institutional context on paper. Moreover, opinion surveys tend to measure satisfaction rather than learning outcomes. Therefore, the fact that students report positive feelings about instruction may not reflect how useful the instruction was in developing their overall IL skills (Matthews, 2007).

Knowledge testing, which measures library skills and skills retention, has led to mixed results with some studies supporting information literacy instruction and others showing no link between instruction and library skills, GPA, and SAT scores. Because knowledge testing involves both pre- and post- instruction testing, it has shown to be problematic. Students given testing immediately following instruction were likely to remember what they were taught, which would have caused skewed results. Consequently, these short-term gains did not accurately gauge skills retention over time. In addition, self-assessments have proved inconclusive because students tended to rate themselves as having satisfactory library skills when actual testing

revealed them to be less proficient (Matthews, 2007). Some knowledge testing studies have, however, shown a positive correlation between library skills instruction (or library orientation class or bibliographic instruction) and improved GPA scores, better-written term papers, better grades, better citations, and an increased use of the library (Matthews, 2007).

Checklists of skills measure memorization over an understanding of resources and competencies (Johnston & Webber, 2003). Thus, it is more important to measure how the library skills are applied in reality and how instruction influences behavior rather than focusing on measuring a set of skills. In order to understand what to evaluate, student information-seeking behaviors have been examined, and researchers have concluded that students do not see libraries as a source of information and they do not critically examine sources (Matthews, 2007). Therefore, students rely on the Internet as their main source of information. Studies have also found that student participation in IL instruction is directly related to the degree to which such instruction is required of them by their professors (Matthews, 2007).

Methods of delivering IL instruction and testing (or evaluating teaching outcomes) have also been studied. Traditional methods of instruction have included face-to-face instruction at the library or in the classroom while newer methods utilize technology in the form of online tutorials or computer assistance. Studies have found “computer-assisted instruction [to be] as effective as traditional instruction” (Matthews, 2007, p. 238). And, some studies have even indicated that online instruction is more effective than classroom instruction (Matthews, 2007).

Based on these findings, this study proposes the following evaluation methods to better assess the impact of IL instruction on students’ lives:

- 1) Establish learning competencies for measurement of outcomes (see ACRL standards)
- 2) Use pre- instruction testing to establish a student’s pre- instruction literacy skills

- 3) Conduct post- instruction testing 1-3 months after instruction to measure retention
- 4) Keep the testing short, limiting the amount of questions to prevent testing fatigue
- 5) Use library records to compare the frequency of library visits pre- and post- instruction
- 6) Use focus groups to gather feedback on students' satisfaction after instruction
- 7) Obtain teacher feedback on students' papers post- instruction to examine improvement in quality (e.g., use of better sources, ability to cite sources, etc.).
- 8) Make the post- instruction test interactive (e.g., an online test where students look up sources from an online database to determine improvement in student search behavior)
- 9) Create test questions that reflect real world scenarios and test typical applications using computer stimulated software (Katz, 2007).

Analysis and Recommendations

Recent studies conducted by a number of library scholars on various aspects of information literacy provide data relevant to the issue of how an academic library can ensure that IL content is being delivered in ways that generate value in the lives of learners. Heidi Julien's (2005) study, *Education for Information Literacy Instruction: A Global Perspective*, identifies one of the primary factors contributing to academic librarians' ability to ensure that their patrons receive useful IL instruction. The evidence gathered by the Julien (2005) study demonstrates that a majority of library school graduates have minimal knowledge of the concepts and the techniques applicable in providing effective information literacy instruction. After reviewing the curricula of ninety-three library schools worldwide, by examining the relevant information on each school's website, Julien (2005) found that 48 of the examined 93 library schools do not offer any course on IL instruction. The remaining 45 library schools offer some type of instructional courses that cover IL-related topics to various degrees, but none of which explore

them to the fullest extent. Table 1 in Julien's (2005) study provides details on this finding (p. 213).

Table 1: Extent of Coverage of IL Instruction in LIS Programs		
Topics Covered in Course Syllabi (n = 45)		
	Included (%)	Unable to Determine (%)
Instructional Strategies	73.3	20.0
Program Planning	71.1	24.4
Assessing Instruction	66.7	26.7
Learning Theory	64.4	24.4
Instructional Design	62.2	31.1
IL Concepts	46.7	44.4
Outcomes Evaluation	46.7	48.9
Needs Assessment	35.6	57.8
Web-based Strategies	31.1	53.3

The evidence, therefore, presented in Julien's (2005) study reveals that most library schools' graduates receive inadequate professional development in IL instructional skills. This situation is likely to hamper librarians' ability to offer their library's student-patrons the kind of IL instruction that would assist them in acquiring the highest levels of information literacy. Thus, the first step an academic library needs to take to ensure effective delivery of IL instruction is to verify that its librarians are adequately educated in the issues related to the theory and practice of IL.

Librarians need to understand how particular forms of information literacy are applicable to the environment in which their students operate and the purposes for which the students need to develop specific IL skills (i.e., the set of academic/professional goals they need to achieve by relying on those IL skills). In particular, librarians need to acquire an understanding of the guidelines that are useful to follow in delivering effective IL instruction. Mokhtar and Majid's (2008) study, which evaluates the IL standards implemented by libraries across the world, argues that there is currently a misunderstanding regarding what it means to be information literate. "It

is often perceived that ICT [information and communication technologies] literacy automatically equates to information literacy (IL), which can be defined as the ability to search, locate, evaluate and use information” (Mokhtar & Majid, 2008, p. 5). Librarians need to recognize that while ICT literacy is important, it is not the only component of information literacy. And, they need to promote a balanced understanding of the concept of IL, as it relates to the functional needs of contemporary human society. Consequently, students need to be taught how to use information and communication technologies effectively to determine their own information need, as well as search, locate, evaluate, organize, and utilize needed information to successfully achieve their educational and professional goals.

Furthermore, to enable an effective dissemination of IL, librarians should find ways to collaborate with the academic institutions and the faculty they serve. For instance, Sharma (2007) suggests integrating IL instruction into the general education curriculum within the university/college environment to ensure that all students, regardless of their varying subject specializations, acquire equal exposure to IL knowledge and skills. Another option is to collaborate directly with faculty who teach a particular course and to integrate IL instruction relevant to the subject/information needs of the given class on a recurring basis. Evidently, pursuing these approaches in delivering IL instruction is not a new aspiration among librarians. However, as McGuinness (2006) finds, librarians have had a difficulty implementing such collaborative IL instructional programs due to a number of factors. There is “the perceived reluctance of the academic teaching staff to instigate the appropriate structural program changes, which would permit the integration of ILD [information literacy development] with the teaching curriculum” (McGuinness, 2006, p. 574). In addition, librarians express “the view that faculty

are territorial and possessive about their courses, as well as... rude, uncooperative, arrogant and uncaring with regard to their students' needs" (McGuinness, 2006, p. 574).

The faculty's general argument for not taking up librarians' suggestions of integrating IL instruction into the overall academic coursework is that they wish to avoid redundancy.

By and large, faculty suggested that students gradually become information literate through participating in one or more of eight existing learning situations:

1. through completing a series of information exercises [at one institution];
2. through Research Methods courses and seminars [in Sociology only];
3. through "core skills" modules that incorporate information skills [in Civil Engineering only];
4. through Computer Skills classes, including Internet searching;
5. through library-based modes of instruction, such as library tours, orientation sessions and lectures from library staff;
6. through feedback received from tutors or lecturers for project and essay work;
7. through the process of completing the final year dissertation; and
8. through general direction from lecturers and library staff, who recommend important sources of course-related information that students should use.

(McGuinness, 2006, pp. 576-577)

Faculty members also argue that acquisition of IL skills occurs through repetitive practice in real/work life situations. Therefore, they do not believe that any single IL instructional program is likely to help students develop the IL skills that will be of use to them in the long run.

Moreover, faculty find that people develop information literacy on demand and gradually through interaction with colleagues. Thus, faculty disagree that there is a need for the kind of

“structured intervention and guidance” in the development of students’ IL skills that librarians propose implementing (McGuinness, 2006, p. 580). And, library scholars’ findings support the latter conjecture to a degree. “We have years of study to indicate that isolated skills lessons are not effective, not even when they are related to a topic of study – Ken Haycock” (Matthews, 2007, p. 239). This evidence, however, cannot be used to argue that IL instruction is useless.

Rather, librarians can use the aforementioned findings to design the kind of IL programs that will make a positive contribution to the lives of their participants. Multiple opinion surveys, knowledge tests and observational studies assess students’ bibliographic and/or library skills as an end in themselves (Matthews, 2007). Matthews (2007) recommends that librarians discontinue the approach of delivering IL instruction for the sake of merely training students how to perform specific library-related functions. Librarians should focus on evaluating how particular IL and library skills assist students in various academic and professional pursuits. Relying on that understanding, they can then deliver IL instruction that will empower individuals to perform effective information retrieval, organizing and analyzing tasks that will consistently support them in achieving their goals in life.

Library scholars recommend using a number of criteria in analyzing the long-term impact of IL instruction in the lives of students. Thus, the Koufogiannakis and Wiebe’s (2006) study reports that assessment of IL instruction outcomes should take into account the following learning levels in the cognitive process of students (pp. 11-12).

Table 2: IL Instruction Learning Outcomes Measurement Criteria

<p>1.0 Remember – Retrieve relevant knowledge from long-term memory. 1.1 Recognizing 1.2 Recalling</p>	<p>2.0 Understand – Construct meaning from instructional messages, including oral, written, and graphic communication. 2.1 Interpreting 2.2 Exemplifying 2.3 Classifying 2.4 Summarizing 2.5 Inferring 2.6 Comparing 2.7 Explaining</p>	<p>3.0 Apply – Carry out or use a procedure in a given situation. 3.1 Executing 3.2 Implementing</p>
<p>4.0 Analyze – Break material into constituent parts and determine how parts relate to one another and to an overall structure or purpose. 4.1 Differentiating 4.2 Organizing 4.3 Attributing</p>	<p>5.0 Evaluate – Make judgments based on criteria and standards. 5.1 Checking 5.2 Critiquing</p>	<p>6.0 Create – Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure. 6.1 Generating 6.2 Planning 6.3 Producing</p>

Sharma (2007) explains that an information literate person is able to demonstrate knowledge in:

- **Information development and structure** - an understanding of how information is created, disseminated and organized;
- **Information access** - an understanding of information communication processes and a facility with the tools required to tap into these processes; and
- **Information evaluation and integration** - an ability to evaluate, synthesize and incorporate information into written, oral, or media presentations. (p. 127)

Studies on the effectiveness of different IL instructional methods do not reveal that any single teaching method leads to a particularly superior result over another approach in helping students attain the IL competencies identified above. To explore the latter issue, Koufogiannakis and Wiebe’s (2006) study focused on assessing the utility of the following set of IL instructional approaches (p. 10).

Table 3: Definitions of Teaching Methods	
Active Learning (AL)	Students are actively engaged in their own learning, with the instructor taking on a facilitation role.
Computer Assisted Instruction (CAI)	A computer is used to deliver the instruction directly to the student.
Learner-Centered Instruction (LCI)	Focus is on the individual student's unique learning needs.
Self-Directed, Independent Learning (SDIL)	Learning in which the individual has primary responsibility for his or her education.
Traditional Instruction (TI)	Instructional material is transmitted to students from teachers, and is a passive method of learning for students.

“There is sufficient evidence to suggest that CAI [Computer Assisted Instruction] is as effective as TI [Traditional Instruction]..., that both TI and SDIL [Self-Directed, Independent Learning] are more effective than no instruction. Additional comparative research needs to be done across different teaching methods” (Koufogiannakis & Wiebe, 2006, p. 4).

On the other hand, Sharma (2007) argues that by implementing the practice of requiring students to produce [web] portfolios as part of completing their educational programs, the university is likely to address the issue of librarian-faculty collaboration difficulties. By having each student work on developing and assessing his/her own achievements, he/she can then promote and guide the development of his/her own information literacy skills. A portfolio may be defined as follows:

A purposeful collection of student work that exhibits the student's efforts, progress, and achievements in one or more areas. The collection must include student participation in selecting contents, the criteria of selection, the criteria for judging merit, and evidence of student self-reflection. (Sharma, 2007, p. 129)

Overall, it is recommended that librarians rely on a combination of available IL teaching methods and make instructional design decisions in accordance with the informational needs of a specific group of students at a given time.

Finally, to ensure that IL instruction produces an enduring, positive impact in the lives of students, it is recommended that librarians rely on a new concept of what information literacy entails. Ward (2006) argues that being information literate goes beyond becoming an information technology-savvy critical thinker who can skillfully retrieve and synthesize information in a calculated manner. “In addition to critical thinking, information literacy includes information processes that explicitly address meaning, motivation, and the quality of life. A more robust notion of the concept delivers significant opportunities for libraries and instructional programs” (Ward, 2006, p. 396). True information literacy involves the capacity to experience, relate to, and understand the value of certain information by employing both the analytical and imaginative aspects of the human mind. “Being information literate means having the capacity to apply different systems of evaluation for different information needs.... [By] singularly applying critical thinking to all research questions... we risk failing to come to grips with the mystery and wonder of the world, instead reducing it to something flat and meaningless” (Ward, 2006, p. 400). Therefore, librarians need to create the kind of instructional methods that will enable them to deliver this holistic version of IL to students. An ideal IL teaching approach will provide students with the opportunity to engage in their own learning process and to master key IL skills that are useful in independent, lifelong pursuit of personal and professional development.

Conclusion

Ensuring that IL instruction leads to lifelong learning means sharing tools and resources to which students can repeatedly return to find the information they need. Designing solid instruction that meets the needs of users is just one component of information literacy delivery. Academic librarians must first approach educators to introduce them to and teach them how to use the different resources and formats available at the library (i.e., educate the educators).

Secondly, these librarians must design tailored IL programs with the help of content-area educators that help to promote successful classroom performance. It is essential for the librarian to create a partnership with educators, and encourage them to require library use as a necessary component for completion of assignments. No doubt, return trips to the library, by way of repeated use of resources to complete assignments, will result in a level of comfort for students. Ideally, this will lead to lifelong library use, and it will generate positive results for all kinds of libraries over time.

A Harris Poll from Harris Interactive reported that 68 percent of Americans have a library card, while 76 percent of Americans visited their local library in the past year (ALA, Library Fact Sheet Number 6). Creating frequent and moderate library users that are information literate far into the future can happen if a proactive librarian works with faculty and educators to design quality instruction that encourages information literacy. Educators must then reinforce what students have been taught by requiring them to seek library resources repeatedly for school assignments.

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