

A CONTENT ANALYSIS OF INFORMATION LITERACY COURSES IN  
MASTER'S DEGREE PROGRAMS OF LIBRARY AND INFORMATION  
STUDIES

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This dissertation titled  
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STUDIES

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A CONTENT ANALYSIS OF INFORMATION LITERACY COURSES IN  
MASTER'S DEGREE PROGRAMS OF LIBRARY AND INFORMATION STUDIES

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A content analysis of textbooks used for instruction of information literacy courses in Masters in Library and Information Studies programs was conducted. The hypotheses was that these courses identified specific competencies of information literacy at various stages of learning and differentiated between lower-level basic skills from upper-level more sophisticated skills. This paradigm was exemplified by the Middle States Commission on Higher Education (2003). Chi-square ( $\chi^2$ ) analyses of the frequencies with which educational levels starting from K-12 through graduate school occurred were conducted. Textbooks that contained any of the following information literacy themes met the selection criteria: (a) determining information needed, (b) accessing the information, (c) critically evaluating and synthesizing retrieved information, (d) integrating and applying knowledge, and (e) understanding the economic, legal, and social implications of information production and dissemination.

Contrary to the hypotheses, the results revealed that emphases were on grouped competencies such as *K-12* or *undergraduate*, rather than on graded incremental proficiencies. Educational levels *K-12* were found to have significantly more citations than expected. Frequencies of references to college levels decreased as the learning levels advanced. There was no mention of the *junior* level. Emphases on lower-level basic information literacy skills were revealed by higher frequencies of references to

*sophomore* than those of *senior*. Moreover, *graduate* level had only eight mentions out of a total of 361 observations. Taken as a whole, these courses fell short of the scholarly expectations of clearly identifying between lower-level basic skills from upper-level more sophisticated skills.

Approved:

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*Dedicated to Mom and Dad who each in their own way set me on the journey to  
becoming.*

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## Chapter 1

### INTRODUCTION

A hallmark of formal schooling is the progression from grade to grade in primary education and from year to year in tertiary education. At colleges and universities, the progression is denoted with terms such as freshman, sophomore, junior and senior. As a result of this historical heritage, instructional objectives are developed to reflect competency expectations at the various levels of learning. At Ohio University (2006), for example, courses of instruction are allocated catalogue numbers whereby 100-299 denote lower-level courses in the undergraduate general program while those in advanced or specialized programs are designated 300-499 course numbers. Likewise, competencies in information literacy distinguish between lower-level basic skills and higher-level more sophisticated skills (Association of College and Research Libraries, 2000; Middle State Commission on Higher Education, 2003).

In order to participate in information literacy initiatives at all levels of learning ranging from K-12 to graduates school, librarians need to be adequately instructed on the concept of information literacy and their role in it. This dissertation reviewed the texts that were used for information literacy instruction in library schools to determine how this concept of incremental advancement was reflected. The study showed that these courses laid emphases on K-12 education and on clustered lower-level undergraduate instruction. The concept of incremental proficiencies was not expressly addressed. Moreover, information literacy was considered as a librarians' precinct rather than an interdisciplinary discipline.

The inquiry was inspired by the author's involvement in information literacy initiatives at Alden Library, Ohio University. As a member of the Reference and Instruction Department, the researcher participated in Ohio University Libraries' (2007) information competency program. The program was aimed at having all freshmen attend at least three hours of library instruction. To this end, the Libraries partnered with the Department of English because all freshmen are required to take a 100 level English class as part of their general education requirements. What inspired the researcher was twofold: Firstly, in spite of the librarians' general awareness of the Association of College and Research Libraries' (2000) information literacy standards, this initiative remained the Libraries' main information literacy endeavor. Secondly, and equally significant, was the fact that despite the information literacy's intrinsic nature of being multifaceted and wide-ranging, the Libraries considered itself as being solely responsible for the university's information literacy program. There was explicit recognition of the faculty's involvement but even so, faculty's roles were defined in terms of their involvement with librarians.

Ohio University Libraries was not the only institution that was struggling with the idea of information literacy. The Association of College and Research Libraries (2007), which is the American Library Association's premier resource for information literacy instruction, was also struggling with the librarian/faculty roles in incorporating information literacy in the curriculum. The Association's Web site provided tutorials, guides, and other resources for librarians and faculty. There were also links to "model programs" under *Information Literacy in a Nutshell for Faculty*. The persistent idea in all these resources was that librarians had to be involved at every stage of an information

literacy schema. On the contrary, many researchers have pointed out that several aspects of information literacy were already part of the general education requirements in many institutions (American Library Association, 1989; Jacobson & Germain, 2004; MacAdam & Kemp, 1989; Middle States Commission on Higher Education, 2003; Rockman, 2002). This encounter revealed a disjoint between the librarians' practices in information literacy instruction and the theory behind it. As a result, the researcher sought to find out how the concept of information literacy was instructed in programs of Library and Information Studies.

The history of bibliographic instruction in the United States dates back to the pre-Civil War era (Salony, 1995). Tremendous technological advances notwithstanding, the philosophy and pedagogy of library instruction that was masterminded way back in the nineteenth century is only now starting to be realized. As early as 1876, Otis Robinson<sup>1</sup> was quoted as having said (Tuckett & Stoffle, 1984):

A librarian should be more than a keeper of books; he should be an educator... no such librarian is fit for his place unless he holds himself responsible for the library education of his students... all that is taught in college amounts to very little; but if we can send students out self-reliant in their investigations, we have accomplished very much. (p. 58).

Despite such an astute vision of the librarian's role in the education system, library instruction stayed limited to a very small number of librarians and restricted to bibliographic instruction until the 70s (Farber, 1999). By 1914, only a fifth of the 446

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<sup>1</sup> Otis Robinson was an academic librarian noted for his research and publications on library instruction (Kaplowitz & Grassian, 2001).

colleges and universities provided instruction in use of the library and even then, Farber (1999) noted that such instruction was mostly very basic and hardly of any significance in students' education. Although most of the 157 college libraries surveyed in 1965 offered some form of instruction, Phipps (1968) revealed that they offered little, their approaches were sporadic, and that faculty cooperation was nominal.

Two momentous occurrences in the 70s inadvertently transformed librarians' involvement in instruction: firstly, the turbulent political and social movements that shook the United States in the 60s and 70s did not spare higher education. Some of the most constructive calls for openness to dialogue about higher education's programs and policies came from reputable scholars such as Henderson (1970). Farber (1999) postulates that these calls and the many educational reforms that were taking place at the time led to the formation of the Carnegie Commission on Higher Education, which made one of the most comprehensive studies of American higher education. In one of their reports, the commission called for librarians to be given a greater instructional role (Carnegie Commission on Higher Education, 1972).

The second impact resulted from technological advancements. With the coming of computers, three significant changes followed each other in succession: initially, computers 'merely' made the traditional ways of working easier. For example, designing, printing, and maintaining catalogue cards. This was followed by the digitization of library records and finally the Internet. These developments meant that library users had to be retrained on how to access library materials. Perhaps this need, more than the perennial calls for librarians to be instructors, was most instrumental in drawing librarians to the instruction arena.

### *Background of the Study*

Grassian and Kaplowitz (2001) traced the term information literacy back to Zurkowski's (1974) publication of *The Information Service Environment Relations and Practices*. Zurkowski envisioned information literacy as the ability to use a variety of information sources in everyday problem solving. Grassian and Kaplowitz reiterated that since then, the term has been used interchangeably in a variety of library instruction settings such as user education and library skills instruction. The term gained prominence with the publication of the American Library Association's (1989) *Presidential Committee on Information Literacy: Final Report*. The report described information literacy as competence in recognizing information needs, locating, evaluating, and applying the necessary information as needed. The report marked a significant modification of the traditional bibliographic instruction by locating bibliographic activities within the larger context of the learning process and life long learning.

Attaining competency in information literacy requires extensive use of technology, library, and other information sources over time. The Middle States Commission on Higher Education (2003) requires that in defining information literacy goals, an institution should distinguish between lower-level, elementary information literacy skills and higher-level, more improved skills. Bibliographic instruction continues to play an important role in introducing students to library research and provides an opening for assessing some of the lower-level aspects of information literacy (Middle State Commission). Moreover, in order for college students to incrementally develop proficiency in information literacy throughout their undergraduate years and graduate programs, they need to have repeated exposure to seeking, evaluating, and managing



information gathered consistently from multiple places. A key concept underlying the notion of information literacy is the distinction between lower-level, straightforward information literacy skills and higher-level, more sophisticated skills (Association of College and Research Libraries, 2000; Middle State Commission on Higher Education, 2003). The skills expected from a senior in a baccalaureate program, for example, are likely to be less sophisticated than those of a student in a graduate program, which tend to be more highly specialized.

Collaboration between faculty, the administration, librarians, and other partakers who contribute to student learning is central to implementing any information literacy initiatives. Faculty direct student learning; librarians assist in the information management process; and administrators create opportunities for collaboration and staff development. This broad involvement of participants extends the concept of information literacy beyond the confines of the classroom to embrace the entire student-life experience. Incorporating information literacy in institutional, program and the curriculum levels need not mean that additional objectives are being added to the curriculum since the broad scope of information literacy emphasizes on concepts already deep-rooted in colleges and universities; critical reading, creation of understanding and new knowledge from information, and evaluation. Rather, it attempts to make the current classes that faculty teach fertile grounds for putting together a more harmonized information management initiative that takes into account the needs of specific disciplines.

In their collaboration, faculty and librarians consider the incremental acquisition on information literacy skills at various academic levels. Take, for example, the need to

frame a research question. The Middle State Commission on Higher Education (2003) made the following recommendations for various learning stages:

- First-year students should recognize the need to fill the gaps in their knowledge and begin to understand the value of finding information to support own ideas and information.
- Seniors should recognize the value of using information to strengthen their own arguments and articulate focused research questions.
- Graduate students should be able to articulate a focused research question, reevaluate it for clarity or precision, and refine the question. They should also be able consider the costs and benefits of completing the research project in the light of available resources.

Course levels are designed to lead students progressively and incrementally through the learning process. When courses identify learning goals and objectives, they help to clarify the knowledge and skills the graduating majors should have. For the librarian, interaction with students progresses from pre-college library tours to sophisticated discipline-specific research techniques. A well structured information literacy curriculum allows librarians to increasingly build up the students' information seeking, evaluation, and processing skills.

#### *Statement of the Problem*

Graduate programs of Library and Information Studies are broadly divided into three expansive fields: archival studies, information systems, and library and information science. The number and makeup of core courses required for all the fields in these programs vary widely but usually include Information and its Social Context,

Management of Information Organizations, and Research Methods. In general, each field offers a set of required courses and some electives are shared among the fields. Larson and Meltzer (1987) noted that few programs offered courses on instruction and observed that the programs were struggling with, among other things:

- The hesitancy to venture into a specialized discipline of education. This was also cited by Brundin (1985).
- The broadness of the subject matter.
- Lack of consensus on the scope of theory and practice to be covered, and
- Availability of faculty familiar with the field.

Nevertheless, librarians are increasingly being required to provide instruction. Lynch and Smith (2001) reported that advertisements for Reference Librarian job postings whose duties included instruction in the *College and Research Libraries News* rose from 0% in 1973 to 100% in 1990. While the demand for instruction has been rising, DeVinney and Tegler (1983) conducted a survey of entry level librarians in the State University of New York and found that none of the respondents considered the library school as their major source of preparation for bibliographic instruction. Continuing education and on-the-job-training were reported as the main preparatory settings.

Out of the 57 graduate programs of Library and Information Studies accredited by the American Library Association (2005), 13 were offering full credit courses on information literacy. This research analyzed the text books used for instruction in these courses in order to answer the research questions below.

### *Research Questions*

A content analysis of textbooks used for instruction of information literacy courses in library schools approved by the American Library Association (2005) was conducted. The focus of the inquiry was in finding out how these textbooks addressed the concept of the incremental stages of learning. Research conducted by the Middle States Commission on Higher Education (2003) guided this inquiry. The Commission's examples of educational goals at college level are appended in Appendix B. Examples of the incremental objectives for K-12 were obtained from the Ohio Office of Curriculum and Instruction (2004). Tests of goodness of fit were computed through chi-square analyses to answer the following questions:

1. How do frequencies of references to educational levels compare? This question addressed the expected proficiencies as the levels advanced. All educational levels were expected to be equally attended to. As such, references to them were expected to be comparable.
2. How do frequencies of references to K-12 compare with those of college levels?

The third question will be determined by the chi-square test for independence:

3. Are the two variables: programs and educational levels, mutually independent?

### *Null Hypotheses*

H<sub>1</sub>: There will be no significant difference in frequencies of references to educational levels.

Null hypothesis H<sub>1</sub> tests that all levels of learning from K-12 through graduate school are similarly represented in the texts.

H<sub>2</sub>: There will be no significant difference between frequencies of references to K-12 and those of college levels.

Null hypotheses H<sub>2</sub> compares the representation of references to K-12 on the one hand and graduate on the other.

H<sub>3</sub>: There will be no significant relationship between the *programs* and *educational levels*.

### *Significance of the Problem*

Library schools have historically offered instructional courses in a variety of ways, embedding them in a range of strategic courses such as Reference, Instructional Media, School Librarianship, User Needs, Foundation Courses, and Research Methods; and in short separate units on Learning Theory, Instructional Design, Presentation Techniques, The Role of the Teaching Librarian, Program Management, Remote-site Instruction Support Techniques, Faculty Relationships, and Conceptual Frameworks (Westbrook, 1999). According to Westbrook, however, these courses lack the cohesion and depth of a dedicated course on instruction. These remarks support Larson and Meltzer's (1987) observations discussed in the *Statement of the Problem* above. Larson and Meltzer noted, among other things, a lack of consensus on the scope of theory and practice to be covered. These observations highlight the need for research on the instructional requirements for librarians and how library schools can best impart those needs. To this end, this dissertation focuses on the incremental learning facet of information literacy in library schools.

### *Limitations of the Study*

This study is limited to content analysis of the course readings pertaining to information literacy in the syllabi of library school graduate programs accredited by the American Library Association and posted on-line at:

<http://www.ala.org/ala/accreditation/lisdirb/Alphaaccred.htm>

Other limitations of this study include:

1. This analysis was limited to the syllabi and course readings that were publicly posted on the World Wide Web. Eight of the thirteen programs that offered full credit courses on information literacy had posted their syllabi. Updates or omissions in the syllabi are not accounted for.
2. This study is confined within the dimensional limitations of the instrument described.
3. The study is limited to the analysis of the incremental aspect of information literacy by quantifying incidents that refer to described levels of learning.
4. This study neither evaluates the overall scope of the courses nor their effectiveness in covering the various information literacy standards. It focuses on the presence or absence of the incremental learning aspect of information literacy.

### *Definition of Terms*

- *Content Analysis* refers to the research technique that utilizes specialized procedures for processing scientific data to produce replicable and valid inferences from data to their content (Krippendorff, 1980).

- *Critical thinking* refers to a systematic thought process involving any subject, content, or problem whereby the thinker improves their quality of thinking by skillfully analyzing, assessing, and reconstructing it. Elements of critical thought are illustrated on page 15.
- *Educational level* refers to schooling grades from K-12 through graduate school. Ten levels have been identified for measurement: K-12, two year programs, undergraduate, freshman, lower-level (4-year programs), sophomore, junior, senior, upper-level (4-year program), and graduate level.
- *Frequency* refers to the number of times that an *incident* occurs.
- *Incremental* aspects of information literacy refer to the apportioned increase in proficiency expectations with increasing levels of formal education.
- *Incident* is the recording element. An incident will signify each time a particular educational level is addressed in relation to information literacy.
- *Information Literacy* refers to the concept introduced by the Association of College and Research Libraries (2000) that characterized an information literate person as one who is able to recognize when information is needed and has the ability to locate, evaluate, and use the needed information effectively.
- *Unit* is a paragraph, table, or any such distinctive passage or section of the texts that were analyzed.

## Chapter 2

## REVIEW OF THE LITERATURE

*Introduction*

This chapter will review the literature associated with library instruction to reveal that academic librarians were involved in student instruction as early as the 1800s (Tuckett & Stoffle, 1984). A historical examination will suggest that although librarians aimed at educating students to a point of self-reliance in their investigations at the time of graduation, instruction in the 1800s and leading up to the mid 1900s was mainly characterized by bibliographic instruction. According to the Middle States Commission on Higher Education (2003), this level of instruction only caters for lower-level information literacy skills. The chapter will follow the transformation of library instruction from bibliographic instruction to the relatively new concept of information literacy. A review of library school courses on instruction will follow to show how future librarians have historically been prepared for their roles as instructors. Finally, the role of information literacy will be reviewed as well as its applications and the curriculum models that are currently in use.

Following the American Library Association's (1989) publication of the *Presidential Committee on Information Literacy*, the Association of College and Research Libraries (2000) published *Information Literacy Competency Standards for Higher Education*. These standards were endorsed by the American Association of Higher Education and the Council of Independent Colleges. In order to achieve these standards, the Association of College and Research Libraries reiterated the need for students to incrementally build up their information literacy skills throughout their



undergraduate and graduate programs. These recommendations were adopted and functionalized by the Middle States Commission on Higher Education (2003) by mapping out learning goals at various stages of academic levels.

A recent report by the Association of American Colleges and Universities (2005) situated information literacy firmly within the desired outcomes expected of graduating students. In the report, the association called attention to the incremental nature of the education process and identified the three major incremental learning stages as: first-year experience, majors and minors in focused studies, and advanced integrative and culminating work. Such categorization is important in planning, operationalizing, and assessing learning goals across academic levels. As such, this inquiry is based on the coverage of the incremental aspect of information literacy as it is covered in textbooks used for instruction in graduate programs of library and information studies.

#### *History of Bibliographic Instruction*

The ALA identified librarians as instructors as early as 1876 at a conference held in Philadelphia (Grassian & Kaplowitz, 2001). Grassian and Kaplowitz established that by 1910, twenty institutions of higher learning gave credit courses in library research and forty offered noncredit courses in library use. Although the notion of librarians as educators has existed over a century, library instruction remained primarily bibliographic until this shift to information literacy. For a variety of reasons ranging from technological advancement, accreditation requirements, and changes in the general education curriculum, library instruction started gaining prominence from the 1970s (Middle States Commission on Higher Education, 2003). By 1990, all Reference Librarian job postings in the *College and Research Libraries News* included instruction as part of the duties

requisite for the positions (Lynch & Smith, 2001). The annual number of articles on the subject jumped from an average of 35 in the period between 1958 and 1971 (Farber, 1999), to over 300 in 2002 (Rader, 2002), and the June 1984 issue of a major educational journal; *New Directions for Teaching and Learning*, was dedicated to the teaching role of the academic library.

At the same time, librarians were organizing instruction support systems such as the Library Orientation Exchange (LOEX, n.d.) in 1971, and the Bibliographic Instruction Section of the Association of College and Research Libraries (ACRL) in 1973 (Farber, 1999). As it turned out, ACRL was to take the lead in professional development for its membership as well as in formulating *Information Literacy Competency Standards for Higher Education* (Association of College and Research Libraries, 2000).

The Association of College and Research Libraries is the largest of the American Library Association's branches. Formulation of the *Information Literacy Competency Standards for Higher Education* was aimed at operationalizing the report published by the American Library Association Presidential Committee on Information Literacy (American Library Association, 1989). In their report, the commission emphasized on the need for individuals, businesses, and citizens to be able to appreciate the role information plays in their daily lives and to hone their ability to manage the information. The report termed proficiency in managing information as information literacy and linked it with critical thinking skills and life-long learning. The highlights of the standards were aptitude in:

- Determining the extent of information needed.

- Accessing the needed information effectively and efficiently.
- Evaluating information and its sources critically.
- Incorporating selected information into one's knowledge base.
- Using information effectively to accomplish a specific purpose , and
- Understanding the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

As these developments were taking place, the Middle States Commission for Higher Education adopted statements relating to library inclusion in the learning process in 1989 (Farber, 1999). As a result, the Commission took the lead in supporting research on information literacy that culminated in the publication of *Developing Research and Communication Skills* in 2003. Other accrediting organizations that have since adopted information literacy standards are: The Northwest Association of Schools and Colleges (NASC); North Central Association of Colleges and Schools (NCACS); New England Association of Schools and Colleges (NEASC); Southern Association of Colleges and Schools (SACS) Commission on Colleges (COC); and the Western Association of Schools and Colleges (WASC) (Institute for Information Literacy, 2005). In spite of these developments, library schools are only just beginning to face up to the task of preparing future librarians for their roles in information literacy instruction. Only 13 out of 57 programs accredited by the American Library Association (2005) were offering instruction courses in information literacy.

*Library Instruction*

While there is a general consensus among instruction librarians on the purpose and essence of library-user instruction, there remains much debate about the programs which achieve the goal of increasing the users' self-reliance (Tuckett & Stoffle, 1984). Tuckett and Stoffle addressed this issue and pointed to the questions ascribed by the British Schools Council as a useful checklist for instructors:

- *What do I need to do? (formulate and analyze need).*
- *Where do I go? (identify and appraise likely sources).*
- *How do I get the information? (trace and locate individual resources).*
- *Which resources shall I use? (examine, select and reject individual resources).*
- *How shall I use the resources? (interrogate resources).*
- *What shall I make record of? (record and store information).*
- *Have I got the information I need? (interpret, analyze, synthesize, evaluate).*
- *How should I present it? (present, communicate).*
- *What have I achieved? (Evaluate). (p. 59).*

This checklist is closely aligned to elements of thought associated with critical thinking skills (Paul & Elder, 2001):

- *Purpose of the thinking (goal, objective)*
- *Question at issue (problem issue)*
- *Information (data, facts, observations, experiences)*
- *Interpretation and inference (conclusions, solutions)*
- *Concepts (theories, definitions, axioms, laws, principles, models)*

- *Assumptions (presuppositions, taking for granted)*
- *Implications and consequences*
- *Points of view (frame of reference, perspective, orientation) (p. 2).*

The convergence of information literacy skills put forward by the American Library Association (1989) with critical thinking skills coupled with the influence from accreditation organizations has caught the attention of college administrations (Thompson, 2002). As a result, producing information literate graduates is increasingly becoming part of their overall mission and being incorporated in the general education curriculum (Jacobson & Germain, 2004; Rockman, 2002).

#### *Library School Programs*

Even as colleges are partnering with their libraries to incorporate information literacy among their learning objectives, the surprising absentee is arguably the kingpin of the library profession. Ironically, libraries lag behind. Several studies have documented the lack of instructional training in library schools and tracked their trends in the last twenty years (Avery & Ketchner, 1996; Beaubien, George, & Hogan, 1978; Brundin, 1985; Bunge, 1978; DeVinney & Tegler, 1983; Hogan, 1980; Hook, Bracke, Greenfield, & Mills, 2003; Kirkendall, 1982; Larson & Meltzer, 1987; Mandernack, 1990; Meulemans & Brown, 2001; Shonrock & Mulder, 1993; and Westbrook, 1999). Course offerings in the 80s indicated variable trends. For example, offerings dropped in 1986 from those offered in 1984 (Larson & Meltzer, 1987). Larson and Meltzer noted that up to 91% of the bibliographic instruction courses in 1984 were integrated in existing courses.

The studies also acknowledged the gradual progression of courses from rudimentary embedded segments within other courses to fully fledged specialized credit courses. Westbrook (1999) reviewed publications on user instruction in library schools and noted that the first specialized instructional courses were recorded in 1976. At the time, four library schools out of 57 accredited library schools offered dedicated instructional courses. She chronicled the progression as follows: 1978, 3 out of 63; 1980, 11 out of 67; 1983, 15 out of 67; 1992, 9 out of 50; 1996, 19 out of 48. In her own survey Westbrook found that the proportion of library schools offering dedicated courses in instruction had surpassed the halfway mark for the fast time; with 26 out of 48 schools offering them.

According to DeVinney and Tegler (1983), library schools considered library instruction as primarily centered in academic libraries which they viewed as specialized libraries. As a result, the debate as to whether or not library schools should offer courses in instruction was centered on how far library schools could deviate from the core courses and cater for special libraries. Conversely, statistics show that although there are almost four times as many public libraries as academic libraries, the number of professional librarians serving in each of those categories is about the same. The Statistical Abstracts of the U.S., 2003 No. 1154 entitled *Public Libraries by Selected Characteristics: 2001*, indicated that there were 30,094 professional librarians serving 16,421 libraries while the 2002 Statistical Abstracts No. 1152 entitled *Academic Libraries – Summary: 1998*, indicated that there were about 25,000 librarians serving 3,658 libraries.

*The Role of Information Literacy*

The concept of information literacy brings together various facets of the learning objectives already ingrained in colleges and universities, namely, placing emphasis on critical thinking and the use of information to produce understanding and new knowledge. The role of the information literacy in education is focused on the development of effective research, critical thinking, and writing or other communication skills (Middle States Commission on Higher Education, 2003). The need for such a program is necessary because access to fragmented components of college education such as lectures and tutorials, library resources, computers, computer application instruction, and databases does not guarantee that students will gain information literacy.

Rather, The Boyer Commission Report (1996) recommended a student-centered teaching methodology that situates the learner in an inquiry environment enriched with suitable opportunities for problem solving through critical evaluation of alternatives. In such an environment, students are required to actively engage in formulating questions, exploring solutions through research or creative exploration, and to develop communication skills to present the results. In addition, research by the National Research Council recommends the metacognitive learning approach because it enables students to “step back” and review their learning (Pellegrino, Chudowsky, & Glaser, 2001, p. 78).

Many aspects of information literacy competencies are essential components of the general education programs such as oral and written communication skills, quantitative and qualitative reasoning, critical and analytical reasoning, and technological aptitude. In addition, some general education programs such as the one at the University

of Albany, SUNY, include information literacy (Jacobson & Germain, 2004). Research conducted by Middle States Commission on Higher Education (2003) showed that aptitude in information literacy skills can improve basic general education skills.

However, it was noted that some general education programs only provided information literacy during the first two years at a university level (Middle States Commission on Higher Education, 2003). The Commission elucidated that such programs did not provide sufficient opportunities for students to fully achieve the higher-order information literacy skills “such as thinking more critically about content, pursuing even deeper lines of inquiry with more sophisticated methods, and becoming facile with the tools that enable students to grapple philosophically with the nature of inquiry itself.” (p. 3).

Incorporating information literacy across the curriculum, in all programs and services, and throughout the students’ life in the university requires collaborative efforts among faculty, librarians and administrators (Middle States Commission on Higher Education, 2003). Faculty mentor the students and guide them in their exploration; academic librarians lead them through information searching, retrieval and evaluation; and administrators create opportunities for collaboration and staff development among faculty, librarians, and other participants of the information literacy program. This allows for a seamless integration of information literacy instruction into specific disciplines to enable the students to apply the essential skills within the context of their majors, considering that each discipline has its own characteristic approach to information seeking and retrieval, evaluation and critical thinking. At the University at Albany, SUNY, for example, a campus-wide information literacy committee was formed to



organize workshops for faculty and to serve as a syllabus review body (Jacobson & Germain, 2004).

### *Applications of Information Literacy*

#### *Assessment*

Assessment is the process of determining the level of information literacy being offered in an institution. Since information literacy initiatives are distributed across the campus, The Middle States Commission on Higher Education (2003), for example, does not recommend a distinct assessment instrument labeled “information literacy”. The Commission contends that “when making the case that students who graduate are information literate, it is the institution’s responsibility to ensure that information literacy goals are defined and that the various elements scattered across the curriculum are defined as part of a coherent whole.” (p. 40).

Planning for campus-wide information literacy goals can be done in the same process that the institution adopts for all of the institution’s students learning goals. Therefore, the extent to which information literacy is incorporated within the institution’s mission, goals, and curricula is represented in the institutional program, course levels, library’s instructional programs, and in structured extra-curricular activities. Some programs such as centers for Teaching and Excellence, Academic Advancement Centers, and Writing Centers are also complementary to information literacy initiatives. Once familiar with the overall services available in the institution, a decision can be made on the strategies to follow in assessing the institutional:

- Program
- Course levels

- Library instruction activities

The assessment process helps to bring faculty, librarians, and other stakeholders together and forms a basis for establishing partnership in integrating information literacy initiatives.

### *Positioning Information Literacy*

After assessing the status of information literacy at an institution, faculty and librarians can agree on how to adopt the already determined learning goals into their disciplines and library instruction programs, giving consideration to the extent to which basic learning goals will be emphasized at each level. If the institution has not yet determined what students should be able to accomplish in order to be information literate, the standards established by the American Library Association (1989) may be a good starting point. In addition, the Middle States Commission on Higher Education (2003) recommended that institutions prepare outcome profiles that fit their own needs because the wide range of institutional goals and missions gives rise to an equally wide range of student learning outcomes at the institutional level, various curriculum designs at the program level, and focused course outlines at the classroom level.

The diversity of approaches to information literacy from institution to institution calls for a systematic and consistent approach to situating information literacy within the institution's goals for student learning. This kind of approach provides a basis for formulating curricula that best serves the institution. The following pointers are adopted from the Middle States Commission on Higher Education (2003) as a guide to locating information literacy in the institution:

*At the institutional level.*

- Is information literacy part of the general education requirements? In the State of New York, for example, the Board of Trustees of the State University of New York (SUNY) passed a resolution requiring all SUNY colleges to include “information management” into the core general education program (Jacobson & Germain, 2004, p. 114).
- Does information literacy occur in an integrated and coherent approach throughout the curriculum so that students experience increasingly sophisticated concepts as they progress through the institution?

*At the program level.*

- Do individual programs recognize and address program-specific information literacy needs?
- Do the disciplines recognize the need for general information literacy skills to supplement their own more specialized needs?
- Are the skills that students are expected to acquire taught in an incrementally sophisticated, integrated, and organized manner?
- Are faculty within departments encouraged to tailor courses to include information literacy skills?

*At the course level.*

- Many existing courses require students to develop research skills. In those courses, is it possible to identify the characteristics of information literacy that are being taught?

- Have courses been re-engineered to meet the current definitions of information literacy?
- Does the faculty have the entire responsibility for information literacy instruction, or do they receive appropriate support from librarians?
- Is there too much repetition among courses, so that only lower-level skills are developed, or are there more effective strategies for ensuring that the higher-level skills are being learned?

*At the library.*

- Do faculty and librarians work together to redesign courses to incorporate information literacy instruction?
- Are students made aware of the information literacy components in library programs and academic courses?
- Are information literacy skills being addressed in only rudimentary ways (such as tours of the library)?
- If the instruction is formatted as traditional bibliographic instruction, are information literacy learning outcomes addressed, and is the effectiveness of the instruction measured and evaluated?
- Is there a formal program of instruction with goals, objectives, and assessment?
- Is the instruction integrated into the disciplines?

*Curriculum Models*

Given that different universities have different learning goals and curriculums in place, the one role for library schools would be to provide an overview of the models of

information literacy curriculums that are in practice rather than concentrate on the specifics of a multitude of curriculum modules. Two major models of information literacy have emerged: the separate or compartmentalized and the integrated or distributed model.

*Separate or compartmentalized curriculum.*

In this model, information literacy is taught as a stand-alone course at various stages of academic levels. In addition, limiting information literacy instruction to the early stages of the general education programs is only sufficient to provide the basic information retrieval skills. Students need increasingly sophisticated research skills in order to reach the higher-order information literacy skills. The Middle States Commission on Higher Education (2003) provides examples of some characteristics of such a curriculum (p. 16) and well as an example of a new course designed for an entry-level class (Appendix 2).

Traditional bibliographic instruction courses also fall in this category. However, as the Middle States Commission on Higher Education (2003) points out, this method tends to be limited to helping student to navigate the library, access materials, and evaluate them. The concept of information literacy though extends beyond library materials. It is located at the center of learning: effecting the evaluation of content and its use.

*Integrated or distributed models.*

According to the Middle States Commission on Higher Education (2003), this approach involves partnerships between faculty members and librarians in an effort to incorporate information literacy into the curriculum. By so doing, various disciplines and

co-curricular activities address a core set of information literacy skills which may be weaved seamlessly into the upper-level courses. This approach has several advantages over the compartmentalized approach in that: (1) it places information literacy education in the context of the respective disciplines, thereby intensifying students' understanding and applicability of the concept; (2) it applies information literacy in the upper levels when students are more mature thus presenting opportunities for asking more informed questions, devising more search strategies, engaging in deeper analysis and synthesis of the content, and thereby (3) facilitating the generation of new insights or knowledge. The Commission's examples of this approach as it is applied in various disciplines is appended Appendixes 3, 4, 5, and 6.

## Chapter 3

## METHODOLOGY

A content analysis of textbooks used for instruction of information literacy courses in Masters in Library Studies (MLS) programs was conducted. In doing so, library school syllabi were harvested from the Internet. A list of all the library school programs approved by the American Library Association (2005) was used to obtain links to the programs' Web sites. All the programs that were listed had posted their course offerings publicly on the Internet. Thirteen programs indicated that they were offering credit courses on information literacy and eight of those had made their course syllabi available on the Internet. The instrument consisted of two variables: (1) programs, and (2) educational levels. The analysis ascertained the frequencies with which individual educational levels from K-12 through graduate school occurred in each text. Readers/coders entered occurrences of every educational level in contingency tables and handed the data to the researcher for chi-square analysis. This chapter starts with an introductory section that presents a synopsis of the study. The section on research design comprises of three distinctive parts: data source, sampling plan, and instrumentation.

*Introduction*

The conjecture in this dissertation is that the information literacy skills acceptable for K-12 students, for example, will be less than those expected from seniors in baccalaureate programs. An illustration of learning goals expectations across academic levels is appended in Appendix B. Educational levels from K-12 through graduate school were included. The criteria for selecting textbooks was based on readings that covered one or more of the following information literacy concepts: (a) determining information

needed, (b) accessing the information, (c) critically evaluating and synthesizing retrieved information, (d) integrating and applying knowledge, and (e) understanding the economic, legal, and social implications of information production and dissemination.

Chi-Square test statistics were carried out in order to: (a) compare the frequencies with which educational levels were referred to in different programs, (b) compare the frequencies with which the variable *K-12* occurred with occurrences of college levels, and (c) perform a test of independence between the two variables: programs and educational levels. These assessments were used to evaluate the application of the incremental aspect of information literacy in the programs of Masters in Library Studies.

After orientation and training for readers/coders, a practice session was held using common texts in order to establish inter-coder reliability. The practice session was conducted using articles separate from the texts that were selected for analyses. The session was useful in several ways including familiarizing the readers/coders with the coding procedure and developing a consensus on the definitions of the categories and recording units. A detailed explanation of the training session is elucidated on page 34. Data were recorded in contingency tables and the null hypothesis was tested by chi-square tests. This instrument is similar to the one carried out by Nicolas (1992) in a content analysis of moral themes in first grade social studies textbooks.

### *Research Design*

Information Literacy course syllabi for Library and Information Studies Programs approved by the American Library Association (2005) was examined and a list of their course readings compiled. The list of course readings is appended in appendix A. The researcher used the list of course readings to select the texts that were dedicated to



instruction of information literacy as it is defined in Chapter 1 (please see page 10).

The technique of content analysis was used to gather the frequency of incidents that an educational level appeared in the readings. The following procedure was adopted:

1. Library and Information Studies programs that offered courses in information literacy were identified. The programs were accessed from the American Library Association Web site at:  
<http://www.ala.org/ala/accreditation/lisdirb/Alphaaccred.htm> on several occasions in 2005. All the programs had their course offerings listed on the World Wide Web.
2. Of the colleges that offered information literacy courses, those whose syllabi were publicly posted on the World Wide Web were identified, their syllabi harvested and their readings gathered.
3. Contingency tables were constructed for recording the number of incidents in which educational levels were mentioned in the readings. Please see examples of contingency tables in Appendix C.
4. Readers/coders were selected and trained.
5. Reliability and validity was established through a pilot study, after which the dissertation committee accorded its approval for data collection.
6. Data was collected by readers/coders.
7. The data was tested for reliability by conducting decision-consistency analysis (Crocker & Algina, 1986), and corrected for Cohen's Kappa ( $\kappa$ ) chance agreement.
8. The data was analyzed by the researcher.

*Data Source*

The population was all the graduate programs of Library and Information Studies approved by the American Library Association (2005). There were 57 programs listed on the American Library Association's Web site. Of these, 13 programs indicated that they offered courses in information literacy. These included: Albany State University, University of Arizona, University of British Columbia, University of California – LA, Catholic University of America, Dalhousie University, University of Hawaii, Indiana State University, McGill University, University of Oklahoma, University of Washington, University of Western Ontario, and University of Texas-Austin. Eight of these universities had posted their syllabi on-line as follows:

1. Albany State University: *ISP 649 Information Literacy Instruction: Theory and Technique.*

Course Descriptions: <http://www.albany.edu/dis/courses/#649>

Syllabus: [http://www.albany.edu/dis/courses/syllabi/syl649\\_spring05.pdf](http://www.albany.edu/dis/courses/syllabi/syl649_spring05.pdf)

2. Arizona, University of: *IRLS 585 Information Literacy Instruction*

Course Descriptions: <http://www.sir.arizona.edu/courses/course.html>

Syllabus: <http://www.sir.arizona.edu/syllabi/fall/f105/585/index.html>

3. California-LA, University of: *IS 448 Information Literacy Instruction: Theory and Technique.*

Course Descriptions: <http://is.gseis.ucla.edu/courses/index.htm>

Course Description:

[http://is.gseis.ucla.edu/courses/448/448\\_sp05/448\\_desc\\_sp05.pdf](http://is.gseis.ucla.edu/courses/448/448_sp05/448_desc_sp05.pdf)

Syllabus:

[http://is.gseis.ucla.edu/courses/448/448\\_sp05/448\\_syllabus\\_sp05.pdf](http://is.gseis.ucla.edu/courses/448/448_sp05/448_syllabus_sp05.pdf)

4. Catholic University of America: *CLSC 820 Information Literacy: Theory, Instructional Design, pedagogy and Program Management*

Course Descriptions: <http://slis.cua.edu/courses/schedules.cfm>

Syllabus: [http://slis.cua.edu/syllabi/2005fall/820\\_Weeks.doc](http://slis.cua.edu/syllabi/2005fall/820_Weeks.doc)

5. Dalhousie University: *LIBS 6810 Information Literacy*

Course Descriptions: <http://sim.management.dal.ca/Courses/descript.html>

Syllabus:

[http://sim.management.dal.ca/Courses/6810/6810syllabus\\_black\\_f2005.pdf](http://sim.management.dal.ca/Courses/6810/6810syllabus_black_f2005.pdf)

6. Hawaii, University of: *LIS 686 Information Literacy and Learning Resources*

Course Descriptions: <http://www.hawaii.edu/slis/courses/descriptions.html#lis>

Syllabus: [http://www.hawaii.edu/slis/courses/syllabi/686\\_harada.pdf](http://www.hawaii.edu/slis/courses/syllabi/686_harada.pdf)

7. Indiana State University: *L554 Education of Information Users*

Course Descriptions:

<http://www.slis.indiana.edu/courses/comprehensive.php#Master>

Syllabus:

Miller; [http://www.slis.indiana.edu/syllabi/summerI\\_2005/1554\\_miller.pdf](http://www.slis.indiana.edu/syllabi/summerI_2005/1554_miller.pdf)

Okada; [http://www.slis.indiana.edu/syllabi/spring\\_2005/okada\\_1554.html](http://www.slis.indiana.edu/syllabi/spring_2005/okada_1554.html)

8. Texas-Austin, University of: *INF 382S Library Instruction and Information Literacy (LI)*.

Course Descriptions: <http://www.ischool.utexas.edu/courses/>

Syllabus: <http://www.gslis.utexas.edu/%7E13821131/>

Dalhousie University and University of Hawaii did not list any texts that fitted the sampling plan described below. Thus, readings from six graduate programs of Library and Information Studies were analyzed.

### *Selection of Texts*

A review of the textbooks used for instruction of information literacy revealed that many of them were dedicated to subjects not directly related to information literacy. Some of the subjects covered were: instruction models, techniques, materials, design, and methods; learning theory; curriculum; instruction; motivation; testing; measurement; grantwriting; and student assessment. The concept of collaboration between librarians and faculty was also included in some curricula. Textbooks that fit in the definition of information literacy were selected, namely:

- (a) Determining information needed
- (b) Accessing the information
- (c) Critically evaluating and synthesizing retrieved information
- (d) Integrating and applying knowledge
- (e) Understanding the economic, legal, and social implications of information production and dissemination.

The following textbooks satisfied the above criteria:

### *Course texts*

Grassian, E. S., and Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and practice*.

Eisenberg, M. Lowe, C. A., and Spitzer, K. L. (2004). *Information literacy: Essential skills for the information age* (2nd ed.).

*Book chapters* (Albany State University)

Gresham, K. (1995). Creating an electronic information literacy course. In D. A. Barclay (Ed.), *Teaching electronic information literacy: A how-to-do-it manual* (pp. 121-146).

Young, R. M., and Harmony, S. (1999). Full credit information literacy courses. In R. M. Young and S. Harmony (Ed.), *Working with faculty to design undergraduate information literacy programs: A how-to-do-it manual for librarians* (pp. 57-72).

*Instrumentation*

A content analysis of texts used for information literacy instruction was undertaken. This instrumentation is similar to the one used by Nicolas (1992) to analyze first-grade social studies textbooks. The instrument consists of two variables: (1) programs, and (2) educational levels. There were six graduate programs and ten educational levels.

1. Graduate programs of Library and Information studies:
  - a. Albany State University
  - b. University of Arizona
  - c. University of California-LA
  - d. Catholic University of America
  - e. Indiana State University, and
  - f. University of Texas-Austin
2. Educational levels:
  - a. K-12
  - b. Two year programs
  - c. Undergraduate

- d. Freshman
- e. Lower-level (4-year programs)
- f. Sophomore
- g. Junior
- h. Senior
- i. Upper-level (4-year program)
- j. Graduate level.

The following information literacy concepts initiated by the Association of College and Research Libraries (2000) equally affect all these educational levels but with increasing complexities throughout the educational process:

1. Determination of the nature and extent of information needed
2. Effectively accessing the needed information
3. Critical evaluation and synthesis of retrieved information
4. Application of knowledge gained from information, and
5. Understanding of the economic, legal, and social implications of information production and dissemination.

*Construction of contingency tables.*

Contingency tables were developed to accommodate the two categorical variables: (a) programs, and (b) educational levels. The variable *programs* had six dimensional categories, representing each of the programs. Likewise, the dimensional categories of *educational levels* were ten, corresponding with the educational levels identified. Both scales were nominal.

Contingency tables were used in two stages; the first set of the tables was used for recording the frequency with which incidents of educational levels occurred in each text, the second set was used to consolidate the results according to the number of texts each program had used for instruction. Samples of contingency tables are appended in Appendix C.

*Selection and training of readers/coders.*

In order to foster reliability of content analysis, the methodology requires independent coders or judges to collect the data (Holsti, 1969; Weber, 1985). Coders should be familiar with the nature of the material to be recorded as well as capable of handling the categories and terms of the data language consistently (Krippendorff, 1980). Thorough recording is a critical activity that directly affects the results of content analysis. In order to maintain a high degree of objectivity and integrity in the data collection process, qualified readers/recorders were selected and the researcher gave them explicit instructions containing all the information necessary to replicate the data collecting process. Each textbook was read and coded by three different readers/coders working independently but using the same procedures. The researcher adjudicated discrepancies among the coded data.

Readers/coders were selected for their familiarity with the education process and/or experience with library user instruction. All the three of them were professional librarians holding masters' degrees in Library Studies. They were also actively involved in user-instruction at Alden Library, Ohio University. The readers/coders were trained before they started coding. Training included an overview of the nature and purpose of the study and an introduction of the contingency table and how it was to be used. A time

for practice with the contingency tables was allowed for and any issues that arose were addressed at that time.

*Coder training.*

The central problem of content analysis stems from the process of data-reduction whereby many words or texts are coded into much fewer content categories (Weber, 1985). Problems may arise from ambiguity of word meaning or the ambiguity of category definitions that may result to inconsistencies and raise reliability concerns. These problems were minimized by administering training sessions until a decision-making consistency (Crocker & Algina, 1986) of  $P = 0.8$  was reached. Crocker and Algina proposed the methodology based on the figure below to assess the extent to which the same decisions are made from two different sets of measurements.

Figure 3.1: Decision-Consistency Table

		R <sub>1</sub> (Rater)	
		Found	Not Found
R <sub>2</sub> (Rater)	Found	P <sub>00</sub>	P <sub>01</sub>
	Not Found	P <sub>10</sub>	P <sub>11</sub>

The estimated probability of a consistent *found* decision (P<sub>00</sub>) is the number of times both raters consistently found incidents divided by the total number of observation, in this case the number of paragraphs in the practice booklet. Likewise for a consistent decision of



*not found* ( $P_{11}$ ). The overall decision consistency for the raters  $P = (P_{00} + P_{11})/n$  where  $n$  is the total number of observations.

The researcher prepared a synopsis of the study with a description of the readers'/recorders' roles. These documents were handed to the readers/recorders a week before the training sessions began in order to allow them to familiarize themselves with the objectives of the exercise. The training session lasted about three hours. The first hour was spent reviewing the documents handed to them beforehand and discussing what constitutes an incident. The remainder of the time was spent on a practice session whereby the readers/recorders were handed identical booklets previously prepared by the researcher. The booklets contained articles pulled out of information literacy readings. After the readers studied and recorded their findings, the researcher collected their contingency tables and entered the results in the Decision-consistency Table for assessment. The researcher shared the findings with the readers/coders and open discussions were held to reach a consensus on the ensuing disparities. Training and practice coding was repeated until the desired probability of paired consistent decision making of  $P = 0.8$  was reached. The raters were paired in Decision-consistency Tables as follows:

1.  $R_1R_2$
2.  $R_1R_3$
3.  $R_2R_3$

The decision consistency results were adjusted for chance agreement by using the Cohen's Kappa ( $\kappa$ ) adjustment (Cohen, 1960). Cohen proposed Kappa in order to adjust

the gross agreement taking into account the extent to which agreement may occur by chance. The following criteria for this adjustment were met:

1. The categories of the nominal scale were independent, mutually exclusive, and exhaustive.
2. The judges operated independently.

In addition, the judges had been previously determined to be equally competent to make judgment and the categories of measurement are not ordered. Therefore, discrepancies between judgments were treated as equal to each other.

Educational stages were preferred as a category of measurement for their distinctiveness in order to diminish ambiguity of category definitions. The long established educational stages ensure stability and reproducibility. In addition, all the information literacy concepts that were considered apply equally to all the education stages; the only distinctive difference being the level of understanding that is expected at different stages.

Each textbook was read and coded by three different readers/coders working individually and independently. Reliability was validated by the high level of agreement and decision consistency that was achieved.

*Pilot study.*

The readers/coders were Robert Houdek, Chris Guder, and Carrie Preston. A pilot study was performed after the researcher had conducted a training session in which the readers/coders were given an overview of the research and briefed on their duties and responsibilities. Readers/coders also had had an opportunity to perform practice sessions during the training session. The practice materials initiated additional comments and

generated further points of discussion. For example, from the discussions that ensued, we agreed that it would be helpful to add upper-level and lower-level stages in the educational category. The following articles were used in the practice sessions:

1. University of Philadelphia. (2006). *Information literacy framework for Philadelphia University*, and
2. Black. (n.d.). *Results of assessment of information literacy at College of Saint Rose*.

The pilot study document consisted of 20 paragraphs extracted from The Middle States Commission on Higher Education (pp. 10-15, .2003). The observed agreement  $P_o$  and the estimated agreement due to chance  $P_c$  were manually calculated using a simplified Cohen's Kappa formula presented by Feingold (1992) as follows:

Table 3.1

*Arrangement of Paired Data for Assessing Agreement between Judges*

		Rater 2		
		Found	Not found	Total
Rater 1	Found	$P_{00}$	$P_{01}$	$t_1$
	Not found	$P_{10}$	$P_{11}$	$t_2$
	Total	$s_1$	$s_2$	$n$

Where:

The observed sample agreement is  $P_o = (P_{00} + P_{11})/n$

The estimated agreement due to chance is  $P_c = (s_1 t_1 + s_2 t_2)/n^2$ .

The estimated Kappa  $\kappa = (P_o - P_c)/(1 - P_c)$

The following are the results of the pilot study:

1.  $R_1R_2$ :

a.  $P_o = (15 + 4)/20 = 0.95$

b.  $P_c = ((5 \times 4) + (15 \times 16))/20^2 = (20 + 240)/400 = 0.65$

c.  $\kappa = (0.95 - 0.65)/(1 - 0.65) = 0.3/0.35 = 0.86$

2.  $R_1R_3$ :

d.  $P_o = (15 + 4)/20 = 0.95$

e.  $P_c = ((5 \times 4) + (15 \times 16))/20^2 = (20 + 240)/400 = 0.65$

f.  $\kappa = (0.95 - 0.65)/(1 - 0.65) = 0.3/0.35 = 0.86$

3.  $R_2R_3$ :

g.  $P_o = (16 + 4)/20 = 1$  i.e. 100%

h.  $P_c = ((3 \times 3) + (17 \times 17))/20^2 = (9 + 289)/400 = 0.75$

i.  $\kappa = (1 - 0.75)/(1 - 0.75) = 0.25/0.25 = 1$

Where rater  $R_1$  is Robert Houdek,  $R_2$  is Chris Guder, and  $R_3$  is Carrie Preston.

*Validity issues.*

The term validity has been used in a variety of ways in the methodology literature (Weber, 1985). According to Weber, validity issues most specific to content analysis are twofold:

1. The validity of the classification scheme or variables derived from it.
2. The validity of the interpretation relating content variables to their causes or consequences.

The classification scheme of educational levels adopted for this research has been in use for centuries and is, therefore, stable and reliable. A high degree of consistency and

agreement between the three readers/coders working independently demonstrated that the results of a similar inquiry would be highly correlated with the results of this study regardless of the methodology. The researcher conducted training and practice sessions until the level of consistency and agreement discussed above was reached. The following guidelines were followed in order to ensure content validity (Holsti, 1969);

1. Generation of plausible results: this will be achieved by combining reliability issues discussed above with validity matters discussed below.
2. Results should be consistent with other information of the phenomena being measured.
3. The samples of documents analyzed should be representative of the content area being studied.
4. Categories should be adequate for the purpose of the study.
5. Coding should be reliable: in order to ensure coding reliability, educational categories were selected due to their universality and their historical stability.

*Data collection procedures.*

The readers/coders used contingency tables to record the number of incidents that the ten educational levels occur in relation to the information literacy concepts initiated by the Association of College and Research Libraries (2000). The following guidelines were followed to determine incidents that made up a unit:

- Key terms (Weber, 1985); K-12, two year programs, undergraduates, freshman, Lower-level (4Year Program), sophomore, junior, senior, Upper-level (4 year program), and, graduate level.

- A phrase, a simple sentence, a phrase in a multipart sentence, or an illustration signifying any of the educational levels above (Weber, 1985).
- A set of words, themes, or illustrations will be recorded as a unit (Holsti, 1969). Themes may be a simple sentence or a single idea represented on one or more paragraphs.

Each textbook was read and coded by three different readers/coders working individually and independently. The books were coded on separate frequency tables. The coders indicated the frequency of incidents for each of the ten educational levels and the corresponding page numbers in the allied cell. Once the coding was completed, the coders tallied the results and submitted the contingency tables to the researcher. The researcher examined the tables for consensus and consistency and adjudicated the discrepancies that arose. The researcher then reported the findings to the dissertation chairperson and the methodology committee member. Once the data coding was confirmed to be in agreement, the researcher commenced the analysis.

#### *Data Analysis Procedures*

There were two independent variables: (1) programs, and (2) educational levels. Categories in both variables were nominal as opposed to being ranked in an ordinal scale (Ravid, 1994). The frequency analyses were conducted through chi-square test statistic. The chi-square test of independence was conducted with a .05 level of significance. The following assumptions applicable to chi-square test (Ravid, 1994) were met:

1. The observations should be independent of each other
2. Data must be in the form of frequencies
3. The categories should be created in a logical, defensible way.

Tests of goodness of fit were computed to determine whether:

1. Frequencies of references to educational levels were uniformly distributed.
2. Frequencies of references to K-12 were comparable to those of college levels.

A chi-square test for independence will be computed to determine whether:

3. The two variables: programs and educational levels are mutually independent.

## Chapter 4

### RESULTS

#### *Introduction*

A content analysis of texts used for instruction of information literacy courses in master's degrees programs of library and information studies was carried out. The objective was to find out how the incremental aspect of learning was presented in these courses by analyzing the frequencies with which references to educational levels K-12 through graduate school appeared in the texts. An incident or recording element signified each time a particular educational level was addressed in relation to information literacy. Three readers/coders were recruited and trained at the beginning of the Spring quarter of 2005-06 after which a pilot study was conducted. The pilot study achieved paired inter-coder decision-consistency of 86% - 100% as illustrated in Chapter 3. The methodology and procedure of the pilot study is also expounded in Chapter 3. The researcher presented the findings to the dissertation committee on May 12, 2006 and was granted permission to commence data collection.

Reading/coding began in June, 2006 and was completed in September of the same year. The researcher examined the data in reference to the texts and confirmed that all the incidents that were recorded were valid. The only inconsistencies that emerged were incidents that were *found* by a reader/coder but *not found* by another. Inter-coder agreement was analyzed using Crocker and Algina's (1986) methodology illustrated in Chapter 3. The readers/coders were paired and their data entered in a decision-consistency table as shown in Table 4.1 below.



Table 4.1

*Paired Data Results*

Text		Paired Raters		
		R <sub>1</sub> / R <sub>2</sub>	R <sub>1</sub> / R <sub>3</sub>	R <sub>2</sub> / R <sub>3</sub>
Eisenberg, Lowe, and Spitzer. (2004)	F F	76	80	83
	nF F	8	4	6
	F nF	13	12	9
	nF nF	610	611	609
	n	707	707	707
Grassian and Kaplowitz. (2001).	F F	33	31	31
	nF F	2	4	6
	F nF	4	2	2
	nF nF	1816	1818	1816
	n	1855	1855	1855
Gresham. (1995).	F F	5	5	7
	nF F	0	0	0
	F nF	2	2	0
	nF nF	54	54	54
	n	61	61	61

Table 4.1 contd.

Text		Paired Raters		
		R <sub>1</sub> / R <sub>2</sub>	R <sub>1</sub> / R <sub>3</sub>	R <sub>2</sub> / R <sub>3</sub>
Young and Harmony. (1999).	F F	2	2	2
	nF F	0	0	0
	F nF	1	0	1
	nF nF	21	22	21
	n	24	24	24
Summary	F F	116	118	123
	nF F	10	8	12
	F nF	20	14	12
	nF nF	2501	2505	2500
	n	2647	2647	2647

## Note

Rater R<sub>1</sub> is Robert Houdek, R<sub>2</sub> is Chris Guder, and R<sub>3</sub> is Carrie Preston.

F F is the number of units that an incident was *found* by both raters.

nF F is the number of units that an incident was *not found* by R<sub>1</sub> but *found* by R<sub>2</sub>

F nF is the number of units that an incident was *found* by R<sub>1</sub> but *not found* by R<sub>2</sub>

nF nF is the number of units that neither raters found an incident.

n is the total number of observations.

*Reliability*

Crocker and Algina's (1986) procedure discussed in Chapter 3 was used to evaluate the decision consistency (P). The results were then adjusted for Cohen's (1960) Kappa ( $\kappa$ ) agreement due to chance. The methodologies for both procedures are appended in Appendix E.

Table 4.2

*Decision Consistency (P) and Cohen's Kappa ( $\kappa$ )*

Text	Paired Raters					
	R <sub>1</sub> / R <sub>2</sub>		R <sub>1</sub> / R <sub>3</sub>		R <sub>2</sub> / R <sub>3</sub>	
	P	$\kappa$	P	$\kappa$	P	$\kappa$
Eisenberg, Lowe, and Spitzer. (2004)	.97	.86	.98	.89	.98	.91
Grassian and Kaplowitz. (2001).	1	.98	1	.92	1	.89
Gresham. (1995).	.97	.82	.97	.82	1	1
Young and Harmony. (1999).	.96	.78	1	1	.96	.78
Overall	.99	.88	.99	.90	.99	.91

Table 4.2 above demonstrates that the lowest decision consistency after the Kappa adjustment was 78% for the text by Young and Harmony (1999). The decision consistency for this measurement before the Kappa adjustment was 96%. Although only one disagreement occurred in both paired results, the error caused a significant adjustment for Kappa because there were only three incidents out of a total of 24 observations. Therefore, one error out of three incidents was a significant proportion. The highest decision consistency was 100%.

*Findings and Analysis**Findings*

Table 4.3 below presents observed frequencies of the textbooks by author:

Table 4.3

*Observed Frequencies of Texts by Educational Levels*

Educational levels	Text by Author			
	Eisenberg, Lowe, and Spitzer <sup>a</sup>	Grassian and Kaplowitz <sup>b</sup>	Gresham <sup>c</sup>	Young and Harmony <sup>d</sup>
K-12	84	20	0	0
2 Year Program	3	0	0	0
Undergraduate	11	13	2	0
Freshman	5	6	0	0
Sophomore	0	1	1	0
Lower-level	1	0	1	2
Junior	0	0	0	0
Senior	0	0	1	0
Upper-level	0	0	1	1
Graduate	2	1	1	0
Total	106	41	7	3

a. Eisenberg, Lowe, and Spitzer. (2004).

b. Grassian and Kaplowitz. (2001).

c. Gresham. (1995).

d. Young and Harmony. (1999).

### *Analysis*

Texts used for instruction of information literacy in library schools were analyzed to determine how they addressed the concept of multiple incremental stages of learning. Tests of goodness of fit were computed through chi-square analysis to answer the following questions:

4. How do frequencies of references to educational levels compare?
5. How do frequencies of references to K-12 compare with those of college levels?

The third question addressed the test of independence for the two variables:

6. Are the two variables: programs and educational levels, mutually independent?

### *Library School Programs*

The textbook by Grassian and Kaplowitz (2001) was used in all the six programs that were examined. Albany State University added texts by Gresham (1995) and Young and Harmony (1999) while Catholic University of America added Eisenberg, Lowe, and Spitzer (2004). Table 4.4 below presents consolidated observed frequencies by library school programs and educational levels, taking into account all the texts that were used in each program.

Table 4.4

*Observed Frequencies by Library School Program and Educational Levels*

Educational levels	Library Schools						Total
	Albany	Arizona	California	Catholic	Indiana	Texas	
K-12	20	20	20	104	20	20	204
2 Year Program	0	0	0	3	0	0	3
Undergraduate	15	13	13	24	13	13	91
Freshman	6	6	6	11	6	6	41
Sophomore	2	1	1	1	1	1	7
Lower-level	3	0	0	1	0	0	4
Junior	0	0	0	0	0	0	0
Senior	1	0	0	0	0	0	1
Upper-level	2	0	0	0	0	0	2
Graduate	1	1	1	3	1	1	8
Total	50	41	41	147	41	41	361

## Notes

1. All Six programs used the text book by Grassian and Kaplowitz (2001).
2. Albany State University added Gresham (1995); and Young and Harmony (1999).
3. Catholic University of America added Eisenberg, Lowe, and Spitzer (2004).

*Chi-Square Statistics*

Chi-Square statistic was computed for the two independent variables: programs and educational levels. The null hypotheses postulated that:

$H_1$ : There will be no significant difference in frequencies of references to educational levels.

$$H_0 : \pi_1 = \pi_2 = \pi_3 = \dots \pi_6$$

Where  $\pi$  represents library school programs.

$H_2$ : There will be no significant difference in frequencies between K-12 and college level frequencies.

$$H_0 : \pi_1 = \pi_2$$

Where  $\pi$  represents educational levels

*H<sub>1</sub>: There will be no significant difference in frequencies of references to educational levels.*

Table 4.5

*Chi-Square Test Frequencies for Programs*

Program	Observed N	Expected N	Residual
Albany	50	60.2	-10.2
Arizona	41	60.2	-19.2
California	41	60.2	-19.2
Catholic	147	60.2	86.8
Indiana	41	60.2	-19.2
Texas	41	60.2	-19.2
Total	361		

*Test Statistics*

The obtained chi-square ( $\chi^2$ ) value of 151.460 exceeds the critical value at a level of significance of .05 and degree of freedom of 5 (Ravid, 1994, p. 331). Therefore, the result is significant at  $p < .05$  and we reject the null hypothesis. The results present a 95% degree of confidence that the differences in frequency between the programs were too large to have occurred by chance. The conclusion, therefore, was that there were significant differences in frequencies of references to educational levels among the programs.

*H<sub>2</sub>: There will be no significant difference between K-12 and college level frequencies.*

$$H_0 : \pi_1 = \pi_2$$

Where  $\pi_1$  stands for K-12 and  $\pi_2$  represents college educational levels.

Table 4.6

*Chi-Square Test Frequencies Comparing K-12 with College Levels*

Educational levels	Observed N	Expected N	Residual
K-12	204	180	23.5
College levels	157	180.5	-23.5
Total	361		

*Test Statistics*

The chi-square ( $\chi^2$ ) value of 6.19 exceeds the critical value of 3.841 at a level of significance of  $p < .05$  and degree of freedom of 1 (Ravid, 1994, p. 331). Therefore, the result is significant and we reject the null hypothesis with the conclusion that there were significantly more K-12 observations than would be expected by chance alone.



*H<sub>3</sub>: There will be no significant relationship between the variable program and the variable educational levels.*

Table 4.7

*Program \* Educational Level Crosstabulation*

Program	Educational Level		Total
	K-12	College Level	
Albany	20 (28.3)	30 (21.7)	50 (50)
Arizona	20 (23.2)	21 (17.8)	41 (41)
California	20 (23.2)	21 (17.8)	41 (41)
Catholic	104 (83.1)	43 (63.9)	147 (147)
Indiana	20 (23.2)	21 (17.8)	41 (41)
Texas	20 (23.2)	21 (17.8)	41 (41)
Total	204 (204)	157 (157)	361 (361)

Note. Expected counts are in brackets.

*Test Statistics*

The Crosstabulation analyses yielded a chi-square ( $\chi^2$ ) value of 21.658, which exceeds the critical value of 11.070 at a level of significance of  $p < .05$  and degree of freedom of 5 (Ravid, 1994, p. 331). We can, therefore, conclude that the variable *program* is significantly related to the variable *educational level*. It is also clear that the residuals for Catholic University (20.9 and -20.9), and Albany State University (-8.3 and 8.3) were significantly higher than those of any other program.

## Chapter 5

SUMMARY, DISCUSSION, CONCLUSIONS AND  
RECOMMENDATIONS*Summary*

The objective of training students to the point where they are self-reliant in their investigations at the time of graduation has been held by librarians for nearly two centuries. Even so, a combination of exigent factors has adversely affected library instruction over the years. One of the main factors that mired library instruction was the lack of consensus on the scope of the theory and practice to be covered. The introduction of the concept of information literacy provided a unifying basis that located library instruction within the general education curriculum (American Library Association, 1989). The concept was embraced by the Association of American Colleges and Universities, the American Association of Higher Education, and the Council of Independent Colleges. Research that followed established procedures for incorporating information literacy in the course syllabus.

Multi-disciplinary research on the pedagogy and praxis on information literacy was spearheaded by the Middle States Commission on Higher Education and the Association of College and Research Libraries. Although library schools have been slow at embracing research on the subject, 13 out of the 57 library schools approved by the American Library Association (2005) were offering full-fledged courses on information literacy. In order to prepare librarians for their roles in information literacy activities, these courses were expected to explicitly elucidate on: (1) ranked increasing proficiencies in information literacy, and (2) the importance of differentiating between lower-level

basic skills from higher-level more sophisticated aptitudes. An example of learning goals across college levels is appended in Appendix B. The following is a summary of the results.

The results of the study did not match these expectations. The most unexpected results were that frequencies of references to *K-12* were significantly higher than anticipated (Table 4.6). In addition, both textbooks (Eisenberg, Lowe & Spitzer, 2004; Grassian & Kaplowitz, 2001) presented considerably higher mentions of *K-12* than all the other levels put together (Table 4.3). The other two texts that were analyzed (Gresham, 1995; Young & Harmony, 1999) were book chapters. The abundance in *K-12* frequencies may be due to the highly developed curricula at the State level. The State mandated standards such as those published by the Ohio Office of Curriculum and Instruction (2004) have the effect of firstly encouraging research and development in the area and secondly, ensuring that outcomes of the research are applied. This process may be a self-sustaining cycle.

On the contrary, the lack of any such enforcement in institutions of higher learning has the opposite effect of stifling research. This is especially so in the area of information literacy because it does not fall in any of the traditional departments or subject areas such as arts or sciences. Evidence of such a trend was revealed by the decrease in frequencies of references to college levels as they advanced (Table 4.4). The level *undergraduate* was mentioned more than any other college level. This implies that the readings gave more emphasis to clustered competencies than to graded incremental proficiencies. The *graduate* level had the least mention.

The textbook *Information Literacy Instruction: Theory and Practice* by Grassian and Kaplowitz (2001) was used in all the six programs. Furthermore, it was the only text that was used in four of the six programs. For that reason, the frequencies for the four programs; Arizona, California, Indiana and Texas were similar. The remaining two programs, Albany and Catholic University introduced additional readings. As a result, frequencies of references to educational levels in those programs were significantly different from the aforementioned programs as illustrated in Table 4.5.

Catholic University used both textbooks (Eisenberg, Lowe & Spitzer, 2004; Grassian & Kaplowitz, 2001) for their Information Literacy course. Consequently, frequencies for the program were significantly higher than those in any other program (Table 4.4 and Table 4.7). There was a noticeable increase in frequencies in Albany State due to the additional two book chapters used in the program, compared with the four programs that only used Grassian and Kaplowitz (2001). As a result of these differences in the selection of the texts, the chi-square test of independence indicated a correlation between the two variables, *program* and *educational levels*. As shown in Table 4.7, the *program* Catholic University put more emphases on K-12 *educational level* while Albany State emphasized on college level education.

Table 4.4 shows that the highest frequencies for educational levels were: *K-12*, 204 times; *undergraduate*, 91; and *freshman* 41. All the other levels had less than ten citations. According to the Middle States Commission on Higher Education (2003), information literacy instruction provided in the first two years of college education are not sufficient for achieving “higher-order information literacy skills” (p. 3) sufficient for thinking critically or appreciating the philosophical nature of inquiry. The educational

level *junior* was not mentioned in any of the readings while *senior* was only mentioned once. The low mentions of *sophomore* and *senior* suggested that the texts laid emphases on lower-level basic skills.

It is recommended that institutional goals for information literacy distinguish between lower-level elementary skills and higher-level developed skills (Association of American Colleges and Universities, 2005; Association of College and Research Libraries, 2000; The Middle States Commission on Higher Education, 2003). In addition, the Middle States Commission on Higher Education (2003) suggested that those components be readily identifiable in their respective programs and courses, and that they be revealed to the students. An example of institutional learning goals developed by the Middle States Commission is appended in Appendix B.

#### *Discussion*

The librarians' role in promoting information literacy is multifaceted. While their traditional role of bibliographic instruction still remains important, it is not sufficient for achieving "higher-order information literacy skills" (Middle States Commission on Higher Education, 2003, p.3). Librarians who participate in formulating information literacy syllabi in schools and colleges need to be familiar with the roles that various partakers play at the institutional, program, course, and library levels. Library schools play a critical role in training librarians to serve in both primary and tertiary institutions as well as in public and specialized libraries. For that reason, information literacy courses in library schools would do well to address information literacy needs at various levels of education. Nevertheless, none of the texts used for instruction in library schools adequately addressed identifiable learning goals for incremental learning levels.

The list of all the 57 programs of Masters in Library Studies approved by The American Library Association (2005) was available on-line. The list included links to the programs' Web sites. In addition, all the programs had posted their course offerings on their respective Web sites. Of those, 13 programs indicated that they offered full credit courses on information literacy. However, only eight of the 13 programs had made their course syllabi available to the public on the Internet. This study is limited to those programs whose course outlines were publicly available.

A review of the information literacy syllabi among the programs demonstrated a broad divergence in their selection of texts. The programs' wide variety of text selections covered a broad range of subject areas many of which were not related to information literacy. Some of the subjects covered were: instruction models, techniques, materials, design, and methods; learning theory; curriculum design; instruction; motivation; testing; measurement; grant writing; and student assessment. Only texts that fit the definition of information literacy elucidated in the *Sampling Plan* were selected. Two textbooks (Eisenberg, Lowe & Spitzer, 2004; Grassian & Kaplowitz, 2001) and two book chapters (Gresham, 1995; Young & Harmony, 1999) met this criterion. A summary of the syllabi is appended in Appendix A.

Grassian and Kaplowitz's (2001) textbook was common to all the six programs that that were studied. It was the only text that met the selection criteria in four of those programs. As such, the frequencies of references to educational levels in the programs that only used Grassian and Kaplowitz's textbook were similar. Even so, the two programs that added further readings in their information literacy courses significantly affected the frequency distribution of educational levels among programs. Please see

Tables 4.4 and 4.5. These results support earlier observations by Larson and Meltzer (1987) that there was a lack of consensus on the scope of the theory and practice to be covered in courses on instruction in library schools.

Despite the development of differentiated learning goals for college education such as those appended in Appendix B, all the texts gave emphases to grouped competencies such as *undergraduate*. Furthermore, none of the readings showed any awareness of the development of defined learning goals for college levels of education. Familiarity with categorized competences for K-12 curriculum was evident. Curriculum for K-12 that progressively specifies information literacy benchmarks for each grade has been adopted in some States. In the State of Ohio, for example, these guidelines are included in a document published by the Ohio Office of Curriculum and Instruction (2004). The document is a 275-page manuscript entitled *Academic Content Standards: K-12 Guidelines Library*. The manuscript includes a chapter (p. 57 – 83) of information literacy skills instruction. These skills are illustrated by grade levels with specific benchmarks for every grade. Moreover, the guidelines are designed for instruction that is “correlated to specific academic content standards and taught as an integrated process” (p. 57). This may explain why frequencies of references to K-12 were significantly higher than those of college levels.

An important distinction that is well reflected in Ohio’s K-12 guidelines is that information literacy goes beyond the library and embraces the whole learning experience. For example, benchmark E for kindergarten requires that students be able to use information by sharing ideas and experiences. Such activities were identified by the Middle States Commission on Higher Education (2003) as higher-order information

literacy skills. Sharing ideas and experiences is part of students' overall learning process that applies information in a variety of events including inside and outside the classroom. Several scholars (American Library Association, 1989; Jacobson & Germain, 2004; MacAdam & Kemp, 1989; Middle States Commission on Higher Education, 2003; Rockman, 2002) identified this exercise as part of the general education requirements in many institutions of higher learning.

In addition to being part of the general education requirements, information literacy is also part of the requirements for accreditation in some commissions of higher education. Accreditation to the Middle States Commission on Higher Education (2003), for example, requires that institutional members include information literacy in their general education guidelines. The Middle States Commissions' guidelines for incremental learning goals across academic levels are appended in Appendix B. Following these guidelines, the State University of New York (SUNY) includes the following in its general education competencies, "the competencies include Critical Thinking (Reasoning) and Information Management" (State University of New York, 2007). This statement is significant because information seeking and interpretation is central to the concept of critical thinking (Paul & Elder, 2001):

- *Purpose of the thinking (goal, objective)*
- *Question at issue (problem issue)*
- *Information (data, facts, observations, experiences)*
- *Interpretation and inference (conclusions, solutions)*
- *Concepts (theories, definitions, axioms, laws, principles, models)*
- *Assumptions (presuppositions, taking for granted)*



- *Implications and consequences*
- *Points of view (frame of reference, perspective, orientation)* (p. 2).

The State University of New York has sixty-four academic institutions of higher learning.

The concept of critical thinking is widely accepted in institutions of higher learning (Middle States Commission on Higher Education, 2003; Paul & Elder, 2001).

The general education guidelines for Ohio University, for example, include the following: “The ‘Breadth of Knowledge’ requirement introduces students to areas of knowledge outside of their majors through rigorous courses that engage them actively and provide opportunities for discourse, critical reading, and critical thinking.” (Ohio University, 2007). These requirements are implemented incrementally from freshmen 100-level courses to higher course levels. Implementation of incremental information literacy goals such as those presented by the Middle States Commission provides an opportunity for defining learning goals across academic levels as exemplified by the Ohio Office of Curriculum and Instruction (2004) for grades K-12. However, none of the texts expressly address this issue. Preference was given to clustered competencies such *K-12* or *undergraduate*.

### *Conclusions*

The American Library Association (ALA) is the accrediting organization for library school programs in the United States and Canada. A presidential committee of the American Library Association (1989) published a whitepaper entitled *Presidential Committee on Information Literacy: Final Report*. Following that report, advances in research led to the development curricula for applying information literacy at all stages of learning. Nevertheless, the texts that were used for instruction of information literacy in

library schools did not substantively address the issue of establishing goals for the various stages of learning.

Many components of information literacy are facets of the general education curricula. Information management is integral to the notion of critical thinking which involves: consideration of the subject matter; information gathering, interpretation and inference; contemplation on the concepts and assumptions; reflection on the implications and consequences of the conjecture; and identifying the orientation of the thinking in reference to the existing body of knowledge. This sequence of thought is applicable at all levels of learning. Ensuring that student attain the desired levels of information literacy is a collaborative effort between the librarians and the teaching staff. In order for librarians to effectively participate in their role, they need to be adequately trained in the subject of information literacy. Even so, only 13 out of 57 library school programs approved by the American Library Association were offering full credit courses on information literacy. Even so, the texts that were used in all the eight programs whose course readings were publicly available on the Internet did not adequately address the incremental nature of information literacy.

In most cases, faculty can identify these principal characteristics of information literacy in courses they teach. Likewise, faculty can identify how desirable information literacy learning goals such as those outlined in Appendix B can be adopted for specific disciplines. Although collaboration between faculty and librarians was mentioned in some of the readings, their focus was on the librarians' role. Furthermore, the high frequency counts in the *freshman* level as compared with the other college levels, suggested that the texts concentrated on traditional bibliographic instruction. Following

these results, the researcher examined the readings and confirmed that they mostly referred to the actual instruction contact hours between librarians and the students. Thus, confirming that they were primarily concerned with the process of finding and evaluating information. The idea of integrating information management into the curriculum was not readily apparent.

### *Recommendations*

In the relatively short period of time since 1989 when the American Library Association introduced the concept of information literacy to its membership, thirteen library schools were offering full credit courses entitled Information Literacy. This dissertation reviewed only eight of those programs that had posted their curricula on the Internet. Moreover, the study concentrated on the single aspect of the incremental nature of information literacy. It is recommended that a comprehensive review of these emerging courses be undertaken. In so doing, all stakeholders including administrators, faculty, and librarians would pool resources together in an effort to identify the information literacy components that are widely applicable to the general education program of study. Such an inclusive model of collaboration was exemplified by the Middle States Commission on Higher Education (2003). A national initiative is recommended following this model.

The Association of College and Research Libraries (ACRL) is the branch of the American Library Association that is concerned with institutions of higher learning. ACRL (2000) published a document detailing the information literacy competency standards for higher education. These standards were general in nature and spelled out the competencies expected of an information literate college graduate. The standards were

made operational by institutions such as the Ohio Office of Curriculum and Instruction (2004) and the Middle States Commission on Higher Education (2003) by developing curricula for specific learning levels. It is recommended that the American Library Association examine these curricula with a view to initiating a centralized curriculum that library schools can refer to.

It is recommended that the texts used for instruction of information literacy courses in master's degree programs of Library and Information Studies reflect the incremental nature of information literacy. The syllabi that were available for analysis covered a broad range of subject areas including curriculum design, instruction and motivation. In addition, the textbooks that met the selection criteria for this study concentrated more on the actual contact hours between the librarian and the students than to the overall concept of information literacy. Since these contact hours are only adequate for basic lower-level information literacy skills, it is recommended that library school courses distinguish between lower-level basic skills and higher-level more sophisticated skills.

Finally, it is recommended that programs that provide courses in information literacy regularly monitor developments in research and instruction in the field. It would be beneficial for programs to identify peer institutions that apply "best practices" in information literacy instruction. Such institutions can be useful as models when preparing curriculum frameworks (Middle States Commission on Higher Education, 2003, p. 20).

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APPENDIX A

SUMMARY OF INFORMATION LITERACY COURSE READINGS

## SUMMARY OF INFORMATION LITERACY COURSE READING

All the Library and Information Studies programs that are accredited by the American Library Association are listed on the World Wide Web at:

<http://www.ala.org/ala/accreditation/lisdirb/lisdirectory.htm> along with links to the programs.

Albany State University

*Textbook*

Grassian, E. S., & Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and practice*. New York: Neal-Schuman.

*Book Chapters*

Gresham, K. (1995). Creating an electronic information literacy course. In D. A. Barclay (Ed.), *Teaching electronic information literacy: A how-to-do-it manual* (pp. 121-146). New York: Neal-Schuman Publishers.

MacAdam, B., & Kemp, B. (1989). Bibliographic instruction and critical inquiry in the undergraduate curriculum. In M. Pastine, & B. Katz (Eds.), *Integrating library use skills into the general education curriculum* (pp. 233-244). New York: Haworth Press.

Young, R. M., & Harmony, S. (1999). Full credit information literacy courses. *Working with faculty to design undergraduate information literacy programs: A how-to-do-it manual for librarians* (pp. 57-72). New York: Neal-Schuman.

*Other Readings*

- Association of College and Research Libraries. (2000). *Information literacy competency standards for higher education*. Retrieved February 7, 2005 from <http://www.ala.org/ala/acrl/acrlstandards/standards.pdf>
- Fister, B. (1992). The research processes of undergraduate students. *Journal of Academic Librarianship*, 18(3), 163-169.
- Frantz, P. (2002). A scenario-based approach to credit course instruction. *Reference Services Review*, 30(1), 37-42.
- Gross, J., & Kientz, S. (1999). Collaborating for authentic learning. *Teacher Librarian*, 27(1), 21-25.
- Leckie, G. J. (1996). Desperately seeking citations: Uncovering faculty assumptions about the undergraduate research. *Journal of Academic Librarianship*, 22(3), 201-208.
- Nims, J. K. (1999). Marketing library instruction services: Changes and trends. *Reference Services Review*, 27(3), 249-253.
- O'Sullivan, C. (2002). Is information literacy relevant in the real world? *Reference Services Review*, 30(1), 7-14.
- Arizona, University of  
*Textbook*
- Grassian, E. S., & Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and practice*. New York: Neal-Schuman.

## California-LA, University of

*Textbooks*

Grassian, E. S., & Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and practice*. New York: Neal-Schuman.

*Book Chapter*

Grassian, E. S., & Kaplowitz, J. R. (2005). Grantwriting. In E. S. Grassian, & J. R. Kaplowitz (Eds.), *Learning to lead and manage information literacy instruction*. New York: Neal-Schuman.

## Catholic University of America

*Textbooks*

Eisenberg, M., Lowe, C. A., Spitzer, K. L., & Spitzer, K. L. (2004). *Information literacy: Essential skills for the information age* (2nd ed.). Westport, Conn.: Libraries Unlimited.

Grassian, E. S., & Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and practice*. New York: Neal-Schuman.

*Other Readings*

Humes, B. *Understanding information literacy*. Retrieved September/02, 2005 from <http://www.libraryinstruction.com/infolit.html>

## Dalhousie University

*Textbooks*

No textbook required.

*Other Readings*

Association of College and Research Libraries. (2000). *Information literacy competency standards for higher education*. Retrieved February 7, 2005 from <http://www.ala.org/ala/acrl/acrlstandards/standards.pdf>.

Hawaii, University of

*Textbooks*

American Association of School Librarians, and Association for Educational Communications and Technology. (1998). *Information power: Building partnerships for learning*. Chicago; Washington, DC: American Library Association; Association for Educational Communications and Technology.

Eisenberg, M. B., & Berkowitz, R. E. (1990). *Information Problem-Solving: The big six skills approach to library and information skills instruction*. Norwood, N.J.: Ablex Publishing Corporation.

Harada, V. H., & Yoshina, J. M. (2004). *Inquiry learning through librarian-teacher partnerships*. Worthington, Ohio: Linworth Publishers.

Stripling, B. K., & Hughes-Hassell, S. (2003). *Curriculum connections through the library*. Westport, Conn.: Libraries Unlimited.

*Other Readings*

Hawaii Department of Education. (2004). *Libraries for Excellence (LIFE): Guidelines for Hawaii's School Library Programs*. Hawaii Department of Education. Retrieved September/02, 2005, from <http://sls.k12.hi.us/LIFE/index.htm>

Indiana State University



*Textbooks*

Grassian, E. S., & Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and practice*. New York: Neal-Schuman.

*Other Readings*

Assessment Planning Committee. *An assessment plan for information literacy*. Retrieved September/4, 2005 from

[http://www.indiana.edu/%7Elibinstr/Information\\_Literacy/assessment.html](http://www.indiana.edu/%7Elibinstr/Information_Literacy/assessment.html)

Association of College and Research Libraries. (2000). *Information literacy competency standards for higher education*. Retrieved February 7, 2005 from

<http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.htm>

Association of College and Research Libraries. (2005). *Assessment issues*. Retrieved September/4, 2005 from

<http://www.ala.org/ala/acrl/acrlissues/acrlinfolit/infolitresources/infolitassess/assessmentissues.htm>

Association of College and Research Libraries. (2005). *Information literacy glossary*.

Retrieved September/4, 2005 from

<http://www.ala.org/ala/acrl/acrlissues/acrlinfolit/infolitoverview/infolitglossary/infolitglossary.htm>

Association of College and Research Libraries. (2005). *Institutional strategies: Best*

*practices*. Retrieved September, 4, 2005 from

<http://www.ala.org/ala/acrl/acrlissues/acrlinfolit/professactivity/iil/bestpractices/bestpracticesproject.htm>

Association of College and Research Libraries. (2005). *Standards toolkit*. Retrieved

September/4, 2005 from

<http://www.ala.org/ala/acrl/acrlissues/acrlinfolit/infolitstandards/standardstoolkit.htm>

Minneapolis Community College and Technical College Library. *Information studies*

*INFS 1000: Information literacy assessment material*. Retrieved September/04, 2005

from <http://db.mctc.mnscu.edu/library/courses/infs1000/assessment/assessment.htm>

Texas-Austin, University of

*Textbooks*

Grassian, E. S., & Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and*

*practice*. New York: Neal-Schuman.

#### Recurring Readings

*Textbooks*

Grassian, E. S., & Kaplowitz, J. R. (2001). *Information literacy instruction: Theory and*

*practice*. New York: Neal-Schuman.

*Rekurs in*

1. Albany State University
2. University of Arizona

3. Catholic University of America
4. Indiana State University
5. University of Texas-Austin

*Other Recurring Readings*

Association of College and Research Libraries. (2000). *Information literacy competency*

*standards for higher education*. Retrieved February 7, 2005 from

<http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.htm>

*Rekurs in*

1. Albany State University
2. Dalhousie University
3. Indiana State University.

APPENDIX B  
LEARNING GOALS ACROSS ACADEMIC LEVELS

**Figure 2**  
**Learning Goals across Academic Levels**

Information Literacy Components	Learning Goals (Quality Criteria)		
	First-year Student	Senior	Graduate Student
<b>Framing the Research Question</b>	Recognizes the need to find information to fill the gaps in his/her knowledge; begins to understand the value of finding information to support own ideas and opinions	Recognizes the value of using information to strengthen his/her own arguments; articulates focused research questions	Articulates a focused research question; reevaluates it for clarity or precision; refines the question; considers the costs and benefits of completing a particular research project in light of available financial resources
<b>Accessing Sources</b>	Understands that there are differences among information sources; can search several kinds of sources to retrieve information	Identifies the most appropriate sources to answer the question; develops effective search strategies that may be unique to each source	Understands how information is produced and disseminated; develops and implements a search strategy appropriate to the discipline
<b>Evaluating Sources</b>	Reviews information retrieved to assess the reliability of each source; considers whether or not the amount of information is sufficient to address the issue	Reviews information retrieved to assess the reliability of each source; determines ways of modifying search strategies to ensure that information is sufficient to address the issue at a level appropriate for a senior	Reviews information retrieved to assess the reliability of each source; modifies search strategies to ensure that the information retrieved is as comprehensive as possible

*Note.* From *Developing research and communication skills: Guidelines for information literacy in the curriculum*, by the Middle States Commission on Higher Education, 2003, p. 11. Copyrighted 2003 by the Middle States Commission on Higher Education. Reprinted with permission.

<p style="text-align: center;"><b>Evaluating Content</b></p> <p>(Including: the learner achieves understanding, then incorporates selected information in his/her knowledge base and value system)</p>	<p>Examines and compares information from various sources; determines the probable accuracy and reliability of the content; identifies an author's thesis and the basic structure of the information; avoids immediate agreement or disagreement with the information</p>	<p>Analyzes information and evaluates point of view; considers contradictory information; recognizes prejudice, deception, or manipulation; compares new information with prior knowledge; draws conclusions based on the information retrieved; develops a critical response to the information</p>	<p>Understands the value of the information within a discipline or profession, its contradictions, the author's research methodology, and other unique characteristics; selects information that provides the evidence needed at a professional level; skillfully integrates new information with prior knowledge</p>
<p style="text-align: center;"><b>Using Information for a Specific Purpose</b></p>	<p>Organizes content to support the purposes of the student's product; develops topic in essay or other format; communicates cogently; can prepare an annotated bibliography; and uses the designated editorial style appropriately</p>	<p>Effectively organizes content in support of the purposes of a product, using multiple sources; chooses a communication medium that best supports the purposes of the assignment; and uses an editorial style appropriate to the specific discipline involved</p>	<p>Expertly organizes content in support of the student's product or performance; produces new knowledge in the discipline or develops new strategies as a practitioner; and considers the value of further research using alternative methods or strategies</p>
<p style="text-align: center;"><b>Understanding Issues Affecting the Use of Information; Observing Laws, Regulations, and Institutional Policies</b></p>	<p>Understands what plagiarism is and does not plagiarize; uses appropriate documentation style for citing sources</p>	<p>Observes copyright laws; understands issues of privacy, information security, censorship, and freedom of speech</p>	<p>Understands issues of intellectual property, copyright, the fair use of copyrighted material, human subject research, and other emerging or reemerging ethical issues.</p>

*Note.* From *Developing research and communication skills: Guidelines for information literacy in the curriculum*, by the Middle States Commission on Higher Education, 2003, p. 12. Copyrighted 2003 by the Middle States Commission on Higher Education. Reprinted with permission.

APPENDIX C

CONTINGENCY TABLES

## Contingency Table

## Texts by Educational Levels

Text Title: \_\_\_\_\_

No. of pages: \_\_\_\_\_ Year of Publication: \_\_\_\_\_

Reader/coder: \_\_\_\_\_

Occurrences/ Levels Educational	Number of Incidents	Page Number	Total
K-12			
2 Year Program			
Undergraduate			
Freshman			
Lower-level (4-year program)			
Sophomore			
Junior			
Senior			
Upper-level (4-year program)			
Graduate			



## Contingency Table

## Program by Educational Levels

Name of Program: \_\_\_\_\_

Title of Text 1: \_\_\_\_\_

Title of Text 2: \_\_\_\_\_

Title of Text 3: \_\_\_\_\_

Reader/coder: \_\_\_\_\_

Occurrences/ Levels Educational	Text 1	Text 2	Text 3	Total
K-12				
2 Year Program				
Undergraduate				
Freshman				
Sophomore				
Lower-level (4-year program)				
Junior				
Senior				
Upper-level (4-year program)				
Graduate				

APPENDIX D

LIST OF READERS/CODERS

## List of Readers/Coders

1. Robert Houdek  
Science Reference Librarian  
Ohio University Libraries, Alden Library 206  
Athens, OH 45701
2. Chris Guder  
Reference and Instruction Librarian  
Ohio University Libraries, Alden Library 206  
Athens, OH 45701
3. Carrie Preston  
Head, Serials and Non-Print Cataloging  
Ohio University Libraries, Alden Library  
Athens, OH 45701

APPENDIX E

PAIRED INTER-CODER AGREEMENT TABLES

## DECISION-CONSISTENCY TABLE

*Crocker and Algina's (1986) Methodology*

		R <sub>1</sub> (Rater)	
		Found	Not Found
R <sub>2</sub> (Rater)	Found	P <sub>00</sub>	P <sub>01</sub>
	Not Found	P <sub>10</sub>	P <sub>11</sub>

Where:

(P<sub>00</sub>) = consistent *found* decision

P<sub>10</sub> = *found* by rater R<sub>1</sub> but *not found* by rater R<sub>2</sub>

P<sub>01</sub> = *found* by rater R<sub>2</sub> but *not found* by rater R<sub>1</sub>, and

P<sub>11</sub> = consistently *not found*.

The overall decision consistency for the raters  $P = (P_{00} + P_{11})/n$  where  $n$  is the total number of observations.

ARRANGEMENT OF PAIRED DATA FOR ASSESSING AGREEMENT  
BETWEEN JUDGES

*Cohen's Kappa Procedure*

		Rater 2		
		Found	Not found	Total
Rater 1	Found	$P_{00}$	$P_{01}$	$t_1$
	Not found	$P_{10}$	$P_{11}$	$t_2$
	Total	$s_1$	$s_2$	$n$

Where:

The observed sample agreement is  $P_o = (P_{00} + P_{11})/n$

The estimated agreement due to chance is  $P_c = (s_1 t_1 + s_2 t_2)/n^2$ .

The estimated Kappa  $\kappa = (P_o - P_c) / (1 - P_c)$

*Example:*

The following were the inter-coder agreements:

$$R_1/R_2: P_c = \{(126 \times 136) + (2531 \times 2511)\} \div 2647^2 = .91$$

$$\text{The estimated Kappa } \kappa = (.99 - .91) / (1 - .91) = \underline{.88}$$

$$R_1/R_3: P_c = \{(126 \times 132) + (2519 \times 2513)\} \div 2647^2 = .91$$

$$\text{The estimated Kappa } \kappa = (.99 - .91) / (1 - .91) = \underline{.90}$$

$$R_2/R_3: P_c = \{(135 \times 135) + (2512 \times 2512)\} \div 2647^2 = .90$$

$$\text{The estimated Kappa } \kappa = (.99 - .90) / (1 - .90) = \underline{.91}$$

Where rater  $R_1$  is Robert Houdek,  $R_2$  is Chris Guder, and  $R_3$  is Carrie Preston.

APPENDIX F

LETTER OF REQUEST TO REPRODUCE COPYRIGHT MATERIALS

## Letter of Request to Reproduce Copyright Materials

## Middle States Commission on Higher Education

Unnamed part 2\_1.txt  
Linda or Oswald: Can one of you please reply to this?

Maggie

\*\*\*\*\*

>>> "Loyd G. Mbabu" <mbabu@ohio.edu> 05/24/06 3:40 PM >>>

Dear Sir/Madam;

I am writing to request your permission to include pages 11 and 12 of your publication: Developing Research & Communication Skills: Guidelines for Information Literacy in the Curriculum, in the appendix of my dissertation.

The dissertation is on Educational Studies and is entitled "A Content Analysis of Textbooks Used for Information Literacy Instruction." with your permission, I would refer to your publication and use photocopies of the table on Learning Goals Across Academic levels as examples in the appendix of my dissertation.

Please feel free to contact me or the chair of my dissertation committee.

Her contact information is:

Dr. Rosalie M Romano  
Associate Professor of Education  
105E McCracken Hall  
740.593.4961 (off)  
740.593.0477 (facsimile)  
<romano@ohio.edu> (e-mail)  
Ohio University  
Athens OH 45701 USA

Sincerely,

Loyd

--

Loyd G. Mbabu  
Africana Bibliographer  
Ohio University Libraries  
Alden Library 206  
(740)597-1317



APPENDIX G

LETTER OF PERMISSION TO REPRODUCE COPYRIGHT MATERIALS

## Letter of Permission to Reproduce Copyright Materials

## Middle States Commission on Higher Education

Page 1. From: Oswald Ratteray <ORatteray@msche.org> on 5/25/2006 8:05 AM -0400

**From:** Oswald Ratteray <ORatteray@msche.org>  
**To:** mbabu@ohio.edu  
**Subject:** Fwd: Copyright Material  
**Date-Sent:** Thursday, May 25, 2006 8:05 AM -0400

Mr. Mbabu:  
Yes, you may reproduce pages 11 and 12 of Developing Research & Communication Skills: Guidelines for Information Literacy in the Curriculum for the purposes of your dissertation.

All the best,  
Oswald Ratteray

(Mr.) Oswald M. T. Ratteray  
Associate Director for Communication  
Middle States Commission on Higher Education  
3624 Market Street  
Philadelphia, PA 19104  
(P) 267-284-5024  
(F) 215-662-5501  
[www.msche.org](http://www.msche.org)