The Future of Information Literacy in Academic Libraries: A Delphi Study

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abstract: Information literacy is a central tenet of academic librarianship. However, technological advancements coupled with drastic changes in users' information needs and expectations are having a great impact on this service, leading practitioners to wonder how programs may evolve. Based on a Delphi study, this article surveyed 13 information literacy experts about proposed futures that explore the possible evolution of information literacy over the next decade. Although generally optimistic in their assessment of the continued importance of information literacy and the role librarians will play in its future, these experts acknowledged a number of obstacles academic librarians will face in fully realizing these possibilities.

Introduction

As the sheer volume of information and the methods of accessing, organizing, and utilizing it continue to increase, the skills necessary to find and use that information effectively also increase in complexity. The library profession has long worked to promote the knowledge and skills necessary to be effective consumers of information. The American Library Association (ALA) and the Association of College and Research Libraries (ACRL) have actively promoted information literacy as necessary for an informed society, in general, and especially for students in institutes of higher education. In 1989, ALA convened a presidential committee to consider and comment on the importance of information literacy. The committee's final report underscored the importance of developing the knowledge and skills to deal effectively with information in a democratic society. It emphasized that "producing such a citizenry will require that schools and colleges appreciate and integrate the concept of information literacy into their learning programs."[1] Ten years later, ACRL further developed and refined the

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concepts of information literacy, producing one of the most widely accepted definitions of information literacy, which states that an information literate person

- defines an information need;
- locates and accesses information efficiently and effectively;
- evaluates information;
- incorporates new information into his or her knowledge base;
- uses information to accomplish a specific purpose;
- understands the legal, economic, social, and ethical aspects of information.[2]

The growing prevalence of information literacy, in general, and ACRL's definition, in particular, is reflected in the fact that the American Association of Higher Education and the Council of Independent Colleges have both endorsed this definition. Other research, policy, and governmental organizations have issued statements linking the skills of information literacy to critical thinking and life-long learning.[3] Likewise, the six regional accreditation organizations of higher education and several professional and disciplinary accrediting organizations have included information literacy in their standards, either implicitly or explicitly.[4]

Although there seems to be a steady progression in the higher education community's interest in information literacy, the question remains as to whether and how the concepts of information literacy will evolve over the next decade. Presently, librarians remain at the forefront of information literacy. They are challenging institutions to adopt formal programs for instructing and assessing information literacy concepts and reaching out to faculty to collaborate in these areas. At the same time, some accreditation organizations and policy-makers are emphasizing the meta-cognitive aspects of information literacy. They assert that the knowledge and skills that compose information literacy involve much more than just library research skills. As such, these skills require greater input and direction by teaching faculty. Such widespread attention would seem to give information literacy a place of prominence in college and university curricula. However, lack of agreement on terminology, methods of implementation, and even dispersal of responsibilities often diverts attention from questions of program development. Thus far, institutions of higher education have been left to their own discretion about whether and how to incorporate information literacy into their curricula. Most universities offer information literacy in an ad hoc manner—teaching faculty participate to varying degrees, even within the same institutions or same departments.

Problem Statement

The topic of information literacy is prevalent in the library and information science (LIS) literature, but most writers focus on practical applications. They offer details of program implementation at individual institutions or, in some cases, draw connections between information literacy instruction and general education theory and pedagogy. Although some articles consider information literacy from a broader perspective—interpreting accreditation standards and extrapolating implications for academic libraries—they typically focus on the present. Few authors make projections about the future state of information literacy on university campuses. Those who make predictions typically do so in an anecdotal fashion, drawing conclusions from their own interpretation of standards, LIS literature, and professional communications. No study has probed practitioners recognized as experts in information literacy in an attempt to establish the most probable future of information literacy over the next decade.

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This study develops possible scenarios for the future of library instruction services and offers practitioners, administrators, and library users a sense of how existing technologies, resources, and skills can best be employed to meet this vision. In addition, it provides a background for further discussion on specific aspects of the topic so that librarians and administrators can consider the opinions of the study participants in light of their own experiences, resources, and communities. As such, this study is intended to encourage academic librarians to consider their own personal vision of the future for information literacy and how they plan to work with others to attain their goals. Furthermore, the scenarios and their commentary should encourage reflection and discussion about preferred visions among practitioners and serve as means for a dialogue with faculty.

Through the use of scenarios, this study explores the following questions: How prevalent will information literacy programs be within the higher education curriculum? Will academic librarians and library organizations play a significant role in the instruction and assessment of information literacy skills? If so, in what area(s) will they concentrate? Lastly, will their role be diminished as teaching faculty take on more of the responsibility for integrating this instruction into their own curricula?

Literature Review

Some studies have addressed the future of academic libraries. In 2005, Blazej Feret and Marzena Marcinek recreated a 1995 Delphi study to envision the future of academic libraries for the year 2015. In their follow-up research, they revisited the results of the first study and attempted to form a consensus about the skills librarians should develop to meet future needs. Similar to their predictions in the original study, librarians in 2005 cited financial policies as having the biggest impact on academic libraries, closely followed by changes in information technologies and policies. Study participants also predicted that "the role of the library in teaching and education will remain at the present relatively high level," but they did not expound further.[5]

Similarly, in 2006, Sarah Barbara Watstein and Eleanor Mitchell conducted a study in which a panel of experts was asked to respond to a list of "provocative statements" about the future of academic libraries. Respondents largely agreed that future librarians would need a host of diverse skills to be viable, including continuously updated technology skills, customer service and interpersonal skills, and the teaching skills to provide instruction. One participant, in particular, maintained that the librarians' role as information literacy educators would be what keeps them relevant. This respondent asserted "effective educators will never disappear."[6]

Most of the literature addressing the future of information literacy is either anecdotal or an educated opinion expressed by a single author. In an analysis of the current situation in higher education, Veronica Reyes admonished librarians to rethink how, when, and where they offer information literacy instruction. She cited two major causes of pressure to create new modes of instruction: decreases in funding and changes in student expectation in terms of increased, instantaneous access and more interactive learning. She predicted that instruction librarians will need to offer more sophisticated instruction to meet the needs of new generations of students and that lack of staff and time will make direct instruction ineffective. Instead, Reyes foresaw librarians providing assistance to faculty and other campus educators in designing and implementing programs that effectively incorporate information literacy principles. She challenged librarians to consider better using the virtual learning environment instead of continuing with traditional instruction.[7]

On the other hand, Dane Ward emphasized the importance of student-centered information literacy instruction, which involves students in real-life problems and contexts. He argued that successful learning should be evident in student actions and questioned whether finding information can be considered successful if students fail to do anything meaningful with it. Describing a course in which students use information search skills to help a local business solve an existing problem, Ward forecast that information literacy skills will need to involve students in real situations, teach them to question and think critically, and use what they learn for change.[8]

In "Analysis of Instructional Environments," ACRL emphasized the need for libraries and librarians to be flexible and adaptable in order to meet and respond to changes adequately.[9] This online report did not offer specific visions or possibilities for the future. Instead, it laid out a framework for institutions to follow in planning and preparing for the future. As noted in the document, the purpose of such planning is not to make predictions but to consider possible events and outcomes in order to prepare better for them. Among the techniques described in the report are environmental scanning, in which librarians read and evaluate a wide range of literature to identify trends that could have an impact on the library, and scenario planning, a more active and interactive method in which groups read and react to various descriptions of future embodiments of the library. This helps librarians plan strategies to meet anticipated challenges.

Procedures

To establish the most likely scenario for the future of information literacy, this study surveyed a panel of experts using the Delphi technique and asked them to comment on a set of scenarios depicting a variety of possibilities. The Delphi technique is a group interaction process in which a panel is convened and surveyed for opinions and was developed as a means of forecasting by the Rand Corporation in the 1960s. One use of the Delphi technique is to build consensus among the group. In order to accomplish this, surveys are usually distributed multiple times so that participants can reconsider opinions in light of other responses. After each round of surveys, responses are compiled and survey questions refined until some agreement has been reached.[10]

Delphi panelists are chosen for their expertise in the area under study. For the purposes of this research, the author chose library professionals who demonstrate high levels of participation and leadership in the field through research, publication, and active participation in information literacy-oriented professional associations. The researcher reviewed membership lists of instruction sections of the American Library Association (ALA) and the Association of College and Research Libraries (ACRL) as well as its New England chapter (ACRL/NE), selecting members involved in leadership roles, such as those acting as officers. This list of practitioners also included several professionals who are currently or have taken an active role in those regional and professional accreditation associations with an emphasis on information literacy, thus drawing on their expertise as accreditors as well as librarians. This list was supplemented by identifying authors with the most publications in the field of information literacy and/or those whose works had been most heavily cited. These authors were identified through literature searches and citation analysis of publications in library literature databases including Wilson's *Library Literature* and *Library and Information Science Abstracts* (*LISA*). Letters of invitation explaining the purpose of the study, methodology, and estimated time commitments were sent out to each of the 27 potential participants, with a follow-up letter to those who did not respond. Initially, 14 of the invitees agreed to participate in the study. These participants received the full cover letter and accompanying scenarios. One expert withdrew from the process. Ultimately, 13 experts participated. The majority of participants are currently employed in large or medium-sized academic libraries and in positions ranging from instruction librarian to library director.

The author developed three scenarios describing possible futures for information literacy in academic libraries. These scenarios were based on some of the forecasts and predictions from LIS literature. Scenario I was "status quo," in which circumstances remain much as they are now. Scenario II described a future in which faculty take over nearly all responsibility for instruction and assessment of information literacy, leaving librarians marginalized. Scenario III depicted a collaborative scene in which faculty and librarians share responsibilities. An initial draft of the scenarios was pretested on a select group of librarians active in the field, and scenarios were refined based on feedback. In particular, a sharper contrast was drawn between Scenarios II and III. This made it clearer that in the second scenario the role of the librarian was greatly reduced and close to being eliminated.

In round one of the study, participants received the three scenarios and four questions with which to frame their responses.

1. Which scenario seems most likely/ reasonable overall? Why?
2. What obstacles do you foresee in the realization of any of these scenarios?
3. Are there other possibilities not included here that you feel may be more likely to occur?
4. Do you have any other comments?

At the end of that round, the researcher analyzed participant comments and revised the scenarios to reflect the participants' predictions and comments.

In round two, participants received two scenarios based on participant responses from round one. The first scenario was one of the original three that had been chosen as most likely by the majority of respondents. The second scenario was a new one written as a conglomeration of modifications and possibilities identified by the respondents (see appendix B). In this round, Scenario I was the collaborative scenario. Scenario II described a future in which information retrieval systems were improved to such a point that librarians were no longer needed to assist with access or evaluation of information. Participants then had a chance to confirm their original choice or choose the new scenario. After round two, the researcher analyzed the new set of responses and reached a conclusion as to the most likely scenario based on expert opinions.

Findings

Most respondents were optimistic about the future of information literacy in academia. They indicated that librarians will continue to have a role to play, and they predicted increased collaboration with faculty. Nevertheless, panelists also considered the possibility that librarians could be marginalized or replaced under certain circumstances.

Round One

Nine respondents (69 percent) chose the collaborative scenario (Scenario III) as the most likely, although two respondents qualified their choice by maintaining it was not likely to be achievable within the designated 10-year time frame. Those two experts chose Scenario I as most likely, with Scenario III being realized at a more future date. Nearly half of the respondents who favored the third scenario saw evidence of trends in the direction of fuller collaboration within their own institutions. They appeared confident that additional strides would be made. Additionally, several panelists maintained that increasing attention to information literacy within individual disciplines, accompanied by an increased emphasis on related skills from the accreditation organizations within those disciplines, would make information literacy more relevant to faculty. This would create greater opportunities for collaboration with librarians.

The four remaining panelists split their votes evenly between Scenarios I and II, with two respondents (15 percent) supporting each scenario. The panelists who chose Scenario I indicated that progress in information literacy has largely been made within the library profession. They did not see significant evidence of behavioral changes on the part of teaching faculty or imagine that accreditation mandates would be likely to spur such changes. As with Scenario III, not all of the panelists who chose Scenario II imagined that this scenario would be fully realized within 10 years. One respondent chose Scenario II without qualification, whereas the other selected the "status quo" as being most likely over the next decade and Scenario II as a longer-term vision. Nevertheless, both of them dismissed Scenarios III as "too rosy" and even indicated that Scenario II was not radical enough in its predictions. They suggested a future in which librarians would be even more marginalized than described within Scenario II; improved information retrieval systems would render many information literacy skills obsolete, and faculty would take over the higher-order abilities of integration and ethical uses of information.

The most heavily cited obstacle to the realization of any of the scenarios was faculty attitudes. Indeed, eight respondents (62 percent) mentioned faculty resistance as a barrier to fulfilling information literacy programs. Respondents anticipated difficulty in convincing faculty to work with librarians in creating or implementing information literacy programs, with one panelist commenting that faculty "view librarians as having no pedagogic understanding." Whereas some respondents felt the responsibility rested with accreditation organizations or individual institutions to insist on information literacy outcomes, others predicted that faculty would protect their autonomy and push back against any "mandates" or pressure to change.

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Additional, though less heavily emphasized, obstacles included changes in technology and lack of adequate staff to support elaborate information literacy programs. Three respondents (23 percent) pointed out that information literacy programs are both staff and time intensive; without adequate support, it is hard to implement such programs. One respondent claimed that ALA reports a general drop in staff numbers from 2.5 librarians per 1,000 students in 2000 down to .5 librarians per 1,000 students in 2006, maintaining that these numbers will make it impossible for academic librarians to deliver instruction directly to students in 10 years. Although most respondents indicated that keeping abreast of new technology is a challenge that librarians have to face to remain relevant, three respondents proposed that technological advances could render librarians, per se, unnecessary. Likewise, database vendors could choose to employ an economic model similar to Google™, changing the proprietary nature of the information they provide. In such a case, users could access information for free, and vendors would rely on advertising for revenue. These respondents suggested that advances in information retrieval systems, such as improved natural language searching and automatic query refinement, could make the skills of access and searching obsolete. Similarly, more sophisticated relevance ranking might make source evaluation unnecessary. These experts doubted that universities would employ librarians just to teach other aspects of information literacy such as ethical use of information, since this role could easily be assumed by faculty.

Round Two

Given the choice between the collaborative model and a revised Scenario II with librarians more largely replaced by technological advances, respondents did not vary their opinion much from round one. Ten respondents (77 percent) selected the collaborative scenario (original Scenario III) as most likely. Not one of them had changed their opinion from round one. Although acknowledging that changes in technology influence information literacy, these participants largely dismissed the idea that information retrieval systems could entirely replace librarians. Even if these systems could be improved to the point that students would not need assistance or instruction in finding information, they could not replace the need for the higher-order thinking skills necessary to evaluate, analyze, and synthesize information.

The three remaining respondents were split in their support. One expert refrained from choosing either scenario, insisting that 10 years was not enough time for either possibility to be realized. Nevertheless, within the accompanying comments, this participant evidenced more support for the collaborative scenario than the revised one. Specifically, the participant pointed out that, although content may be widely and easily accessible outside of the library, there will still be a need for trained individuals to make sense of all of the content. As such, librarians will evolve from being accumulators of information to interpreters of information. The other two respondents (15 percent) selected the revised scenario, although not without some qualifications. One respondent did not agree that information retrieval systems would fully replace librarians. She suggested that librarians would still have a role in teaching the evaluation and the ethical use of information. The other respondent was less ambiguous in her support, admitting that it may take more than 10 years but stating that most academic libraries will see a realization of this scenario in the future.

Discussion

Overall, survey participants were largely optimistic about the outlook for information literacy. Eleven participants maintained that advances in technology would not replace librarians or render them obsolete. In fact, participants saw advances in technology as freeing librarians from the necessity of teaching search strategies and retrieval skills, leaving time to focus on higher order critical thinking skills such as evaluation and ethical use of information. Ten participants explicitly stated that librarians should move away from the focus on information retrieval skills in favor of the more complex areas of information literacy. These panelists also emphasized the transferable nature of information literacy. They indicated that the ability to understand and use information is essential to life-long learning and is increasingly sought after in the workplace. On the whole, panelists felt that librarians should leverage this understanding of information literacy as a critical skill to become more involved with planning and implementing information literacy goals at the course and program level. In fact, the majority of them agreed that collaboration between librarians and teaching faculty would increase, although reasons for this anticipated increase varied.

Barriers

The experts did anticipate a number of obstacles to future collaboration. Certain concerns were voiced repeatedly among participants in both rounds. Participants overwhelmingly chose the collaborative scenario as the most likely, and several indicated that the groundwork for such a system was being laid in many institutions. However, respondents also envisioned a certain amount of reticence on the part of faculty that would have to be overcome before a true partnership could be attained. Because faculty are largely autonomous within the university culture, these panelists do not expect pressure or mandates from accreditation organizations to effect significant change. Several of the participants pointed out that faculty members often believe that students already know how to do research, and they are reluctant to spend class time on this area. Others feel that faculty do not view librarians as peers and assume that they do not have pedagogical knowledge.

Various ideas were offered for overcoming these barriers to collaboration. By mapping information literacy competencies into the curriculum, librarians could demonstrate the relevance of these skills to existing programs and goals. Several participants also suggested that librarians should feel comfortable approaching faculty and offering help in areas such as designing assignments that incorporate information literacy goals. The possibility of librarians' taking such an active role in instruction was an attractive one. Even those respondents who voted for the revised scenario foresaw similar possibilities; one panelist suggested that librarians might be subsumed into academic departments or instructional technologies, supporting course design and delivery. At the same time, however, respondents questioned current and upcoming practitioners' preparedness to take on these roles. As one panelist pointed out, acting as a consultant on instructional design is very different from teaching traditional bibliographic instruction sessions. For librarians to be truly integrated into the curriculum rather than offering one-shot sessions, they must have much more pedagogical and theoretical knowledge. Although practicing librarians might have experience with library instruction, few have the background to transition easily into the roles being described. Furthermore, respondents were unsure that library school programs were developing courses to adequately prepare future graduates for these responsibilities.

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Integrating Assessment

Assessment was another area of concern for most panelists. Participants stressed the importance of assessment, both for fully participating as partners in instruction and for legitimizing information literacy programs. Experts maintained that, if librarians could demonstrate gains in student learning and improved knowledge as a direct outcome of their instruction, they would be better able to justify their programs and open a dialogue with faculty. Most panelists seemed to dislike standardized assessment tools, finding them too impersonal and preferring a more holistic approach. Suggestions for more holistic assessment included evaluating processes through qualitative methods such as content of assignments and use of portfolios. As one expert noted, local results are likely to be more persuasive in convincing faculty of the effectiveness of information literacy instruction. To implement such assessment practices, however, librarians need to have a thorough understanding of the development and measurement of student learning outcomes. One respondent noted that there is a dearth of understanding of the use of student learning outcomes on the part of both librarians and faculty. He suggested that, if librarians were to develop their knowledge of student learning outcomes, they could lead by example and, thereby, open up more opportunity for collaboration with faculty.

Debating Definitions

One very telling issue to arise from the discussion of assessment is the continued lack of consensus over how best to define information literacy. Two areas of concern are to what extent information literacy is context-dependent and whether a holistic approach is more effective than the current competency-based definition. Although several panelists argued for a more holistic approach to assessing information literacy, most discussion centered on the skills of location, access, evaluation, and use of information as laid out in the ACRL definition. One panelist, however, argued strongly that the current definition of information literacy, which breaks complex knowledge into discreet sets of skills, is narrow and reductionist. This respondent maintained that information literacy should be understood in a holistic way, as an experience with information in which one begins to build knowledge that has social, textual, and physical aspects.

Two areas of concern are to what extent information literacy is context-dependent and whether a holistic approach is more effective than the current competency-based definition.

In the second round of surveys, several panelists chose to respond to a statement concerned with such definitions. Seven of the experts agreed that current definitions of information literacy are too reductionist and do not give enough consideration to context. However, three of those experts felt that such definitions were necessary in order to measure and assess programs. One panelist asserted that the emphasis on assessment creates pressure to find ways to measure areas like information literacy, suggesting that one could gain a fuller picture by using a variety of methods. Similarly, another maintained that librarians have to find ways to assess what they do, but they should also be aware of the limitations of their definitions.

The contextual nature of information literacy also drew some debate. Six respondents emphasized the importance of adapting information literacy outcomes for various fields and disciplines; some suggested that this could also lead to more collaborative opportunities between faculty and librarians. These panelists indicated that information literacy instruction is more effective when it is integrated into the curriculum via outcomes drawn from and related to discipline and professional accreditation associations. Once again, participants noted some evidence of this trend within their institutions. In forecasting a rise in discipline-specific information literacy, these experts seemed to acknowledge that information literacy outcomes should be adapted by field and subject, and even adapted differently from one institution to another. They agreed that definitions of information literacy could also be adapted for various fields and settings. One respondent suggested that, although some skills may be seen as generic, information literacy is essentially entirely context dependent. In other words, whether a person is considered information literate depends, to a great extent, on what type of information and interactions with information are valued in that person's particular field of study or culture. Because of variances from one field or social setting to another, a person could be viewed as information literate in one setting but not in another. On the other hand, two panelists indicated their belief that at least some aspects of information literacy are not context dependent. Neither identified specific transferable skills.

Beyond giving current definitions, four experts predicted that the entire notion of information literacy and the skills and knowledge associated with it would change significantly within the next 10 years. Some felt that the definition would be revised as methods of searching and access became less important. One panelist anticipated a move away from the term "information literacy" altogether, due to a lack of understanding of the term by faculty. Another predicted that information literacy would become so integrated into the curriculum that it would lose its name as separate component.

In a listserv posting to an information literacy discussion board, Oswald Ratteray, associate director of the Middle States Commission on Higher Education, decried the reductionist definition of information literacy. He stated, "I agonize every time I hear someone define information literacy (the big picture) by a subset of its components (effectively [ACRL] Standards 1, 2, and part of 5, from a librarian's perspective)."[11] Ratteray further asserted that information literacy is far more than library research skills; as such, faculty from the disciplines should be involved in defining and planning for information literacy from the earliest stage. Finally, he applauded the idea of renaming the library portions of information literacy as "research fluency," as suggested by another listserv participant,[12] thereby isolating that portion supported most directly by librarians from the broader umbrella term. Whereas this ongoing debate is helpful in delineating exactly what is meant by information literacy and who is responsible for which areas, it is also somewhat counterproductive in that it can slow down the implementation process. Several panelists bemoaned the fact that faculty seem to have little idea of what information literacy really is. They felt that the ongoing debate within the library field only helps to reinforce the idea that information literacy is a library skill rather than a meta-skill relevant to all disciplines.

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Conclusion

Some of the issues raised in this article are clearly beyond the control of librarians. For instance, librarians may not have much influence over the economic models that vendors choose in order to disseminate information or the types of improvements and advances made in technology, particularly information retrieval. Although changes in these areas will have great impact on the services libraries provide, librarians can only anticipate the changes and try to adapt to them as effectively as possible.

On the other hand, librarians can address other components of the scenarios even now. There is an evident consensus among participants that librarians will have the opportunity to partner more fully with faculty in instructional and assignment design. Concurrently, there is legitimate concern that neither current practitioners nor upcoming graduates are adequately prepared to adopt this role. Librarians must continue, or in some cases begin, learning the skills and gaining the qualifications most necessary for the future. In particular, if librarians hope to advise faculty on instructional design and assignments or even take on a more full partnership role in instruction, they must be sure that they have learned the pedagogical theory to support that role. They must also keep abreast of the technologies that will most often be the method of delivering instruction. Most importantly, however, librarians must have a clear vision for information literacy and its place in academia. As one panelist commented, librarians need to be clear about definitions before beginning to develop rubrics and to assess outcomes. Likewise, librarians cannot have productive conversations with faculty until they have some agreement about the importance, role, and potential impact of information literacy on campuses.

The findings of this study, especially in relation to information literacy's role in the larger curriculum, offer implications that would merit further study. This particular study probed practicing librarians' ideas for the possible evolution of information literacy programs over the next decade, ending with a "most likely" scenario. Future research could engage in formal scenario planning, offering librarians an opportunity to develop concrete strategies to meet the predicted challenges.[13] One possibility would be to insert visual literacy into the scenarios to elicit expert commentary on its place in the larger sphere of information literacy. Additional insight could be gained by surveying library directors and/or discipline faculty about their perspectives on the scenarios. Library directors, who are responsible for creating and directing the vision of the library, could offer a broader perspective on how information literacy fits into the strategic plan of their academic libraries. Meanwhile, a consensus exists among librarians that they should partner with and advise faculty on instructional and assignment design. The findings of this study could create the basis for a forum in which to gather the perspective of teaching faculty on the role of information literacy within their disciplines. Future research in these areas could help to further ascertain information literacy's place within the library and the larger academic curriculum. Librarians and faculty could then begin a dialogue on creating and attaining a shared vision.

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Appendix A: Information Literacy Future Scenarios

Scenario I (Status Quo)

Information, as well as the methods for accessing it, continues to increase and expand, with a further decline in the availability of print materials as resources continue to shift online in the form of e-books, Web sites, databases, e-journals, institutional repositories, and so on. The abundance of information and the complexity of locating, accessing, evaluating, and using appropriate information has reinforced the need for information literacy skills.

Recognizing the growing need for students to gain information management and professional skills, accreditation organizations—both regional and disciplinary—university administrators, and stakeholders support the incorporation of information literacy across the curriculum but let individual institutions decide whether or not to incorporate student learning outcomes related to information literacy into their curricula. Within this environment, most institutions continue to function much as they do now. Librarians continue to promote information literacy as a core skill and offer support in its instruction and assessment through an array of services, including in-person instruction specifically tailored for their courses, as well as Web guides, online tutorials, podcasts, and other forms of synchronous and asynchronous digital instruction. Despite vigorous outreach by librarians, some faculty members choose to participate in these services and make use of the library support offered, and others do not. Students can also meet with librarians one-on-one on a drop-in basis or by appointment for individualized instruction. Assessment of information literacy competencies and library instructional services remain at low levels, except at those institutions where the librarians and teaching faculty partner to create program-wide student learning outcomes related to the ACRL guidelines.

Scenario II (Faculty Focus)

Increasing amounts of information and greater complexity in accessing and using information have resulted in greater recognition throughout academe of the necessity for information literacy skills. Accreditation organizations, both regional and professional/disciplinary, develop a stronger stand on information literacy as a core competency and have aggressively promoted the inclusion of information literacy instruction at both the undergraduate and graduate levels. Going beyond previous support for information literacy, these organizations clearly lay out expectations of information literacy learning outcomes as part of the curriculum.

In response to ever-increasing pressure from university administrators and external stakeholders, teaching faculty have assumed the responsibilities for teaching information literacy. Faculty members are consciously identifying and incorporating information literacy student learning outcomes into their classes but generally do so without seeking assistance from librarians. Indeed, librarians are rarely called upon to collaborate with faculty or offer any kind of instruction. Students can seek individual assistance from librarians outside of class. As a result of greater involvement and buy-in by faculty and due in part to persistent perceptions that "information literacy" is a library skill, there has been a shift away from the terminology and frameworks that originally defined information literacy. A new name (perhaps along the lines of "research fluency" or "resource-based learning") has been given to some of those aspects of skills traditionally associated with information literacy, and less attention is given to ALA and ACRL guidelines as individual institutions adopt and develop their own specific guidelines.

Assessment of information literacy skills continues at low levels. Although teaching faculty are more conscious of integrating these skills into their courses, they typically do not test for or assess these competencies separately from other course-related skills. Standardized assessment tests for information literacy (SAILS, TILT, EST, and so on) are not implemented on a large scale.

Scenario III (Collaborative Approach)

Accreditation organizations focus attention on information literacy skills, and disciplinary and professional accreditation organizations are adopting and adapting general definitions to fit the needs of their individual fields. In response, individual institutions are revising their curricula to more clearly and explicitly include these information literacy outcomes. Learning goals are set at the program level as well as the course level, with individual departments selecting the goals that are most relevant to their field. Greater refinement of information literacy definitions and outcomes, as well as clearer guidelines from accreditation organizations, has encouraged greater involvement by teaching faculty, who are taking on much greater responsibility both for instructing students in information literacy competencies and in assessing learning. Assessment increases, with standardized tests, for instance, making it easier to administer assessment and benchmark progress.

This strong participation by faculty has resulted in a smaller, but more specific, role for instruction librarians in relation to information literacy. This role, in fact, closely mirrors that set out by the Middle States Commission on Higher Education in *Developing Research and Communication Skills*. Faculty, as experts within the fields, take responsibility for teaching information literacy competencies within the context of the subject, such as ethical use of medical information, proper investigative techniques for social sciences, or how to evaluate content. Librarians, on the other hand, continue their campaign for information literacy but with greater focus on the research and access competencies, such as search strategies for locating and accessing information, evaluating sources, and ethical use of information in the context of copyright and plagiarism. Although the roles for faculty and librarians are clearly delineated, they also overlap, and librarians often collaborate with faculty and offer in-class instruction as needed.

Appendix B: Revised Information Literacy Future Scenarios

Scenario I (originally Scenario III, Collaborative Approach)

Accreditation organizations focus attention on information literacy skills, and disciplinary and professional organizations are adopting and adapting general definitions to fit the needs of their individual fields. In response, individual institutions are revising their curricula to more clearly and explicitly include these information literacy outcomes. Learning goals are set at the program level as well as the course level, with individual departments selecting the goals that are most relevant to their field. Greater refinement of information literacy definitions and outcomes, as well as clearer guidelines from accreditation organizations, has encouraged greater involvement by teaching faculty, who are taking on much greater responsibility both for instructing students in information literacy competencies and in assessing learning. Assessment increases, with a focus on more "holistic" methods of assessment such as portfolios or other types of course-integrated assessment.

This strong participation by faculty, combined with continued campaigning by librarians, has resulted in a more collaborative process that, in fact, closely mirrors that set out by the Middle States Commission on Higher Education in *Developing Research and Communication Skills*. Faculty, as experts within the fields, take responsibility for teaching IL competencies within the context of the subject, such as ethical use of medical information, proper investigative techniques for social sciences, or how to evaluate content. Librarians, on the other hand, continue their campaign for information literacy, but with greater focus on the research and access competencies, such as search strategies for locating and accessing information, evaluating sources, and ethical use of information in the context of copyright and plagiarism. Although the roles for faculty and librarians are clearly delineated, they also overlap, and librarians will often collaborate with faculty and offer in-class instruction as needed.

In some institutions, librarians may focus more on curricular and assignment development than on direct instruction. For instance, librarians may spend more time working with faculty to set goals and design assignments that incorporate information literacy in effective ways. Likewise, they may also focus on training teaching assistants and graduate students, who could then take on the direct instruction of students.

Scenario II (Role Replacement)

Continuous improvements and enhancements to information retrieval systems greatly simplify the task of searching and render our current definition of information literacy either wholly or partly obsolete. The prevalence of natural language searching, together with improved indexing, makes subject searching and the use of thesauri unnecessary. Enhancements such as automatic query expansion/refinement, concept searching, and visual mapping make access of information intuitive and transparent even for novice searchers and undercut the need to understand Boolean logic, truncation, and so on.

Additional improvements in cross-database and meta-searching allow searchers to interact with a single interface to glean information from multiple sources, thereby freeing them from the necessity of adapting to various interfaces or choosing among hundreds of aggregated databases. Results from these searches are relevance ranked, eliminating the need for broad evaluation of sources.

Thus, many of the skills currently equated with information literacy, particularly questions of access and evaluation, are rendered unnecessary as searching becomes more easy and intuitive. Faculty address other skills either explicitly or implicitly within individual courses. In many cases, this may mean a “sink or swim” approach, in which students are expected to gain the necessary skills on their own. Rather than relying on librarians or library instruction, however, questions of access or searching are typically answered by IT personnel or outsourced to database providers.

The current trend in reduction of library staff continues unabated, as university administrators see little necessity for the services and resources provided by academic libraries. Likewise, accreditation organizations have shifted focus to other areas of outcomes having little to do with our current understanding of information literacy. In some cases, librarians are absorbed into academic technology or instructional design teams. In some cases they leave the field through natural attrition. Those librarians left in more traditional roles mainly oversee small special collections of print resources or administer archives. Terms such as "information literacy" and even the title "librarian" are rarely used, and most of the incarnations of these ideas are almost unrecognizable.

Notes

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