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In order to learn if a common theory and practice exist and influence bibliographic instruction in academic libraries, this paper presents a review of concepts from bibliographic instruction literature. Next, three learning theories from the field of psychology are summarized and judged according to their applicability and relevance to bibliographic instruction. Then literature on information literacy is reviewed to find a common definition of information literacy. Finding that the definition has shifted from describing attributes and skills to defining a concept, a personal definition of the concept of information literacy is proposed. Then an example is offered of a research process and its accompanying skills, which are influenced by, and become the goal of, functionalist theory-based, information literacy-oriented bibliographic instruction. Finally topics for further research are suggested.

Headings:

Bibliographic-instruction-College-and-university-students

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INFORMATION LITERACY, THE GOAL OF BIBLIOGRAPHIC INSTRUCTION:
A POSITION PAPER

by

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Chapter 1

INTRODUCTION

Too often students pursuing a degree in library science rush through their courses with little time to question current theories or pursue new avenues of research. Students learn the “what” and the “how to” of library service, but they do not receive instruction in questioning professional practices and assumptions. Library students rarely have the occasion to ask “why?” During the past two years as a library science student, my courses and job have been preparing me for a position as an academic reference librarian. As I stand ready to graduate, it is only natural that retrospective musings should drive my current research, for what would be the purpose of my education if I did not reflect upon what I had learned.

In an academic library, reference work is the most visible of its services, but bibliographic instruction has the potential to influence more students. Unfortunately, many library schools do not offer courses in bibliographic instruction. This gap in experience and knowledge inspired me to review bibliographic instruction literature for examples of theories and methods upon which to ground any future teaching. Early into my research the term “information literacy” appeared in conjunction with bibliographic instruction. Just as there was not a single theory or method directing bibliographic instruction, neither was there a common definition of information literacy. This set the course for my inquiry, and led me to ask four questions:

- What are the current theories and methods inspiring bibliographic instruction?
- What psychological learning theory would best provide a solid theoretical base for bibliographic instruction?
- What is the definition of information literacy?
- How does information literacy relate to bibliographic instruction?

A review of literature combined with previous experience and personal knowledge led me to conclude that bibliographic instruction would be effective if it were based upon the theory of functionalism. This theory provides a structure for assisting student to become information literate, which should be the goal of bibliographic instruction. This paper presents the results of the concept histories of bibliographic instruction and information literacy; my definition of information literacy; an example of a research process and skills which are the means and the end of functionalist theory-based, information literacy-oriented bibliographic instruction; and suggestions for further research.

Chapter 2

BIBLIOGRAPHIC INSTRUCTION

Bibliographic instruction in academic libraries has its roots in post-Civil War classes that covered book history and library use. From its inception, librarians have been debating the goal of bibliographic instruction, its place in a university setting, and the role of the librarian as instructor. Should librarians act as teachers or keepers of resources? If librarians instruct students, should they teach students to appreciate books, to find resources within individual university libraries, or to participate in a research process? Where should the instruction take place, at a reference desk or in a classroom? Is there a solution that will be applicable to all bibliographic instruction sessions? Over the past century, theories and practices have come and gone. While the issues are fervently discussed, few answers have been found. In this section I give a short history of trends in bibliographic instruction history, moving from library instruction as a college course, to library instruction taught in relation to a specific subject to library instruction being taught as concept. Next I examine bibliographic instruction ideas and methods in the 1980s and 1990s. Finally, I present recommendations for changing the concept and structure of bibliographic instruction.

Concept History

Bibliographic instruction has existed in academic libraries in the United States almost since universities began. From the inception of bibliographic instruction, librarians have been sharing various models and methods employed in their institutions. A review of the literature reveals trends in name changes—library instruction to bibliographic instruction; recipes for success—from handbooks to computer-assisted instruction; and a range of librarian attitudes—from zeal to apathy. One of many scholars to write about the history of bibliographic instruction in academic libraries, Mary F. Salony compiled a history of trends and issues surrounding bibliographic instruction from the mid-nineteenth century to 1980. This timeline was collected from her article and from independent reading of bibliographic instruction literature.

1800-1900--The Emergence of Bibliographic Instruction

Pre-1850: Libraries were small; tools were not complex; services were minimal.

1858: The Harvard College collection was so large that Ralph Waldo Emerson indicated a need for a “professor of books.”¹

Post Civil War: The structure of higher education changed. A variety of universities and colleges were established. Curriculum included reading courses, independent study, and research.

1876: The American Library Association (ALA) was established.

1880: Credit courses offered in library instruction. Justin Winsor saw “cooperation with faculty members”² as essential to expanding “the intellectual value of the college library, bringing it more fully into the teaching-learning process.”³

1901-1920--The Decline of Instruction

1901-1913: The number of credit bibliographic instruction classes dropped.

1913: Lucy M. Salmon suggested that “instruction should be given in connection with individual classes with instructors doing specific instruction and librarians providing general instruction and also fostering a good attitude of books among students.”⁴

1921-1950--Librarian or Teacher--or Both?

1924: Eldridge Colby supported the idea of separate courses of instruction and wanted librarians to be instructors for part of their work time although administrators did not acknowledge this function.⁵

1932: Lulu Ruth Reed thought the library should be a laboratory under supervision.⁶

1934: Peyton Hurt indicated a need to coordinate library use and instruction with various subjects.⁷

1935: Louis Shores' model called for every faculty member to be library trained and every librarian to be a teacher.⁸

1940: Harvie Branscomb believed that the role of the librarians was not only to do instruction but to promote [instruction] to faculty.⁹

1951-1960--Confusion in the Ranks

Early 1950s: Bibliographic instruction was faltering due to lack of a conceptual framework and the belief that library instruction was not an important function of the library.¹⁰ Thomas Kirk identified four weaknesses in the current methods of bibliographic instruction:

- Librarians didn't distinguish between orientation and instruction and usually provided orientations only
- Instruction was not given within the context of what students needed to know
- Instruction was often given from the content of reference training of librarians
- Librarians were not sensitive to the changes occurring in higher education.¹¹

1956: Patricia Knapp believed that "competence in library use consisted of knowledge, skills, and attitude and could not be accomplished on a onetime basis. Instead competence needs developed over a period of time."¹² She proposed a course of integrated instruction.

1961-1970--Rejuvenation and Experimentation

Early 1960s: Changes in teaching methods in higher education prompted changes in bibliographic instruction methods. Librarians used new technology such as overhead transparencies, tape recordings, slides, and films. They also taught with handbooks and planned programs so students would receive instruction each year.

1965: Anita Schiller believed that librarians should not promote the idea of instruction for self improvement of library skills. The libraries' job was to provide accurate information with efficient retrieval of information as a goal of reference service.¹³

1967: The ALA formed the Committee on Instruction in Library Use.

1971-1980--Bibliographic Instruction Gains Momentum

Early 1970s: Librarians favored teaching concepts instead of specific skills which led to a problem-solving method of instruction.

1971: ACRL BI Task Force was created which became the BI section in 1977.

1974: Patricia Senn Breivik suggested that library schools take an innovative approach towards instructing students how to teach bibliographic instruction rather than adopt an apathetic attitude.¹⁴

1972: Project LOEX (Library Orientation and Instruction Exchange) established to serve as a clearinghouse for collection organizing and disseminating BI information.

1977: ACRL published guidelines for instruction.

1977: ALA created the Library Instruction Round Table.

1983: Creation of *Research Strategies*, a journal devoted to the subject of bibliographic instruction.

Though technology such as overhead projectors, films, and televisions had been used since the 1960s, computers changed the services libraries provided and how librarians taught bibliographic instruction. Librarians still discussed librarian/faculty cooperation and the purpose of instruction, but they also recognized that “students needed to know about searching strategies and database selection in addition to traditional topics. Concepts involving transferable skills and critical thinking were stressed” (Salony 44).

Theories and Methods in the 1980s

Examining a few theories from the 1980s and 1990s will further highlight the transition of bibliographic instruction from the inception of new technology in the 1980s to the acceptance, reliance, and demand for technology in the 1990s. In the 1980s most bibliographic instruction librarians taught from a subject-oriented perspective. Methods varied as librarians tried to relate their instruction to students’ courses and individual research needs.

Though bibliographic instruction in the 1960s still subscribed somewhat to the teaching of specific skills, in 1984 Constance A. Mellon proposed a process-oriented approach. She stated that “the problem solving process can be effectively applied to the library research process.... They can provide a logical and unifying theme for multi-level

library instruction programs.” (76). Mellon founded this process on the developmental theory of William Perry. His theory describes the stages through which students proceed during their time at a university.¹⁵ These stages offers “a guideline as to where in a student’s education various research strategies should best be introduced” (76). Mellon’s approach perceives of librarians as counselors and assumes they are capable of judging students’ developmental stages. In this model students become passive recipients of knowledge when librarians deem students capable of learning. Developmental guidelines should not dictate what and when a student learns; instead, the stages could be used to understand why students are confused during stages of the research process.

Similar to the idea of teaching subject-oriented bibliographic instruction sessions, Smalley and Plum proposed that bibliographic instruction be taught from a contextual approach. This perspective “works with the conceptual structure already present in a learner while providing opportunities for students to develop personally meaningful intellectual capabilities within the context of an understanding of the research process and its products” (135). Smalley and Plum noted that students in the humanities and sciences have divergent information needs and research styles that cannot be addressed from a general bibliographic instruction perspective. Relating a BI session to students’ research contexts supports and reinforces the “personal capacity [of the students] to perform productive library inquiry” (135). Teaching in context is applicable in two manners. One context with which students are familiar is the resources and vocabularies of their discipline such as the *Modern Language Association* database or *Chemical Abstracts*. Another context is the thought processes prescribed by a discipline to arrive at a conclusion. History students may employ the process of thesis, antithesis and synthesis

while chemistry students design research around the scientific method. Undergraduate students may not have developed a conceptual structure inherent in a discipline. Teaching beginning students with a contextual method requires time for students to choose a discipline, learn its context, and follow its research process. A contextual approach would be better suited to graduate students who are familiar with a discipline.

Jon Lindgren also viewed research as a process and favored teaching bibliographic instruction from a subject-oriented background. In support of this process approach, Lindgren devised the theory that the library is a functional organ of communication (41) in which the “active use of library resources... must be understood in the context of their contribution to the ongoing dialogue” (31). Lindgren quotes from Smalley to describe the participants in the dialogue: “The more we can integrate the research process with the subject material and its uses, the more substantial and durable our instruction is likely to be.”¹⁶ Within the research process, the student carries on a dialogue with the resources. The student speaks from his or her past experiences with familiar resources. Upon encountering new resources, the student can rely on previous conversations to interpret messages from the new resource. Lindgren states that “Our medium becomes our message; how we teach becomes what we teach” (30). This recognition of librarians’ interaction with students and resources includes librarians in the ongoing dialogue of the research process. This is a positive step away from librarians passively distributing materials.

Librarians in the 1980s embraced the ideas of problem solving and research as a process. This perspective is best summarized by Elizabeth Frick: “The manner in which you go about obtaining material for research on any single college paper is more

important in the long run than the material you obtain” (205). Library literature in the 1990s also discusses the importance of teaching bibliographic instruction as a process. The plethora of electronic products, which the librarians above could not have foreseen, caused librarians to reassess the research process and to consider new topics for instruction such as database evaluation, search strategies and vocabularies, and critical thinking skills.

Theories and Methods in the 1990s

“Information explosion” often describes the sheer amount of data electronic resources make available to users. The literature of the early 1990s reflects the naivete of its authors, who could not have fathomed the avalanche that was upon them. In 1991 Oberman writes of a supercatalog that is distant independent; contains multiple collections; and has access points only limited by content of the record. Her chief concern is that users will feel overwhelmed by the number of choices and give up their searches in despair. Oberman’s solution is to teach students critical thinking skills through active learning instruction. “Providing students with the cognitive tools to make informed decisions must become a keystone of library instruction” (200).

emphasis on critical thinking could lead to discussions of the theories which instill and reinforce critical thinking in relation to bibliographic instruction topics.

By 1995 Dusenbury and Pease had noted a change in student search behavior. Students were still awed by technology, but “students expect[ed] good results and [had] faith that the answer [was] there somewhere” (103). Students were not overwhelmed by the amount of information. Instead they were willing to critically, if cursorily, think about choosing an appropriate database, to consult a librarians' opinion, and to try more

than one database if necessary. Dusenbury and Pease gave designers of information technology part of the responsibility for making “information more useful” (106). They suggest designing databases that are capable of natural language processing and weighted searching. These solutions involve programming computers to conform with human thought processes. Dusenbury and Pease also hold librarians responsible for making users more aware of information choices and the differences between types and formats of information. Librarians should also involve themselves in system design and establish interdepartmental task groups (111-12). As the amount of technology increases, so do librarians’ efforts to keep abreast of the changes. Dusenbury and Pease make several suggestions but fail to address such problems as understaffed departments, lack of funding, and minimal administrative support.

1995 was also a time for self-examination in bibliographic instruction literature. Tiefel examines the past and then projects the future. She makes general suggestions as to what role libraries should play in the university setting and what librarians should do to reach university students. Tiefel's solution to teaching the masses of students about critical thinking and research is to recommend the Gateway to Information. Developed in 1987 by Ohio State University, the system was designed around the precept that the search process is a narrative “applicable to information searching at almost every level” (331). The interactive interface¹⁷, was “designed to help undergraduates and graduates find, evaluate, and select the most useful information for their needs without the help of library staff.” As information becomes available on the Internet and as CD-ROMs become networked, the ratio of students accessing information to librarians giving assistance increases sharply. Making the research process transparent allows students to

be self-directed in their research until they need a librarian's assistance. Tiefel believes future systems should be designed from the perspective of the user with easy straightforward rules (336). Like Dusenbury and Pease, she provides no operational solutions for her questions.

Recommendations and Conclusion

While librarians' attitudes towards bibliographic instruction are as varied as the theories and methods of teaching BI, two consistent factors are the resources and the students' need for them. By recognizing some of the issues inherent in these constants, librarians might find a solid base upon which they could create some consistencies in bibliographic instruction.

Resources

Libraries exist in part to make available to users a large variety of resources that users would otherwise not have access to. Thirty years ago the extent of most libraries' resources were books, magazines and newspapers. At the end of the twentieth century library resources include audiovisual collections, CD-ROMs, and Internet connections. Libraries were quick to embrace new technology, even if they were not prepared for the trials involved in maintaining and teaching it. The push to be "wired" is in full swing, often driven by student demands. While the benefits of technology cannot be denied, the desire to be networked and connected might obscure some librarians' objectivity about what is necessary. With regard to electronic resources librarians, should demand better software products and be wary when purchasing them. Full text should not be an option; it should be a given. Database search interfaces should be transparent and easy to use, making the need for extensive help manuals obsolete. Bibliographic instruction received

renewed attention in the 1980s partly because librarians were the only ones who knew "how to" search databases. Since librarians know how information is structured, they should be involved in the process of designing products that will make information more accessible.

Needs

Bibliographic instruction sessions have evolved from credit classes about books to short sessions introducing freshmen to the library and everything contained therein that might pertain to their research. These sessions were created from the librarians' perception of students' long-term needs while reference services were expected to meet students' immediate needs. Library literature is replete with successful BI stories from individual institutions; however, what works for one institution may not be applicable for another. The same is true for meeting students' needs. Each student has unique experiences and perspectives which will influence their research. Librarians should not teach from their perception of students' needs, nor can librarians teach bibliographic instruction to meet students' individual needs. Instead, librarians should give their bibliographic instruction sessions a structure within which each student can apply their own thoughts and actions. This gives students a more active role in learning about resources instead of traditional lecture style instruction and provides them with a general structure which can be applied to other information needs.

Librarians' Role

The issues concerning resources and student needs directly affect librarians. For any of the recommended changes to take place, librarians must first commit to those changes themselves. Reference departments should determine the importance of

bibliographic instruction and then act accordingly, even if that means abolishing the BI program. Concerning resources, librarians need to communicate with other librarians about product quality and then advocate software companies for better products. In order for librarians to provide a structure to bibliographic instruction, they should look to the theories and practices used in higher education. Teaching a structure instead of describing resources has changed the librarians role from that of sign post to that of a guide. This brings librarians closer to the teaching capacity advocated by Louis Shores⁸ and Patricia Knapp.¹² Bibliographic instruction has shifted from learning about the library to learning about the resources within the library. The next step is to integrate the resources with class instruction so that each is interdependent and an extension of the other. In this way a student's total educational experience will be enhanced.

Chapter 3

LEARNING THEORIES

Learning theories suggest possible ways in which people relate to and learn about their environment. Teaching bibliographic instruction from the perspective of a learning theory will assist librarians in relating an unfamiliar environment of information to students. Two learning theories from the field of psychology that have extensively affected higher education are behaviorism and cognitivism. They evolved from the theory of functionalism. These theories have been combined with theories from other disciplines and have been operationalized in a variety of situations. The following tables, summarized from Bredo's chapter on learning, condense the theories' histories, tenets, and their applications to education. After the tables is a brief discussion of the relevance of each theory to bibliographic instruction. Finally a theory is chosen that will best accomplish the goals of teaching students critical ideas for learning in academic settings.

History of Theories

Functionalist	<ul style="list-style-type: none"> • Developed in conjunction with the philosophical movement pragmatism. • Emerged from polar controversies of evolution; functionalists sought a compromise—mental life is both a product and producer of evolution. • Mind was viewed as a function rather than a thing (6-7).
Behaviorist	<ul style="list-style-type: none"> • Developed from functionalists' emphasis on science and rejection of mental entities. • Stressed the externally observable; environment was the determining factor in behavior. • Emphasized passive compliance with environmental demands (16).
Cognitivist	<ul style="list-style-type: none"> • Returned to the functionalists' emphasis on the mind. • Placed the behaviorists' external rules of reinforcement inside the head as the rules of a symbolic problem representation. • Simulated behaviorists' external experiment inside the mind and called it problem solving (22-23).

Tenets of Theories

Functionalist	<ul style="list-style-type: none"> • The importance of action is not the boundary between organism and environment, but their functional roles in the activity. • Organism and environment interact or engage in transactions with one another; habits are ways of changing the environment. • Continuity in action with smooth growth (4-15).
Behaviorist	<ul style="list-style-type: none"> • Focused on functions of behavior rather than functions of the mind (functionalist). • Research shifted to emphasize animal learning under controlled conditions. • Behaviorists wanted to predict and control behavior by manipulating the environment (20-22).
Cognitivist	<ul style="list-style-type: none"> • Cognitivists aimed at changing knowledge representations to improve problem-solving effectiveness. • Strengthened mental processes while encouraging physical and emotional passivity. • Behaviorist and cognitivist approaches focused on a predefined problem rather than the functionalist redefining and renegotiating of the problem (29-31).

Applications to Education

Functionalist	<ul style="list-style-type: none"> • Interaction and continuity are interdependent. • Educational experiences should lead to growth. • Learning and development can and should occur together and are preferably inseparable (16). • Goal of learning is continual growth.
Behaviorist	<ul style="list-style-type: none"> • Instructors are responsible for defining and structuring what is learned. • Students become passive in negotiating their own goals. • Learning involves complying with instructors' demands (20-22). • Goal of learning is to get the right answer.
Cognitivist	<ul style="list-style-type: none"> • Increased sensitivity to what the learner brings to a given problem solving situation. • The same data will have a different impact on the conclusion drawn by the same learner at different points in their learning. • Learner becomes responsible for working through the problem solving model (29-31). • Goal of learning is to use the right process.

Relevance to Bibliographic Instruction

Functionalism

The functionalist learning theory stresses the constant interaction of organism and environment to produce continual growth in both. In the context of bibliographic instruction, the primary importance would be students' interaction with their environment. This could include the library, resources such as books and databases, and library staff. Since the emphasis is on interaction, the library should be accessible with regards to hours, services, and policies. In bibliographic instruction sessions, students should be able to use the resources they are learning about. Library staff should recognize students' potential for growth and regard every interaction as a chance to enhance growth.

To relate continuity to bibliographic instruction, students should be made aware of the long-term effects of learning such as ease of research in future situations and an increased knowledge base. Students should also have a positive growth experience. This could involve letting students choose their research topics and participating in small group activities. Some of the detriments to teaching from a functionalist learning theory perspective might include students possible lack of interest in interacting with the library or its resources; students becoming dejected by a negative interaction; and teachers not having the resources or energy to promote interaction.

Behaviorism

The behaviorist learning theory emphasizes compliance with a controlled environment to demonstrate that learning has taken place. In a bibliographic instruction session this approach could be used to segment learning how to use a resource, such as

the steps involved in finding something in a database. However, the functions required to make one database work, might not be operative for another database. Also, teaching aids such as workbooks used in conjunction with bibliographic instruction sessions would provide the teacher with feedback about each student. The teacher could then suggest other learning aids.

There are several problems with teaching bibliographic instruction from a behavioral approach. Students cannot change their research questions in response to new information. Students do not learn to evaluate resources or information. What students learn through segmented bibliographic instruction applies only to the present situation.

Cognitivism

Cognitivism highlights mentally working through a process to arrive at a known conclusion. Teaching research as a process can be beneficial in bibliographic instruction because students become more involved in evaluating the answers throughout the process. However, the end goal of the process is still established by the teacher. The student remains a passive agent of the process and cannot change the goal according to information found in the search. Another problem in teaching from a cognitivist learning theory is that it assumes that one research process will work for all situations. While this is a possibility, not recognizing that students change as they learn, underestimates the power of the student to be an active learner throughout the process.

Functionalism Revisited

Of the three learning theories discussed, teaching bibliographic instruction from a functionalist perspective would most benefit the student because it emphasizes the interaction between students and their environment. Dewey's belief that growth should be the means and the end of education are applicable to current educational goals of lifelong learning. Having students play an active role in their education increases the chances that they will remember what they have taught themselves and what they have learned from others. Also, the increasing sophistication of user friendly computer systems and artificial intelligence software takes the Dewey's concept of interactivity to new heights. The functionalist learning theory influences bibliographic instruction by:

- Providing an active role for the student within the information environment.
- Recognizing the continual interaction of the student with the information environment.
- Encouraging the student to grow in and out of the information environment.

Dewey has suggested that to foster interaction, create an environment in which people can be stimulated to think. This will instill a desire to grow and to seek opportunities for continued interaction throughout life.

Chapter 4

INFORMATION LITERACY

There has always been a goal to receiving an education in an academic setting. The theoretical objective of enabling students to acquire skills that allow them to function in and contribute to society can be translated into teaching the concrete subjects of reading, writing, and arithmetic. These subject areas are taught according to certain theories of learning, and each holds requisite skills that, once accomplished, indicate a proficiency in the subject area. I have suggested that bibliographic instruction sessions be founded upon a functionalist theory of learning. But what is the goal of these theory-driven sessions? Previously, the goal of bibliographic instruction has been influenced by changing trends in higher education, available resources, and librarians' perception of student needs. the definition of BI. This lack of a constant goal has resulted in need-driven sessions for a particular subject area, which may not contribute to a student's comprehensive educational experience. While each student's information need is unique, there should be a common lesson that informs more than a student's momentary need.

The phrase "information literacy" has been in relation to bibliographic instruction, often with the idea of making students information literate. Information literacy has the potential to influence students for the rest of their lives. Unfortunately, lack of consensus about a definition has resulted in confusion concerning exactly what information literacy is and what exactly should be done to develop it conceptually and operationally.

Information literacy was considered an educational goal related to school libraries beginning in the 1960s. Not until the late 1980s did higher education institutions and academic libraries begin discussing information literacy and planning how to teach it to students. The following literature review and concept history discuss key works on information literacy and the evolution of the concept. Following that is a personal definition and explanation of information literacy.

Literature Review

The term “information literacy” was first used by Zurkowski in a 1974 report entitled *The Information Service Environment, Relationships and Priorities*. He described information literacy in terms of an individual’s capacity to use information tools and primary sources to address problems. With the advent of computers and technology, teachers and librarians seized upon the idea that students must be able to navigate the maze of newly available information. In the 1980s, information literacy as an idea was researched and debated especially in the primary and secondary school setting. In 1987 Kuhlthau wrote *Information Skills for an Information Society: A Review of Research*, in which she discussed the skills that should be taught to acquire information literacy. Irving’s suggested in 1985 that “information skills are the mutual responsibility of teachers and library media specialists and must be infused into instruction across the curriculum” (qtd. in Kuhlthau 12).¹⁸

In 1989 Breivik and Gee published *Information Literacy: Revolution in the Library*. More extensive than Kuhlthau’s report, Breivik and Gee discussed how information literacy could affect higher education. As a model, they discussed Colorado University’s efforts to affirm the role of the library in integrating the concept of

information literacy into the larger academic curriculum. Similar to the idea of an integrated curriculum proposed by Knapp,¹² their work advocated that “quality learning, research, and service that can occur on campuses where more imaginative use is made of academic libraries” (xi).

Information literacy was discussed to such an extent that in the late 1980s that the American Library Association created the Presidential Committee on Information Literacy. Their *Final Report* was released in 1989. Though brief, the report outlined the ALA’s reasons for endorsing information literacy for the benefit of the individual and society. The ALA also described in broad terms the skills necessary to achieve information literacy.

Even with the release of ALA’s *Final Report*, debate about the definition of information literacy and how to teach it did not slow. In 1994 Doyle wrote *Information Literacy in an Information Society*, a work that “traces the history of the development of the term information literacy and discusses the emergence of information literacy as a significant organizing theme for contemporary society” (1). This monograph highlighted how information literacy, as tied to the concept of “lifelong learning,” was being discussed more thoroughly in primary and secondary educational settings. At this time higher education was included less often in information literacy literature.

Along with the increasing number of books and articles on the topic, conferences were organized around the theme of information literacy. Project LOEX (Library Orientation and Instruction Exchange) was created in 1972 to serve as a clearinghouse for bibliographic instruction information and to hold conferences discussing bibliographic instruction and topics relevant to its teaching. Project LOEX’s 1989 conference was

titled *Coping with Information Illiteracy: Bibliographic Instruction for the Information Age*. Australian librarians saw the potential of information literacy in the early 1980s and worked diligently to integrate the concepts into all educational levels. They made information literacy the topic of two conferences, *Information Literacy: The Australian Agenda* in 1992 and *Learning for Life: Information Literacy and the Autonomous Learner* in 1995.

Current Literature

Two Australian authors, Linda Langford and Christine Bruce, have done research and written extensively about information literacy in higher education. In 1997 Bruce published *The Seven Faces of Information Literacy*, which is substantially her doctoral thesis, one of the few worldwide on the topic. She “examines the varying experience of information literacy among higher educators and proposes a relational model of information literacy as an alternative to the behavioral model that dominates information literacy education and research” (i). Langford follows in 1998 with the article *Information Literacy: A Clarification*. She notes that “teacher-librarians are carrying most of the burden of guiding future generations to becoming lifelong learners...” (68). Langford advocates for the “need to explore how the concept of information literacy becomes the natural or the basic practice of teachers” (69). She questions whether information literacy should be “a fundamental issue for all learning communities” (69).

Published in 1998 by the American Association of School Libraries and the Association for Educational Communication and Technology, *Information Literacy Standards for Student Learning* contains “standards and indicators written at a general level so that library media specialists can tailor the statements to meet local needs” (v).

A second edition of *Information Literacy: Educating Children for the 21st Century* was also published in 1998. Written for practice in elementary schools, but also broad enough to be applicable to many situations, Breivik and Senn address how to implement programs and teach skills necessary to achieve information literacy in an elementary setting.

Within library literature, the topic of information literacy is so recent that any work on the subject seems important. Unfortunately, most articles on the topic are reports of location-specific practices that lack any theoretical foundation. Academic librarians need a solid grounding in theory, a clear conceptual definition and a strong working agenda in order to provide students with the best information literacy instruction that time and resources allow. The following concept history traces information literacy as defined by attributes, sets of skills, and concepts.

Concept History

In 1965 Roe¹⁹ introduced the phrase “learning to learn” as necessary for success in an age of rapid technological change (qtd. in Bruce 5). Zurkowski acknowledged that need in 1974 when he called for a national program whose priority was to achieve information literacy within a ten years. A few programs were begun during that time; but, efforts were haphazard, and funding was limited. Despite the setbacks, librarians and educators responded with renewed attempts at defining information literacy.

In the early 1980s, the goal of teaching information literacy was to achieve a set of skills or competencies or to work through a problem solving or decision making process. What made accomplishing these goals difficult was that neither the goal of the skills nor the answer to the problem was clearly stated. In *Information Skills for an*

Information Society, Kuhlthau accepted Martin Tessner's²⁰ definition of information literacy: "information literacy is the ability to effectively access and evaluate information

Kuhlthau described what it *means* to be information literate.

It is:

- closely tied to functional literacy;
- involves recognizing an information need and seeking information;
- requires the ability to manage complex masses of information; and,
- encourages learn[ing] throughout life (2).

Kuhlthau also included computer literacy as one of the necessary skills in information literacy. Though it is written for school library media specialists, this was one of the first works to associate teaching information literacy with libraries.

Towards the end of the 1980s, library literature described information literacy in one of two ways: as a concept or as a set of attributes or skills. The American Library Association Presidential Committee on Information Literacy released its *Final Report* stating that "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" (1). According to the ALA, then, information literacy was personal attributes and sets of skills. They described information literate people as "those who have learned how to learn" (1). This further confused the issue by suggesting that information literacy was simply "learning how to learn." The assumptions in "learning how to learn" seemed to guarantee only a rudimentary education, which was at odds with previously defined complex skills of information literacy.

In 1992 Rader and Coons²¹ defined information literacy as "the ability to access and evaluate information effectively for problem solving and decision making" (qtd. in Tieffel 326). This emphasis on ability is similar to Tessner's definition, though Rader

and Coons specify a process in which information literacy skills could be used. Tiefel also draws from Rader and Coons' definition of an information literate person as one who knows "how to be a lifelong learner in an information society" (326).

Dusenbury and Pease also discuss information literacy in terms of personal conditions. They suggest that "information literacy... will be a continuing process of learning, and instruction will be called upon to prepare students not only for the time they are in education systems but for a lifetime in the Information Age" (99). This perspective represents a shift towards seeing information literacy as a continuing process rather than as limited attributes or skills.

Australian librarians and educators approached information literacy as a central concept. This perspective provided an idea around which skills could be developed and instruction could be employed. In 1997 Bruce noted the number of terms used synonymously or in conjunction with information literacy: computer literacy, information technology literacy, library skills, information skills and "learning to learn" (21). The concepts "coexist with the idea of information literacy and... each is systematically differentiated from, or incorporated into, contemporary descriptions of information literacy" (20).

Bruce also noted that a behavioral model influenced current ideas of information literacy in these ways:

- Descriptions of information literacy are made in terms of attributes of persons.
- Information literacy education is seen as making possible the acquisition of these attributes.
- Research is conducted into the desirable attributes of information users.

Instead, Bruce contended that the concept of information literacy can be taught in a relational model in which:

- Descriptions of information literacy are made in terms of conceptions.
- Information literacy education is seen as learning to conceive of effective information use in new and increasingly sophisticated ways.
- Research is conducted into conceptions of information literacy and related phenomena (152-153).

According to Bruce's relational model, information literacy is a way of experiencing the world, and each person will be uniquely information literate depending on their experiences. This approach shifted the focus from finding and using information to how the user *conceived* of finding and using information.

In 1998 Langford also defined information literacy as a concept. She stated that "the needs of a society at any time determine how a society interprets a concept" (67). For example, at the turn of the nineteenth century society had a need for individuals to read and write because information was conveyed through books and magazines. At the end of the twentieth century information is conveyed electronically through computers, televisions, and radios. According to Langford, "information literacy is but a means to an end. What that end is depends on what the individual or community wants, that is what the information needs are for that society at that time" (67). At the beginning of the twenty-first century, then, being information literate means being able to extract information from any available source as the situation demands. Langford naively assumes that all members of society will have the means to become literate. Also, Langford's emphasis on overwhelming societal needs leads to questions about the place of the individual in society who does not feel the need to be literate and the conflicts different societal groups experience when they have alternate definitions of literacy.

A Personal Perspective of Information Literacy

The shift in defining information literacy from attributes to skills to a concept is due to the increasing amount of information and to the variety of formats in which it appears. As the number of ways to be information literate about a number of things increases, thinking of information literacy as a concept will prove to be more flexible than thinking about it as sets of attributes or skills.

Information literacy is not a system of personal attributes. Attributes are behaviors and attitudes displayed by someone who has become information literate. Just as the process of becoming information literate is a personal journey, so the attributes displayed are unique to each person. Therefore, specific information literacy attributes cannot be easily taught through traditional lessons. Kuhlthau describes an information literate person as having the attributes of persistence, attention to detail, and skepticism in accepting information (7). Other attributes include curiosity and independence.

Information literacy is not a set of skills. Skills are actions learned through teaching and practice. Mastering skills can help a person become information literate. A continual practice of those skills will engender attributes of information literacy. Information literacy skills can be taught, but they must be based on a framework of beliefs.

Information literacy is a concept. Concepts furnish a structure within which ideas can be expressed and acted upon. The concept of information literacy provides a guideline for teaching skills that enable someone to become information literate and to display information literate attributes. Information literacy can be taught as a concept.

Defining the concept of information literacy can be as difficult as identifying the skills and attributes that indicate an information literate person. In the concept of information literacy and in the process of becoming information literate, data and information hold different places. The difference can best be explained by how a person, the seeker, relates to data and information. The seeker must be actively looking for data. Once the seeker reads the words on a page or examines a record in a database which meets the needs of her active search, then the data becomes information. The point of transition from data to information comes when the seeker interacts with the data. Information, then, is data that has been interacted with by a seeker.

The concept of literacy has undergone changes from the ability to read, write, and count to demonstrating proficiency in such divergent areas as computers and morality. Langford believes skills that denote literacy change as a society's needs change. Cavalier²² criticizes *literacy* as an all purpose noun, "a hurrah word which denotes that the inherent is well-versed in the adjective attached" (qtd. in Langford 63). Cavalier's comment is a reaction against the plethora of literacies that have appeared in our vocabulary; however, he has described literacy in a general term. Literacy can be connoted as knowledge. So, the concept of information literacy can be defined as *knowledge of information*.

As Behrens noted, "symbolically, information literacy appears to represent the ability to use information, or possibly the possession of a knowledge of information" (309). A symbol is something which stands for something else. If the concept of information literacy is a symbol, then it can be placed on a map among other cognitive

concepts. Information literacy has now become the destination of a journey or a state to be achieved through various paths or processes.

A map represents three-dimensional objects on a two-dimensional surface, and the world of information literacy has several dimensions. The primary objects in the three-dimensional concept are the data, the seeker, and the teacher/guide. Each object has a symbol; each symbol has a meaning; each meaning has a structure; each structure is part of a process. During the journey towards becoming information literate, the symbols, meaning, structure, and processes inherent in the data, the seeker, and the teacher/guide interact. Each positive interaction assists the seeker in evolving closer to becoming information literate

Driven by a self-defined need, the seeker actively inquires among the structures of data until the need is met or until the seeker becomes unable to interpret an aspect of the data, whether it is the meaning, structure, or process. As the seeker becomes more proficient in reading and following her map, her perceptions of symbols and their meanings change. With each new encounter of symbols she re-interprets her destination, and her map changes. The role of the teacher/guide is to assist the seeker in interpreting the symbols on the map. The teacher/guide must recognize that each seeker has a unique journey according to his or her need and that each seeker will occupy a unique location on his or her map. At the point when the seeker requests assistance on her journey, the teacher/guide must ascertain the seeker's location on the map. The teacher/guide must ask:

- Where have you come from?
- Where are you going?
- Where are you now?
- How can I help you navigate to where you want to be?

As the seeker's map becomes unique to herself, so the concept of information literacy will be unique to each seeker, defined in the personal interactions and interpretations with the symbols of data, teacher/guide, and the inner self of the seeker.

Chapter 5

SYNTHESIS

Summary

Bibliographic Instruction—Where have you come from?

Bibliographic instruction has a long tradition in academic libraries. Despite its long history, several problems have arisen:

- The topics of bibliographic instruction sessions have regularly ranged from library orientation to subject specific sessions.
- Until recently the role of students in bibliographic instruction sessions has been as passive recipients of information.
- At various times in bibliographic instruction history, librarians have advocated for the skills taught in a bibliographic instruction session to be integrated into the academic curriculum and for librarians to be recognized in a teaching capacity. However, this recognition has not been achieved.

While the topic of bibliographic instruction is debated, often on a national scale, there has been no movement towards developing a structure for bibliographic instruction which would incorporate students as active participants and librarians as teachers and guides in a learning process.

Learning Theories—Where are you going?

Higher education has been influenced by a number of learning theories from the field of psychology. Behaviorism and cognitivism were the two most influential, and the theories have been put into practice in a variety of ways. Both of those theories were founded upon the theory of functionalism. As applied to education by John Dewey, functionalism encourages interaction and continuity to promote growth. With technology

changing the way information is provided and how information is taught and learned, a theory that emphasizes action and growth would complement current educational goals.

Information Literacy—Where are you now?

The goal of teaching information literacy is for students to become information literate; however, there have been two problems:

- defining information literacy
- deciding how to teaching information literacy.

In library literature, information literacy has evolved from displaying attitudes to acquiring sets of skills to contemplating a concept. Conceived metaphorically as a map, information literacy becomes a symbol that becomes unique to each person during his or her personal journey. The role of the librarian is to assist each person in reading their map.

How can I help you navigate to where you want to be?

The goal of bibliographic instruction, when taught from the perspective of a functionalist learning theory, should be to help students become information literate. Librarians should have a significant part of the teaching process because they know about the structure of information. Librarians should found their bibliographic instruction sessions on functionalism because it encourages interaction and continuity between organism and environment, student and information and librarian, for growth. In this way, teaching students to be information literate will not be a lesson to learn for the moment. Because information literacy teaching is founded upon growth, being information literate will be a continual action.

From Concept to Practice

Defining the concept of information literacy provides ample space for interpretation and improvisation on the concept by theorists and practitioners. The goal of teaching bibliographic instruction should be to assist students in becoming information literate. Applying Dewey's learning theory, that an organism interacts continually with its environment which results in growth of organism and environment, to bibliographic instruction results in three objectives around which to structure the lesson. Stated above in relation to learning theories and bibliographic instruction, these objectives can now be related to the seeker becoming information literate in an information environment.

Dewey's theory:

- Provides an active role for the seeker and for the information environment
- Recognizes the continual interaction of the seeker with an information environment
- Encourages the seeker's growth inside and outside of the information environment towards the goal of information literacy.

The process of becoming information literate requires translating an abstract model into a research process, which can be operationalized as a set of skills. Ideally, the seeker should be aware of these stages, but factors such as age, time, and relevancy to the need at hand may necessitate omitting some portions of instruction about the stages. Throughout the transition from concept to skills, the ideas of interaction and continuity between the seeker, the data, and the librarian should be uppermost in teachers' and

The Model

Beginning with the abstract model of acquiring knowledge of information, interaction and continuity have a crucial role in the process of data being transformed into information. The steps in this process include:

- recognizing a need;
- seeking the resources that meet the need;
- finding and interacting with the resources to produce information for the seeker;
- assimilating and evaluating the information; and,
- integrating, synthesizing, and internalizing the information so that it becomes part of the seeker's knowledge.

Inherent in this transformation of data to information is the cyclical nature of the process because it is influenced by constant evaluation of information. Instead of proceeding in a straight line from one step to another, the seeker is constantly interacting with data and evaluating information according to her needs. The seeker takes an active role in this continuous process.

The Process

The model of transforming data to information provides a foundation for the research process. Based on research with learners, Kuhlthau has developed her own theory of the research process. This process is developed based on personal practice and observation. In this process the seeker must actively employ the data transformation model as she proceeds through the process. Without the element of action, the seeker does not transform data into information, there is no continual interaction with the information environment, and growth does not occur.

The steps of the process are:

- Recognize a need for information.
- Formulate a tentative question.
- Begin the search for data.
- Evaluate the results.
- If necessary, search further and evaluate results.
- Synthesize the information.
- Express the knowledge.

The continual interaction between the seeker and the resources engenders the seeker with a flexible perspective towards the results. The seeker should recognize that her information need might change as a result of her evaluations. When the seeker synthesizes the information, she shapes the it into her existing patterns of knowledge, thereby enabling her to express the knowledge in her own voice. Returning to the map metaphor, the seeker speaks from her unique location.

The Skills

Information literacy was first defined as a set of skills an information literate person should possess. As different types of technology emerged, the focus of skills changed from being able to program a computer to printing citations to formulating a search strategy. This transition emphasizes the closeness with which humans and computers were first anticipated to interact. The focus has now shifted from computer systems to information systems contained on computers. How computers work has become invisible to the seeker so that she can interact with the electronic structure of data. Teaching the seeker the data transformation model and the research process will allow the seeker to employ the skills of interaction in any situation. The following table equates skills with each step of the research process.

*Research Process**Skills*

Recognize a need for information.	<ul style="list-style-type: none"> • Identify the reason for the need through a process of introspection, or contemplation of a task.
Formulate a tentative question.	<ul style="list-style-type: none"> • Brainstorm for ideas. • Consult basic resources.
Begin the search for data.	<ul style="list-style-type: none"> • Identify resources to best meet the need. • Allow existing knowledge to shape the inquiry.
Evaluate the results. If needed search further and evaluate the results .	<ul style="list-style-type: none"> • Review the results for authority, reliability, and consistency with the topic.
Synthesize the information.	<ul style="list-style-type: none"> • Relate information to personal knowledge patterns. • Realize that knowledge may change based on the search and its results.
Express the knowledge.	<ul style="list-style-type: none"> • Write or speak. • Add personal knowledge to the existing structure of data—interact with the environment.

These steps in the research process are just one perspective on how to assist students in becoming information literate. However, Bruce contends that once the concept of information literacy is defined, the skills operationalizing it should remain stable until new conceptions of information literacy are discovered (170). This argument should inspire librarians to actively seek and reach a consensus on a definition for information literacy.

Beyond the Skills

The path from having knowledge of information to using that knowledge of information is unique to each seeker; however, the process is by no means finished. While the goal of bibliographic instruction is to assist the seeker in becoming information literate, the ultimate goal of acquiring an education is to instill the habit of lifelong learning. The definitions and suggestions in this paper are unique to this point in time, given the literature and personal experience with data, seekers, and librarians. The

technology of the past three years, which has spawned so much research and debate, can be only a small part of what is to come. I have no predictions for the 21st century; but I do question some issues surrounding information literacy and bibliographic instruction which demand further research and discussion now.

Issues for Debate

The American Library Association published its definition of information literacy in 1989 in the *Final Report*. This report described an information literate person in general terms and did not mention information literacy as a concept. In light of the past decade of research, the ALA should review other definitions of information literacy and revise its definition and recommendations.

Academic disciplines are no longer isolated in their rhetoric and research. Students are choosing interdisciplinary courses of study in higher education, departments are studying the literature of other fields, and curriculums are being redesigned. At this time of change, the whole structure of higher education should be reviewed and renewed for the purpose of educating students in a holistic manner and instilling in students an inquiring attitude towards learning. Libraries should not be dismissed from the integration process. They are uniquely qualified because they understand the structure of information. Librarians should advocate, again, for a role as a teacher/guide in actively educating students.

Throughout this paper I have assumed that reference librarians are responsible for teaching bibliographic instruction. In this capacity they have a structure within which to assist students in becoming information literate; however, this is just the beginning of a student's journey. When students cannot decipher the symbols on their information

literacy map, they go to the reference desk. Librarians, in their capacity at the reference desk, will influence a student's journey. In conjunction with establishing a structure for bibliographic instruction, which provides a starting place for the student, librarians need to discuss the necessity of the reference desk, the purpose of the reference interview, and the role of the reference librarian in assisting students to become information literate.

NOTES

- ¹ Ralph Waldo Emerson, "Books," *The Atlantic Monthly* 1 (1858): 344.
- ² Justin Winsor, "College Libraries as Aids to Instruction: The College Library," *User Education in Academic Libraries* 5-16. First published in *circulars of Information of the Bureau of Education* no. 1-1880 (Washington D.C.: GPO, 1880): 99.
- ³ Larry L. Hardesty and John Mark Tucker, "An Uncertain Crusade: The History of Library Use Instruction in a Changing Educational Environment," in *Academic Librarianship Past, Present, and Future: A Festschrift in Honor of David Kaser*, ed. John Richardson, Jr. and Jinnie Y. Davis (Englewood, CO: Libraries Unlimited, 1989): 99.
- ⁴ Lucy M. Salmon, "Instruction in the Use of a College Library," *User Instruction in Academic Libraries*, 86.101. First published in *ALA Bulletin* 7 (1913): 301-09.
- ⁵ Eldridge Colby, "The Teaching Librarian," *Library Journal* 49 (1924): 753-751.
- ⁶ Lulu Ruth Reed, "Teaching the Use of the Library" *Library Journal* 57 (1932): 706-07.
- ⁷ Peyton Hurt, "The Need of College and University Instruction in the Use of the Library," *Library Quarterly* 4 (1934): 436, 439-40, 443.
- ⁸ Louis Shores, "The Library Arts College, A Possibility in 1954?" *User Education in Academic Libraries*, 121-129. First published in *School and Society* 41 (1935): 110-14.
- ⁹ Harvie Branscomb, *Teaching with Books: A Study of College Libraries* (1940; reprint, Hamden, CT: Shoe String Press, c1974), 196-209.
- ¹⁰ Larry L Hardesty, *User Education in Academic Libraries*, 147-49.
- ¹¹ Thomas Kirk, "Past, Present, and Future of Library Instruction," *Southeastern Librarian* 27 (1977): 16-17.
- ¹² Patricia B. Knapp, "A Suggested Program of College Instruction in the Use of the Library," *Library Quarterly* 26 (1956): 224.
- ¹³ Anita R. Schiller, "Reference Service: Instruction or Information," *Library Quarterly* 35 (1965): 52-60.
- ¹⁴ Patricia Senn Breivik, "A Rose by Any Other Name—Or, Library Instruction and the Library *Educating the Library User*, (New York: R.R. Bowker, 1974) 410-414.
- ¹⁵ William Perry's stages of development through which a student proceeds during their education. Dualism—a right and wrong choice exist for every situation. Multiplicity—there is a part of a situation about which nothing can be known. Relativism—there are few areas in which something is absolutely known. Commitment—accepting a world in which nothing is certain, but accepting personal choices as qtd. in Mellon 79)
- ¹⁶ Topsy N. Smalley, "Bibliographic Instruction in Academic Libraries: Questioning Some *Journal of Academic Librarianship* 3 (1977): 282.
- ¹⁷ The Gateway to Information is available via the Internet at <http://www.lib.ohio-state.edu/gateway/>
- ¹⁸ A. Irving, *Study and Information Skills Across the Curriculum*, London: Heinemann Educational Books, (1985).
- ¹⁹ Ernest Roe, "\$27 Million Dollars Worth of Better Education," *The Australian Library Journal* 18.6 (1969b): 184.
- ²⁰ Quoted from Patricia Senn Breivik, "Putting Libraries Back in the Information society," *American Libraries* 16.10 (1985): 723.
- ²¹ H.B. Rader & W. Coons, "Information Literacy: One response to the New Decade," *The Evolving Education Mission of the Library*, Eds. B. Baker & M.E. Litzinger, Chicago: ALA, (1992): 113.
- ²² R. Cavalier, "Information Literacy: Why Worry?" *Information Literacy: The Australian Agenda*, Ed. D. Booker, Adelaide, South Australia, U of South Australia, (1993): 19.

WORKS CITED

- American Association of School Libraries and Association for Educational Communications and Technology. *Information Literacy Standards for Student Learning*. Chicago: American Library Association, 1998.
- American Library Association Presidential Committee on Information Literacy. *Final Report*. Chicago: ALA, 1989.
- Behrens, Shirley J. "A Conceptual Analysis and Historical Overview of Information College & Research Libraries." (1994): 309-322.
- Bredo, Eric. "The Social Construction of Learning." *Handbook of Academic Learning: Construction of Knowledge*. Ed. Gary D. Phey. San Diego: Academic Press, 1997. 3-45.
- Breivik, Patricia Senn and E. Gordon Gee. *Information Literacy: Revolution in the Library*. New York: American Council on Education; Macmillan Publishing Company, 1989.
- Breivik, Patricia Senn and J.A. Senn. *Information Literacy: Educating Children for the 21st Century*. Washington D.C.: National Education Association, 1998.
- Bruce, Christine. *The Seven Faces of Information Literacy*. Diss. U New England, Australia, 1996. Adelaide, South Australia: Auslib Press, 1997.
- Doyle, Christina S. *Information Literacy in an Information Society: A Concept for the Information Age*. Syracuse, NY: Syracuse U, 1994. ERIC ED 372 763.
- Dusenbury, Carolyn and Barbara G. Pease. "The Future of Instruction." *Journal of Library Administration* 20.3/4 (1995): 97-117.
- Frick, Elizabeth. "Teaching Information Structure: Turning Dependent Researchers into Theories of Bibliographic Education: Designs for Teaching." Ed. Cerise Oberman and Katina Stauch. New York: R.R. Bowker Company, 1982. 193-208.
- Kuhlthau, Carol Collier. *Information Skills for an Information Society: A Review of Research*. Syracuse, NY: Syracuse U, 1987. ERIC ED 297 740.

- Langford, Linda. "Information Literacy: A Clarification." *School Libraries Worldwide* 4.1 (1998): 59-72.
- Learning for Life: Information Literacy and the Autonomous Learner.* Proc. of the second national information literacy conference conducted by the University of South Australia Library. 30 Nov.-1 Dec. 1995. Ed. Di Booker. Adelaide, South Australia: University of South Australia Library, 1996.
- Lindgren, Jon. "The Idea of Evidence in Bibliographic Inquiry." *Theories of Bibliographic Education: Designs for Teaching.* Ed. Cerise Oberman and Katina Stauch. New York: R.R. Bowker Company, 1982. 27-46.
- Mellon, Constance A. "Information Problem-Solving: A Developmental Approach to *Theories of Bibliographic Education: Designs for Teaching.* Ed. Cerise Oberman and Katina Stauch. New York: R.R. Bowker Company, 1982. 75-89.
- Oberman, Cersie. "Avoiding the Cereal Syndrome, or Critical Thinking in the Electronic Environment." *Library Trends.* 59.3 (1995): 189-202.
- Salony, Mary F. "The History of Bibliographic Instruction: Changing Trends from Books to the Electronic World." *The Reference Librarian,* 51/52 (1995): 31-51.
- Smalley, Topsy N. and Stephen H. Plum. "Teaching Library Researching in the Humanities and the Sciences: A Contextual Approach." *Theories of Bibliographic Education: Designs for Teaching.* Eds. Cerise Oberman and Katina Stauch. New York: R.R. Bowker Company, 1982. 135-170.
- Tiefel, Virginia M. "Library User Education: Examining Its Past, Projecting Its Future." *Library Trends* 44 (1995): 318-337.
- Zurkowski, Paul. *The Information Service Environment Relationships and Priorities.* Washington D.C.: National Commission on Librarians and Information Science, 1974. ERIC ED 100 391