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A Case Study of Faculty Perceptions of Information Literacy and Its Integration into the Curriculum

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A CASE STUDY OF FACULTY PERCEPTIONS OF INFORMATION LITERACY

AND ITS INTEGRATION INTO THE CURRICULUM

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Education

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December 2008

Title: A Case Study of Faculty Perceptions of Information Literacy and Its Integration
           into the Curriculum

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Since it first appeared in the 1970s, the term "information literacy" (IL) has been defined and interpreted in many ways. While much has been written about IL, a significant portion of the literature on this topic is limited to library and information science journals. As a result, if they are familiar with the term at all, faculty outside of these disciplines often have limited or different understandings of the term and its application. This lack of familiarity is a recognized obstacle to implementing successful IL programs and initiatives. However, the research on this topic is extremely limited and tends to focus on students and programs rather than faculty. Through the use of a survey, this study examined faculty understandings of IL and its integration into the curriculum at one University. The results of this study suggest general agreement among faculty about the desirability of incorporating IL instruction into the entire curriculum and the belief that all faculty should play a role. But, the results also indicate that faculty members do not feel the University has a clear definition for IL. Although faculty seem to have an awareness of the importance of IL, their lack of knowledge of IL could, in part, explain why they are not clear about specific curricular expectations regarding such. Consistent with the literature, survey data suggest that what definitions and perceptions are in place tend to focus more on the skill-based components of IL rather than the cognitive, process-based ones.

ACKNOWLEDGMENTS

The best dissertation is a done dissertation – Dr. Wenfan Yan (et al)

Like most of those in my cohort, since starting my doctoral work, I have continued to work full-time. In addition, during this period, I have had several major life changes not the least of which were the passing of both my father and his mom (my last grandparent), getting married, moving, and having a son. While I cannot ever possibly thank everyone enough, this section serves as my small way of showing my appreciation for all of the help and support these individuals have given me throughout this process.

First and foremost, I want to thank Michelle, my loving wife, for her patience, understanding, and encouragement throughout the entire process. I would also like to thank our son, Carson, for not growing-up *too* fast and for giving me something else to think about.

I would like to extend a special thank you Dr. Wenfan Yan for his advice and guidance as well as all of the time and effort he committed to me as my committee Chairperson. I would also like to thank Drs. Cathy Kaufman and Susan Rieg for serving on my committee and for their contributions to this dissertation. Working with me isn't always easy and I can't thank each of you enough.

Along the way, there were also many others I wish to thank for their various contributions to the content and/or the administrative elements of completing my doctorate. I want to especially thank Dr. Marc Sylvester, Dr. Ron Craig, and Mr. Szde Yu for help that was more than statistically significant. Dr. Erinn Lake for always being there when I needed a sympathetic ear or advice. Ms. Melinda Bernosky for putting my survey into electronic format. Dr. Patricia Serotkin for encouragement, information, and

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

CHAPTER I: THE PROBLEM

Context of the Problem

Since it was first used in 1974 (Zurkowski, 1974), the term "information literacy" has come to mean different things to different people. The considerable literature about what the term means and what it implies for instruction is reviewed in Chapter Two. Numerous authors have noted, though, that a lot of this literature is restricted to the library and information science fields (e.g. Arp, 1990; Behrens, 1994; Grassian, 2001). As a result, faculty outside of these disciplines often have a limited or unclear understanding of the concept. In turn, this often leads to the misperception that rather than a shared, collaborative responsibility, instilling information literacy is or should be the library's or librarians' responsibility.

Although these and other challenges have been problematic in implementing information literacy instruction, discussions of information literacy are nonetheless becoming more commonplace in higher education. Changes taking place in Society are behind some of these discussions. For example, the explosion in recent years of both the amount and variety of information available necessitates that students maintain and develop skills to navigate this vast sea of information if they are to be successful during their academic careers. It also necessitates a population of graduates who need to be able to retrieve and manage information efficiently if they are to remain competitive. Andrew Hargreaves (2003) echoes the beliefs of many authors when he suggests that a strong "knowledge economy" is dependent upon not only people who can access information but upon how effectively they process it.

In addition to societal changes, the growing trend towards accountability in higher education is leading to increasing amounts of attention being directed towards information literacy. Many accrediting agencies, for example, now make specific reference to expectations regarding information literacy. The first specific mention of information literacy by an accrediting agency was in Middle States' 1994 edition of its *Characteristics of Excellence in Higher Education.* While treatment of the term was cursory and rather vague, its inclusion in this document marked a turning point in terms of how institutions talked about and addressed this topic. Since then, there has been a shift towards outcomes and, in particular, student learning outcomes (Ratteray, 2002). As Laura Saunders (2007) observes, information literacy is often seen as a learning outcome because it "provides an opportunity to improve student knowledge and abilities, habits of mind, and skills throughout their program of study" (p. 317).

During this same period, the general education reform movement began focusing attention on the desirability and need for creating a culture of lifelong learning. Because it is often equated with or is seen as a component of lifelong learning, many colleges and universities are attempting to incorporate information literacy into their general education curriculums. However, the problems of articulation and implementation have limited the widespread development of campus-wide information literacy programs.

The emergence of "learning organizations" holds promise in this respect. The notion gained prominence because of its importance in assessing an organization's overall health. Essentially, learning organizations are committed to the process of transformation and continuous, purposeful, active learning among all members. The individuals and the organization do not remain static. They are dynamic entities,

encountering change and continually growing and developing ways of dealing with such (e.g. Barr & Tagg, 2005; Chalofsky, 2005; Senge, 1990).

Because of its emphasis on "learning to learn" and because it provides numerous indicators which can be used for assessment purposes, information literacy can be seen as an opportunity to both foster and complement a learner-centered atmosphere. It provides students with information skills they can use in the classroom and beyond. It also provides faculty with a way to build a bridge from the traditional ways of providing instruction to the new environment of today's learning organization.

Statement of the Problem

A common definition for information literacy remains elusive. Despite numerous definitions (e.g. ACRL, Big6, ICT), information literacy is an abstract concept which makes it difficult to articulate what it means when someone is said to be "information literate" (e.g. McCrank, 1992). Compounding the problem is the fact that many equate information literacy with or see it as a component of concepts such as "critical thinking" and "resource-based learning" (e.g. Cunningham, 2002). Others see it as an umbrella term for other kinds of literacy (e.g. Breivik, 2005).

This lack of clarity is a key challenge for those attempting to develop and implement information literacy instruction. Because of its association with libraries, for example, many feel instruction in this area is or should be the responsibility of librarians. This is exacerbated by the fact that many, including librarians, mistakenly equate "information literacy instruction" with "library education" or "bibliographic instruction" (Serotkin, 2006) or, worse, equate "computer literacy" with "information literacy" (Costantino, 2003). Because they are unclear about the concept, they feel it is an added

responsibility for which they do not have time, and/or they do not feel they know how to provide instruction in such, many faculty are reluctant to incorporate information literacy skills into their courses. Conversely, there are many who already do but who do not realize it because they think of what they teach as something other than "information literacy."

Despite these ambiguities and misunderstandings, there are a number of commonalities shared by most definitions and interpretations of information literacy. By articulating the common elements, it is hoped that a shared framework will emerge which can subsequently be used as a foundation for programming, instruction, and other initiatives relating to information literacy. A detailed examination of information literacy and information literacy instruction will be provided in Chapter Two.

Purpose

This study attempts to identify common elements in the ways in which faculty understand information literacy and its incorporation into the curriculum. To this end, a central part of the study is the attempt to identify themes and trends in terms of how faculty members conceptualize and otherwise understand the notion of "information literacy." An important element of these definitions is examining faculty beliefs about how information literacy is to be incorporated into the curriculum. As such, this study also attempts to develop an understanding of the respective role(s) faculty perceive for themselves and librarians in terms of providing information literacy instruction.

Theoretical Framework

The fact that the evolution of information literacy and information literacy instruction closely parallels the emergence of the notion of "learning organizations" was

a central consideration in choosing the latter as the theoretical framework underlying this study. As with information literacy, at the heart of a learning organization is the idea of a commitment to ongoing, lifelong learning. In a true learning organization, this commitment is exemplified at both the individual and institutional level. In the classroom, the learner is the focus. At the institutional level, increasingly collaborative approaches to instruction are but one manifestation.

In characterizing a "learning organization," many common elements have been identified. For example, the importance of having a clear vision, systems thinking, and the impact of "mental models" are discussed by many theorists (e.g. Fullan, 2001; Hargreaves, 2003; Senge, 1990). The degree to which an institution successfully coordinates and incorporates these elements serves as a central measure of the degree to which an institution can be considered a learning organization.

The work of Peter Senge is particularly relevant to this study in this regard. Senge's model is comprised of five "disciplines." Senge defines (1990) a "discipline" as a "developmental path for acquiring certain skills and competencies" (p. 10). His five disciplines are: systems thinking, personal mastery, mental models, building a shared vision, and team learning.

Information literacy and information literacy instruction fall across all five disciplines. Systems thinking and mental models are especially appropriate. The way librarians are perceived by faculty, for example, would fall under the category of mental models while the degree to which faculty see information literacy instruction as a collaborative effort exemplifies systems thinking. The survey used to collect data for this

study relies heavily on Senge's framework. A more detailed discussion of Senge and the theoretical model used in this study is presented in Chapter Two.

Research Questions

This study will attempt to answer the following questions about faculty understanding of information literacy and information literacy instruction:

1. What are faculty members' beliefs and attitudes towards incorporating information literacy into the curriculum?

2. What are the obstacles in the implementation of information literacy instruction faced by the faculty?

3. What are the best approaches to information literacy instruction perceived by the faculty?

4. Who is perceived by the faculty to have primary responsibility for providing information literacy instruction?

5. How do the faculty members' demographic characteristics relate to their understandings and perceptions of information literacy and information literacy instruction?

6. How do the understandings and perceptions of information literacy and information literacy instruction differ among the faculty from different academic disciplines?

Definition of Terms

American Library Association (ALA)

This is the primary professional organization for librarians in the United States.

Association of College and Research Libraries (ACRL)

A division of ALA geared towards academic librarians working in higher education.

Edinboro University of PA (EUP)

EUP serves as the site at which the research for this study was conducted. Edinboro University of Pennsylvania is one of fourteen State-owned universities comprising the Pennsylvania State System of Higher Education. With more than 7,000 undergraduate and graduate students, over 400 faculty members, and more than 100 programs of study, EUP is the largest institution of higher education in northwestern Pennsylvania. The Baron-Forness Library serves as the University's library. Among other features, the library owns nearly 500,000 books and other items, actively subscribes to several hundred journals, and provides electronic access to nearly 100 electronic indexes and databases, most of which are remotely accessible.

Information Literacy

There are numerous definitions and interpretations of information literacy. Most current definitions rely heavily on the definition developed by the American Library Association. However, because of the potential problems associated with using a discipline-specific definition (e.g. individuals outside of that discipline may be unfamiliar with that definition), a more "universalizable" definition was desired for purposes of this study. With that in mind, the definition developed by the Middle States Commission on Higher Education was chosen as it is the definition used by the accrediting body for the institution being studied and would, therefore, be more likely to be more familiar to more faculty. In its 2002 publication - *Characteristics of Excellence in Higher Education:*

Eligibility Requirements and Standards for Accreditation, the Middle States Commission

on Higher Education defines information literacy as:

> An intellectual framework for identifying, finding,
> understanding, evaluating and using information. It
> includes determining the nature and extent of needed
> information; accessing information effectively and
> efficiently; evaluating critically information and its sources;
> incorporating selected information in the learner's
> knowledge base and value system; using information
> effectively to accomplish a specific purpose; understanding
> the economic, legal and social issues surrounding the use of
> information and information technology; and observing
> laws, regulations, and institutional policies related to the
> access and use of information (p. 32).

For reference purposes, the ALA definition – including ACRL's competency standards

for higher education – is included in Appendix A.

Information Literacy Instruction

Just as there are many definitions and conceptualizations of information literacy,

there are also many different definitions of information literacy instruction. For purposes

of this study, information literacy instruction is characterized as a collaborative, campus-

wide initiative (i.e. involving librarians, faculty, and administrators) to provide

instruction in the use of information and information tools in order to provide an

"intellectual framework for identifying, finding, understanding, evaluating and using

information" as outlined in the Middle States Commission on Higher Education

definition of information literacy outlined above.

Middle States Commission on Higher Education (Middle States)

The Middle States Commission on Higher Education is the body that accredits

degree-granting colleges and universities in the Middle States region. It is the accrediting

body for the university that is used in this study.

Pennsylvania State System of Higher Education (PASSHE)

This refers to the fourteen State-owned universities of the Pennsylvania State System of Higher Education. Edinboro University of Pennsylvania – the site at which this study was conducted – is a PASSHE institution.

Brief Description of Methodology

Data collection for this study will consist of two parts. The main data collection tool used in this study will be a 12-question survey of EUP faculty. The survey questions are based on the "disciplines" of Peter Senge, especially systems thinking and mental models with respect to faculty perceptions of information literacy and information literacy instruction. A non-randomized sampling technique will be used. Once the data has been collected and tabulated, the analysis will take place.

A second aspect of data collection will involve the analysis of various documents related to the curriculum and institution being studied. The objective here will be to determine what, if any, definitions or interpretations are in place for General Education courses and/or the University as a whole.

First, because of their broad impact on all students, General Education courses are often seen as an ideal vehicle for incorporating information literacy into the curriculum of many colleges and universities. With that in mind, Edinboro University of PA's (2006) *General Education Requirements for the BS and BA Degrees* was analyzed for references to information literacy.

Second, the University receives its accreditation via the Middle States Commission on Higher Education (Middle States). The University submitted a self-study as part of its most recent application for reaccreditation. In preparing this document,

numerous sources of information were consulted, including *Characteristics of Excellence in Higher Education: Eligibility Requirements and Standards for Accreditation.* As the title suggests, this publication outlines Middle States' standards and expectations for accreditation. Upon receiving reaccreditation in 2003, the University being studied received a copy of Middle States' *Final Report*. Among other things, the latter includes discussions of strengths, concerns, and suggestions for improvement. In all three instances, these documents were analyzed for references to information literacy.

Significance of the Study

While much has been written about students' information skills and about existing information literacy programs, little has been written about faculty understanding of information literacy and its integration into the curriculum. This study attempts to contribute to the literature of information literacy by providing an evidence-based foundation for both discussion and subsequent study of faculty perceptions and understandings of information literacy in higher education. This study is of particular significance to the study site in that it will be used to generate discussion and develop programming at the institution. Given the increasing amount of attention accrediting bodies (e.g. Middle States) are placing on information literacy and growing societal expectations for "information literate graduates," the findings of this study will also be relevant to the larger higher education community as it attempts to more fully develop and integrate information literacy programming into the curriculum.

Limitations of Study

There are a several limitations and/or concerns evident in this study:

1) *Generalizability.* A non-randomized sampling method was used to increase the applicability of the results at the institution where the study was performed. However, as with any non-randomized sample, the validity of applying the results of this study outside of this context is somewhat dubious.

2) *Limited sample size.* Despite being distributed to more than 400 individuals, the sample size is still relatively small. Thus, both the quantity and variety of responses may be too small in some instances for meaningful comparisons and conclusions.

3) *Non-Respondents.* This study makes no attempt to determine the reasons for non-responses. As such, the survey may be unintentionally skewed toward those with an interest in the topic being researched.

4) *Instrument reliability and validity.* Without additional distributions of the survey, the actual measure of the survey's validity and reliability remains open to interpretation. As such, it remains unclear as to whether or not the instrument has any external validity.

5) *Limited scope.* This study focuses on faculty's conceptualization of information literacy and information literacy instruction. It is designed primarily to provide a starting point for consistent and systematic discussion of the topic. Additional study of other factors affecting development of a shared definition of information literacy and information literacy instruction is strongly recommended.

Summary

Despite its limitations, this study provides a valuable framework and insight into the way faculty conceptualize information literacy and how it should be incorporated into the curriculum. The data generated by this study will be used in ongoing discussions – both theoretical and practical – about information literacy and information literacy instruction for higher education institution.

CHAPTER II: REVIEW OF THE LITERATURE

We are drowning in information but starved for knowledge.
John Naisbitt (p. 24)

Introduction

Colleges and universities are not immune from the changes taking place in Society. The gradual shift in higher education from a teaching paradigm to a learning one, for example, has many parallels with the change from an Industrial Age to an Information Age in Society at-large. These changes have resulted in numerous challenges. Growing competition for students, demand for increased retention and graduation rates, and expectations for greater accountability are just a few examples of the challenges which are forcing colleges and universities to re-examine themselves, their mission, and their future. Information literacy is increasingly seen as one of the tools that can be used by higher education institutions to help successfully navigate some of these changes as well as to prepare students for productive lives in today's "Knowledge Society" (e.g. Boekhurst & Britz, 2004; Breivik, 2005; Gumport, 2005).

However, because it too is undergoing an evolution, the concept of information literacy is often unclear or otherwise misunderstood by many educators as well. The importance of a clear vision and clarity of purpose is noted by many (e.g. Collins, 2001; Senge, 1999; Snavely and Cooper, 1997). Consistent with these writings, this study attempts to characterize how faculty conceptualize the notion of information literacy at one institution and its incorporation into the curriculum. In so doing, it is hoped that the research will provide a framework for faculty and administration to begin to develop information literacy activities and instruction that best meet the needs and expectations of

the campus being studied. Further, it is hoped that institutions in a similar situation can apply the research findings in developing their own information literacy objectives.

This chapter begins with an historical overview of the notion of information literacy and proceeds into a discussion of the evolution of "information instruction." The resultant challenges to implementing an information literacy program are then presented in greater detail. A discussion of learning organizations provides the theoretical foundation for this study. This section concludes with an overview of the links between the theory of and notions about learning organizations and information literacy.

Information Literacy

Defining Information Literacy – pre-ALA

Paul Zurkowski is generally credited (e.g. Behrens, 1994; Boekhorst, 2004; Grassian, 2001) with coining the term "information literacy." In 1974, Zurkowski was the president of the Information Industry Association (IIA). At that time, he introduced the concept to the National Commission on Libraries and Information Science in his recommendation for a national program of instruction. For Zurkowski (1974), "information literacy" was defined as:

> People trained in the application of information resources
> to their work can be called information literates. They have
> learned techniques and skills for utilizing the wide range of
> information tools as well as primary sources in molding
> information-solutions to their problems (p. 6)

Two years later, Lee Burchinal (1976) made a reference to information literacy. He noted that "To be information literate requires a new set of skills. These include how to locate and use information needed for problem-solving and decision-making efficiently and effectively" (p. 11) In defining information literacy in this way, Burchinal linked

information literacy to skills needed to locate information, to use such for problem solving and decision making, and to effectively and efficiently locate and use information (Behrens, 1994). In so doing, he was among the first to link information literacy to emergent information technologies and networks. This notion of information literacy extending beyond the workplace is also evident in the writing of Eugene Garfield. In 1979, he expanded the IIA definition of Zurkowski to include the notion that an information literate individual is one who "knows the techniques and skills for using information tools in molding solutions to problems" (Garfield, 1979, p. 210).

However, the emphasis on skills and the application of information resources in a specific environment (i.e. work) remained a central element to most interpretations and definitions of information literacy until the 1980s. Until that time, technology was seen primarily as a tool to perform tasks. It was also seen as primarily the domain of the business world. Thus, the emphasis in training was to develop skills and techniques to use the tools effectively and efficiently as a means of maximizing productivity.

With the new technologies that began to appear in the 1980s, though, new perspectives on technology began to emerge. Networked technologies and, in particular, the "birth" of the internet, made it possible for anyone to create, store, and access information from anywhere in the world. This created an exponential rise in the amount of information. There was a concurrent "explosion" in the variety of technology available as well. The personal computer, CD-ROMs, and cellular phones are but a few examples. As a result, computers began to become synonymous with information handling and were increasingly seen as tools for locating, retrieving, and manipulating information (e.g. Behrens, 1994; Tyner, 1998).

Epitomizing these new developments, *Time* magazine chose the microcomputer as its "Machine of the Year" in 1983. This drew significant public attention to computers and related technologies. Previously, computers were discussed in terms of how they worked and/or on aspects of programming. *Time's* "award" focused attention on using computers to accomplish tasks and perform specific functions.

For these reasons, it is not surprising to find at this time that definitions of "computer literacy" began to include references to information and that the term "information literacy" began to achieve ascendancy. A pivotal work in this respect is Forest Woody Horton's 1983 article entitled *Information Literacy vs. Computer Literacy.* In this article, Horton credits *Time* for drawing attention to the problem-solving capabilities of computers. In so doing, he suggests that the needed skills might be deemed "computer literacy" which "has to do with increasing our understanding of what the machine can and cannot do" (p. 14).

However, Horton (1983) quickly points out that "there is an emerging new dimension…And that is the potential role of the machine as an Information Age resource" (p. 14). Because of technology's new potential for accessing and retrieving information, Horton concludes that:

> Information literacy…as opposed to computer literacy,
> means raising the level of awareness of individuals and
> enterprises to the knowledge explosion, and how machine-
> aided handling systems can help identify, access, and
> obtain data, documents and literature needed for problem-
> solving and decision-making…In short, information
> literacy goes beyond computer literacy, and updates the
> working level of knowledge of users (p. 16).

In this "new age," *computer literacy* is no longer to be misconstrued as being the same as *information literacy.* Rather, it now came to be seen as a prerequisite for such. Because he makes the transition to using computers and other technologies for information access, retrieval, and manipulation and because he recognizes the role of the individual in this process, Horton is often credited with laying the groundwork for most modern definitions of information literacy (e.g. Behrens, 1994; Tyner, 1998).

Recognizing the need for new skills in order for people to succeed in the Information Age, the term "information literacy" began appearing more regularly in the literature as well as the popular press. Benjamin Compaigne (1984), for example, spoke of information literacy as "the bundle of information skills that may be required to function in society" (p. 6). Jill Fatzer (1987) used the term "library literacy" and compared it to literacy in general when she wrote:

> Literacy is not a simple unitary quality that one either possesses or does not…literacy is gained through instruction that is articulated through one's schooling, each step building on what was previously taught, the literate person is self-sufficient in reading and writing skills…The library literate can follow a systematic path or search strategy to locate texts and evaluate the relevance of the information…Library literacy can thus be seen not as the presence or absence of skills, but as progressive stages…leading ultimately to self-sufficiency (p. 313-314).

William Demo (1986) was among the first to talk about the importance of information literacy outside of the library and of the new, emergent communication technologies (e.g. email). He wrote about the new technologies and the need for new skills. He also was among the first to talk about the fact that information was no longer solely the domain of libraries and librarians. Information existed for everyone, everywhere, all the time, and could now be accessed with a computer. For Demo,

17

information literacy was essentially "A new intellectual skill that will enable us to be masters of new communications and information technologies" (p. 4).

That same year, these sentiments were echoed by Robert S. Taylor. In his article, *Reminiscing About the Future: Professional Education and the Information Environment*, Taylor links librarianship with information literacy. He observes that librarians need to accept that there are many sources of information outside the library and that a knowledge of these resources and how to use them is essential. As a result, librarians have "not only a responsibility…but an opportunity to affect the way people utilize information systems and services" (1986, p. 1875).

The release of *A Nation at Risk* (1983) served as a watershed for educational reform in the United States. The publication talks about education and the workplace in the "information age" or the "knowledge society." Because of a changing set of needs and expectations, it calls for an overhauling of the educational system and practices in this country. Whether in spite of or because of *A Nation at Risk*, a paradigm shift from instruction-centered to learning-centered education was underway.

As Christina Doyle (1994) notes, *A Nation at Risk* "identified the management of complex information in electronic and digital forms as an important skill in a 'learning society'" (p. 6). And yet, no mention is made of the role of libraries or librarians in this reform movement despite librarians' long-felt belief that they are an integral part of the education process.

As a result, combined with the increasing attention being given to technology and its role in accessing and manipulating information, many libraries began conducting internal reviews. To be a part of the reform movement, they needed to look ahead and

develop services, collect resources, and create policies and procedures to deal with the challenges and opportunities presented by this new era. "Information literacy" became a sort of rallying cry for librarians. Terms like "library education" and "bibliographic instruction" began to be replaced with names such as "information literacy education" (Behrens, 1994).

While not always explicit, this paradigm shift and the growing concerns over creating graduates who could succeed in the new age were gaining increased attention in many professional educational organizations and studies. As but one example, the 1986 *Carnegie Foundation Report on Colleges* observed that "The quality of a college is measured by the resources for learning on the campus and the extent to which students become independent, self-directed learners" (Prologue and Major Recommendations of Carnegie Foundation's Report on Colleges, 1986, p. 10-11).

The following year, a national symposium – Libraries and the Search for Academic Excellence – was held to discuss the role of academic libraries in the reform movement. Among the many ideas to emerge was the notion that information handling skills should be a central part of every undergraduate's education and that such skills should be taught as part of existing courses and not separately. From this point forward, information literacy moved to the forefront of the general education agenda (Behrens, 1994).

Defining Information Literacy –ALA

In 1989, American Library Association (ALA) President Margaret Chisholm appointed the ALA's Presidential Committee on Information Literacy. The goals of this group were threefold:

> 1. Define information literacy within the higher literacies and its importance to student performance, lifelong learning, and active citizenship
> 2. Design one or more models for information literacy development appropriate to formal and informal learning environments throughout people's lifetimes
> 3. Determine implications for the continuing education and development of teachers
> (American Library Association Presidential Committee on Information Literacy, 1989, p. 15)

Perhaps most importantly, the report was the first to provide a list of requisite skills for what it meant to be "information literate." In essence, they described an information literate individual as one who is able to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, Presidential Committee on Information Literacy, 1989, p. 1). As Eisenberg, Lowe, and Spitzer (2004) note, this gave everyone "a definition of information literacy to which all could refer" (p. 14). Indeed, the ALA definition not only catalyzed the information literacy movement but have since become the foundation for nearly all contemporary definitions and understandings of information literacy (e.g. Behrens, 1994; Breivik, 2005; Johnston, 2003).

This basic ALA definition was then evolved into a series of standards which were subsequently reviewed and approved by the Association of College and Research Libraries (ACRL) Board of Directors on January 1, 2000. The standards are comprised of the following six elements:

> • Determine the extent of information needed
> • Access the needed information effectively and efficiently
> • Evaluate information and its sources critically
> • Incorporate selected information into one's knowledge base
> • Use information effectively to accomplish a specific purpose
> • Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally (ACRL, 2005)

A complete articulation of the ACRL's information literacy competency standards for higher education – including performance indicators and outcomes – is found in Appendix A.

<div align="center">Defining Information Literacy – post-ALA</div>

Since the publication of the ALA definition, there have been numerous developments which have impacted definitions and interpretations of information literacy and, in turn, the provision of instruction in information literacy (to be discussed in the next section). The remainder of this section summarizes some of the key developments and publications deemed most relevant to the evolving notion of information literacy.

National Forum on Information Literacy

In 1989, as a direct result of the ALA's *Final Report*'s recommendations, the National Forum on Information Literacy (NFIL) was formed. Patricia Senn Breivik, a member of the ALA Presidential Committee on Information Literacy, served as the NFIL's first Chairperson. This group represented more than sixty-five national

organizations and groups from business to government to education. The group's

purpose was to identify trends in information literacy and to bring groups together (Weis,

2004). Since then, NFIL has grown considerably. Today's NFIL is comprised of

representatives from more than 90 national and international corporations and

organizations as well as members from business, government, and education. Included in

this list are various accrediting bodies (National Forum on Information Literacy, 2006).

In 1998, NFIL issued a report examining progress that had been made since the

issuance of the *Final Report* as well as the future of information literacy. Among other

things, *A Progress Report on Information Literacy: An Update on the American Library

Association Presidential Committee on Information Literacy: Final Report* noted that

investing in technology alone is not sufficient (i.e. we need to educate users). It also

made several recommendations including encouraging accrediting agencies to support

information literacy and, like the *Final Report*, recommending that "teacher education

and performance expectations include information literacy skills" (Breivik, 1998).

Information Literacy: Revolution in the Library

In 1989, one of the early, seminal works on information literacy and the

transformation of libraries – *Information Literacy: Revolution in the Library* – was also

published. In it, Patricia Breivik and Gordon Gee talked about the role of librarians in the

teaching and learning process, particularly with respect to information literacy.

Throughout, they emphasize the importance of collaboration and partnerships between

and among both faculty and librarians. In so doing, they effectively demonstrated that

successful attempts to create information literate graduates were a joint responsibility to

be shared by everyone (Breivik and Gee, 1989). Given Breivik's involvement with NFIL

and the publication of this book, she certainly played a critical role in the evolution of information literacy from being a "library issue" to an educational issue for everyone.

SCANS Report

In 1990, Secretary of Labor, Elizabeth Dole, formed the Secretary's Commission on Achieving Necessary Skills (SCANS). The commission's charge was essentially to study the skills needed to succeed by today's worker. The results of the commission's study were published in 2000 in a work entitled: *What Work Requires of Schools: A SCANS Report for America 2000.* The study found that today's "high performance workplace" requires literacy, computational, and thinking skills. Moreover, it identified five key, core competencies (SCANS, 1991, p. iii) which are summarized in Figure 1.

Competency	Description
Resources Identifies, organizes, plans, and allocates resources	Time; money; materials and facilities; and human resources.
Interpersonal Works with others	Participates as a member of a team; teaches others new skills; serves clients/customers; exercises leadership; negotiates; and works with diversity.
Information Acquires and uses information	Acquires and evaluates information; organizes and maintains information; interprets and communicates information; and uses computers to process information.
Systems Understands complex inter-relationships	Understands systems; monitors and corrects performance; and improves or designs systems.
Technology Works with a variety of technologies	Selects technology; applies technology to task; maintains; and troubleshoots equipment

Figure 1. Workplace know-how.

Doyle's Delphi Study

In 1992, Christina Doyle published the results of a Delphi study. Her work revolved around more than 100 librarians and other information professionals noted for

their work in or contributions to information literacy. What emerged was an expanded

definition of information literacy that included the following characteristics of an

information literate individual:

- Recognizes that accurate and complete information is the
    basis for intelligent decision making
- Recognizes the need for information
- Formulates questions based on information needs
- Identifies potential sources of information
- Develops successful search strategies
- Accesses sources of information including computer-
    based and other technologies
- Evaluates information
- Organizes information for practical application
- Integrates new information into an existing body of
    knowledge
- Uses information in critical thinking and problem solving
    (Doyle, 1992, p. 8)

Bruce's Relational Model

The doctoral research of Christine Bruce – *The Seven Faces of Information*

Literacy (1997) – presents a relational model. Most models of information literacy are

primarily trait-based and essentially behavioristic. With such, an "information literate"

individual is defined as someone able to demonstrate or who otherwise evidenced a

certain set of attributes or skills.

Bruce's model of information literacy is phenomenographic in nature. It

acknowledges individual interpretations of what is meant by the term. It describes the

ways in which higher educators "relate to aspects of the world in their experience of

information literacy or of effective information use" (Bruce, 1997, p. 153). Through her

research, she found that individuals understand and define information literacy along

seven different "categories." In turn, her model not only articulates these various

characterizations of information literacy but describes how individuals relate to

information itself. The first four share an objective view of information while the last three perceive it as being more subjective, more internal in nature. Bruce's "seven faces" of information literacy (Bruce, 1997, p. 110-151) are summarized in Figure 2.

Conception	Description of Information Literacy
1. Information Technology	Using information technology for information retrieval and communication; dependent on availability and usability of information technology.
2. Information Sources	Finding information; dependent upon knowledge of information sources and the ability to access them – personally or with assistance.
3. Information Conception	Executing a process; individuals recognize a need for information and can use accessed information to meet that need.
4. Information Control	Controlling information; retrieve and manipulate information when necessary; storing and organizing of information.
5. Knowledge Construction	Building up a personal knowledge base in a new area of interest; information internalized and is unique to each individual.
6. Knowledge Extension	Working with knowledge and personal perspectives adopted in such a way that novel insights are gained; information's part of person and is transformed by the person; information used creatively.
7. Wisdom	Using information wisely for the benefit of others; person transformed, not the information.

Figure 2. Bruce's "Seven Faces of Information Literacy."

Like any research, Bruce's has both strengths and weaknesses. Notably, her model provides a definition based on practical experiences rather than those of information literacy scholars. Its focus on higher education also makes it particularly relevant to that environment. But, at the same time, that same focus also limits the "universalizability" of her work beyond academe (e.g. business, health care). Likewise, there is currently no similar research focusing on student or administrative points of view (Bruce, 1997).

The Multiliteracy Model

An emerging trend is to conceive of information literacy as an inclusive term being comprised of other literacies (e.g. Breivik, 2005; Doyle, 1994; Eisenberg, Lowe, &

Spitzer, 2004). Kathleen Tyner (1998), for example, observes that "there are some

attempts to try to broaden the constituency for information literacy by relating it to other

literacy efforts" (p. 101).

In talking about 21st century learning, this notion is echoed by renowned

information literacy advocate and author Patricia Breivik. She writes that "Much has

been written about the relationship between information literacy and other literacies such

as computer literacy, media literacy, visual literacy, etc. However, today information

literacy is "best envisioned as a broader concept that encompasses the other literacies"

(Breivik, 2005, p. 23). Figure 3 summarizes some of the more common types of

literacies (National Forum on Information Literacy, 2007).

Literacy	Ability to…
Business	Use financial and business information to understand and make decisions that help an organization achieve success
Computer	Create and manipulate documents and data via software tools; use a computer and its software to accomplish practical tasks
Health	Obtain, process, and understand basic health information and services needed to make appropriate health decisions
Information	The ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.
Media	Decode, analyze, evaluate, and produce communication in a variety of forms
Technology	Use media such as the Internet to effectively access and communicate information
Visual	Through knowledge of the basic visual elements, to understand the meaning and components of the image

Figure 3. Definitions, standards, and competencies related to information literacy.

Tyner (1998) divides the various types of literacies into two categories: tool

literacies and literacies of representation. Tool literacies are comprised of computer,

network, and technology literacies because they are associated with the tools of today's

society. Information, visual, and media literacies, on the other hand, are used in the

26

construction of information and, thus, are characterized as literacies of representation. She is quick to point out, though, that while the terminology used by each group is often different, the aims and competencies of both often overlap. Moreover, they are also "provisional and in flux…neither yet precise enough, nor all-encompassing enough, to convey a broad understanding of the needs for literacy in a digital world" (Tyner, p. 93).

Information and Communication Technology Literacy

Long associated with assessment (e.g. Scholastic Aptitude Test or "college boards"), the Educational Testing Service (ETS) has recently developed its own framework for better understanding and assessing information literacy. The ICT or "Information and Communication Technologies" model is a cognitive one. It does not just look at information or technology but attempts to understand how people think about information while using technology.

The model is the result of the work of the International ICT Literacy Panel. Convened in 2001 by ETS, the Panel was comprised of representatives from education, government, labor, and the private sector from four continents. Two themes which emerged from the Panel's discussions were the need for a measurement of ICT and the development of a framework which could be used for assessment purposes. The Panel felt that previous models focused too heavily on assessment of either "information literacy" or "technical fluency." It was also felt that much of the earlier work tended to examine workforce readiness and "skill gaps" of today's "knowledge worker." Finally, earlier models did not discuss the transmission of information (Educational Testing Service [ETS], 2002).

The ICT model which emerged reflects the Panel's attempts to eliminate these

"shortcomings." The definition which emerged from the Panel's efforts essentially

defines ICT literacy as "Using digital technology, communications tools, and/or networks

to access, manage, integrate, evaluate, and create information in order to function in a

knowledge society" (ETS, 2002, p. 2). This definition incorporates elements of *both*

information literacy *and* technical competence. But, it also recognizes the importance of

such outside of the workplace and education. That is, ICT acknowledges the need of

individuals to have certain fundamental skills to function successfully in a knowledge-

based society – regardless of context.

Recognizing that technology has many purposes and is used to perform a wide

array of tasks, ICT literacy is built upon seven progressively complex components. The

latter reflect both the skills and the knowledge needed by an individual. Figure 4

summarizes the seven proficiencies of ICT literacy (Educational Testing Service, 2007).

Element	Definition
Define	The ability to use ICT tools to identify and appropriately represent an information need.
Access	Knowing about and knowing how to collect and/or retrieve information.
Manage	Applying an existing organizational or classification scheme.
Integrate	Interpreting and representing information. It involves summarizing, comparing, and contrasting.
Evaluate	Making judgments about the quality, relevance, usefulness, or efficiency of information.
Create	Generating information by adapting, applying, designing, inventing, or authoring information.
Communicate	Creating an academic research topic to fit a particular information need

Figure 4. ICT proficiencies and descriptions.

"Proficiency" provides a method for understanding the inter-connectedness of

these components. *Cognitive Proficiency* refers to everyday problem-solving skills,

literacy, and other cognitive functions demonstrated by an individual. *Technical Proficiency* deals with an individual's knowledge of technology and ability to use hardware, software, and networks. "The degree to which an individual is both technically and cognitively proficient with each component independently and in relation to the other components essentially serves as the measure of that individual's *ICT Proficiency* or ICT literacy" (ETS, 2002, p. 18).

Information Literacy Instruction

The provision of "information literacy instruction" further exacerbates the problem of clearly articulating what is meant by "information literacy." Terms like "library orientation," "bibliographic instruction," and "user education" have long been used by librarians and others to denote instruction in the use of library resources. However, with the advent of "information literacy," increasingly such terms have come to be used interchangeably with "information literacy instruction" (e.g. Grassian, 2001; McCrank, 1992; Salony, 1995). Therefore, in attempting to define information literacy at a given institution, it is important to see what models of instruction are in place.

Bibliographic Instruction and Library Orientation

Historically, American academic libraries were storehouses of books and other textual information. They had relatively small collections which typically focused on the liberal arts, especially the humanities. Academic libraries were geared towards faculty. But, as libraries evolved, the notion of instruction began to emerge.

Numerous links between libraries and instruction began to appear at the end of the nineteenth century. At the first American Library Association conference in 1876, for example, Melvil Dewey linked libraries with schools, implying that librarians played a

key part in the education process and were essentially teachers (Grassian, 2001). Just a couple of years later, in 1879, the librarian at the University of Michigan, Raymond C. Davis, observed that students had a very limited understanding of libraries. He began giving lectures on the use of the card catalog and reference materials. He was also among the first to suggest a bibliography course to discuss the history of books and printing and how information was organized in a library (Davis, 1986). His course is seen as the first elective course in bibliography (Goggin, 1974).

Another librarian at that time noted for talking about user education was Harvard librarian (and first ALA President) Justin Winsor (e.g. Salony, 1995; Thomas, 2004). Into the late 1800s, library collections or "stacks" were generally not open to students. They had to ask a librarian for the item(s) they wanted and, as such, Winsor's proposal to open the stacks to students was a radical proposition. While most faculty had necessarily learned how to use the library as part of their doctoral work, Winsor now saw a need to educate students in the use of the library and advocated librarians becoming "research counselors" (Winsor, 1986).

Because of the emphasis on books and the printed word, these early attempts focused primarily on bibliographic instruction, teaching things like the history of books and the use and creation of bibliographies. As libraries began to change their operations, necessarily there was also considerable emphasis on "library orientation" which Beverly Renford and Linnea Hendrickson (1980) describe as "that portion of library instruction which introduces patrons to the physical layout of a library" (p. 24).

Library Instruction

These early attempts at establishing some form of instruction continued into the first half of the twentieth century. However, as the amount of information grew, it began to become apparent that mere tours and orientations were not enough. The changes taking place meant that instruction could no longer focus on just books and needed to incorporate instruction about the whole library. In 1909, for example, the first planned instruction took place at Columbia University (Goggin, 1974). In 1912, Joseph Schneider published an article suggesting that students be taught "intellectual bibliography" (Schneider, 1912). That same year, William Warner Bishop, librarian at Princeton wrote how he felt students from elementary school through college should be trained how to effectively use the library (Bishop, 1986).

Prior to World War II, libraries continued to struggle to establish instruction programs. Money was often more of a concern than pedagogy, particularly in the late 1920s and early 1930s and the time of The Great Depression. Moreover, only a small percentage of the population attended college. Still libraries were becoming more integrated into the curriculum and college setting as a whole (Salony, 1995).

After World War II, though, dramatic changes began to occur in higher education. Enrollments increased significantly. The "space race" of the 1950s also brought increasing attention to higher education. These and other developments resulted in legislation and budgets more supportive of colleges and universities (Salony, 1995).

Librarians were evolving from "specialists" to "generalists" in order to better deal with growing amount and variety of information. As a result, "bibliographic instruction" began to evolve as well. Instruction began to become lecture-based and students were

asked to complete assignments based on the lecture. Because they tended to focus on the whole library and because of the task-oriented nature of such classes, such presentations were often referred to as "library instruction" (Thomas, 2004).

Course-Integration

In 1913, Lucy Salmon was among the first to write about the notion that instruction should be given in connection with individual classes (Salmon, 1986). And yet, despite the growth in and changes to higher education during the post-War era, library instruction continued to flounder and integrating such into courses was a distant dream. Part of the problem was that demand exceeded the supply. More students meant more instruction and many libraries simply did not have the staff or resources to provide all of the instruction that was needed or even requested.

Patrician Bryan Knapp is generally seen as one of the "foremothers" of modern instruction. She was concerned about the quality of undergraduate papers and was among the first who called for a departure from the one shot "library orientation" model whereby students spent an hour or two in the library learning about resources and services (Grafstein, 2002). She also generally found that faculty lacked a "systematic view of the library" and that librarians should take the lead in providing instruction in the use of library resources and information skills. Knapp's program of instruction developed competence over a period of time and focused around the organization of information, the identification of core works, and the importance of evaluating and interpreting information (Knapp, 1966). Her focus was on "intellectual processes involved in retrieval of information and ideas from the complex system our society uses to organize its stored record" (Knapp, 1966, p. 81).

The Earlham College model (e.g. see Hardesty, L., Hastreiter, J., & Henderson, 1993) is another key model to have emerged around this time. Developed by Evan Farber, Thomas Kirk, and James Kennedy in the 1960s, this model focused on faculty-librarian collaborations and assignment-based instruction. It was believed that working together was necessary to insure success of any instructional program involving the library. The Earlham model had three components: 1) Integration – embedding instruction in courses using the library, 2) Demonstration – the primary mode of instruction and 3) Gradation – instruction takes place over four years (Kennedy, 1986, p. 233).

Credit-bearing Courses

This focus on student needs and the emphasis on the idea that instruction should take place over an extended period of time formed the foundation of the so-called "grass roots movement" that emerged in the 1960s (Salony, 1995). Perhaps more significantly, it also evolved instruction from a "task oriented" approach to one that was more process driven (Grafstein, 2002).

Despite success, course-integrated instruction had its problems. One of the lingering concerns was the lack of time. That is, librarians were often only given a single class or two to provide instruction. Focusing on a specific assignment or course was important but did not allow the kind of depth that was desired or often needed by students. Credit-bearing courses were suggested as a solution.

One of the first to call for separate, librarian-taught courses was Daniel Gore. In his 1964 article, *Anachronistic Wizard: The College Reference Librarian*, Gore outlines a basic one-semester course that he felt could be taught by any librarian. His proposal

incorporated elements of all of the aforementioned methods and approaches both in terms of pedagogy and content (Gore, 1964).

In the 1960s and early 1970s, a number of other changes took place which further galvanized the instruction movement and enabled instruction to permanently establish itself. Audio-visual materials and related technologies began to emerge. Library collections grew. Textbooks began supplanting lectures. Students became more self-directed and a basic "library orientation" was increasingly no longer seen as adequate (Salony, 1995).

The growing importance of library instruction at that time can also be linked to a number of developments within librarianship as a whole. In 1967, for example, the ALA formed the Instruction in the Use of Libraries Committee. Then, in 1971, ACRL created a Bibliographic Instruction Task Force which, in 1977, became the Bibliographic Instruction Section. One of the problems for librarians was staying abreast of developments in instruction (Kirk, 1974). Thus, in 1972, Project LOEX began. Based at Eastern Michigan University, the Library Orientation and Instruction Exchange program was a way for librarians to collect and disseminate information about instruction. Finally, in 1977, ALA created the Library Instruction Round Table (Patterson, 1990). Interest in the work of Farber is seen as instrumental in the formation of these groups (Thomas, 2004).

Information Literacy Instruction

The transformation of instruction during the 1980s and 1990s parallels the evolution of information literacy noted above. Technology was making growing amounts of information available in a variety of formats. In essence, it meant that information was

no longer the sole territory of libraries and librarians. Recognizing the broader context of information and that it was no longer a library-specific commodity, calls for "information literacy instruction" began to emerge and increasing references to such began to appear in the literature.

Reflecting this trend, the notion that information literacy instruction needed to be embedded throughout the curriculum (i.e. not just within the library or a set of specific classes or disciplines) began to become more commonplace. For example, in 1994, San Jose State University was among the first to develop a campus-wide information literacy program The Information Literacy Initiative. Because of a need for new skills for 21st century, the latter included traditional literacy (reading and writing, computer, media, and network (Tyner, 1998). The notion of curriculum-integrated instruction is further developed in publications such as *Information Literacy Competency Standards for Higher Education* (2000) and *Objectives for Information Literacy Instruction: A Model Statement for Academic Librarians* (2001). These publications were among the first to provide academic librarians and faculty members with the tools to work collaboratively to incorporate information literacy into the curriculum.

Patricia Breivik is perhaps the strongest proponent of this "across the curriculum approach." Her 1998 book, for example, *Student Learning in the Information Age*, is among the first to suggest that the best approach is course-integrated instruction involving extensive faculty-librarian collaboration. Building upon the work of her predecessors, she feels that the only way that information literacy instruction will be successful is if it is integrated into all courses across the entire curriculum for all students (Breivik, 1998). While one-shot workshops and traditional tours and bibliographic

instruction sessions have a role, they cannot be the only instruction given if we truly want

to produce "information literate" graduates. In any of a number of works, she advocates

that:

> At the institutional level, there needs to be agreement on
> the definition of, and a commitment to, information literacy
> as a core competency for all graduates…Next, each
> program needs to determine which research skills are
> required in its discipline, in which courses the skills should
> be introduced and reinforced, and where students should be
> expected to demonstrate mastery of them by way of a
> culminating experience (Breivik, 2005, p. 26)

From the instructional perspective, Carol C. Kuhlthau is often associated with this

shift in thinking of information literacy being a user-driven process rather than a

resource-driven one. She was among the first to conduct empirical studies of how people

seek information. As a result of her research, Kuhlthau identified three approaches to

instruction. The Source or Tool approach is a sort of "how-to" approach and focuses on

teaching the tools and techniques needed to understand how information is organized and

how it can be retrieved. The Pathfinder or Search Strategy approach begins by teaching

rudimentary tools and techniques, gradually progressing to more pertinent ones. Process

approaches begin with a specified need and is user versus resource-centered (Kuhlthau,

1987).

Kuhlthau's Information Search Process (ISP) Model (Kuhlthau, 1991, 1993) is

still seen by many as the seminal work in this field. Nancy Thomas (2004), for example,

states that her ISP model "represents a watershed in the development of new strategies

for the delivery of library skills instruction…it has served as the basis for much of the

research on children's information-seeking behavior and library skills instruction undertaken since the 1990s" (p. 30).

The ISP Model draws on information gathered over a 10-year period. Kuhlthau (1991) looked at information seeking from a user perspective. She initially identified six processes individuals go through during their information seeking: task initiation, task selection, topic exploration, focus formulation, resource collection, and presentation.

Since then, other process models have emerged. Developed in 1990 by Michael Eisenberg and Bob Berkowitz, the Big6 Skills Model, for example, is in use by thousands of school districts around the world (Thomas, 2004). This model looks at any need for information as a problem to be solved through a series of six stages: defining, locating, selecting, organizing, presenting, and assessing. The model is, thus, good for homework as well as for real-life situations outside the classroom (Eisenberg and Berkowitz, 1990).

The dissertation work of Judy Pitts (1994) revealed that the models which students have of libraries keep them from developing both a deeper understanding of how information is organized and an appreciation of other resources. Among other findings, Pitt found that students tended to view libraries as "one-stop-shopping" and, as a result, often did not use or did not consider information sources beyond the library (e.g. museums, professors). She also found that when students did not find information in a given source, they took it to mean that the information was not able to be found anywhere.

These and other so-called "process models" of instruction reflect the growing emphasis of information literacy. Indeed, the difference between the ALA standards and the Big6 Skills Model are virtually non-existent. These current trends demonstrate an

emphasis on the process of information-seeking rather than on specific resources (e.g. bibliographic instruction) or library-specific skills (e.g. library orientation). They recognize that information exists at all levels of Society and that individuals need a variety of skills to effectively navigate the ever-growing sea of information.

The Challenges

Those wishing to develop and implement information literacy instruction in a higher education context face any of a number of challenges. Insufficient or inadequate resourcing are commonly cited obstacles (e.g. Breivik, 2005; Hutchins, E., 2002; Ivey, 2003). But, perhaps the biggest challenge continues to be defining the term. As has been demonstrated earlier, the state of today's "information literacy instruction" directly parallels the development of the concept of information literacy itself. And yet, there is still considerable disagreement about what exactly that means and implies.

Abstraction

For some, there is the fundamental problem of abstraction. Lawrence McCrank (1992) characterizes it by stating that "Information literacy is difficult to define but easier to describe because it is an abstraction" (p. 485). This is echoed by Shirley Behrens (1994) who noted that information literacy is an abstract concept that is descriptive but not necessarily "interpretable." Tyner (1998) says much the same when she states that "Information literacy is an abstract concept…it is a neatly packaged, imaginative, and descriptive phrase that is not literally applicable or easily interpretable, employing something more qualitative and diffuse than is evident in the historical meanings of both *literacy* and *information*" (p. 97).

The abstract nature of the concept makes it difficult to identify an "information literate" individual. In the ALA model, while the standards are replete with descriptions of the skills needed to be information literate, there is no discussion about how to identify such individuals or what exactly is meant when one is deemed "information literate." This raises numerous questions. Among others, does one need to "master" all accepted standards or can someone master a particular standard (e.g. retrieving information) and still be considered "information literate?" Can someone be partially literate any more than they can be partially information literate? What exactly does that mean and how might such a person be characterized? These questions are summed-up by Grassian (2001) who asks if information literacy is a measurable set of skills or something cognitive. The abstract nature of the concept makes answering this question difficult at best.

Despite the abstract nature of the concept, though, the concepts underlying information literacy have been around a long time. As Doyle notes, "The evolution of the concept of information literacy has been slow, but steady and lasting" (Doyle, 1994, p. 13). Most definitions share some common elements. Most, for example, agree that, at the very least, information literacy involves identifying, locating, evaluating, and using information effectively. Similarly, most agree that information literacy skills and techniques should be transferable to multiple information environments (e.g. Eisenberg, Lowe, & Spitzer, 2004; Grafstein, 2002, Grassian, 2001).

Interchangeability

Still, as has been demonstrated, there are as many differences as there are commonalities in terms of how "information literacy" and "information literacy

instruction" are defined and interpreted. Along with the abstract nature of the term, the

"interchangeability" of the term creates an additional layer of obfuscation. For some,

information literacy is often seen as being much the same thing as "technology literacy"

or "computer literacy" because of the increasing inter-dependence of information and

technology (Grassian, 2001). As definitions have evolved over the years, though, many

have come to equate the term with "lifelong learning" or "resource-based learning"

(Cunningham, 2002). Even renowned information literacy advocate Patrician Senn

Breivik suggests that the term "information literacy" is interchangeable with "critical

thinking" (Breivik, 2005).

This "interchangeability" poses problems on several levels. Although information

literacy is increasingly being seen as the responsibility of higher education (Breivik,

2005), "Not all those in academe who use the phrase 'information literacy' have the same

understanding" (Snavely and Cooper, 1997, p. 53). Lacking a common vocabulary, it is

often difficult for librarians to discuss information literacy and generate support for such

with faculty members. Snavely and Cooper, go on to suggest it is this lack of clarity

which "prevents them from realizing their common ground" (1997, p. 58).

But, even within librarianship, there is often considerable variation in terms of

what is meant by information literacy. Patricia Serotkin (2006) observes that "Despite

information literacy's significant presence in discussions in academic libraries and

academe, librarians continue to debate the definition of the concept" (p. 19). In talking

about librarians' role in the teaching of information literacy skills, Rebecca Albrecht

found evidence that successfully getting information literacy standards across to other

librarians was a "fundamental issue." Among other findings, she discovered that 29% of

librarians "were clearly confused about the nature of the standards, their proper use, and implementation" (Albrecht, 2002, pp. 87-88).

Ruth Ivey's (2003) research yielded similar results. She reports that, of the academics and librarians she studied, understanding the difference between information literacy and user education was the most significant problem among the librarians. More than half of the librarians in her study were concerned with a more traditional model of user education than with true information literacy instruction.

Breivik and Gee (1989) make a similar observation about the literature of librarianship in general:

> Library literature is not always clear about what is meant; sometimes the term is used as a replacement for older terms that have simply become passé, like *library skills, library use,* or *bibliographic instruction*…at other times usage implies that this new concept embraces all others as an expansion rather than replacement (p. 12)

Christine Bruce suggests that these variations might be "partly due to the recent and continued emergence of both the phenomenon itself and scholarly understanding of it" (Bruce, 1997, p. 11).

Multiliteracies

The confusion surrounding the variant definitions and understandings of "information literacy" are further exacerbated by the emergence of "new literacies." As Lori Arp (1990) states "The literature is certainly at present full of new types of literacies – cultural literacy, scientific literacy, and computer literacy have all been recent additions" (p. 47). Usually, such literacies have generally gained attention only when some deficit has been identified through some sort of competency-based testing. Having identified a standard to be achieved, a literacy emerges to remediate that need.

Still, some in the information professions have come to characterize information literacy as encompassing many, if not all, of these other literacies (Breivik, 2005). June Pullen Weis (2004) observes that there are a variety of synonyms for what she calls 'contemporary literacy skills.' She feels though, that while it is clear that today's workplace demands workers have effective information skills, what is missing "Is a clear definition of 21st century skills with commonly agreed-upon terminology" (p. 12-14).

Unfortunately, this sort of representation can be problematic because it places these other literacies "beneath" information literacy, suggesting that they are somehow inferior or otherwise subordinate. Rather than exploring the overlap and possible new combinations of literacies and, in turn, forging new collaborative partnerships, proponents of one literacy – especially when new models emerge – often try to demonstrate the "superiority" of their literacy over others. Moreover, as Snavely and Cooper (1997) write, "faculty increasingly feel beleaguered by requests to incorporate material from these competing literacies and programs into their courses" (p. 55).

Kathleen Tyner (1998) feels this may ultimately be little more than an attempt to deflect criticism and otherwise depersonalize school (and individual) failure with a previous model or a model currently in use. She points out, this may partially explain why the literature of media, visual, and other literacies often fails to mention information literacy. But, in fairness, mention of these other literacies is often lacking in the literature of information literacy as well. Tyner suggests that "the need to set one literacy apart from another can only be explained by a need to use the concepts for other reasons, that is, to strengthen the professional status of its constituencies, or to take issue with the approaches used by proponents." (p. 104).

Library-specific

As alluded to above, one of the problems associated with the emergence of "other literacies" is that information literacy can come to be perceived as specific to the library or librarians. That is, faculty may have difficulty generalizing the notion across disciplines and may perceive "information literacy" as a concern or issue significant only to library and information professionals. As Lori Arp (1990) notes, "What may appear to be obvious skills to the information scientist may be unimportant to success in different disciplines" (p. 48). This further reinforces the perception that "information literacy" is a library-specific concern.

Numerous authors write about the idea that information literacy is not necessarily well-understood outside of the library and information science fields. Behrens (1994), for example, observes that, despite growing attention being placed on information literacy, it is still a notion confined primarily to the fields of library and information science. Arp asks if "bibliographic instruction" and "information literacy" are the same. She concludes that they are – at least in some ways. But, she is quick to point out that "neither term is particularly well defined by theoreticians or practitioners in the field" and that "the term is not necessarily well understood outside the profession." (Arp, 1990, p. 49). Grassian (2001) suggests much the same when she observes "Definitions of information literacy and lists of information literacy competencies vary greatly among institutions and environments as do means of helping learners become information literate" (p. 53).

Regardless, responsibility for information literacy instruction often comes to be seen as a library responsibility, not a shared responsibility of all (Breivik, 2005). This is

one of many issues discussed by Lawrence McCrank in his 1992 article, *Academic Programs for Information Literacy: Theory and Structure*. He wrote that "Recent discussions use the seemingly generic definition but assume a library-specific meaning as when interchanging *information literacy* with *library-based research*" (p. 487). Moreover, he believes that "During the late 1980s and continuing, attention to the information literacy problem has largely been a library promotion" (p. 487). Ten years later, a similar observation was made by Elizabeth Hutchins (2002) in a study of two liberal arts colleges in Minnesota. "While librarians were becoming increasingly fluent with the concept of information literacy, most faculty in other departments had yet to be introduced to it" (p. 9).

Classes geared specifically to information literacy instruction further reinforce the "library ownership" perception. Ann Grafstein, for example, found that information literacy instruction is often treated as a separate discipline or field of study unto itself. Information literacy comes to be seen in isolation from other topics or fields of study, often "owned" by librarians rather than as something to be integrated into the curriculum by all faculty (Grafstein, 2002), particularly if taught solely by librarians. Rebecca Albrecht reports similar findings. In talking about faculty's views of information literacy standards, one survey respondent in her study stated that these are "our [librarians'] standards, not theirs, and therefore carry little weight" (Albrecht, 2002).

Mental Models

The fact that information literacy may be seen as primarily the province of librarians and information professionals may be a result of mental models individuals have of libraries and librarians. Many librarians consider instruction a core

responsibility. Many trace this back to Melvil Dewey. Speaking at the first American Library Association conference in 1876, he equated libraries with schools and, as such, he suggested librarians were teachers.

And yet, many faculty and students do not share this perception (Snavely and Cooper, 1997). As Irene Doskatsch (2003) notes "Attitudes of academics towards librarians are largely influenced by previous experiences, in some cases by prejudicial baggage, and through prevailing public images" (p. 116). Elizabeth Hutchins et al (2002) write that the work of librarians is often misunderstood and "invisible." Both their scholarship and the nature of their expertise is often unclear (p. 7). In turn, faculty often fail to make the distinction between librarians and staff and, as a result, librarians are often perceived as subordinate (Doskatsch, 2003).

At least in part, these mental models help provide a context for some of the resistance librarians experience when attempting to introduce information literacy into a course or curriculum. Fear of a loss of classroom time, budgetary concerns, and lack of assessment tools may be the cause of some reluctance (Breivik, 2005). Faculty, though, face any of a number of increasingly difficult choices both within their classrooms and beyond and often information literacy is the loser. As Elizabeth Hutchins et al (2002) state:

> Though faculty…subscribe to the principles of information literacy, lobbying to make it a requirement would pit those principles against many other worthy causes, and could subject already accepted values to unnecessary attack…a general education requirement attached to a course or limited number of courses, counters the notion that research skills are embedded in disciplinary traditions and are developmentally built up throughout an undergraduate's career (p. 14)

Faculty Expertise

Despite perceptions of themselves as being the ones primarily responsible for providing instruction, many faculty do not feel comfortable teaching "information skills." Breivik (2005) reports that many faculty simply do not know how to go about the task. As demonstrated earlier, many may be unfamiliar with the term and/or have an unclear understanding of what is meant by "information literacy." Moreover, many faculty have become so specialized that it makes it difficult for them to talk across disciplines in the manner deemed necessary for true information literacy instruction to be successful (Snavely and Cooper, 1997).

Cunningham discusses a number of specific factors further limiting faculty involvement. Among others, he observes that many faculty members do not have time to stay current with the resources and, thus, assignments quickly become out-dated. Worse, they may perceive receiving information literacy instruction as "remedial" and choose not to seek assistance (Cunningham, 2002). But, even if they want to stay current and make an attempt to receive instruction, professional development opportunities are often unavailable, inconvenient, and/or inappropriate to their needs (Ivey, 2003).

In her dissertation, Patricia Serotkin draws an analogy between the shift from bibliographic instruction to information literacy instruction and the shift from a teaching to a learning paradigm in higher education (Serotkin, 2006). This section provides an overview of that paradigm shift and examines the literature of the "learning organization" as a means of providing a framework for better understanding the challenges faced by those attempting to define information literacy and ultimately implement information literacy instruction.

Summary

Even a cursory examination of the literature reveals that the amount of information being produced each year is growing at a staggering pace. The Internet, cable and satellite television, cell phones, and a host of other emergent technologies are making such information available virtually anywhere at any time. As a result, educators are increasingly calling for students to become "information literate" – to not only know how to access information but how to evaluate it once they do. In turn, the term information literacy appears in an increasing number of accreditation expectations, student learning outcomes, University mission statements, and similar planning and assessment documents.

Librarians and other information professionals typically cite the ALA definition of information literacy in 1989 as the capstone definition. It characterizes an "information literate individual" as one who is able to essentially access, retrieve, and use information effectively. And yet, since the term was first used in 1974, the ALA's definition is but one of many definitions and interpretations to have emerged. In addition, during this same time period, numerous other "literacies" (e.g. science, cultural, communication) have emerged as well, many of which contain some of the same language found in the ALA definition.

Multiple definitions, redundancies, and mixed interpretations result in considerable confusion – even among information professionals themselves – as to what exactly is meant by "information literacy." This had made it very difficult to develop and administer any consistent, campus-wide programs of information literacy at many higher education institutions. Some see "information literacy instruction" as a distinct area of

study while others believe it should be integrated into the curriculum. Others feel there are "global" information skills that everyone should be taught, while others believe that the focus should be on those skills and resources specific to a given discipline.

Despite these and other challenges, though, there is general agreement among educators about the efficacy of instilling students with critical thinking and lifelong learning skills which are transferable beyond the classroom into the everyday world. As these skills are at the core of information literacy, the latter is increasingly viewed as a vehicle for achieving these goals.

In identifying common elements, challenges, and themes, a practical, working definition of information literacy for the campus being studied can be developed. Subsequently, this definition can be used to generate programs and activities for faculty and students alike. This definition will also be used to help determine how such programs and activities will be administered. Because other campuses will face similar challenges, it is possible the results of this study may have broader applicability beyond the campus being studied.

Learning Organizations

Changes in Society

Three of the biggest changes taking place in Society today are changing demographics, the spread of technology, and globalization. While there are certainly other changes taking place, these three are often cited as key challenges to higher education in the 21st century (e.g. Blackstone, 2001; de Weert, 1999; Dolence and Norris, 1995). Educators and administrators alike are being forced to examine the mission of higher education and the way instruction is provided. As Clarissa Craig (2004) states

"Higher education is coming under scrutiny as students and others examine practices, policies, missions, and outcomes" (p. 80).

These and other changes have served as the main catalysts behind the evolution from the "Industrial Age" to the so-called "Information Age" or the "Knowledge Society." To understand this important Societal shift, it is important to have an understanding of the previous age from which the present one emerged. The Industrial Age was characterized by an emphasis on producing goods and services which were then sold to customers (Jongbloed, 2002). As a result, physical assets were the primary measure of organizational value. The productivity of organizations was rigid and typically followed a "factory model" approach based on a simple method of inputs, processes, and outputs (Dolence and Norris, 1995).

With the development of new technologies, growth of globalization, and increased competition that began to emerge in the 1960s, the Industrial Age began to evolve. For example, at that time, technology and, in particular, computers were often perceived as little more than tools which could streamline or even replace many clerical sorts of tasks and functions. However, as computers and other technologies created new information and communication flows, the value of technology changed as well. The internationalization of commerce, the greater mobility of money, and the rapidity of communication resulting from technology were among the many changes taking place which gave technology greater significance in the workplace (Blackstone, 2001).

In the United States, the year 2000 is credited as being the start of the Information Age (Craig, 2004). Boekhurst and Britz (2004) cite three common themes characterizing the Information Age. First, information has become one of the most important assets of

Society. Second, rather than acting upon the "scarcity" of information the focus now is increasingly on managing the abundance of information. Third, the "rapid development of information and communication technologies has become the engine in the process of globalization" (p. 63).

The Information Age requires workers possess a variety of new skills. The need for and desirability of "information skills" is well-documented (e.g. Breivik, 2005; Dolence and Norris, 1995; Doyle, 1994; Gumport, 2005; Jongbloed, 2002; Salmi, 2002). Boekhurst and Britz (2004) state that "To be able to function adequately in a society that is oriented towards information and ICT [Information and communication technologies], people need to become more information literate than ever before" (p. 63). Unlike the Industrial Age's emphasis on physical labor and natural resources, the Information Age focuses on innovation, knowledge, skills, and ideas (Blackstone, 2001). The sheer amount and variety of information and information technologies available have forced organizations to become "fast, fluid, and flexible" (Dolence and Norris, 1995). Figure 5 summarizes key differences cited by Dolence and Norris (Dolence and Norris, 1995, p. 30).

	Industrial Age	*Information Age*
Nature of Jobs	Tightly defined positions within an organization	Knowledge workers who are mobile
Nature of Organizations	Rigid, formula-driven	Fast, fluid, flexible
Source of Organizational Value	Physical assets	Intellectual assets, group-centered knowledge
Pattern of Learning	Time out for training	Fusion of work and learning
Competitive Advantage for Education	Virtually exclusive teaching franchise. Clustering of instructional resources is a major competitive advantage.	Network scholarship, the measurement of competence, and certification of outcomes establish competitive advantage.
Defining Educational Roles	Provider	Facilitator, knowledge navigator, and learner/service intermediary

Figure 5. A new world of work and learning.

Changes in Higher Education

As Society has been making the transition from the Industrial Age to the Information Age, higher education has been undergoing a similar evolution. "The development of the information society and the knowledge society is causing fundamental change in the nature of organizations, and this includes universities" (Johnston, 2003, p. 349). Jongbloed observes that the traditional model of higher education cannot accommodate the changes which began to emerge in the 1990s (Jongbloed, 2002). But, Jongbloed and Johnston are not alone. Numerous authors discuss the need for colleges and universities to develop ways of successfully navigating these changes if they are to remain competitive (e.g. Blackstone, 2001; Craig, 2004 Dolence and Norris, 1995; Jongbloed, 2002; Nair, 2003; Newby, 1999).

These sentiments are perhaps best summarized by Clarissa Craig (2004) who observes that:

> Often higher education institutions have served as change agents for society but they, themselves, have functioned with a great deal of autonomy and now find such autonomy challenged. Changes on many fronts are forcing higher education institutions to determine how they must position themselves for success in the future (p. 79).

Today, the "Knowledge Economy" is forcing a similar transition in higher education. Historically, higher education has long been associated with "knowledge for knowledge's sake." But, like their public school counterparts a century ago, today's colleges and universities are under increasing pressure to provide practical knowledge and vocational skills. As Prakash Nair (2003) states, one of the key challenges facing higher education in the United States is to "preserve America's rich tradition of excellence while responding to the inexorable forces of change in the global economy" (p. 23).

Prior to World War II, undergraduate education in the U.S. was typically seen as an "elite pursuit" reserved for members of the middle and upper classes of Society. Education reflected many of the norms, values, and structures of the Industrial Age mentality. For example, education was almost exclusively "provider-driven." There was also a set time for learning – typically a semester for most classes. Likewise, performance was gauged on minimum standards of attainment. As technology became more prevalent, education was seen as more of a support tool (Dolence and Norris, 1995).

Since the 1960s, though, there has been a growing movement away from "traditional" arts and sciences programs to more "practical arts" ones. In part, this is in response to increased credentialing requirements for many fields (e.g. psychology). But,

this shift also parallels the emergence of disciplines and careers which did not exist a generation ago (e.g. computer science) (Brint, Riddle, Turk-Bicakci & Levi, 2005).

As a result, by the 1980s, the "ivory tower" notion that institutions of higher education were somehow "aloof" or otherwise separate from the communities in which they found themselves had all but died (Newby, 1999). Funding for higher education, for example, began to be linked to performance. Performance, in turn, was increasingly measured in terms of performance on standardized tests. In many ways, this can be attributed to the publication of *A Nation at Risk* (1983) which was interpreted by many to mean that low test scores (compared to other students in other countries) was linked to poor or low productivity and lack of competitiveness. *No Child Left Behind* (2002) is often seen as the "capstone" of the Effective Schools movement. It called for national goals, curriculum, and tests. Because of these and other factors, the marketplace mentality or the business approach took hold in education. That is, successful schools will continue, unsuccessful ones will not (Cuban, 2004).

In higher education, this shift is reflected in the accreditation standards of various accrediting agencies. In talking about accreditation mandates and what they mean for faculty and librarians, Gary Thompson (2002) observes that:

> Accrediting bodies have been moving in the direction of requiring greater accountability from institutions of higher education to ensure that students are learning and that students acquire the competencies to function effectively after graduation (p. 220).

Thompson's observations are echoed by others. Ratteray (2002), for example, notes that prior to 2002, the focus during accreditation had been on inputs and outputs. After 2002, though, the focus shifted to outcomes, especially student learning outcomes. As a direct

result, information literacy is increasingly seen as a student learning outcome. Saunders (2007) suggests this is because it "provides an opportunity to improve student knowledge and abilities, habits of mind, and skills throughout their program of study" (p. 317).

The first specific mention of the term by a regional accrediting agency was in the 1994 edition of Middle States' *Characteristics of Excellence in Higher Education.* The reference was based on the ALA definition. Unfortunately, while it brought attention to the topic, response was still not strong. This could have been because of its inclusion in the library section, suggesting that information literacy was the library's responsibility (Ratteray, 2002).

In the 2006 edition of *Characteristics of Excellence in Higher Education*, however, information literacy is more distributed. For example, it appears at the center of "Educational Offerings." There are also numerous references to things such as "critical thinking" in which information literacy can certainly play a role. Today, of the six regional accrediting agencies, three now mention information literacy directly in their standards while the other three refer to "library instruction" in a similar capacity. Of these, Middle States is the most detailed (Saunders, 2007). Thus, while information literacy is still not a specified standard, it is clear that it is needed to achieve standards.

Because of these changes, many colleges and universities have begun to restructure their curricula. As Saunders (2007) explains, this suggests that information literacy has a "much broader application than just to the library" (p. 324). That is, it will increasingly be seen as a shared responsibility of everyone, not just of the librarians or of a particular course or discipline.

In fact, in talking specifically about general education, Ilene Rockman (2002)

believes that:

> The goals of many restructured general education programs
> reaffirmed learning at the center of the educational
> enterprise…as the enabler for continuous learning in a
> technologically rich and globally diverse society,
> information literacy has been viewed by some universities
> as the foundation piece of this restructuring effort (p. 187)

Ratteray (2002) believes this will lead to further changes in dialogue about student

learning as well as increased collaboration campus-wide. As discussed earlier, this

"distributed" model of information literacy is the preferred model of many information

literacy experts (e.g. Breivik, 1998).

Origins of the Concept of the Learning Organization

The notion that individuals can and do learn is at the foundation of education. By

learning, individuals change themselves and, in turn, the world around them. A relatively

new concept, though, is that of the "learning organization." Just as Society is evolving

from an Industrial Age to an Information Age, education is transforming from an

instruction-oriented paradigm to one that is learning-focused. Such institutions are often

referred to as "learning organizations."

The origins of the concept of a learning organization can be traced back to the

1960s. In 1968, Robert Hutchins published a book entitled *The Learning Society*. As the

title suggests, Hutchins advocated the creation of a "learning society." Given a number

of factors (e.g. rapidity of change), Hutchins believed that traditional educational systems

and structures were no longer adequate. Rather, he felt learning had become fundamental

to successful and effective change. To that end, Hutchins felt that education should no

longer be a separate activity but an integral part of one's daily life to the point of being the ultimate aim of Society.

This notion is echoed in Edgar Faure's book *Learning to Be: The World of Education Today and Tomorrow* (1972). The following quote demonstrates that Faure also believed in necessity of creating a learning society:

> If learning involves all of one's life, in the sense of both time-span and diversity, and all of society, including its social and economic as well as its educational resources, then we must go even further than the necessary overhaul of 'educational systems' until we reach the stage of a learning society (Faure, 1972, p. xxxiii)

Shortly thereafter, in 1973, Donald Schön published *Beyond the Stable State*. This seminal work talks about the idea of the constancy of change. One of Schön's main concepts is the notion that we are all involved in constant states of change or "transformation"; that there is no such thing as a "stable state" that remains unchanged over time. Recognizing circumstances are constantly changing, he believes organizations must create "learning systems" if they are to succeed on an ongoing basis:

> We must, in other words, become adept at learning. We must become able not only to transform our institutions, in response to changing situations and requirements; we must invent and develop institutions which are 'learning systems,' that is to say, systems capable of bringing about their own continuing transformation. (p. 28)

Characterizing Learning Organizations

Ongoing, continuous learning is at the heart of learning organizations. Just as individuals learn, organizations themselves are thought to "learn" as well and change as a result. By becoming a learning organization, organizations empower individuals within the organization to learn continuously. In so doing, the individuals and, hence, the

organization are better equipped to develop and implement effective strategies for sustainable change.

In talking about higher education in the 21st century, many authors and educators talk about the need to create these more active learning environments to better prepare students for lifelong learning and problem solving (e.g. Blackstone, 2001; de Weert, 1999; Forest, 2002; Frostd, 2001; Newby, 1999). Robert Barr and John Tagg, for example, say "we must consciously reject the instruction paradigm and restructure what we can do on the basis of the Learning Paradigm…We cannot solve our problem with the same level of thinking that created it" (Barr and Tagg, 2005). But, what exactly does this mean? What is a "learning organization?"

In 1999, the Kellogg Commission published a report entitled *Kellogg Commission on the Future of State and Land-Grant Universities*. The report cites three issues that need to be addressed in order to create a "learning society": 1) Make lifelong learning a part of our core public mission through equal access, partnerships, mission differentiation, and accreditation, 2) Create new kinds of learning environments incorporating higher order reasoning abilities, upgrading skills, faculty development, research on learning, and technology in teaching, and 3) Provide public support for lifelong learning through public investment, research, infrastructure support, and new aid policies (Kellogg Commission on the Future of State and Land-Grant Universities 2000, Executive Summary, p. xi-xiii).

More recently, Neil Chalofsky (2005) equates learning organizations with new ways of thinking. He also believes they will "help us move from an industrial era to a knowledge era" (p. 54). He identifies four characteristics of learning organizations:

1) Transforming – always adapting
2) Self-directed learning – but within a community of
   learners
3) Cooperation, collaboration, & networking – cannot do it
   alone
4) Learning is purposeful, occurs at the individual, group,
   and organizational level, and is for the mutual benefit of
   the individual and the organization (p. 54)

By addressing these issues, institutions create an environment geared towards true learning. Pedagogy goes from a top-down model focusing on instruction to one that is user-centered with an emphasis on learning. Barr and Tagg define this new "learning paradigm" as essentially one in which "each class learns more than previous class" (Barr and Tagg, 2005). Some of the specific elements of this new environment that they identify are summarized in Figure 6 (Dolence and Norris, 1995, p. 58).

Industrial Age	Information Age
Classrooms, libraries, and laboratories	Network
Teaching	Learning
Seat time-based education	Achievement-based learning
Classroom-centered instruction	Network learning
Information acquisition	Knowledge navigation
Distance education	Distance-free learning
Continuing education	Perpetual learning
Time out for learning	Fusion of learning and work
Separation of learners and learning systems	Fusion of learning systems

Figure 6. Changing metaphors for realigned, redesigned, learning organizations.

Links to Information Literacy

As institutions of higher education undergo the transition to the learning paradigm, information literacy is receiving renewed attention. Again, we see significant

overlapping and interchangeability of terms like "lifelong learning," "resource-based learning," "learning organizations," and "information literacy." Thomas Cunningham (2002), for example, writes that "Information literacy is not a destination, it is an ongoing journey, and it is the key to lifelong learning…Developing lifelong learners is central to the mission of higher education institutions" (p. 344-345). Grafstein (2002) states much the same when she states that "Almost without exception, the literature notes that the ultimate goal of information literacy is to impart the skill of *lifelong learning* or *learning how to learn*" (p. 199). Similarly, Breivik (1999) comments "Concerns for educational reform existing today are driven by demands from business and legislators for graduates who are lifelong learners" (p. 274).

The aforementioned Kellogg Report calls for State and Land-Grant universities to become learning societies and demonstrate a commitment to lifelong learning. In fact, survey results indicated that 94% of respondents felt "land-grant institutions are suitable places for lifelong learning" (Kellogg Commission on the Future of State and Land-Grant Universities 2000, p. 23). The evolution to such is seen as a way of meeting the demands of a changing workforce and the accelerated pace of technological change among other factors.

In talking specifically about information literacy in higher education, Bill

Johnston (2003) states that "Information literacy is the term used to describe a

number of initiatives in higher education that seek to meet the broad demands of

the information society" (p. 335). Johnston characterizes an "information literate

university" as:

> When academic staff become information literate it can
> influence their pedagogic thinking and the way they
> conceive of their own discipline and its knowledge
> base…By coming to conceive of themselves as information
> literate, universities would be able to position themselves
> as being different from, and on a higher level than, the
> growing competition in the education market (p. 350).

Senge's Notion of the Learning Organization

From its beginnings nearly half a century ago, today's notion of the learning

organization has often come to be associated with the work of Peter Senge. In his book,

The Fifth Discipline: The Art and Practice of the Learning Organization (1990), Peter

Senge characterizes a learning organization as an:

> Organization where people continually expand their
> capacity to create the results they truly desire, where new
> and expansive patterns of thinking are nurtured, where
> collective aspiration is set free, and where people are
> continually learning how to learn together (p. 3).
>
> Organization that is continually expanding its capacity to
> create its future (p. 14).
>
> At the heart of a learning organization is a shift of mind –
> from seeing ourselves as separate from the world to
> connected to the world (p. 12).

At the heart of Senge's model is what he calls the five disciplines. He defines a

discipline as "a body of theory and technique that must be studied and mastered to be put

into practice…a developmental path for acquiring certain skills and competencies"

(Senge, 1990, p. 10). To Senge, the degree to which these disciplines are incorporated

into individual and organizational thinking and planning determines the level to which an

organization becomes a learning organization. Figure 7 summarizes Senge's five

disciplines (Senge, 1990).

Discipline	Description
1: Systems Thinking	"The discipline that integrates the others, fusing them into a coherent body of theory and practice" (p. 12).
2: Personal Mastery	"Continually clarifying and deepening our personal vision, of focusing our energies, of developing patience, and of seeing reality objectively" (p. 7)
3: Mental Models	"Deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action" (p. 8)
4: Building Shared Vision	"The practice of shared vision involves the skills of unearthing shared 'pictures of the future' that foster genuine commitment and enrolment rather than compliance. In mastering this discipline, leaders learn the counter-productiveness of trying to dictate a vision, no matter how heartfelt." (p. 9)
5: Team Learning	"The process of aligning and developing the capacities of a team to create the results its members truly desire" (p. 236)

Figure 7. Peter Senge's "Five Disciplines."

Senge's Relevance to this Study

Because of its direct applicability, Senge's model was chosen to serve as the

primary framework for this study. Evidence of all five disciplines can be found in this

study. Admittedly, Senge's third discipline – Mental Models – is particularly relevant to

this study because of its focus on providing a definition of how faculty define and

understand information literacy instruction. However, his model's emphasis on the

interconnectedness of all five disciplines is central to understanding the existing context

of faculty understanding of information literacy and information literacy instruction at the institution in question.

Systems Thinking

Colleges and universities must evolve or they will not survive in this new era. This is forcing higher education to re-examine its mission and educational priorities. Because of many factors such as changing demographics, globalization, and the near ubiquity of technology, colleges and universities are increasingly recognizing that they no longer exist in isolation. They no longer have a monopoly on information or on education (Rowley, 2001).

The same can be said of academic disciplines and courses. Just as institutions of higher education no longer exist as "ivory towers," entire disciplines and those who teach are increasingly seeing inter-related connections between one another. In turn, they are beginning to recognize that they are not in competition with one another, that they share many common goals and expectations. In this context, information literacy may also finally come to be seen as "not an end in itself but rather one that enables other shared goals and initiatives to flourish" (Hutchins et al, 2002, p. 11).

Personal Mastery

Librarians cannot be the only ones responsible for providing information literacy instruction. As has been demonstrated, this can result in an isolated, fragmentary program. On the other hand, librarians can be the victims of their own success. As faculty come to appreciate the expertise of librarians in this area, the demand for their services may soon exceed the librarians' abilities to provide them (Snavely & Cooper, 1997).

As a result, it becomes increasingly important for faculty to begin sharing the burden. However, because information literacy may be unclear or unfamiliar to many faculty, they may feel they are not qualified to provide instruction. Many faculty have been teaching a particular way for a long period of time. Robert Evans (1996) suggests that altering such may negatively impact their confidence and success by making them feel inadequate or insecure.

With that in mind, it has been suggested that a new role for librarians may be to focus on educating the faculty rather than the students. This view is well-developed by Risë Smith (1997) in her paper *Philosophical Shift: Teach the Faculty to Teach Information Literacy* presented at the 1997 ACRL National Conference. She feels that the amount of time and effort devoted to instructing students would be better focused on faculty. This also has the advantages of stressing the importance of information literacy and of incorporating such into their syllabi. By better understanding the concept and how to incorporate it into the curriculum, faculty and librarians will create a nurturing, facilitative environment wherein individuals can more readily learn how to learn and where such is no longer the exception but rather the norm.

Mental Models

As Karen Downie (2003) notes, mental models can be positive or negative. As has been shown, there are numerous definitions of "information literacy" and methods of "information literacy instruction." These models can facilitate or discourage information literacy efforts. For example, "If information literacy is viewed as 'training,' then it is unlikely that it will be perceived as a wider educational concept which should be embedded in the curriculum" (Serotkin, 2006, p. 31). Therefore, if such efforts are to be

successful, "Program planners must clearly convey how information literacy is defined at their institutions, and this is no easy task" (Snavely & Cooper, 1997, p. 58).

Perceived ownership can also be a help or a hindrance. Many times, librarians can become overwhelmed by their own success. With all of the other demands on their time, librarians might actually find they simply cannot meet the demand for instruction. But, as Evans notes, change (i.e. having non-librarians provide instruction) creates confusion as people's duties are no longer clear, relationships are altered, and identifying who has the authority to decide has yet to be determined. Many perceive that information literacy is a library initiative and, therefore, that it should be based in or is the "property" of the library. And yet, many faculty feel uncomfortable with having librarians provide instruction as they see this as their function, not librarians'.

But, librarians themselves often create such resistance as well. On the one hand, librarians often feel a sense of "territoriality" about teaching information skills. They feel that such is their purview and that they should be the ones responsible for providing instruction. On the other hand, some librarians do not feel they should provide instruction. Among other reasons, they feel it detracts from other library priorities and consumes a lot of time and resources for what are, at best, mixed and often intangible results. For information literacy to truly take hold, "Librarians need to shed their preconceptions about how academics and librarians should collaborate and accept shared responsibility for student learning" (Doskatsch, 2003, p. 119). McCrank (1992) notes that this will enable librarians to further transform themselves. Rather than their traditional roles as suppliers and clerks, he feels librarians will increasingly come to be

seen more as "interpreters" or "counselors" (p. 489) with respect to information and information resources.

Building a Shared Vision

Change theorist Howard Gardner (1995) is noted for talking a lot about "stories." He feels that good leaders embody the stories they are trying to tell (i.e. vision). To effectively implement any change, Gardner believes that the "story" has to be tied to the community or audience's "rhythm of life" (p. 36). This helps to create a sense of buy-in on behalf of those to be affected by the change. Gardner feels that living the story is one of the best ways to create "a story that made sense to the variety of constituents" (p. 129) and thereby establish a solid foundation for successful change.

Gardner's notions are shared by many others. James Kotter (2002), for example, lists eight stages of successful change of which the third and fourth are "Get the vision right" and "Communicate for buy-in" respectively. Evans (1996) talks about "Double Duality." To him, this is the gap **"**between what change means to authors and to targets" (p. 38). Change efforts will fail unless this gap is bridged.

The literature of librarians and information scientists is filled with similar examples of the need for a clear, unified vision if information literacy is to succeed. Ivey (2003) lists a shared and understood goal as first of four elements believed to be essential to successful collaborations between librarians and faculty (p. 102). Snavely and Cooper (1997) state "information literate students as a goal must be part of university-wide agenda and commitment" (p. 54). Breivik observes "At the institutional level, there needs to be agreement on the definition of, and a commitment to, information literacy as a core competency for all graduates" (Breivik, 2005, p. 25).

Accreditation and general education expectations can help to further clarify and ultimately build a shared vision. Accreditation standards are applicable to the entire institution. As such, the institutional strengths and weaknesses that emerge as a result of the accreditation process can provide a framework through which everyone has a shared interest and upon which everyone can build.

Many faculty, though, focus more heavily on instruction and curricular issues than on administrative ones such as accreditation. The more institutional nature of accreditation sometimes makes it difficult for faculty to find interpretations which can be directly applied to the more individualized, specific needs and expectations of the day-to-day instructional setting. And yet, because of general education's impact on the entire curriculum, it has become an ideal place where all faculty can share ideas and learn from one another and also serves as an ideal landscape for assessment.

Team Learning

Successful changes require shared solutions. In the case of information literacy, success is dependent upon cooperation of both librarians and faculty working together. Countless authors point to the need for such collaborations and campus-wide initiatives if information literacy is to take hold and flourish (e.g. Arp, 1990; Ivey, 2003; Snavely and Cooper, 1997). At the very least, faculty must work with librarians to create assignments that ensure students achieve "specific skills and capacities" (Colby, 2003, p. 34).

But, more than that, it cannot be a few selected individuals who are committed to the concept. Noted author Jim Collins talks about the "genius with the 1,000 helpers." The idea is that one needs to build a community. If a suggested change only has one or a limited number of supporters, the change will disintegrate and disappear after that

individual or group is no longer present (Collins, 2001). This sentiment is echoed by

librarians and information professionals as well:

> If information literacy programs are to be successful, they cannot be deployed under the exclusive initiation, development, implementation, direction, and support of academic librarians along with the few committed and overworked classroom faculty (Grafstein, 2002, p. 198)
>
> Incorporating information literacy across curricula, in all programs and services, and throughout the administrative life of the university, requires the collaborative efforts of faculty, librarians, and administration (Cunningham, 2002, p. 345)
>
> Development of an information literacy program relies on transforming a library-based program into a cross-campus enterprise with wider ownership, seeking not just buy-in but leadership and engagement beyond the walls of the library…information literacy depends on collaborative pedagogy, embedding research competencies in individual courses and throughout the curriculum, and integrating skills developmentally into the entire learning process with the aim of creating informed and critical lifelong learners (Hutchins, E. et al, 2002, p. 5)

Focus of the Current Study

The literature of library and information science is filled with references to

information literacy. Moreover, as has been demonstrated, the literature demonstrates

that there are many and varied definitions and interpretations of information literacy and

information literacy instruction. However, as Serotkin (2006) notes, "the majority of

studies of information literacy focus on assessment of information literacy instruction"

(p. 22). Similarly, almost without exception, the term has not been studied outside of the

professions from which it emerged. Even fewer have studied how the term is defined or

understood. The fact that the term may not be understood by faculty is suggested as one

of the reasons information literacy has not become incorporated into many curriculums.

This study aims to contribute to the literature in this respect by providing insight into faculty definitions and understanding of information literacy.

Summary

This review of the literature began by looking at the origins and subsequent evolution of the concept of "information literacy." A parallel was then drawn between changes in the notion of information literacy and changes to instruction in the use of library and information resources. It was suggested that changes in both respects are reflective of Societal changes at-large. These changes have resulted in an Information Age.

In order to effectively respond to these changes, research about and references to "learning organizations" are becoming more common in the literature. A focus on continuous education and critical thinking – on the part of both the students and the instructors – is generally cited as one of the core components of a true learning organization. Because these and other elements of such are echoed in discussions about and the literature of information literacy, learning organization theory was chosen as the primary framework for this study.

Still, as has been demonstrated, the confusion over what is meant by "information literacy" and how best to provide instruction remain under scrutiny – even by librarians and other information professionals themselves. While there is general agreement about the need for and desirability of "information literacy," that the term may have multiple interpretations and may not even be familiar to many faculty are suggested as among the most significant factors behind more campuses not having systematic, campus-wide programs of information literacy.

As the campus in this study looks to incorporate information literacy into the curriculum, the lack of a clear definition remains a significant challenge. The literature of learning organizations and change theory suggests that a well-articulated vision is imperative for a change to be successfully implemented and then maintained over time. Among other things, a clear vision helps create buy-in, shared expectations and goals, and a uniform method of implementation.

The work of Peter Senge is especially useful to this study in this respect. While all of his five "disciplines" impact on this study, his notions of mental models and systems thinking are particularly relevant. By better understanding faculty's mental models in terms of how they conceptualize information literacy and information literacy instruction, planners will have a better starting point for program development. They will also have a better sense of the perceived challenges and obstacles to implementing such a program and the preferred method(s) for doing so. Likewise, understanding faculty's beliefs and understanding about the importance of information literacy to the curriculum will play a key role in moving forward with information literacy programming.

CHAPTER III
RESEARCH DESIGN AND METHODOLOGY

Case Study Approach

The case study method was chosen because it is "preferred when 'how' and 'why' questions are being asked, when the investigator has little control over events, and/or when the focus is on contemporary phenomenon in real-life contexts" (Yin, 2003, p. 1). Specifically, a "descriptive" study design was chosen because such designs are very good at producing "information on groups and phenomenon that already exist" (Fink a, 2003, p. 22). Similarly, descriptive case studies are particularly appropriate for instances when "The investigator wishes to be able to make statements about some defined group of people or objects…in order to provide an accurate and reliable description of the attitudes and behaviors of its members" (Selltiz, 1959, p. 71).

Institutional Setting

The focus of this descriptive case study was to develop a deeper understanding of faculty understanding of definitions of information literacy and information literacy instruction at one university. The study took place at Edinboro University of PA (EUP), a small university in western PA. The Pennsylvania State System of Higher Education (PASSHE) is comprised of fourteen universities owned by the Commonwealth of Pennsylvania. EUP is one of these fourteen institutions. Located in northwestern Pennsylvania, EUP has just under 8,000 graduate and undergraduate students enrolled in over 100 academic programs taught and administered by over 400 faculty members.

At the time of this study, EUP had no systematic, campus-wide information literacy instruction program. The library faculty, for example, currently provide

instruction to an average of 50-60 courses a semester, reaching about 1,200 students.

Such classes typically follow a traditional bibliographic instruction format. They are

usually scheduled for a specific class at the request of a faculty member seeking

instruction about resources for a specific topic or assignment. Unfortunately, the class-

specific nature of such instruction means that not all students receive such instruction and

that some students receive the same instruction multiple times. There is also typically

little follow-up instruction beyond the assignment or the class. As such, the instruction

comes to be seen as class- or assignment-specific rather than something that can be

transferred to other assignments and classes. In addition, given the time constraints, the

instruction that is provided revolves almost exclusively around the skills needed to

effectively use particular information resources. There simply is not time to address

other elements of information literacy such as evaluating source material or properly

citing sources. As a result, the existing model is more traditional and is not consistent

with current thinking on the best approach to incorporating information literacy into the

curriculum.

<div align="center">The Participants</div>

One of the critical factors to the successful integration of change is that everyone

feels some measure of "ownership" of the vision. Faculty members certainly play a

pivotal role in the development and implementation of curricular changes. The

importance of "faculty buy-in" in the successful implementation of information literacy

programs appears throughout the literature (e.g. Beck, 2003, Young, 2003). While it is

true that administrative support is essential, the focus of this study was on faculty as they

are the ones who will ultimately be responsible for incorporating information literacy into the curriculum.

Because it is intended that the findings from this study will be applied directly to the curriculum at EUP, a non-probability sampling technique known as "purposive sampling" was used to select the sample for this study. In a purposive sample, members "must meet certain criteria established by the researcher because of the nature of the questions to be answered by the investigation" (Huck, 2004, p. 109). In this study, the criterion established was that all study participants must be EUP faculty members. As of January 30, 2008, this number represented 442 individuals. Ultimately, 166 faculty members responded representing a response rate of approximately 38%. Of these, only one respondent was not included in the data analysis because no demographic data was supplied and only one survey question was answered.

Instrument Development

Instrument Content

Development of this study's survey instrument took place in several stages beginning in Spring (2006). The questions which comprise the survey instrument were developed based on two processes. First, the researcher examined numerous existing surveys relating to the topic of information literacy in higher education. The 2001 Association of College and Research Libraries (ACRL) Information Literacy Survey was perhaps the most useful in this regard (Association of College and Research Libraries, 2003). Although the focus of this survey was different from that of the present study, the ACRL survey produced many pathways into the topic which served as a foundation for researcher-designed questions.

However, the overwhelming majority of surveys were not relevant to the scope of this study. Most existing information literacy surveys focus on assessing some aspect of *existing* information literacy programs. The latter tend to revolve around funding, staffing, and similar "administrative" sorts of issues and concerns associated with administering existing programs. A second major group of surveys focuses on assessing student outcomes of such programs (e.g. "Did students' research habits improve?"). As no such program currently exists, it was felt that understanding attitudes toward information literacy was a key first step before deciding whether or not to proceed with the creation of any sort of formal IL initiatives.

In addition, most of the surveys found by the researcher were conducted on the library. This is not surprising given that the library is often perceived to be or is in actuality the coordinator of the many information literacy activities and programs in higher education. However, given the need for campus-wide collaboration and faculty buy-in for an information literacy program to be successful, it was somewhat surprising that little attention was given to this topic in the surveys found by the researcher. Here again, most of what was found dealt with existing programs – not the creation of new ones.

A review of the professional literature produced additional topical areas for questions. The review included articles, books, pamphlets, and similar documentation. The focus was on information related to or otherwise associated with the research questions of this study. To that end, the review focused on things such as elements of successful programs, perceived and actual challenges to the implementation of an information literacy program, and faculty expectations of and needs for such programs.

While a review of the literature produced numerous definitions of information literacy as outlined earlier, the majority of these definitions were typically found in the literature of librarianship and related professions. So as to avoid possible "discipline bias," an attempt was made to find a cross-disciplinary definition that could serve as a foundation for this study. Similarly, because "ownership" of information literacy is often associated with the information professions, it was also desirable to find a common pedagogical framework for understanding the incorporation of information throughout the curriculum.

Document analysis was used to help overcome these challenges and eventually resulted in four questions that were incorporated into the survey instrument. At this stage of instrument development, three documents were examined for direct references to information literacy. *Characteristics of Excellence in Higher Education* is a Middle States' document which outlines the various standards and serves as a guide for institutions seeking (re)accreditation. As the name suggests, *Middle States Final Report to the Faculty, Administration, Trustees, Students of Edinboro University of Pennsylvania* was the report issued by Middle States in 2003 to Edinboro University at the conclusion of the latter's reaccreditation process. Edinboro University of PA's (2006) *General Education Requirements for the BS and BA Degrees* provides the structure for and outlines the components of the general education curriculum at Edinboro University of PA.

Because of their availability and applicability to all faculty, these documents provide a common framework for understanding information literacy. Arguably, not all faculty may be aware of the details of such documents. However, they provide both a

definition and a context for information literacy that are not discipline-specific.

Moreover, they demonstrate the need for a widespread, collaborative effort if information

literacy instruction is to succeed. For these reasons, they were incorporated into the

design of the survey instrument.

Instrument Design

In designing the actual survey instrument, the researcher focused on three key

elements: survey design, question wording, and question ordering

Survey Design

In constructing the instrument and the survey questions themselves, various

guidelines and criteria established or otherwise suggested by previous researchers and

authors were examined (e.g. Belson, 1981; Bradburn, 2004; Edwards, 1957; Fink a-c,

2003; Foddy, 1993; Selltiz, 1959). An attempt was made to incorporate as many of these

suggestions as possible into the final survey. Three of the broader considerations are

outlined below.

In what he calls the "TAP Paradigm," William Foddy (1993) suggests there are

three issues to keep in mind when developing surveys:

Topic	The topic should be properly defined so that each respondent clearly understands what is being talked about.
Applicability	The applicability of the question to each respondent should be established*:* respondents should not be asked to give information that they do not have.
Perspective	The perspective that respondents should adopt, when answering the question, should be specified so that each respondent gives the same kind of answer (p. 193).

The "perspective" element was of particular concern to the researcher. Faculty might be unclear as to whether they are being asked to respond personally or as a representative of the entire faculty population. For purposes of this study, faculty were asked to characterize their answers as a representative of all faculty members at-large rather than as a faculty member of a given discipline. Instructions to this effect were included with the cover letter which accompanied the survey as well as on the survey itself.

Question Wording

The wording of questions was also among the key considerations. Allen Edwards (1957), known for his work on attitude scales, is one of many authors who suggests that researchers should "Avoid the use of words that may not be understood by those who are to be given the completed scale" (p. 13). It is recognized that "information literacy" might be a term with which most faculty are unfamiliar or unclear. As has been noted, developing a local definition is a key element of this study.

Still, some definition had to be employed in order to ask meaningful questions about such. While familiarity with the ALA definition is arguably widespread, it purposely was not used so as to avoid any "discipline bias." That is, because that definition may not be familiar to those outside of the library and information professions, there was a concern that its use might create responses of dubious value for those unfamiliar with that particular definition or for those who have a different understanding of the concept.

As noted earlier, in an attempt to overcome this problem, the definition supplied by Middle States in its *Characteristics of Excellence in Higher Education* (2002, p. 32)

was used. It is recognized that this definition may also be unfamiliar to the faculty being surveyed. However, because the document has applicability to all disciplines and departments, it was thought that this definition might be more familiar than others. It also provides a "neutral" definition, one that is not discipline-specific. In so doing, it has greater applicability.

Another example of purposeful wording can be seen in the use of "Edinboro University." The latter was used instead of generic references to "our campus," "this campus," or "this university" with the hopes of making the survey "more personal" and effecting a higher response rate.

Attention to wording was also evident in the creation of response sets. For example, because graduate and non-classroom faculty may not be familiar with General Education requirements, the response options to question #11 include a "Not sure/Don't know" option. Conversely, in question #6, no "neutral" or "undecided" option was included. This forces respondents to express an opinion.

Question Ordering

Considerable attention was also given to the ordering of the questions. In discussing the construction of attitude surveys, Norman Bradburn, Seymour Sudman, and Brian Wansink (2004), for example, note the importance of grouping items "into coherent categories so that all items flow smoothly from one to the next" (p. 332). Given the overlap of content, it is virtually impossible to have all items "flow smoothly" in a logical, sequential progression. However, the researcher did attempt to group questions along the lines of Senge's five disciplines.

In addition, although the source was not identified, the researcher purposely included the Middle States' definition of information literacy as question one. A key purpose of this study is to develop an understanding of faculty's perceptions of the notion of information literacy. Thus, initially, because of a concern of biasing respondents, no definitions or references to information literacy were made. However, in evolving the survey, it was decided that the first question should contain the central elements of the concept of information literacy. In this way, those unfamiliar with the term would at least have some exposure to the concept which would, presumably, aid them in answering subsequent questions.

Bradburn, Sudman, and Wansink (2004) go on to say that "questions should be ordered so as to minimize the effect of respondents' answers on subsequent questions" and that questions should "start with fact-based questions and then go on to opinion-based questions. Begin with interesting and nonthreatening questions that are easy to answer" (p. 332). This is more or less consistent with Gallup's (1947) *Quintamensional Plan of Question Design.* The latter suggests a more or less hierarchical approach to questions and survey design. An attempt was made to incorporate these notions into the survey's design.

In addition to providing a working definition for information literacy in question number one, there are numerous other examples of how an attempt was made to incorporate these design principles into the survey. For example, the perspective faculty were to use when responding to the survey is articulated at the start of the survey's content questions. That is, faculty are asked to respond as a faculty member within a given discipline, not as representatives of the faculty at-large. An attempt was also made

to group like questions together and in a progressively more difficult sequence. The first

four questions, for example, deal specifically with defining information literacy. The next

set deals more with instruction and integrating information literacy into the curriculum.

The final four questions focus on General Education and Middle States expectations.

Construct Validity

Once the survey was developed, it was distributed to various individuals in an

effort to provide some measure of construct validity. A cover letter provided participants

with a context for the activity (see Appendix B). Because it was presumed that those

with doctorate degrees would be most familiar with the research process and what the

researcher was asking them to do, only those with earned doctorates were asked to

participate as reviewers and none of the reviewers was a member of the sample

population.

The reviewers' primary task was the completion of a question matrix (see

Appendix C) which mapped the survey questions to each of the study's research

questions. This was done in an attempt to discover if the study's research questions were

actually being answered by the survey instrument the researcher developed for this

purpose. Inter-rater reliability calculations were then performed on the data. The results

of this analysis are included in Appendix D.

Data Collection Procedure

The survey instrument designed by the researcher as outlined above served as the

primary method of data collection for this study. The survey method was chosen because

of its ease of distribution and the facility with which response data could be retrieved and

analyzed. It also enabled the researcher to ask specific questions relevant to this study

and, ultimately, to the study site and the larger academic community. In comparing printed to electronic surveys, several authors note the advantages of the latter over the former. Bradburn et al (2004), for example, note that two of the key strengths of electronic surveys are that they make data collection and compilation much easier and they tend to be less expensive. Because of these factors and its ease of distribution, an electronic format was selected for the survey.

Administration of the Survey Instrument

Upon completion of the instrument development phase outlined above, *Snap* software was then used to develop the final survey for distribution through electronic mail. As noted above, electronic mail (vs. a printed survey) was chosen as the distribution method because it is less expensive and easier both to administer and to compile responses. A link to the survey was distributed electronically via electronic mail to all Edinboro University of PA faculty on record as of January 30, 2008. The latter consisted of a message including an introductory statement about the nature of the research being conducted, the role of those who choose to participate, and a link via which respondents could access and complete the survey (see Appendices E and F). A follow-up message was sent a week later. A database of responses was then created and relevant analyses were performed via a variety of statistical procedures.

Data Analysis Plan

In order to analyze the survey data, the researcher created a database using SPSS (i.e. statistical software). The creation of a database allowed the researcher to sort the data along a number of axes as well as to conduct appropriate statistical tests on the data.

Once the data collection was completed, the response data was imported into SPSS and coded for analysis.

Summary

Data collection for this study revolved around document analysis and a survey instrument designed by the researcher. Document analysis was conducted for specific references to information literacy in three primary accreditation and general education documents – documents impacting the entire curriculum and, therefore, all faculty at the study site. Themes and commonalities which emerged were used in providing a meaningful context for the survey and for the formulation of the survey questions themselves.

A survey designed and administered by the researcher served as the primary data collection method for this study. The survey method was chosen primarily because of its ease of administration and the ability of the researcher to ask specific questions of a large number of individuals at one time. Piloting of the instrument revolved around reviewers "mapping" the proposed survey questions to the study's research questions. Inter-rater reliability calculations were then performed on reviewers' responses in an attempt to provide some measure of construct validity. In addition, reviewers' comments were used to improve the wording, sequencing, and overall format and design of the final survey instrument.

Using reviewers' comments, a final draft of the survey instrument used in this study was then generated using *Snap* software. The survey was then distributed through electronic mail and included a message about the nature of the research being conducted, the role of those who choose to participate, and a link via which respondents could access

and complete the survey. A database of responses was then created and relevant analyses

were performed via a variety of statistical procedures.

CHAPTER IV: DATA ANALYSIS AND FINDINGS

Introduction

This descriptive case study identifies Edinboro University of PA's faculty's

perceptions and understandings of information literacy and its incorporation into the

curriculum.   This study explores these perceptions and understandings through six

research questions:

> 1. What are faculty members' beliefs and attitudes towards incorporating
> information literacy into the curriculum?
>
> 2. What are the obstacles in the implementation of information literacy instruction
> faced by the faculty?
>
> 3. What are the best approaches to information literacy instruction perceived by
> the faculty?
>
> 4. Who is perceived by the faculty to have primary responsibility for providing
> information literacy instruction?
>
> 5. How do the faculty members' demographic characteristics relate to their
> understandings and perceptions of information literacy and information literacy
> instruction?
>
> 6. How do the understandings and perceptions of information literacy and
> information literacy instruction differ among the faculty from different academic
> disciplines?

Chapter I of this study outlined the reasons for researching faculty perceptions of

information literacy and information literacy instruction. Chapter II provided an

overview of what is known about information literacy. This included a detailed overview

of the history and development of the notion of information literacy, an outline of various

models of instruction, and a summary of the obstacles instructors typically face trying to

develop and implement information literacy instruction. Chapter III discussed how data

would be obtained for this study. In this chapter, survey data is analyzed to find the

themes in faculty perceptions and understandings of information literacy and information literacy instruction.

Description of Sample Data

Data on faculty perceptions and understanding of information literacy and its incorporation into the curriculum were collected through the use of a survey. A link to the survey was distributed electronically via electronic mail to all Edinboro University of PA faculty on record as of January 30, 2008. The first week of the survey generated 119 responses. A follow-up message was sent a week later. This generated 47 additional responses bringing the total number of responses to 166 or approximately 38% of the 442 faculty members who were asked to participate in this study. Of these, only one respondent was not included in the data analysis because no demographic data was supplied and only one survey question was answered.

Demographic Characteristics of Participants

Six pieces of demographic data were requested to facilitate understanding participants' responses: 1) School/Division affiliation, 2) Professorial status, 3) Age, 4) Professorial rank, 5) Number of General Education courses typically taught each semester, and 6) Level of students typically taught. Table 1 summarizes the responses for each of the six demographic categories of data requested.

Table 1

Summary of Demographic Information

Demographic Characteristic	*f*	*Valid %*
Affiliation* (*N*=164)		
Education (5)	29	17.68
Graduate Studies (1)	10	6.09
Liberal Arts (12)	70	42.68
Library (1)	7	4.27
Non Classroom (2)	7	4.27
Science, Management, and Technology (7)	41	25.00
Professorial Status (*N*=164)		
Tenured	119	72.56
Non Tenured, Tenure Track	34	20.73
Non Tenured, Non Tenure Track	11	6.70
Age (*N*=165)		
<30	2	1.21
30-39	13	7.88
40-49	47	28.48
50-59	86	52.12
>59	17	10.30
Professorial Rank (*N*=165)		
Instructor	17	10.30
Assistant Professor	56	33.94
Associate Professor	43	26.06
Full Professor	49	29.70
Number of Gen. Ed. Courses Taught (*N*=165)		
No General Education Courses Taught	82	49.70
1 General Education Course Taught	20	12.12
2 General Education Courses Taught	36	21.82
3 General Education Courses Taught	18	10.91
4 General Education Courses Taught	9	5.45
Level of Students Taught (*N*=160)		
Undergraduate	135	84.38
Graduate	25	15.63

Note. Numbers in parentheses indicate the number of departments within a School/Division. See Appendix G for details of how Departments were aggregated.

Demographic Question #1: Departmental Affiliation

The first survey question asked respondents to indicate their specific departmental affiliation. However, due to the limited number of responses for some departments, respondents were aggregated by School or Division. Appendix G details the six Schools or Divisions and how departments were aggregated. Given that the School of Liberal Arts is comprised of the most departments and, therefore, the largest number of faculty, it is not surprising to find that it generated the greatest number of responses.

Demographic Question #2: Professorial Status

Survey question 2 dealt with professorial status. Faculty were asked to select from one of three options: 1) Tenured, 2) Non-Tenured, Tenure Track and 3) Non-Tenured, Non-Tenure Track. Nearly three-quarters of those who responded hold tenure. As with many institutions, this means they are permanent faculty who have been working at the University for at least five consecutive years on a full-time basis.

Demographic Question #3: Age

Five categories of response were provided for the third demographic question: 1) <30 years of age 2) 30-39 years of age 3) 40-49 years of age 4) 50-59 years of age and 5) >59 years of age. More than half indicated themselves as being in the 50-59 years of age category. Younger faculty are more likely to have worked with computers and electronic information than their older counterparts. Older faculty members' lack of familiarity with newer technologies and issues may (in part) explain the generally narrower view of IL evidenced in this study. The latter will be discussed in more detail in subsequent sections.

Demographic Question #4: Professorial Rank

A faculty member can hold one of four ranks at any given time. From lowest to highest, these ranks are: 1) Instructor 2) Assistant Professor 3) Associate Professor or 4) Full Professor. Respondents were fairly evenly split, particularly among the upper three faculty ranks. The number of faculty at any given rank is generally inversely related to the rank. That is, there tend to be more Instructors than Assistant Professors, more Assistants than Associates, and more Associates than Full. The relatively smaller number of Instructors who responded may be due to the fact that many Instructors do not yet have tenure and may have had concerns about responding to a survey, despite assurances of anonymity and confidentiality.

Demographic Question #5: Number of General Education Courses Taught

Respondents were asked to indicate – from 0 to 4 – how many General Education courses they typically teach each semester. Though graduate programs are available at the Master's level, the University is primarily an undergraduate institution. As such, it was expected that the majority of respondents would indicate they taught 1-3 General Education courses. That half of all respondents would indicate they teach no General Education classes was not anticipated.

Without additional study, it is not clear how to explain this unexpected result. In part, the skew might be explained by Graduate Faculty. Graduate faculty do not teach General Education courses. However, as only twenty-five faculty members indicated they teach primarily graduate students, this alone cannot sufficiently explain the skew.

Another contributing factor is suggested by the disproportionate number of tenured and large numbers of upper-level faculty responding to the survey. Generally

speaking, these groups teach upper division courses and/or courses reserved for majors. Lower level faculty (e.g. Instructors) and/or non-tenured faculty are assigned to teach introductory courses and/or general education courses. As such, at least in part, the high number of those not teaching any General Education courses may be explained by the fact that so few Instructors responded to the survey.

Demographic Question #6: Level of Students Taught

The final demographic question asked respondents to indicate whether the majority of students they teach are undergraduate or graduate students. Given that the University is primarily focused on undergraduate education, it is not surprising that a majority would respond "Undergraduate." However, no provision was made in the survey for faculty that might teach both levels. That is, it is unclear how many respondents teach both Undergraduate and Graduate students. Likewise, the survey made no provision for faculty whose responsibilities lie outside the classroom. For this study, that includes Library and Non Classroom faculty. These groups do not generally teach credit-bearing courses. As such, it is unclear how these individuals responded.

Summary

In looking at the demographic variables studied, certain trends are evident. Some were not unexpected while others were somewhat surprising. In terms of *Affiliation*, the majority of respondents were from the School of Liberal Arts while the smallest number of responses came from Library and Non Classroom faculty. Given that these are the largest and smallest Schools/Departments respectively, this is not surprising.

It was also not surprising to find the majority of respondents fell into the middle age categories (i.e. 40-59). Many younger individuals simply lack the academic and other

credentialing to be professors. As such, at the younger end of the scale, the number of professors may necessarily be small. At the other end of the age spectrum, the retirement age at the University is 59. As such, there may simply not be that many professors in the "60 and over" age bracket either.

One demographic variable in the "middle" is *Professorial Rank*. While the upper three levels were represented fairly evenly, very few with the rank of "Instructor" participated in this study. Without further study, it is unclear if this is due to a disproportionately smaller number of faculty at that rank or some other factor. For example, as many at the Instructor level do not yet have tenure, they may have felt uncomfortable responding.

The remaining variables, though, did result in a few interesting trends. In terms of *Professorial Status*, for example, nearly three times as many Tenured faculty responded as the other two categories combined. As with *Professorial Rank*, perhaps those without tenure somehow felt threatened or were otherwise uncomfortable responding.

Demographic data for *Number of General Education Classes Taught* and *Level of Students Taught* provided the most surprising results. Nearly 50% indicated they taught no General Education courses. While the inclusion of Graduate, Library, and Non classroom faculty may have skewed this number slightly (i.e. these faculty do not teach General Education courses), these groups constitute less than 15% of all respondents. This figure is even more striking given that nearly 85% of respondents teach primarily undergraduate students. It is difficult to interpret this finding without further study.

Regardless of the reason, though, it seems apparent that this pattern had an effect on this study's findings as will be demonstrated below.

Incorporation of Information Literacy into the Curriculum

General Education Requirements for the BS and BA Degrees

Four response options were provided for survey question 16. Respondents were asked to select the option(s) they believe are articulated as an expectation of General Education courses. All four of the response options were generated via a content analysis of the document *General Education Requirements for the BS and BA Degrees.* The latter document details the General Education curriculum for the study site. Each of the four response options is a specific expectation of General Education courses in particular and the General Education curriculum in general. A Chi square analysis of the number of requirements selected by respondents was found to be statistically significant, $\chi^2_{(4, N = 165)}$ = 42.364, $p < .001$. Table 2 summarizes faculty response frequencies for the number of General Education options selected. More than a third (34.6%) indicated they believed all four options were part of the General Education requirements. This would seem to suggest a familiarity with the expectations and requirements of the General Education curriculum. And yet, the second highest percentage of responses (28.5%) was for only one option being selected. The latter suggests little to no familiarity with the General Education curriculum requirements. Without further study, it is not clear how to interpret this data.

Table 2

Faculty Responses By Number of General

Education Options Selected (N=165)

General Education Options Selected	f	%	χ^2
			42.36*
0 Chosen	14	8.48	
1 Chosen	47	28.48	
2 Chosen	30	18.18	
3 Chosen	17	10.30	
4 Chosen	57	34.55	

* p < .001

Table 3 summarizes response frequency data on faculty beliefs about General Education requirements for the BS and BA degrees. As can be seen, of the four options, a Chi square analysis of the data revealed that only the selection of option "D" was statistically significant, $\chi^2_{(1, N = 165)} = 30.552$, $p < .001$. In part, this may be explained by the fact that the fourth option – referring to effectively presenting information both in verbal and written formats – may have been perceived as the most generalizable option of the four and, as a result, the most likely to be incorporated as a requirement of the General Education curriculum. By contrast, not all General Education courses require research (Option A) or a need to document source materials (Option B). The third

option, referring to "data," may have been interpreted narrowly as a reference to mathematical reasoning rather than more broadly as a term referring to information of any and all kinds. If true, this option may not have been perceived as being required of all courses and, therefore, selected with the least frequency of all four options.

Table 3

Faculty Beliefs About General Education Requirements for the BS and BA Degrees

General Education Requirement Selected	f	%	χ^2
A. Acquire skills to conduct library and internet research	91	55.15	1.75
B. Develop skills to document source materials	87	52.73	0.49
C. Formulate skills to organize, synthesize, analyze, and compute data	90	54.87	1.36
D. Develop skills to present information	118	71.52	30.55*

* $p < .001$

Broken down by response percentages, Table 4 provides additional insight into demographic variations among faculty and their beliefs about General Education requirements. In looking at demographic differences with respect to how many respondents correctly identified all four options, a Chi square analysis showed that only *Level of Students Taught* was found to be statistically significant, $\chi^2_{(4, N = 160)} = 10.045$, $p < .05$. Of all the demographic characteristics studied, that this variable should prove significant was not unexpected. As "Graduate faculty" do not teach General Education courses, it is assumed that they would not be as familiar with General Education

requirements as "Undergraduate faculty." In turn, it seems reasonable to assume they would not be as likely to pick the correct options. For similar reasons, it is not surprising that statistical significance was not found for other demographic variables. Again, because General Education revolves around undergraduates and because the majority of those responding to this study are involved with undergraduate education, it can be inferred that these faculty are most familiar with General Education requirements. Therefore, the data would seem to suggest that no demographic group is more (or less) familiar with such requirements than any other.

Table 4

Associated Demographic Characteristics of Respondents

Correctly Selecting All Four General Education Options

Demographic Characteristic	N	%	χ^2
Affiliation	164	34.76	19.95
Professorial Status	164	34.15	5.80
Age	165	34.54	13.17
Professorial Rank	165	34.54	4.41
Gen Ed Courses Taught	165	34.54	18.67
Level of Students Taught	160	34.36	10.05*

*$p < .05$

Note. Percentage (%) refers to percentage correctly identifying all four options.

And yet, upon further analysis, it was found that this was not the case. Table 5

provides a cross tabulation of frequency data for *Level of Students Taught* by Number of

General Education requirements correctly selected. As can be seen, more Graduate

faculty (40%) correctly indicated all four options than did Undergraduate faculty

(33.33%). Perhaps Graduate faculty simply assume all of the response options are

requirements of General Education and responded accordingly. Conversely, nearly 35%

of Undergraduate faculty indicated one or none of the options. Without further study, it

is difficult to explain or otherwise understand these findings. However, the data would

seem to suggest a general lack of familiarity with General Education requirements.

Table 5

Cross Tabulation of Level of Students Taught By Number of General Education

Requirements Correctly Selected (N=160)

	Number of Requirements Selected									
		0		1		2		3		4
Level Taught	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Undergraduate	9	6.67	38	28.15	28	20.74	15	11.11	45	33.33
Graduate	5	20.00	8	8.00	0	0.00	2	32.00	10	40.00

Middle States Accreditation Expectations

As noted in the wording of question seventeen, there are fourteen standards

outlined in Middle States' publication - *Characteristics of Excellence in Higher*

Education (2006). Respondents were asked to indicate which of the fourteen standards

94

they believe contain references to the desirability of information literacy. Of these, only Standards 11, 12, and 13 include specific references to the desirability of information literacy programs and activities. Table 6 summarizes faculty response frequencies and provides a Chi square analysis for which standard(s) they believe include(s) such references.

The findings about Standards 11-13 are mixed. For example, though statistically significant, Standard 13 (32.1%) ranked seventh based on percentage of responses. In fact, the data indicate that there are statistically significant differences among faculty selections of standards for all but Standards 12 and 14. Given the findings noted above about General Education, it is perhaps not surprising to find that Standard 12 – dealing with General Education – was not found to be statistically significant. And yet, it was among the three most frequently selected standards – Standards 12 (54.5%), 14 (47.3%), and 11 (41.2%) – suggesting, as with General Education requirements, that perhaps responses were based on something other than actual, firsthand knowledge of the Standards. It may simply be that these seemed to be the most likely options. For example, it is unlikely that Standard 3 (dealing with institutional resources) would have a requirement or expectations for information literacy.

Table 6

Faculty Beliefs About the Desirability of Information Literacy Found in

Middle States' Standards (N=165)

Middle States Accreditation Standard	f	%	χ^2
Standard 1: Mission and Goals	52	31.51	22.55***
Standard 2: Planning, Resource Allocation, and Institutional Renewal	39	23.64	45.87***
Standard 3: Institutional Resources	54	32.73	19.69***
Standard 4: Leadership and Governance	16	9.70	107.21***
Standard 5: Administration	13	7.88	117.10***
Standard 6: Integrity	40	24.24	43.79***
Standard 7: Institutional Assessment	45	27.27	34.09***
Standard 8: Student Admissions and Retention	26	15.76	77.39***
Standard 9: Student Support Services	56	33.94	17.02***
Standard 10: Faculty	63	38.2	9.22**
Standard 11: Educational Offerings	68	41.21	5.10*
Standard 12: General Education	90	54.55	1.36
Standard 13: Related Educational Activities	53	32.12	21.10***
Standard 14: Assessment of Student Learning	78	47.27	0.49

* p < .05, ** p < .01, *** p < .001

Looking specifically at the selection array of the three standards in question does not help to clarify the responses. Using frequency of responses, Table 7 details how many of the three standards referencing IL were correctly indicated, if any. As can be seen, a Chi square analysis of the data revealed significance for all possible combinations of the three options, including "none" and "all four" being selected . However, only one-fifth (20.0%) selected the correct three standards and more than a third (35.2%) did not pick any of the three at all. Among possible explanations is the simple fact that faculty may simply not be familiar with Middle States' standards or they may only be familiar with the standards that impact them directly. They may only be familiar with the generalities of the standards themselves, not the details. But, as with the findings about General Education requirements noted earlier, it is unclear how to interpret this data without further study except to say that there seems to be a to be a relative lack of knowledge about Middle States standards and expectations for accreditation regarding IL.

Table 7

Number of Standards Indicating the Desirability of

Information Literacy Found in Middle States' Standards

Correctly Selected (N = 165)

Number of Correct Standards Selected	f	%	χ^2
All 3	33	20.0	59.40*
Standard 11 and Standard 12	25	15.15	80.15*
Standard 11 and Standard 13	2	1.21	157.10*
Standard 12 and Standard 13	10	6.06	127.42*
Standard 11 Only	8	4.85	134.55*
Standard 12 Only	22	13.33	88.73*
Standard 13 Only	8	4.85	134.55*
None of 3 Chosen	58	35.15	14.55*

$* p < .001$

Middle States' Concerns

For question eighteen, respondents were directed to choose up to three concerns they believe were listed in the *Final Report* issued at the conclusion of the last University accreditation process. However, of the three response options, only option "A" was actually listed in Middle States' *Final Report* as a concern. The other options were created by the researcher. Table 8 shows the response frequency and Chi square analysis

data for faculty beliefs about Middle States' concerns expressed during the University's last accreditation visit. Option "A" – the only correct option – was actually the option selected the least often and yet it is the only option of the three for which the data indicate statistical differences, $\chi^2_{(1, N = 165)} = 10.188$, $p < .001$. Given the focus of this study, perhaps some faculty merely guessed correctly because Option "A" is the only option talking specifically about IL. Conversely, Option "C" may have been chosen most frequently because of its reference to the University's "computer competency requirement." Being a relatively common and familiar term, it may simply have been associated with the accreditation process as something specifically to be addressed. Another possible explanation is that it demonstrates a resource-based model of IL even if acknowledging such models are inadequate. That is, they understand technology's role in information but believe the competency requirement is inadequate with regard to such.

Table 8

Faculty Beliefs About Specific Concerns Listed in Middle States' Final Report

Suggested MSA Concern	f	%	χ^2
A. A structured IL program developed by librarians and faculty to foster IL skills that are relevant to the curriculum does not exist	62	37.58	10.19*
B. While the curriculum incorporates opportunities for students to learn about and use new technologies and information resources, similar opportunities for faculty are lacking	73	44.24	2.19
C. The University's "computer competency requirement" does not adequately address the use of technology to access, retrieve, and manipulate information	78	47.27	0.49

* p < .001

The response data for specific selection patterns for Middle States' concerns is presented in Table 9. Using response frequencies and Chi square analysis, the data indicate statistical significance, *p* < .001 for all options. However, only 12.1% selected concern "A" – the correct response – as their only response. More than 20% did not select any of the three options and 18.2% selected all three concerns. This may be little more than a reflection of faculty's lack of familiarity with concerns highlighted in the last reaccreditation report. On the other hand, even though two of the options were "contrived" for purposes of this study, they were found to be significant independently as well as in combination with the correct option. This suggests that faculty perceive each to be a shortcoming that needs to be addressed. Specifically, it can be argued that faculty

believe there are limited opportunities for them to learn about new technologies and that

the University's "computer competency" requirement emphasizes a more traditional role

for technology. Additional evidence detailed below would seem to support these notions.

Table 9

Selection Patterns in the Number of Middle States'

Concerns Selected (N=165)

Number of Concerns Selected	f	%	χ^2
All 3	30	18.18	66.82*
A and B	5	3.03	145.61*
A and C	7	4.24	138.19*
B and C	10	6.06	127.42*
Only A	20	12.12	94.70*
Only B	28	16.97	72.01*
Only C	31	18.79	64.30*
None	34	20.61	57.02*

* $p < .001$

In trying to clarify the data further, a Chi square analysis of the data revealed that

the only demographic variable producing a statistically significant difference was *Age*, χ^2

$_{(4, N = 165)} = 10.317, p < .05$. Table 10 summarizes response frequencies for each of the

three response options by *Age*. As can be seen, those aged 50-59 correctly indicated

Concern A 53.2% - the highest rating of any option for any age. However, Concerns B

and C were frequently selected by this age group as well (50.7% and 50.0% respectively).

Because older faculty have generally been around longer, they may simply be more

familiar with accreditation and the overall accreditation process. They also tend to be on

more committees, serve as Department Chairpersons, and otherwise have greater access

to and awareness of campus concerns. Thus, they may be more likely than their younger

colleagues to be aware of Middle States' concerns.

Table 10

Cross Tabulation of Age By Specific Concerns Listed In Middle

States' Final Report

Age	Concern A		Concern B		Concern C		χ^2
	f	%	f	%	f	%	
							10.32*
<30	0	0.00	1	1.37	1	1.28	
30-39	4	6.45	3	4.11	5	6.41	
40-49	17	27.42	23	31.51	22	28.29	
50-59	33	53.23	37	50.68	39	50.00	
> 59	8	12.90	9	12.33	11	14.10	

* $p < .05$

Summary

It is difficult to understand the data regarding faculty beliefs and understandings

about incorporating IL into the curriculum. The data seem fairly evenly split between

those who are and those who are not familiar with local administrative expectations and/or Middle States' accreditation concerns regarding the curriculum, particularly with respect to information literacy. If anything, younger faculty seem less informed about Middle States accreditation concerns in this respect. And yet, because the data often seems to contradict what might be expected (e.g. undergraduate faculty being relatively unfamiliar with General Education requirements), it is difficult to understand these findings without additional, more detailed study.

Obstacles in the Implementation of Information Literacy Instruction

Obstacles to Incorporating Information Literacy into the Curriculum

Question 11 provided a list of nineteen factors commonly cited as obstacles to incorporating information literacy into the curriculum. Faculty were instructed to select what they believe to be the three most significant challenges. Table 11 summarizes the response frequencies to this question. As can be seen, "Lack of knowledge about IL" (37.4%), "Insufficient time" (30.6%), and "Coordinating efforts among departments" (25.9%) were selected most frequently. The first of the three would seem to support the idea noted earlier that faculty feel training opportunities regarding technology and information resources is lacking. Responses provided under "Other" are included in Appendix H.

Interestingly, only one response separated the fourth most selected challenge – Insufficient Staffing – from the third most frequently selected response noted above. This suggests that faculty somehow perceive IL instruction as something requiring additional personnel; that it is not something they can do themselves. This perceived

need may, in part, explain why the perceived need of coordinating efforts among departments ranked so highly.

Table 11

Faculty Beliefs About the Most Significant Challenges to Incorporating Information Literacy Instruction into the Curriculum (N = 147)

Challenge	*f*	%
Insufficient staffing	37	25.17
Insufficient time	45	30.61
Uncertainty about who is responsible for instruction	30	20.41
Uncertainty about how to incorporate IL into assignments	25	17.00
Insufficient administrative support	19	12.93
Increased workload	33	22.45
Unclear program goals and objectives	25	17.01
Need for assessment	8	5.44
Developing working relationships with other faculty	4	2.72
Inadequate resources	19	12.93
Lack of knowledge about IL	55	37.41
Coordinating efforts among faculty within my department	10	6.80
Creating faculty buy in	20	13.61
Coordinating efforts among departments	38	25.85
Lack of a clear consistent definition	29	19.73
Curricular constraints	20	13.61
Creating a common agenda for the campus	33	22.45
Lack of need	1	0.68
Other (see Appendix H)	2	1.36

These responses are not unexpected. As demonstrated in Chapter Two, there are many challenges to defining IL. Not all who use the term, for example, have the same understanding (Snavely and Cooper, 1997). Even librarians – individuals very likely to be familiar with the term – are not always clear about what the concept means or how to

implement it (e.g. Albrecht, 2002; Serotkin, 2006). Weis (2004) notes that many equate

terms such as "critical thinking" and "lifelong learning" with information literacy. Also,

numerous other literacies (Arp, 1990) have emerged recently. In turn, some have come

to view IL as a distinct form of literacy unto itself while others see it as an umbrella term

for all of these other literacies.

In addition to the lack of a consistent, generalizable definition, there are some

specific factors that can make faculty involvement difficult and, therefore, coordination

among departments even more so (e.g. Cunningham, 2002; Snavely and Cooper, 1997).

Faculty specialization, for example, often makes it difficult to talk across disciplines

about any topic, particularly those with which they lack a common vocabulary.

Insufficient time is often seen as an impediment to any new program or activity. As

Breivik (2005) observes, either because of or in spite of these and other challenges, many

faculty simply do not know how to go about the task of integrating IL into the curriculum

Effective Integration of Information Literacy into the Curriculum

Seven specific factors commonly associated with successful integration of IL into

the curriculum were provided in question 12. Faculty were asked to indicate their views

on each factor using a Likert scale ranging from "Strongly Agree" to "Strongly

Disagree." Room was also provided for faculty to make additional responses/comments

(see Appendix H). Except for the "Other" category, the data indicate that there are

statistically significant differences for all seven questions, $p < .001$. This suggests that

all faculty share similar beliefs on this topic regardless of demographics. Table 12

summarizes response frequencies and Chi square analysis data for each of these seven

factors for each of the four response options.

An overwhelming number of faculty indicated they "Strongly Agree" or "Agree"
they "Need to learn how" (91.2%) and "Need to understand more about IL" (92.0%).
This is consistent with findings noted in the previous section in which "Lack of
knowledge about information literacy" was indicated as the most significant challenge to
integrating IL. In part, this lack of knowledge and the recognition of the need to know
more about IL might explain why more than half of the faculty responded they
"Disagreed" or "Strongly Disagreed" that they "Won't feel they can incorporate IL into
their courses" (55.5%). It also provides yet another measure indicating faculty do not
feel adequate training opportunities to learn about new technologies and information
resources are present.

More than three-quarters of respondents, though, indicated they "Agreed" or
"Strongly Agreed" that faculty will need to be convinced IL is important. Given the
above finding, it is not clear if this is reflective of what faculty really believe or merely a
response to the lack of knowledge about the nature of IL. That is, if faculty do not feel
they understand IL, they may be unlikely to understand its possible importance to the
curriculum. This might also explain the high response to the "Need to learn how" option.

Table 12

Faculty Beliefs About Effective Integration of Information Literacy into the Curriculum

Faculty Belief	Strongly Agree		Agree		Disagree		Strongly Disagree		χ^2
	f	%	f	%	f	%	f	%	
1. Alter assignments (*N=160*)	35	21.88	80	50.00	40	25.00	5	3.13	71.25*
2. Alter courses (*N=157*)	16	10.19	64	40.76	71	45.22	6	3.82	83.23*
3. Need extra time (*N=157*)	23	14.65	77	49.04	52	33.12	5	3.18	77.06*
4. Need to learn how (*N=159*)	68	42.77	77	48.43	14	8.81	0	0.00	43.81*
5. Won't feel they can incorporate IL into their courses (*N=153*)	11	7.19	57	37.25	75	49.02	10	6.54	84.78*
6. Need to understand more about IL (*N=162*)	61	37.65	88	54.32	13	8.02	0	0.00	53.44*
7. Need to be convinced it's appropriate (*N=160*)	43	26.88	78	48.75	34	21.25	5	3.13	67.85*
8. Other (see Appendix H)									

* p < .001
Note. % in columns refers to percentage within individual faculty beliefs.

In examining demographic differences among faculty beliefs about effectively integrating IL into the curriculum, a Chi square analysis of the data indicated significance ($p < .05$) along three characteristics for four of the response options. Table 13 provides a summary of response frequencies using *Professorial Status* cross tabulated by the four response options about the belief that faculty won't feel they can incorporate IL into their courses. As can be seen, more than half of all respondents indicated "Disagree" or "Strongly Disagree" which suggests they believe faculty will be comfortable incorporating IL into their courses. In looking at specific breakdowns, nearly half of all tenured faculty responded similarly. This number is four times that of their non-tenured counterparts (i.e. 10.54%). One possible explanation for this dramatic number is that the "permanence" of being tenured may give such faculty members greater confidence about altering courses and curricula than their non-tenured, "non-permanent" counterparts.

Table 13

Cross Tabulation of Professorial Status By Belief That Faculty Won't Feel They Can Incorporate

IL Into Their Courses (N=152)

Professorial Status	Strongly Agree (7.2%)		Agree (37.5%)		Disagree (48.7%)		Strongly Disagree (6.6%)		
	f	%	f	%	F	%	f	%	χ^2
									12.76*
Tenured	8	5.26	34	22.37	60	39.47	8	5.26	
Non Tenured, Tenure Track	1	0.66	16	10.53	13	8.55	1	0.66	
Non Tenured, Non Tenure Track	2	1.32	7	4.61	1	0.66	1	0.66	

* p < .05
Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Professorial Status.

As with *Professorial Status*, there seems to be a relationship between *Professorial Rank* and the belief that faculty won't feel they can incorporate IL into their courses. However, the numbers do not demonstrate nearly as much variation for *Professorial Rank* as for *Professorial Status*. Table 14 summarizes response frequencies and provides Chi square analysis data for *Professorial Rank* cross tabulated with each of the four response options about the belief that faculty won't feel they can incorporate IL into their courses. The majority of responses (55.55%) "Disagree" or "Strongly Disagree" with this idea again suggesting faculty are confident that they can incorporate IL into their courses. Individually, for Instructors, though, the highest response was "Agree." For the other three categories, "Disagree" was the most common response. Because Instructors represent the newest group of faculty to be hired, perhaps they are more focused on creating lesson plans and performing other tasks to get used to the curriculum and the University in general. They may simply feel they can not do more than what they are already doing.

Table 14

Cross Tabulation of Professorial Rank By Belief That Faculty Won't Feel They Can

Incorporate IL Into Their Courses (N=153)

Professorial Rank	Strongly Agree (7.2%)		Agree (37.3%)		Disagree (49.0%)		Strongly Disagree (6.5%)		
	f	%	f	%	f	%	f	%	χ^2
									18.76*
Instructor	1	0.65	12	7.84	3	1.96	1	0.65	
Asst. Professor	3	1.96	18	11.77	26	16.99	5	3.27	
Assoc. Professor	6	3.92	9	5.88	22	14.38	3	1.96	
Full Professor	1	0.65	18	11.76	24	15.69	1	0.65	

* p < .05
Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Professorial Rank.

The data suggest that Professorial Rank is significantly related to two additional response options. Table 15 details response patterns and provides Chi square analysis data for *Professorial Rank* cross tabulated with the four response options about the belief that faculty will have to alter their assignments to effectively integrate IL. Nearly twenty-two percent of all faculty indicated they "Strongly Agree" that faculty would have to alter their assignments; an additional fifty percent responded with "Agree." Here again, for Instructors, "Agree" generated the highest rate of response. This was true of the other three categories as well. Thus, whether as a whole or by individual rank, this would seem to indicate that faculty – regardless of professorial rank – feel they will have to alter their assignments to effectively integrate IL.

Table 15

Cross Tabulation of Professorial Rank By Belief That Faculty Will Have To Alter Their

Assignments to Integrate Information Literacy (N = 160)

Professorial Rank	Strongly Agree (21.9%)		Agree (50.0%)		Disagree (25.0%)		Strongly Disagree (3.1%)		
	f	%	f	%	f	%	f	%	χ^2
									17.28*
Instructor	0	0.00	12	7.50	2	1.25	2	1.25	
Asst. Professor	14	8.75	24	15.00	15	9.38	1	0.63	
Assoc. Professor	12	7.50	16	10.00	12	7.50	2	1.25	
Full Professor	9	5.63	28	17.50	11	6.885	0	0.00	

* p < .05
Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect
response percentage within Professorial Rank.

Table 16 summarizes response data and provides Chi square analysis data for *Professorial Rank* cross tabulated with the four response options about the belief that faculty will have to alter their courses to integrate IL. Although the data for *Professorial Rank* was statistically significant, responses overall are fairly evenly split between those who "Strongly Agree" (10.19%) or "Agree" (40.76%) and those who "Strongly Disagree" (3.82%) or "Disagree" (45.23%).

Table 16

Cross Tabulation of Professorial Rank By Belief that Faculty Will Have to Alter Their

Courses to Integrate Information Literacy (N=157)

Professorial Rank	Strongly Agree (10.1%)		Agree (40.8%)		Disagree (45.2%)		Strongly Disagree (3.8%)		χ^2
	f	%	f	%	f	%	f	%	
									17.32*
Instructor	0	0.00	9	5.73	4	2.55	3	1.91	
Asst. Professor	7	4.46	22	14.01	24	15.29	1	0.64	
Assoc. Professor	5	3.18	14	8.92	19	12.10	2	1.27	
Full Professor	4	2.55	19	12.10	24	15.29	0	0.00	

*$p < .05$

Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Professorial Rank.

Finally, a Chi square analysis of the data also indicates a significant relationship between *Level of Student Taught* and the belief that faculty will need extra time in their courses to integrate IL. A cross tabulation of response frequency data for this variable and the four response options is provided in Table 17. The overall percentage of faculty indicating "Agree" or "Strongly Agree" was 63.7% suggesting most faculty believe they will need more time to incorporate IL into their courses and assignments. Specifically, a clear majority of "Undergraduate faculty" (57.2%) responded with "Strongly Agree" or "Agree" to this question. This suggests that they feel IL is something "extra" or "different" for which more time will be needed. Because of a greater dependency on information and research, "Graduate faculty" may already be incorporating elements of IL into their courses and assignments. This may explain why more Graduate faculty disagreed (than agreed) with the belief that IL will require extra time in their courses. However, given the small number of Graduate faculty involved in this survey, this claim is dubious at best.

Table 17

Cross Tabulation of Level Of Student Taught By Belief That Faculty Will Need

Extra Time In Their Courses To Integrate IL (N=152)

Level Taught	Strongly Agree (15.1%)		Agree (48.6%)		Disagree (32.9%)		Strongly Disagree (3.3%)		
	f	%	f	%	f	%	f	%	χ^2
									9.14*
Undergraduate	18	11.84	69	45.39	37	24.34	4	84.21	
Graduate	5	3.29	5	3.29	13	8.55	1	0.66	

* p < .05

Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Level of Students Taught.

Summary

There are many obstacles – practical, philosophical, and otherwise – to the effective integration of IL into the curriculum. Consistent with the literature, this study found that lack of knowledge about IL, insufficient time, and coordinating efforts among departments were perceived as being the biggest challenges. However, while the data indicated statistical significance for many factors, only the relationship between *Professorial Status* and the belief that faculty won't feel they can incorporate IL into their courses seemed conclusive. The latter suggests that tenured faculty are more comfortable with the notion of incorporating IL into their courses than their non-tenured colleagues.

Best Approaches to Providing Information Literacy Instruction

Survey question 14 asked faculty to indicate which of the five response options reflected their perceptions of the most effective method of providing information literacy instruction. Response frequencies for this question are summarized in Table 18. A Chi square analysis of the data indicated that there are statistically significant differences among faculty, $\chi^2_{(4, N = 164)} = 296.61$, $p < .001$. As can be seen, the overwhelming majority of respondents (119, 72.6%) replied that they believed the best approach is one that is integrated into the entire curriculum. The next closest group of respondents (17.7%) believe the most effective method is one that is discipline-specific. This information should be used by planners to address specific Departmental and/or School/Division needs and expectations for such instruction.

Table 18

Faculty Beliefs About the Most Effective Method of Providing Information Literacy Instruction (N=164)

Method	f	%	χ^2
			296.61*
Meets specific needs within my School	4	2.44	
Meets specific needs within my discipline	29	17.68	
Targets specific courses from multiple disciplines	9	5.49	
Is integrated into the entire curriculum	119	72.56	
None of the above. What is done now is sufficient.	3	1.83	

* $p < .001$

Table 19 summarizes demographic response frequencies regarding the belief that the best method of providing IL instruction is one that is integrated into the curriculum. As can be seen, a Chi square analysis of the data found no statistically significant differences for any of the demographic characteristics studied. This suggests that all faculty – regardless of demographics – tend to support the idea that the most effective method of providing IL instruction is one that is integrated into the entire curriculum.

Table 19

Demographic Characteristics of Faculty Responding that the Best Method for Providing Information Literacy Instruction Is One That Is Integrated Into the Curriculum

Demographic Characteristic	*N*	%	χ^2
Affiliation	163	72.39	25.40
Professorial Status	163	72.39	7.95
Age	164	72.56	16.60
Professorial Rank	164	72.56	14.88
Gen Ed Courses Taught	164	72.56	12.73
Level of Students Taught	159	71.70	1.02

Summary

As shown in Chapter Two, changes in instructional design and philosophy have paralleled the evolution of the definition of IL. Currently, "information across the curriculum" is the preferred instructional approach (e.g. Breivik, 1998). The latter notes

that information literacy instruction must take place across the entire curriculum and be something in which all faculty participate if it is to be successful. That nearly three-quarters of all respondents indicated they felt that the best approach is one that "is integrated into the entire curriculum" reflects this notion. That there were no statistically significant demographic data could be interpreted to mean that *all* faculty in this study have a similar belief or understanding.

<div align="center">Responsibility for Providing Information Literacy Instruction</div>

In addition to their beliefs about integrating instruction, faculty were also asked about who should have responsibility for providing instruction. Survey question 13 provided respondents with four options to this effect and an "Other" through which they could provide additional information. Table 20 details faculty response frequencies about who they believe should have responsibility for providing IL instruction. A Chi square analysis of the data indicated that there are statistically significant differences among faculty, $\chi^2_{(3, N = 164)} = 137.902, p < .001$.   Half of all respondents indicated that "Teams comprised of both librarian and classroom faculty" should have primary responsibility while roughly an equivalent number (45.7%) indicated "All faculty from all schools and departments." Individual comments supplied by faculty are included in Appendix H. Some respondents may not be aware that librarians have faculty status. This may, in part, explain the large response to the "team" option (i.e. teams of classroom faculty and librarians). Were respondents aware that librarians have faculty status, an even greater number may have selected the "All faculty" option.

Table 20

Faculty Beliefs About Who Should Have Responsibility for

Providing Information Literacy Instruction (N = 164)

Belief	f	%	χ^2
			137.90*
Library faculty only	5	3.05	
Teams comprised of both librarian and classroom faculty	82	50.00	
All faculty from all Schools and Departments	75	45.73	
Other	2	1.22	

* $p < .001$

In examining this response for potential demographic differences, the data indicate no statistically significant differences. The response and Chi square analysis data for each demographic variable for those selecting "Teams comprised of both librarian and classroom faculty" are summarized in Table 21. This could be interpreted to mean that all faculty – regardless of their demographic makeup – believe that the most effective method of IL instruction is one that involves all faculty from all Schools and Departments. This is consistent with the current literature of IL as noted earlier.

Table 21

Demographic Characteristics of Faculty Responding that All

Faculty From All Schools and Departments Should Have

Responsibility for Providing Information Literacy Instruction

Demographic Characteristic	N	%	χ^2
Affiliation	163	46.01	11.83
Professorial Status	163	45.40	3.34
Age	164	45.73	4.16
Professorial Rank	164	45.73	6.51
Gen Ed Courses Taught	164	45.73	15.03
Level of Students Taught	159	44.65	2.50

Summary

The findings for this section are consistent with the literature which suggests the best method of instruction involves all faculty from all departments (e.g. Breivik, 1998). That is, IL instruction is not solely the responsibility of librarians. At many colleges and universities, librarians are staff members. They do not hold faculty status. Many of those responding to this study may not realize that librarians do have faculty status at EUP. To a large extent, this may explain the large number of respondents indicating that teams of

122

faculty members and librarians provide the most effective method. Either way, the end result is that more than 95% see the need to have everyone involved.

Demographic and Discipline-Specific Differences in Understandings and Perceptions

Importance of Individual Elements of Information Literacy

Survey question 7 (i.e. the first non-demographic question) provided faculty with seven elements commonly associated with definitions of IL (e.g. ACRL, 2005; Doyle, 1992; ETS, 2007; SCANS, 1991). Faculty were asked to rank these elements – from highest (1) to lowest (7) – in terms of their priority for inclusion in a campus definition of IL. Table 22 summarizes the overall means for each of the seven options and, as such, provides cursory insight into the relative prioritization of each of the seven elements. As can be seen "Accessing Information" (element #2) had the lowest mean ($M=2.81$) indicating the highest priority while "Understanding Use of Information" (element #6) had the highest mean ($M=5.81$) indicating the lowest priority. This suggests the desirability of an emphasis on the more technology-oriented, skills-based elements of IL rather than the more cognitive, process-oriented ones. However, the mean of "Evaluate critically the sources and content of information" (element #3) only differed from element #2 by 0.09.

Table 22

Means Associated with Prioritization of Individual

Elements of Information Literacy Elements (N=165)

Element	M	SD
1. Determine information need	3.28	1.83
2. Access information	2.81	1.71
3. Evaluate information	2.72	1.53
4. Incorporate information	4.59	1.50
5. Use information for a purpose	3.66	1.53
6. Understand use of information	5.71	1.65
7. Observe information laws	5.24	1.91

Table 23 provides a more detailed look at the prioritization of the individual elements of IL by summarizing the highest and lowest rankings (based on response frequency) and providing Chi square analysis data for each of the seven elements. Looking at the data in this way helps provide a context for the narrow difference between elements #2 and #3 as noted above. The highest rankings for each were close. Based on frequency of response, the highest ranking for element #2 was a "1" while for element #3 it was a "2." Lowest rankings, though, differed considerably. For element #2, the lowest ranking indicated was a "5" while for element #3 it was a "7" – the lowest ranking possible. This supports the finding noted above that faculty tend to place more emphasis on the more resource or skills-based elements of the definition than the process, or

cognitively based elements. This notion also seems to be supported by looking at the

elements ranked lowest. For example, "Understand the economic, legal and social issues

surrounding the use of information and information technology" (element #6) had the

highest overall mean and, at best, only received a ranking of "3," and this by only five

respondents.

Table 23

Highest and Lowest Rankings of Each Element By Frequency (N = 165)

Element	Highest		Lowest		
	f (rank)	%	*f* (rank)	%	χ^2
1. Determine the nature and extent of needed information	40 (1)	24.24	8 (7)	4.85	27.06*
2. Access information effectively and efficiently	46 (1)	27.88	4 (5)	2.42	71.35*
3. Evaluate critically the sources and content of information	48 (2)	29.09	1 (7)	0.61	76.27*
4. Incorporate selected information into the learner's knowledge base and value system	54 (5)	32.73	5 (1)	3.03	67.19*
5. Use information effectively to accomplish a specific purpose	45 (5)	27.27	5 (7)	3.03	53.70*
6. Understand the economic, legal and social issues surrounding the use of information and information technology	64 (7)	38.79	5 (3)	3.03	180.97*
7. Observe laws, regulations, and institutional policies related to the access and use of information	55 (7)	33.33	11 (1)	6.67	88.82*

* *p* < .001
Note. Values for *f* and % refer to the highest and lowest responses received for that particular element; numbers in parentheses refer to the rank associated with the respective *f* and % values.

Table 24 summarizes faculty responses based on frequency per IL element given a "1" (highest) priority. As can be seen, "Access information effectively and efficiently" (element #2) again received the highest percentage of responses (27.9%) while "Incorporate selected information into the learner's knowledge base and value system" (element #4) received the least (3.0%). Here again, the data seems to suggest the desirability of an emphasis on the more technology-oriented, skills-based elements of IL rather than the more cognitive, process-oriented ones.

Table 24

Ranking of Elements Receiving a "1" or "Highest" Priority (N = 165)

Element	*f*	%
1. Determine the nature and extent of needed information	40	24.24
2. Access information effectively and efficiently	46	27.88
3. Evaluate critically the sources and content of information	40	24.24
4. Incorporate selected information into the learner's knowledge base and value system	5	3.03
5. Use information effectively to accomplish a specific purpose	16	9.70
6. Understand the economic, legal and social issues surrounding the use of information and information technology	7	4.24
7. Observe laws, regulations, and institutional policies related to the access and use of information	11	6.67

df = 6

Finally, Table 25 categorizes response frequencies based on the IL element receiving the highest number of responses per ranking. The element for which "1" was

selected most often (27.9%) was again element #2 (Access information effectively and efficiently). It was also the most often selected element with a "3" priority and tied with element #3 (Evaluate critically the sources and content of information) in this respect. At the low end, neither elements #1 nor #7 received enough responses to be included among the top seven elements.

Table 25

Most Highly Ranked Elements for Top Seven Rankings Based on

Frequency of Response (N = 165)

Element	Rank	f	%
2. Access information effectively and efficiently	1	46	27.88
3. Evaluate critically the sources and content of information	2	48	29.09
2. Access information effectively and efficiently	3	34	20.61
3. Evaluate critically the sources and content of information	3	34	20.61
5. Use information effectively to accomplish a specific purpose	4	34	20.61
4. Incorporate selected information into the learner's knowledge base and value system	5	54	32.72
6. Understand the economic, legal and social issues surrounding the use of information and information technology	6	61	36.97

In examining specific demographic differences in terms of ranking IL elements, the data only indicated statistical significance for three elements along three demographic characteristics. The first set of data for which statistical significance was found was for *Professional Status* and element #1 ("Determine the nature and extent of needed information"). Table 26 provides response frequency and Chi square analysis data for *Professorial Status* cross tabulated by priorities assigned to element #1. More than half (54.8%) of all respondents ranked element #1 between one and three. Conversely, only slightly more than a quarter of respondents (27.4%) ranked the element between five and seven. Because the ability to articulate a topic and define one's need is fundamental to any information or research process, of all of the elements, this is the one that would seem most likely to demonstrate significance – both practically and statistically. The data would seem to support this notion.

Table 26

Cross Tabulation of Professorial Status By Priority of Element #1 (N = 164)

	Priority of Information Literacy Element #1														
	1		2		3		4		5		6		7		
Professorial Status	f	%	f	%	f	%	f	%	f	%	f	%	f	%	χ^2
															26.73*
Tenured	25	62.50	20	80.00	20	80.00	22	75.86	19	79.17	8	61.54	5	62.50	
Non Tenured, Tenure Track	13	32.50	3	12.00	4	16.00	7	24.14	2	8.33	5	38.46	0	0.00	
Non Tenured, Non Tenure Track	2	5.00	2	8.00	1	4.00	0	0.00	3	12.50	0	0.00	3	37.50	

* $p < .05$
Note. Percentage reflects percentage of responses within Element #1.

A Chi square analysis of the data also indicated statistical significance for *Age* and element #7 ("Observe laws, regulations, and institutional policies related to the access and use of information"). Table 27 provides a cross tabulation of the response frequencies for Age based on priorities assigned to element #7. As can be seen, more than 70% of all respondents ranked element #7 between five and seven (i.e. lowest priorities). Based on the data, element #7 ("Observe laws, regulations, and institutional policies related to the access and use of information") appears to be a relatively low priority for all ages for inclusion in a campus definition of IL.

Table 27

Cross Tabulation of Age By Priority of Element #7

	Priority of Information Literacy Element #7													
	1		2		3		4		5		6		7		
Age	f	%	f	%	f	%	f	%	f	%	f	%	f	%	χ^2
															38.34*
<30	0	0.00	0	0.0	0	0.0	2	16.67	0	0.0	0	0.0	0	0.0	
30-39	1	9.10	0	0.0	2	16.67	1	8.33	1	5.88	4	8.70	4	7.27	
40-49	4	36.36	1	8.33	3	25.00	3	25.00	6	35.29	11	23.91	19	34.55	
50-59	6	54.55	8	66.67	7	58.33	5	41.67	8	47.06	27	58.70	25	45.45	
>59	0	0.00	3	25.00	0	0.00	1	8.33	2	11.76	4	8.70	7	12.73	

* $p < .05$
Note. Percentage reflects percentage of responses within Element #7.

Table 28 provides response frequency and Chi square analysis data for *Level of Students Taught* cross tabulated by priorities assigned to element #4. The data for element #4 indicates statistical significance. For element #4 ("Incorporate selected information into the learner's knowledge base and value system"), more than half of all faculty (45.0% Undergraduate and 11.9% Graduate) ranked the element between five and seven. As with element #7 above, it appears element #4 is a relatively low priority for all levels of faculty in terms of including the element in a campus definition of IL.

Table 28

Cross Tabulation of Level of Students Taught By Priority of Element #4

	1		2		3		4		5		6		7		
						Priority of Information Literacy Element #4									
Level Taught	f	%	f	%	f	%	f	%	f	%	f	%	f	%	χ^2
															19.85*
Undergraduate	1	25.00	8	88.89	25	100.00	29	93.55	42	79.25	15	83.33	15	75.00	
Graduate	3	75.00	1	11.11	0	0.00	2	6.45	11	20.75	3	16.67	5	25.00	

* $p < .05$
Note. Percentage reflects percentage of responses within Element #4.

Table 29 provides response frequency and Chi square analysis data for *Level of Students Taught* cross tabulated by priorities assigned to element #7. Similar to *Age* noted earlier, for *Level of Students Taught*, element #7 ("Observe laws, regulations, and institutional policies related to the access and use of information") appears to be a low priority. More than 70% (Undergraduate 62.6% and 9.3% Graduate) ranked the element between five and seven suggesting faculty at all levels believe element #7 to be a relatively low priority.

Table 29

Cross Tabulation of Level of Students Taught By Priority of Element #7

Level Taught		Priority of Information Literacy Element #7													χ^2
	1		2		3		4		5		6		7		
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	
															14.15*
Undergraduate	10	90.91	6	54.55	11	91.67	8	72.73	12	70.59	38	88.37	50	90.91	
Graduate	1	9.10	5	45.45	1	8.33	3	27.27	5	29.41	5	11.63	5	9.10	

* $p < .05$
Note. Percentage reflects percentage of responses within Element #7.

Existing Information Literacy Instruction as Skills-Based vs. Process-Based

With survey question 8, respondents were asked to indicate their beliefs about the nature of existing IL instruction. Response-continuum options ranged from skills-based (1) to process-based (10). Table 30 provides a summary of responses to this question. As can be seen, the highest number of responses was generated by option "5" (20.8%) while the lowest was option "9" (0.6%). Overall, roughly one-half (50.9%) chose 1-4 while less than one-third (28.3%) chose 6-10. This is consistent with earlier findings indicating faculty seem to emphasize or otherwise understand IL along resource or skills-based dimensions more so than process or cognitively-based dimensions.

Table 30

Beliefs About Existing IL Instruction as

Skills-based (1) vs. Process-based (10)

Continuum Option	f	Valid %
1	5	3.14
2	15	9.43
3	30	18.87
4	31	19.50
5	33	20.75
6	10	6.29
7	20	12.58
8	10	6.29
9	1	0.63
10	4	2.51
Missing	6	

N = 165

Based on the results of an ANOVA analysis of demographic differences, though, the data indicate that there is no significant difference in the beliefs of faculty about existing IL instruction. Table 31 provides a detailed look at the response data for faculty beliefs about existing IL instruction as skills-based versus process-based. As can be seen, the means for all demographic variables studied fall more or less in the middle of the

continuum suggesting a balance between skills and process with a slightly greater emphasis, if any, on skills (i.e. scores from 1-4). For example, the means for *Professorial Status* increase from Tenured to Non Tenure, Tenure Track to Non Tenure, Non Tenure Track faculty. Conversely, for Professorial Rank, the ratings go down from Instructor to Full Professor.

Still, a few interesting patterns do emerge from the data. First, the second lowest mean was for Library faculty. The instruction currently offered by Library faculty is primarily technology-based. Such instruction typically takes place in an hour at the request of a professor with an assignment involving research using library resources. Given the time constraints, lectures must necessarily focus on developing skills with regard to utilization of technology. There simply is not time to focus on developing the more time-consuming, process-oriented types of skills required of true IL instruction.

A similar pattern can be seen for *Age*. Younger faculty (i.e. <39) tended to rate current instruction slightly more toward the technology-based end of the spectrum than did their older and/or non tenured counterparts. In fact, the lowest mean (i.e. 3.92) for any demographic category was for those aged 30-39. As noted earlier, younger faculty were more likely to have been exposed and to have experience using existing and emergent information technologies. It can be inferred that this experience makes them more sensitive to the relationship between technology and information. That is, they may be more sensitive to and aware of IL. Perhaps this gives them greater insight and perspective on existing IL instruction and they are able to recognize it as being primarily technology-based.

This would seem to be supported by the data for *Professorial Rank*. Again, even though no statistical significance was found, upper division faculty tended to characterize existing IL instruction as being more process-based than their lower division colleagues (i.e. Instructors and Assistant Professors). Upper level faculty will necessarily be older. They may not be aware of what IL instruction is and/or what is currently in place with regard to such. As a result, they may have responded based on older models and notions of technology and information.

Table 31

Faculty Beliefs About Existing Information Literacy Instruction as Skills-Based vs. Process-

Based Instruction

	f	*M*	*SD*	*F*	*df* Between	Within	*p*
Affiliation	158	4.66		1.48	5	152	0.20
Education	29	4.55	1.79				
Graduate Studies	9	4.00	2.12				
Liberal Arts	67	5.13	2.10				
Library	7	4.14	2.80				
Non Classroom	6	4.00	1.67				
Science, Management, and Technology	40	4.28	1.84				
Professorial Status	158	4.69		2.89	2	155	0.06
Tenured	113	4.46	1.89				
Non Tenured, Tenure Track	34	5.15	2.23				
Non Tenured, Non Tenure Track	11	5.64	2.39				
Age	159	4.67		1.03	4	154	0.39
<30	2	4.00	1.41				
30-39	13	3.92	1.89				
40-49	46	4.65	1.92				
50-59	82	4.91	2.18				
>59	16	4.19	1.47				
Professorial Rank	159	4.67		2.49	3	155	0.06
Instructor	17	5.29	2.37				
Assistant Professor	56	5.09	2.13				
Associate Professor	40	4.28	1.85				
Full Professor	46	4.28	1.79				
Number of Gen Ed Courses Taught	159	4.67		0.05	4	154	1.00
None	78	4.65	2.05				
1	20	4.80	1.77				
2	35	4.69	2.07				
3	17	4.53	2.18				
4	9	4.78	2.22				
Level of Students Taught	155	4.73		0.25	1	153	0.62
Undergraduate	131	4.76	1.95				
Graduate	24	4.54	2.38				

When asked directly (i.e. survey question 9) if they felt the University has a clear definition of IL, faculty were given Likert-scale type response options ranging from "Strongly Agree" (1) to "Strongly Disagree" (4). Response frequencies are summarized in Table 32. A Chi square analysis of the data indicated that there is a statistically significant difference, $p < .001$. No one responded with "Strongly Disagree." And yet, clearly the majority (54.6%) do not believe the University has a clear definition.

Table 32

Beliefs About Edinboro University Having a Clearly

Defined Definition of Information Literacy (N = 163)

Belief	f	%	χ^2
			40.39*
Strongly Agree	23	14.11	
Agree	51	31.29	
Disagree	89	54.60	

* $p < .001$

Table 33 summarizes demographic response data for those indicating they do not believe the University has a clear definition of IL. As can be seen, a Chi square analysis of the data only indicated statistical significance for *Affiliation* $\chi^2_{(10, 162)} = 23.365$, $p < .01$ This suggests that faculty from all Schools/Departments believe that the university does not have a clear definition of IL. This may, in part, be explained by the fact that many

departments have discipline-specific definitions of IL or some closely related concept. Many of these definitions, for example, may or may not refer to the concept as "information literacy" but as something more along the lines of "lifelong learning" or "critical thinking." As such, it is not clear if lacking a "clearly defined definition" means faculty believe no consistent, universal definition exists or if they believe no definition exists at all.

Table 33

Demographic Characteristics of Faculty Responding

They Disagree That Edinboro University Has a Clearly

Defined Definition of Information Literacy

Demographic Characteristic	N	%	χ^2
Affiliation	162	54.32	23.37*
Professorial Status	162	54.32	9.34
Age	163	54.60	4.34
Professorial Rank	163	54.60	8.17
Gen Ed Courses Taught	163	54.60	11.81
Level of Students Taught	158	53.80	0.47

*$p < 0.01$

Table 34 provides a more detailed look at the specific response patterns within *Affiliation*. Several interesting patterns emerged from this data. Overall, even though no one responded with "Strongly Disagree," it is clear that most faculty (54.3%) disagree

with the idea that the University has a clear definition of IL. In fact, the only school showing less than forty percent disagreement was the School of Education (35.7%). Although the sample sizes for such was small, faculty within the School of Graduate Studies indicated the strongest levels of disagreement (80.0%).

Perhaps the most interesting finding concerns Library faculty. As with Graduate Studies, the sample size was small. Still, Library faculty were split almost equally on this question. Just over fifty-seven percent (four responses) indicated "Strongly Agree" while just under forty-three percent (three responses) responded with "Disagree." Given that IL is a concept familiar to many librarians, they may equate this with "having a clear definition." That is, they may feel that the University has not adopted the traditional "library definition" and, as a result, some librarians may have responded that no clear definition exists. On the other hand, it could indeed indicate that Library faculty believe that the University truly does not have a clear definition – regardless of its source

Table 34

Cross Tabulation of Affiliation By Faculty Beliefs About Edinboro

University Having a Clearly Defined Definition of Information

Literacy (N = 162)

Affiliation	Strongly Agree (14.2%)		Agree (31.5%)		Disagree (54.3%)	
	f	%	*f*	%	*f*	%
Education	4	14.28	14	50.00	10	35.71
Graduate Studies	1	10.00	1	10.00	8	80.00
Liberal Arts	6	8.58	21	30.00	43	61.43
Library	4	57.14	0	0.00	3	42.86
Non Classroom	2	28.57	1	14.29	4	57.14
Science, Management, and Technology	6	15.00	14	35.00	20	50.00

Note. Note. (%) equals percentage of total responses; % in columns refers to percentage within Affiliation.

Components of Information Literacy

Table 35 summarizes response data overall for faculty beliefs about other literacies that should be a part of the University's definition. In terms of the sample, Information Literacy, Technology Literacy, Computer Literacy, Communication Literacy, and Media Literacy were indicated by more than half of all respondents.

Interestingly, "Information Literacy" received the overall highest number of responses (72.1%). Conversely, just over thirteen percent indicated they felt IL is unique. Ultimately, this represented only 2.2% of responses overall. That is, they did not see it as an "umbrella term" but rather as a distinct literacy unto itself. Given the nature of this study, it is unclear why "Information Literacy" was not chosen outright and/or seen as a unique concept by all respondents.

Table 35 also provides data about overall rates of response for each type of literacy.   Looked at in this context, only Information Literacy (10.9%) and Technology Literacy (11.7%) were chosen by more than ten percent of those who responded. Combined with the findings noted above, once again, this would seem to indicate that faculty believe greater emphasis should be placed on the technology and resource-related aspects of IL.

Table 35

Beliefs About Which Literacies Should Be Part of Edinboro

University's Definition of Information Literacy (N = 165)

Type of Literacy	f	Sample %	Response %
Technology Literacy	111	67.27	10.93
Media Literacy	90	54.55	8.86
Network Literacy	57	34.55	5.61
Visual Literacy	72	43.64	7.09
Computer Literacy	101	61.21	9.94
Information Literacy	119	72.12	11.71
Communication Literacy	97	58.79	9.55
Digital Literacy	72	43.64	7.09
Cultural Literacy	78	47.27	7.68
Scientific Literacy	78	47.27	7.68
Mathematical Literacy	34	20.61	3.35
Global Literacy	81	49.09	7.97
I believe Information Literacy is unique	22	13.33	2.17
Other	4	2.42	0.39

Importance of Information Literacy Education Compared to Other Curricular Needs

Survey question 15 asked faculty to indicate their beliefs about the importance of

IL compared to other curricular needs. The question included seven curricular elements

for comparison. For each comparison element, faculty were given response options

ranging from "Not Important At All" (1) to "Very Important" (5). Response frequency

and Chi square analysis data for each comparison element are summarized in Table 36.

Overall, the data indicated statistical significance, $p < .001$ for every comparison element.

As can be seen, the comparison element receiving the highest number of "Important" or

"Very Important" responses (84.5%) was "A" (i.e. "Information literacy skills compared to computer skills.") while the lowest (46.9%) was for "C" (i.e. "Accreditation expectations for information literacy compared to other accreditation expectations"). The data clearly suggests that faculty believe IL is a significant curricular need compared to other curricular needs.

Table 36

Faculty Beliefs About the Importance of Information Literacy Compared to Other

Curricular Needs

	Not Important At All		Not Important		Not Sure		Important		Very Important		
Comparison	f	%	f	%	f	%	f	%	f	%	χ^2
A.	1	0.62	4	2.48	20	12.42	90	55.90	46	28.57	169.22*
B.	1	0.63	18	11.32	33	20.75	72	45.28	35	22.01	87.01*
C.	6	3.75	14	8.75	65	40.63	60	37.50	15	9.38	98.81*
D.	8	4.94	16	9.88	43	26.54	57	35.19	38	23.46	49.79*
E.	10	6.21	14	8.70	53	32.92	54	33.54	30	18.63	53.94*
F.	1	0.62	5	3.09	62	38.27	73	45.06	21	12.96	135.53*
G.	1	0.62	9	5.56	40	24.69	68	41.98	44	27.16	92.38*

$p < .001$
Note. A= Information literacy compared to computer skills (*N*=161)
B = Information literacy as a component of all classes compared to a component of a specific set of classes (*N*=159)
C = Accreditation expectations for information literacy compared to other accreditation expectations (*N*=160)
D = Information literacy as a General Education requirement compared to Computer Competency as a General Education requirement (*N*=162)
E = Information literacy as a General Education requirement compared to all other General Education requirements (*N*=161)
F = Information literacy instruction for students compared to information literacy instruction for faculty (*N*=162)
G = Need for general information literacy instruction for all students compared to information Literacy instruction for specific needs of students in specific disciplines (*N*=162)

In examining the data along specific demographic characteristics, statistical significance was indicated for four characteristics. Table 37 provides response frequency and Chi square analysis of data for *Affiliation* cross tabulated by beliefs about accreditation expectations for information literacy compared to other accreditation expectations. As can be seen, more than forty-seven percent indicated IL as being "Important" or "Very Important" compared to other accreditation expectations. This is nearly four times as many who indicated "Not Important" or "Not Important at All." In looking at departmental differences, the faculty indicating "Very Important" most frequently were the Library faculty (28.6%). The highest respective percentages of faculty indicating "Not Important" (16.7%) or "Not Important At All" (6.0%) were both from the School of Liberal Arts.

Table 37

Cross Tabulation of Affiliation By Beliefs About Accreditation Expectations for Information

Literacy Compared to Other Accreditation Expectations (N=159)

	Not Important At All (3.8%)		Not Important (8.8%)		Not Sure (40.3%)		Important (37.7%)		Very Important (9.4%)		
Affiliation	f	%	f	%	f	%	f	%	f	%	χ^2
											44.25*
Education	0	0.00	2	6.90	7	24.14	16	55.17	4	13.79	
Graduate Studies	0	0.00	0	0.00	1	11.11	7	77.78	1	11.11	
Liberal Arts	4	6.06	11	16.67	28	42.42	18	27.27	5	7.58	
Library	0	0.00	0	0.00	4	57.14	1	14.29	2	28.57	
Non Classroom	0	0.00	0	0.00	0	0.00	7	100.0	0	0.00	
Science, Mgmt., and Technology	2	4.88	1	2.43	24	58.54	11	26.83	3	7.32	

p < .01

Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Affiliation.

A Chi square analysis of the data for *Professional Status* also demonstrated

statistical significance with respect to the perceived importance of IL compared to other

accreditation needs. A cross tabulation of this response data comprises Table 38. Again,

as with *Affiliation*, just over forty-seven percent responded "Important" or "Very

Important." The data for individual responses for these categories were almost identical

to one another: Tenured (47.8%), Non Tenured, Tenure Track (45.5%), and Non

Tenured, Non Tenure Track (45.5%). Particularly when combined with the data noted

above, it appears as though a majority of faculty – regardless of their *Professorial Status*

– also clearly believe IL is at least as important as other accreditation expectations.

Table 38

Cross Tabulation of Professional Status By Beliefs About Accreditation Expectations for Information Literacy

Compared to Other Accreditation Expectations (N=159)

	Not Important At All (3.7%)		Not Important (8.2%)		Not Sure (40.9%)		Important (37.7%)		Very Important (9.4%)		
Professorial Status	f	%	f	%	f	%	f	%	f	%	χ^2
											16.30*
Tenured	5	4.35	12	10.43	43	37.39	46	40.00	9	7.83	
Non Tenured, Tenure Track	1	3.03	1	3.03	16	48.48	13	39.39	2	6.06	
Non Tenured, Non Tenure Track	0	0.00	0	0.00	6	54.55	1	9.09	4	36.36	

p < .05

Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Professorial Status.

In examining faculty beliefs about IL as a General Education requirement as compared to al other General Education requirements, a Chi square analysis of the data for *Number of General Education Courses Taught* were found to be statistically significant. Table 39 provides a cross tabulation of this response data. Overall, 52.1% of faculty indicated "Important" or "Very Important." In looking at the data for individual responses, though, the results were mixed. In general, as the number of General Education courses taught increases, the number of faculty indicating "Not Important" or "Not Important At All" tends to increase as well.

The exact reasons for this relationship are beyond the scope of this study. However, this data might be interpreted to provide additional evidence of a lack of understanding about what is meant by "information literacy." As several of the commonly accepted elements of IL are already present in the University's General Education requirements, the data suggests that faculty either are not aware that these are IL elements and/or that they are not familiar with the University's General Education requirements. Given the data presented in this section and elsewhere, both possibilities seem likely.

Table 39

Cross Tabulation of Number of General Education Courses Taught By Beliefs About the

Importance of Information Literacy as a General Education Requirement Compared to All Other

General Education Requirements (N=161)

# of Gen Ed Courses Taught	Not Important At All (6.2%)		Not Important (8.7)		Not Sure (32.9%)		Important (33.5%)		Very Important (18.6%)		χ^2
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	
											27.75*
None	3	3.80	4	5.06	23	29.11	29	36.71	20	25.32	
1	1	5.00	1	5.00	8	40.00	8	40.00	2	10.00	
2	2	5.56	6	16.67	14	38.89	8	22.22	6	16.67	
3	4	23.53	2	11.76	3	17.65	8	47.06	0	0.00	
4	0	0.00	1	11.11	5	55.56	1	11.11	2	22.22	

p < .05

Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Number of General Education Courses Taught.

Table 40 provides summary of response frequency and Chi square analysis data for *Level of Students Taught* cross tabulated by beliefs about accreditation expectations for information literacy compared to other accreditation expectations. Overall, 46.5% indicated "Important" or "Very Important." However, within each category, the number of Graduate Faculty indicating such (75.0%) was nearly twice that of Undergraduate Faculty (41.2%). In combination with significance found for *Affiliation* and *Professorial Status* for this same variable, that faculty believe IL is an important accreditation expectation compared to other accreditation expectations seems clear.

Table 40

Cross Tabulation of Level of Students Taught By Beliefs About Accreditation Expectations for

Information Literacy Compared to Other Accreditation Expectations (N=155)

Level of Students Taught	Not Important At All (3.9%)		Not Important (9.0%)		Not Sure (40.7%)		Important (36.8%)		Very Important (9.7%)		χ^2
	f	%	f	%	f	%	f	%	f	%	
											10.57*
Undergraduate	6	4.58	13	9.92	58	44.27	44	33.59	10	7.63	
Graduate	0	0.00	1	4.17	5	20.83	13	54.17	5	20.83	

p < .05

Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Level of Students Taught.

Table 41 provides a cross tabulation of response data for *Level of Students Taught* by beliefs about information literacy as a General Education requirement compared to Computer Competency as a General Education requirement. In looking at the importance of IL compared to other accreditation expectations, a Chi square analysis of the data demonstrated statistical significance for this variable as well. More than 58% overall indicated "Important" or "Very Important." Even though Graduate Faculty are not involved with General Education, 80% indicated IL was "Important" or "Very Important" compared to the Computer Competency requirement. While not quite as high, the corresponding figure for Undergraduate faculty was 54.55%. Although how they are doing so remains unclear, the data suggests that perhaps faculty see a distinction between IL and Computer Competency. The data might be interpreted to mean that faculty do see a distinction between the two. Conversely, at least in part, this may be a recognition of the dependence of information on technology. That is, to some degree, faculty may be equating the need for "computer competence" with "information competence." Faculty may see these two "skills" as increasingly co-dependent and, therefore, equally important.

Table 41

Cross Tabulation of Level of Students Taught By Beliefs About Information Literacy as a General

Education Requirement Compared to Computer Competency as a General Education Requirement (N=157)

Level of Students Taught	Not Important At All (5.1%)		Not Important (9.6%)		Not Sure (26.8%)		Important (34.4%)		Very Important (24.2%)		χ^2
	f	%	f	%	f	%	f	%	f	%	
											11.02*
Undergraduate	8	6.06	13	9.85	39	29.55	46	34.85	26	19.70	
Graduate	0	0.00	2	8.00	3	12.00	8	32.00	12	48.00	

p < .05

Note. In headings, (%) reflects overall response percentage. Percentages in rows reflect response percentage within Level of Students Taught.

Summary

Several demographic and discipline-specific patterns in faculty understandings and perceptions of IL emerged from the data. Overall, data from all demographic categories consistently seems to suggest that faculty tend to favor or otherwise perceive IL along more technology-based interpretations rather than cognitively based ones. Views on IL instruction are a prime example. When specifically asked about their views about existing IL instruction, less than one-third of respondents indicated an option between six and ten – the options reflecting a more process-based approach.

However, there was some variability among the data. For example, when asked to indicate the importance of IL to other curricular needs, the highest Mean (*M*=4.09 out of 5.00) was indicated for the importance of "Information literacy compared to computer skills." Similarly, nearly 60% of all faculty indicated they believed IL as a General Education requirement was "Important" or "Very Important" compared to Computer Competency as a General Education requirement. This would seem to suggest that faculty recognize that IL is about more than technology. And yet, exactly how the distinction is being made or how it might be characterized remains unclear.

This was evident in the data about defining IL. It is clear that most faculty do not believe the University has a clear definition of IL. Even the Library faculty – those presumably most familiar with IL – were split on this question. And yet, when asked what elements such a definition should incorporate, the emphasis among all groups was again on a more technology-based definition. On a number of measures, for example, the more technology-based elements (e.g. "Access information effectively and efficiently") emerge repeatedly as the most desirable elements to be included in a campus definition of

160

IL. Conversely, the more process, cognitively based elements (e.g. element #7 –

"Observe laws, regulations, and institutional policies related to the access and use of

information") were consistently ranked between five and seven (e.g. Age, Level of

Students Taught) – the lowest rankings possible. Similarly, when asked what other

literacies a campus definition of IL should or might include, Technology Literacy,

Computer Literacy, Communication Literacy, and Media Literacy were deemed most

desirable. The latter all provide further evidence of the trend noted above.

A third trend to emerge from the data has to do with the perceived importance of

IL. When asked about the importance of IL compared to "Other accreditation

expectations," the data found statistical significance for *Affiliation*, *Professorial Status*,

and *Level of Students Taught*. For all three variables, nearly fifty percent of respondents

indicated IL as being "Important" or "Very Important." More than half of all respondents

responded similarly when indicating their beliefs about the importance of IL as a General

Education requirement compared to other General Education requirements. Moreover, as

the number of General Education courses taught increases, the number of faculty

indicating "Not Important" or "Not Important At All" tends to increase as well. As such,

even though a clear University definition may be elusive at this time, faculty across all

demographic categories do seem to recognize that it is important to the curriculum.

CHAPTER V: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this descriptive case study was to identify faculty perceptions and understandings of information literacy (IL) and its incorporation into the curriculum. Specifically, the focus of this study was on: 1) incorporation of IL into the curriculum, 2) obstacles in the implementation of IL instruction, 3) best approaches to IL instruction, and 4) who should have primary responsibility for providing IL instruction. Various demographic variables were also examined for patterns and themes in the data as reflected in faculty understandings and perceptions of IL and IL instruction.

Chapter One provided an overview of the need to determine faculty beliefs about IL and IL instruction. Chapter Two outlined the history of the concept of IL and IL instruction. A discussion of learning organizations and presentation of known challenges was also presented as a way to better understand why IL and IL instruction is not more widespread. Chapter Three detailed the study's institutional setting and participants. Instrument development and administration are also discussed. Chapter Four presented a summary of the data collected via the survey instrument used in this study. Chapter Five will summarize results of the data analysis. Conclusions based on the study's findings as well as practical implications, contributions to research, and recommendations and suggestions for further study will also be presented.

Summary of Research Findings

This study examined a number of questions related to IL and IL instruction. Data analysis for these questions produced seven major findings as summarized in Figure 8.

Issue Explored	Major Finding(s)
Incorporation of IL into the curriculum	1. Faculty seem to have a mixed awareness of the importance of IL and curricular expectations and concerns regarding such 2. IL is something that impacts all students and should, therefore, be part of all levels of the curriculum.
Obstacles to the implementation of IL instruction	Lack of knowledge about information literacy is perceived as the most significant challenge to incorporating it into the curriculum
Best approaches to IL instruction	The best approach is seen as being one that is integrated into the entire curriculum.
Primary responsibility for providing IL instruction	Faculty tend to believe that all faculty should be engaged in the process of providing IL instruction.
Demographic variations in perceptions and understanding of IL and IL instruction	1. The University lacks a clear definition or understanding of IL 2. IL an IL instruction are still perceived as being more technology, skills-based than process, cognitive-based

Figure 8. Summary of research findings

As can be seen, several broad themes emerged from this study. Key among these is the fact that faculty believe the University lacks a clear definition of IL. Despite a clear and consistent definition at the institutional level, though, most faculty perceive IL and existing IL instruction as being a more technology, skills-based concept than a process, cognitive-based one. In terms of incorporating IL into the curriculum, faculty seemed to have mixed understandings about the importance of IL and curricular expectations regarding such. Even so, there seems to be general agreement that it should be a part of all levels of the curriculum. Similarly, faculty generally agree that the best approach to providing IL instruction is one that is integrated into the entire curriculum and that all faculty should share responsibility for such. However, the key challenge to doing so is a lack of knowledge about IL.

163

Discussion

Incorporation of Information Literacy into the Curriculum

General Education

One of the intentions of this study was to develop a deeper understanding of faculty's beliefs from a broad, curricular perspective, especially with respect to General Education and accreditation expectations about IL. As noted in Chapter Two, accrediting bodies (e.g. MSA) and the General Education curricula of many colleges and universities are focusing increasing attention on IL and IL instruction to meet the growing needs of today's information society. As discussed below, faculty seem to have a greater understanding of the requirements of the University's General Education curriculum than they do of accrediting expectations and concerns.

Regardless, it seems clear that faculty believe IL is important and should be integrated into all levels of the curriculum. One possibility for such is the integration of IL into the General Education curriculum. The General Education curriculum "is that part of the undergraduate experience that crosses all boundaries; it is that which unifies otherwise distinct constituencies within the institution" (EUP Catalog, p. 52). Out of 120 hours required for graduation for most undergraduates, forty-eight credit hours are consumed by General Education courses. Because of the impact on all undergraduate students, it seems reasonable to assume that those teaching primarily Undergraduate level students would have a greater familiarity with General Education requirements than those teaching primarily Graduate level students.

And yet, a greater percentage of Graduate faculty correctly indicated all four options than did Undergraduate faculty. Perhaps Graduate faculty simply assume all of

the options are requirements of General Education and responded accordingly. However, given the rather small sample size of Graduate faculty responding, the significance of this finding is rather dubious. There is no way of knowing if this would have changed had a greater number of Graduate faculty responded. Either way, it is important to note that the only demographic variable for which the data evidenced statistical significance was Level of Students Taught.

It is equally important to note that more than a third of all respondents correctly indicated all four of the General Education requirements for the BS and BA degrees. Whether or not respondents realized the four requirements are elements of IL is unclear. That said, this finding is somewhat surprising given that nearly two-thirds of respondents indicated that they typically teach one or no General Education courses and, as such, would seem to be less likely to be familiar with the requirements of such.

The data from this study indicate that faculty generally support the idea of IL being a part of General Education. For example, more than half of all respondents indicated that they felt IL as a General Education requirement compared to all other General Education requirements was "Important" or "Very Important." But, as noted in Chapter Four, as the number of General Education courses taught increases, the number of faculty indicating "Not Important" or "Not Important At All" tends to increase as well. One possible explanation for this is that, because they are more involved with General Education, these faculty see more instances of IL being incorporated into the curriculum and, as such, do not see it as being important.

When asked about the best ways to integrate IL instruction into the curriculum, though, nearly three-quarters of respondents indicated that it should be integrated into the

entire curriculum. Because of its applicability to all undergraduate students, the General

Education curriculum seems a likely candidate for where this integration might take

place. This is echoed by Ilene Rockman (2002) who believes that, as institutions begin

restructuring their curricula for the "Information Age," General Education will serve as

the foundation for that effort.

Middle States' Standards and Information Literacy

Faculty do not seem to be as aware of or as concerned about Middle States'

accreditation expectations and concerns expressed at the conclusion of their most recent

reaccreditation visit. There are fourteen standards for accreditation outlined in Middle

States' publication: *Characteristics of Excellence in Higher Education* (2006). Three of

these standards – #11, #12, and #13 – make references to IL and the desirability to have it

incorporated into the curriculum. In this respect, Saunders (2007) notes that Middle

States is the most detailed. The clear implication is that, even though IL is still not a

specified standard, it is needed to achieve standards.

Faculty had difficulty identifying these standards. More than a third of

respondents did not select any of these three standards while only about a fifth were able

to correctly identify all three. Looking at each of the three standards individually, just

over half of all survey respondents correctly indicated Standard 12 (i.e. General

Education). Even if faculty members are unclear about the concept of IL itself, this

would seem to reinforce the finding noted above that faculty have a sense of the broad

applicability of IL.

Faculty, though, were not as successful identifying the other two standards

mentioning the desirability of IL. In terms of number of respondents selecting them,

166

Standards 11 (i.e. Educational Offerings) and 13 (i.e. Related Educational Activities) ranked third and seventh respectively. Moreover, a significantly fewer number of respondents were able to select the correct three standards than those who did not pick any of the three at all.

In short, the data in this respect is inconclusive. While there are many possible explanations that could be explored, this may ultimately reflect nothing more than faculty members being unfamiliar with or being disinterested in the standards. If at all, faculty may only be familiar with the standards that affect them directly and, even then, perhaps only with the generalities of the standards themselves, not with the details.

Perhaps the most interesting finding is that Standard 14 (i.e. Assessment of Student Learning) received the second highest percentage of responses. This standard makes no reference to IL. That IL can be used as a tool for assessing both student learning and institutions might provide some context for why this received such a high number of responses. That is, faculty might see IL as an important method or component of assessing student learning. As outlined in Chapter Two, IL is increasingly seen as a student learning outcome. With the increasing emphasis on accountability and student learning outcomes in higher education (e.g. Ratteray, 2002; Thompson, 2002; Craig, 2004; Saunders, 2007) faculty may simply have associated IL with this standard.

Middle States' Concerns

The accountability of higher education is under increasing scrutiny. Funding, for example, is now often linked to performance. College and universities are under increasing pressure to provide practical, vocational sorts of education rather than the traditional "knowledge for knowledge's sake" approach (Dolence & Norris, 1995;

Newby, 1999). Because of its focus on producing individuals with the skills and abilities to function in today's "knowledge economy," IL is increasingly seen as a student learning outcome and is receiving greater prominence in discussions of accountability, especially in terms of accreditation (e.g. Ratteray, 2002; Thompson, 2002; Saunders, 2007).

Recognizing the growing need for accountability and expectations for such in terms of accreditation, survey question 18 asked respondents to select up to three concerns purportedly mentioned in the *Final Report* issued after the last MSA reaccreditation visit. Of the three response options provided, only the first one (i.e. "A structured IL program developed by librarians and faculty to foster IL skills that are relevant to the curriculum does not exist.") was an actual concern. The other two were fabricated for purposes of this study.

As with MSA standards, the data for this aspect of the study seems inconclusive as well. For example, Option "A" – the only correct option – was actually the option selected the least often and yet it is the only option of the three for which the data indicate statistical differences. Older faculty tended to be the ones who were able to correctly identify such. This might be explained by the fact that older faculty have been around campus longer. As a result, they may be more likely to be familiar with accreditation concerns than their younger counterparts simply because older faculty have accumulated longer years of service on committees, participation in curricular matters, serving as Department Chairpersons, and so on. Even so, more than twenty percent did not select any of the three options.

Although how to interpret these finding remains somewhat elusive, the data does appear to be consistent. For example, when asked to compare accreditation expectations

for IL to other accreditation expectations, less than half of respondents indicated they believed MSA felt that an accreditation expectation for IL was "Important" or "Very Important." Similarly, the high number indicating they felt MSA's concern was over the inadequacy of the "Computer Competency" to address various information needs could be interpreted to mean that faculty have a basic understanding that technology and information are related but separate concepts.

But, again, without additional study, it is difficult to know how to interpret these findings. Despite the fact that accreditation affects all aspects of the campus community, it seems obvious that it cannot be assumed that all faculty will attach equal importance to or otherwise engage in the process. Just as with the MSA standards discussed earlier, faculty may not be familiar with or care about the concerns listed in MSA's *Final Report*. Even if faculty were familiar with these concerns, the time interval since the last MSA reaccreditation visit may have caused some faculty to forget what they contained. Other faculty may only be focused on the sections that are perceived to be directed at them or their Department.

Because of its impact on every faculty member, at every level, from every discipline, accreditation may serve as one way to unify faculty with regards to IL. In particular, the strengths, weaknesses, and concerns which emerge from the accreditation process can provide a foundation upon which to build and a sense of direction. This idea of "building a shared" vision is common to many change theorists (e.g. Kotter, 2002; Senge, 1990) who observe the efficacy of a shared vision if change is to take place. The literature of library and information science also contains examples (e.g. Breivik, 2005; Ivey, 2003; Snavely and Cooper, 1997).

Producing lifelong learners continues to be at the core of higher education (e.g. Cunningham, 2002; Grafstein, 2002). However, increasing demands by business and legislators to produce graduates with practical skills are behind much of today's education reform movement (Breivik, 1999). Information literacy can be used as a bridge between the two to create an "information literate university" (Johnston, 2002) or what Peter Senge (1990) and others refer to as the "learning organization."

Obstacles to the Implementation of Information Literacy Instruction

There are many possible obstacles to the implementation of IL instruction. "Lack of knowledge about IL" was the most frequently selected obstacle in this study. That a lack of knowledge about IL is a primary obstacle is consistent with the literature. Many authors have noted that perhaps IL and IL instruction are concepts familiar primarily to those within the library and information science professions but not to faculty outside of those disciplines (e.g. Arp, 1990; Behrens, 1994; Grassian, 2001). Lacking a knowledge of what it means or what it might mean to them, many faculty may be resistant to implementing IL instruction. However, given all of the new technologies available and the "explosion" of information that has taken place, faculty may ultimately simply not know how to go about the task of teaching information skills (Breivik, 2005).

Recognizing this, the literature suggests that a new role for librarians may be to focus on educating the faculty rather than the students. One of the first to talk about this new role was Risë Smith (1997). Simply put, she feels that the amount of time and effort traditionally devoted to instructing students would be better focused on faculty. By better understanding the concept and how to incorporate it into the curriculum, faculty and

librarians will create a nurturing, facilitative environment wherein individuals can more readily learn how to learn and where such is no longer the exception but rather the norm.

While lacking knowledge about IL is a problem unto itself, it can also lead to other obstacles – perceived or real. For example, that it may have been perceived as something new or "extra" could explain why the second highest response was "Insufficient time" when asked about obstacles to incorporating IL into the curriculum. An overwhelming majority of respondents expressed agreement that they would need to learn how to incorporate IL into the curriculum. It is not clear if this means that faculty are unfamiliar with IL, how to incorporate it into their courses, or both. But, this is not uncommon. As Breivik (2005) reports, many faculty simply do not know how to go about the task. Moreover, professional development opportunities are often unavailable, inconvenient, and/or inappropriate to their needs (Ivey, 2003).

The third most frequently indicated obstacle, "Coordinating efforts among departments," is also supported by the literature. There are many factors that can reduce or otherwise impede faculty involvement and, therefore, coordination among and between departments (e.g. Cunningham, 2002; Snavely and Cooper, 1997). Because of faculty specializations, there is a lack of a common vocabulary which often makes it difficult to talk about any topic. As Breivik (2005) observes, either because of or in spite of these and other challenges, many faculty simply do not know how to go about the task of integrating IL into the curriculum.

Data from this study indicate that Non Tenured, Tenure Track faculty seemed to feel they would have the most difficulties in this respect. This might be explained by the simple fact that their future at the University is questionable. That is, as their contracts

are typically generated on a semester to semester or year to year basis, they may not be as involved with or care to be involved in curricular matters. Instead, they may tend to simply focus on administering their courses and, as such, could see IL as something extra or different for which they have no motivation or incentive to try to incorporate.

The data for Professorial Rank suggests that faculty at the Instructor level also seem to believe they would have difficulty incorporating IL. While the reasons may be different, the lack of motivation may also be behind some Instructors' hesitation. As the lowest ranking members of the faculty hierarchy, Instructors may feel hesitant to "rock the boat" and try anything new in the courses they have been assigned for fear of negative ramifications to their application for promotion and/or tenure.

Insufficient time was also a commonly indicated obstacle in this study. In discussing implementation of IL instruction, fear of a loss of classroom time is a common source of reluctance (Breivik, 2005). The large number of respondents indicating they felt they would need to alter their assignments or their courses to incorporate IL could also explain why faculty feel they do not have sufficient time. The combination of "lack of time" and "lack of knowledge" provides evidence to support the perception that IL is perceived as somehow something "different" or additional that must be done and something for which faculty do not believe they have enough time.

Interestingly, faculty who tend to teach Undergraduate students tended to feel they needed more time than those teaching Graduate students. In part, this may be attributed to the fact that graduate courses and programs tend to be more heavily research-oriented. That is, many classes already include elements of IL such as finding

sources and evaluating information. In turn, Graduate faculty may feel less concern over the time issue because they are already incorporating IL into their courses.

In talking about sustainable change and the emergence of a learning organization, "Systems Thinking" is a key component according to Peter Senge (1990). Systems thinking involves seeing the whole as greater than its parts. With an increasingly "integrated," systemic view of the world, institutions of higher education can no longer think of themselves as existing in isolation. This emergent perspective is filtering down to the discipline level as well. More and more educators are realizing the inter-connections between disciplines. They see they are not in competition for students or with each other but rather share many of the same goals and expectations. Some argue that IL is an ideal bridge between the old and the new because it "enables other shared goals and initiatives to flourish" (Hutchins et al, 2002, p. 11).

Effective Integration of Information Literacy into the Curriculum

In addition to studying perceived obstacles, this study also examined faculty perceptions about effective integration of IL into the curriculum. Overwhelmingly, here "Need to learn how" and "Need to understand more about IL" were the most frequent responses. This data provides further support of the ideas outlined in the previous section.

There were demographic differences in beliefs about effectively integrating IL into the curriculum. For example, in terms of Professorial Status nearly half of all Tenured faculty responded that they do not believe faculty won't feel they can incorporate IL into their courses. This was nearly four times the number of their Non Tenured counterparts who responded similarly. Though to a lesser degree, the data for

Professional Status was similar. In both cases, the reasons for this finding are unclear. It suggests that faculty are not uncomfortable and/or do not lack confidence about exploring new learning strategies and techniques. At the very least, it seems that faculty do not think they would have difficulty incorporating IL into the curriculum.

Altering their courses might seem like the logical starting point for doing so. And yet, the data from this study indicates a fairly even split among faculty who believe they will have to alter their courses to integrate IL and those who believe they will not. This could be why a clear majority of respondents indicated they felt they would need extra time in their courses to effectively integrate IL. This again suggests that faculty perceive IL and IL instruction as something "different" than what they are already doing in their classes.

Best Approaches to Providing Information Literacy Instruction

As outlined in Chapter Two, there are many authors who believe IL is no longer a concept that should or can be the sole responsibility of librarians (e.g. Rockman, 2002; Saunders, 2007). That is, as more and more come to understand the concept and its implications for creating graduates prepared to live and work in today's "information rich" society, IL will come to be seen as a joint responsibility of all faculty.

Nearly three-quarters of all respondents in this study indicated that they feel the most effective method of providing IL instruction is one which is integrated into the entire curriculum. A nearly identical number of respondents indicated that IL for all students versus the specific needs of students in specific disciplines was an important curricular need. In addition, more than half indicated that IL as a General Education requirement was important compared to other General Education requirements.

All of these findings are consistent with the current literature. As noted in Chapter Two, the current thinking in the literature of library science (e.g. Breivik, 1998) is that IL instruction must be integrated into all courses across the entire curriculum if it is to be successful. These findings are consistent with the literature of leadership and of learning organizations as well. As Senge (1990) observes, for true learning organizations to emerge, everyone involved must realize they are not in competition but share many common goals and expectations. As a result of this systems thinking, IL may come to be perceived as "not an end in itself but rather one that enables other shared goals and initiatives to flourish" (Hutchins et al, 2002, p. 11). In talking about IL instruction, Risë Smith (1997) believes that perhaps it is time to begin shifting some of the instructional emphases away from students and towards librarians and faculty members. The data outlined above seems to support this belief.

Primary Responsibility for Providing Information Literacy Instruction

As detailed in Chapter Four, faculty beliefs about the best approaches to IL instruction were nearly unanimous in favor of a unified approach involving all faculty. Historically, library instruction and, later, IL instruction has tended to be seen as primarily a topic of concern or significance for librarians and information science professionals (e.g. Arp, 1990; Behrens, 1994). But, only five percent of respondents in this study expressed this sentiment.

The overwhelming majority indicated that the responsibility for IL instruction should reside with teams comprised of librarians and faculty from all Schools and Departments or all faculty from all Schools and Departments. At many institutions, librarians do not hold faculty status. In answering this question, some respondents may

not have realized librarians at this University have faculty status. As such, they may have selected the "team" option to be sure librarians were included in the process. Either way, this data clearly reinforces the suggestion noted earlier that faculty perceive IL to be a more or less global matter of concern across the entire University.

That successful change requires shared solutions is also a common notion. For example, the notion of a shared approach is reflected in "Team Learning" – the fifth of noted leadership author Peter Senge's (1990) "five disciplines." He believes that successful change cannot take place if only a few selected individuals are committed to the concept. Noted author Jim Collins refers to the same idea when he talks about the "genius with the 1,000 helpers." The idea is that one needs to build a community. If a suggested change only has one or a limited number of supporters, the change will disintegrate and disappear after that individual or group is no longer present (Collins, 2001). In the case of IL, numerous authors point to the need for collaboration and campus-wide initiatives if IL is to take hold and flourish (e.g. Arp, 1990; Ivey, 2003; Snavely and Cooper, 1997). Having so many faculty express similar sentiments provides an ideal foundation for future IL initiatives.

Demographic Variations in Perceptions and Understanding of IL and IL Instruction

The term "information literacy" was first used in 1974 (Zurkowski, 1974). Since then, numerous definitions have emerged and, as a result, the term "information literacy" has come to mean different things to different people. Regardless of the definition, how individuals define IL and, by extension, IL instruction must take into account many factors – philosophical, practical, and otherwise. A key part of this study examined

various demographic differences in how faculty perceive and understand IL and IL instruction

Philosophical Basis of IL

Since first appearing in the mid-1970s, definitions and understandings of IL quickly evolved. Because information and the use of computers and related technologies tended to be work-related, initial definitions were very practical and were often context-specific. That is, because of the need for a specific set of skills to operate a specific piece of technology, such definitions tended to focus more on "computer" literacy than "information" literacy as we think of it today. Zurkowski's definition (1974), for example, revolved around workers "utilizing the wide range of information tools as well as primary sources in molding information-solutions to their problems" (p. 6).

Within a decade, though, new technologies emerged. Key among these were networked technologies. As a direct result of such, the current definition and understanding of IL began to emerge. IL was no longer seen as being dependent on a specific technology and/or a specific location. IL took on a broader meaning. The conceptualization of IL as more of a process-based notion rather than a skills-based concept gained momentum and has remained at the forefront ever since.

When asked to rank their perceptions of existing IL instruction on a continuum from skills- (1) to process-based (10), faculty in this study tended to conceptualize IL as being more skills-based. Just over half of the responses were skills-based (i.e. 1-4), about one quarter were process-based (i.e. 6-10) and the rest were in the middle. That faculty seem to place a slightly greater emphasis on skills versus process is reminiscent of the views held by people when the use of computers first began to emerge in the 1970s and

1980s (e.g. Burchinal, 1976; Garfield, 1979). As noted earlier, computers were initially seen primarily as computational sorts of tools. It was only later that associating computers with information handling and as tools for locating, retrieving, and manipulating information emerged (e.g. Behrens, 1994; Tyner, 1998). This "legacy" could, in part, explain why there is still a fairly widespread tendency to equate computer literacy with IL. Technology is still seen by many as a tool to be mastered or otherwise used. Information's increasing dependence on technology only adds to this confusion.

Despite this "equivalence," today's definitions conceptualize IL as more of a process-based activity than simply a set of skills and/or technologies to master. To a large extent, this evolution can be linked directly to the emergence of the Internet and the advent of the "Information Society." With the latter, information was no longer the sole province of librarians and information science professionals. Increasing numbers of references to the importance of and need for "knowledge workers" began to appear in the literature (e.g. Horton, 1983; Compaigne, 1984; Fatzer, 1987). Perhaps the most noteworthy recognition of this change in philosophy can be found in the publication of *A Nation at Risk* (1983). As Doyle (1994) observes, the document was among the first to draw national attention to the growing importance of "the management of complex information in electronic and digital forms as an important skill in a 'learning society'" (p. 6).

As noted previously, no statistical significance was found for any demographic variable studied in relation to faculty views on a "skills" versus "process" based understanding. This suggests a fairly even distribution in faculty views on the matter. Still, several patterns did emerge from the data. Younger faculty (<39 years of age), for

example, tended to rate existing IL instruction as being more "technology-based" than their older counterparts. One possible explanation for such is the fact that younger faculty have more experience with and have been exposed more to the "technology-based" aspects of information. In turn, they are more likely to be aware that mastery of the technology itself is not sufficient. Therefore, in looking at existing IL instruction, they may be more likely to see the predominance of the pre-Internet model of instruction with respect to information skills and IL instruction in particular.

This would also seem to be supported by the data for Professorial Rank for the same question. Because a criteria for rank is years of service, higher ranking faculty are typically older faculty. As such, they may not be aware of what IL instruction is and/or what type(s) and/or models of such are in place. That higher ranking faculty tended to respond more on the skills side of the continuum suggests they may simply be responding based on older models which emphasized and otherwise focused upon more of the technology and skills-based elements and approaches. That is, they are responding based on the model with which they are most familiar.

Clarity of University's Definition

As noted throughout this work, defining IL is elusive. Moreover, the lack of a clear understanding of IL is not uncommon (e.g. Snavely & Cooper, 1998). Recognizing such, one of this study's key questions was about faculty beliefs regarding the University's definition of IL. Overall, more than half of the respondents indicated they believed the University did not have a clear definition of IL. This is not surprising given the finding noted earlier that the key obstacle cited by faculty with regard to

implementing IL instruction was a lack of knowledge about IL. That is, if faculty are not aware of IL, they are probably not likely to believe there is a common definition of such.

And yet, when looked at in terms of demographic characteristics, the findings are not so clear. As indicated in Chapter Four, of the demographic variables studied, only the data for Affiliation proved statistically significant suggesting differences between Schools/Departments. Nearly two-thirds of School Education and roughly half of the School of Science, Management, and Technology faculty indicated general agreement that the University has a clearly defined definition. Library faculty, though, were split fairly evenly on this question while nearly two-thirds of Liberal Arts faculty indicated disagreement.

One possible explanation for this pattern is that faculty from certain Schools/Departments may have a unique way of defining or otherwise understanding IL within their disciplines. As such, if the University's definition is not seen as matching, faculty may have responded that a clear definition does not exist. Thus, variations as to whether or not the University has a clear definition may simply be manifesting the existence of School-specific definitions and understandings of the term which are not perceived as coinciding with the University's definition. If so, the Schools of Education and of Science, Management, and Technology would seem to have the most clearly defined definitions of IL.

A similar explanation may reside in the "interchangeability" of the term. Rather than separate, distinct definitions, many respondents may simply be equating other terms with the notion of "information literacy." For example, they may equate IL with "computer literacy" because of the increasing inter-dependence of information and

technology (Grassian, 2001). "Lifelong learning," "resource-based learning," and "critical thinking" are also reported as being used interchangeably with IL (e.g. Breivik, 2005; Cunningham, 2002). Since such terms are literally not "information literacy," respondents may feel a definition does not exist on campus for such because they perceive it as different from these other equivalencies.

This lack of unity can be a huge problem for planners of IL initiatives. Senge's (1995) "discipline" of "Building a Shared Vision" is particularly relevant here. He and other authors (e.g. Evans, 1996; Kotter, 2002; Gardner, 1995) talk about the need for a shared vision if true change is to take place. At the foundation of this shared vision must necessarily be a common goal. Without understanding what it is they are being asked to strive toward, individuals are not likely to embrace the change being proposed. For planners of IL initiatives, the lack of a clear definition can be a significant hurdle (Snavely & Cooper, 1998).

Priority of Elements to Be Included in a Definition

The definition of IL used by most academic librarians is the one developed by the American Library Association in 1989 (i.e. ALA, 1989; ACRL, 2005). The latter has since come to be seen as consisting of six or seven elements (see Appendix A). Using these elements as "standards," a key question in this study revolved having faculty rank the relative importance they assigned to each element – highest priority (1) to lowest priority (7).

Given the dependence of information on technology, it is not surprising to find that the second element – "Accessing Information effectively and efficiently" – was consistently ranked among the most important. It had the lowest overall mean, with the

lowest ranking it received being a five. The element also had the largest percentage of faculty selecting it as their highest priority. Such findings reflect a recognition of the fact that individuals need to be able to effectively use technology to access information.

The age of respondents offers an additional interpretation. As summarized in Chapter Four, more than ninety percent of respondents in this study are over the age of 40. Having been raised and educated in a "print world," many older faculty are less likely to be familiar with current technologies and how to use them effectively. As such, their responses may be reflective of the dependence of information on technology. But, at least in part, it may simply be that they may mistakenly be equating "computer literacy" with "information literacy" as described elsewhere in this study.

At the other end of the scale, the more cognitive, process-based elements were consistently ranked lowest. For example, the sixth element – "Understand the economic, legal, and social issues surrounding the use of information and information technology" – received the lowest mean. The highest ranking it received was a three. In terms of the element that was selected least often as the top priority, the fourth element – "Incorporate selected information in the learner's knowledge base and value system" – was selected least often. These findings provide additional evidence in support of the notion that IL still tends to be perceived as more of a technology-related, skills-based concept rather than a process-based one.

In addition, several other demographic patterns emerged from the data as well. Regardless of Professorial Status, for example, element #1 ("Determine the nature and extent of needed information") was ranked between first and third by more than half the respondents while less than a third ranked it between fifth and seventh. Because of the

importance of this element to any research process, it is clear that this element should receive emphasis in whatever definition emerges.

Age and Level of Students Taught and the rankings for element #7 ("Observe laws, regulations, and institutional policies related to the access and use of information") are also significant. In both cases, more than seventy percent of respondents ranked this element between five and seven. Older faculty, though, tended to rank this element slightly higher than younger faculty. Regardless of the Age of faculty or whether or not they teach Undergraduate or Graduate students, faculty clearly seem to feel that this element should receive a low priority.

Undergraduate and Graduate faculty alike also assigned a low priority to element #4 ("Incorporate selected information into the learner's knowledge base and value system"). Here again, more than half of all respondents ranked the element between five and seven. As with element #7 above, it appears element #4 is a relatively low faculty priority for inclusion in a definition of IL.

In developing a definition of IL, it will be important to incorporate these findings. While the other elements are important, it is clear that faculty feel that the use of technology should be emphasized. This follows current models of IL. Doyle's Delphi Study (1992), for example, cites "Recognizes that accurate and complete information is the basis for intelligent decision making" is the first element with "Accesses sources of information including computer-based and other technologies" right in the middle. The more "cognitive" aspects of IL (e.g. "Uses information in critical thinking and problem solving") are listed towards the end. Such models do not discuss the order in which the various elements appear. However, even if not intentional, there is an implicit order

attached to their sequencing. The data from this study support that tacit emphasis and should not be overlooked.

Other Literacies to Be Included in a Definition

The need to create more active learning environments to better prepare students for lifelong learning and problem solving is well-documented (e.g. Blackstone, 2001; de Weert, 1999; Forest, 2002; Frostd, 2001; Newby, 1999). The need for and desirability of "information skills" in these new learning environments is also well-documented (e.g. Breivik, 2005; Dolence and Norris, 1995; Doyle, 1994; Gumport, 2005; Jongbloed, 2002; Salmi, 2002).   What is not clear is what constitutes "information skills."

Although the ALA definition is arguably among the most well-known (at least in higher education), it is not the only definition. Moreover, the ALA's definition characterizes more what an information literate individual is than the concept itself. With that in mind, since it first emerged as a concept in the 1970s, many models of and approaches to IL have emerged (e.g. Bruce, 1997; Educational Testing Service, 2007). Some maintain IL is unique unto itself while others tend to perceive IL as more of an "umbrella term" under which other literacies can be included. From a library science perspective, the current model is "best envisioned as a broader concept that encompasses the other literacies" (Breivik, 2005, p. 23).

To determine if this "multiliteracy" model was evident, survey respondents were asked to indicate their beliefs about which other literacies they believed should be included in the University's definition of IL. In terms of the total frequency of responses selected, Information, Technology, Computer, Communication, and Media literacy were indicated by more than half of all respondents. But, when the literacies are examined in

relation to each other, only the literacies for Information and Technology were selected by more than 10% of respondents. Here again, despite a variety of other "literacies" with which faculty might be familiar and/or which may reflect discipline-specific definitions or understandings, the more technology-laden literacies consistently surfaced as the most desirable to be incorporated into a definition of IL.

This particular question yielded perhaps the most surprising finding of the study. Specifically, it is unclear why "Information Literacy" was not selected by all respondents as a literacy to be included in the University's definition of such. In fact, nearly a third did not indicate that IL should be included in the definition at all. This may be explained by the fact that, in reading the question and seeing the option available, faculty assumed "Information Literacy" was something different or to be interpreted differently for some reason. The sequencing of questions may also have played a role. For this question, the top five responses indicated above were among the first seven response options. Since "Information Literacy" was the sixth, perhaps there is some sort of response bias in that maybe respondents did not read the response options completely before responding and, therefore, overlooked IL. Why IL was not selected more often to be included as part of a definition of IL is unclear.

Practical Implications and Contributions to Research

This study's findings are best seen in the context of the study site and in contributions they may make to the research on faculty understandings of and beliefs about IL and IL instruction. Understood through the theoretical model upon which this study is built.

Practical Implications for the Study Site

The findings from this study have a number of practical implications for the study site and beyond. On a broad level, faculty seem to be unfamiliar with the specifics of accreditation with respect to IL. However, they do seem to be aware of and recognize the importance of IL to the curriculum. The data from this study are likely to be useful to those working on the University's five-year accreditation review. Although accreditation affects all levels of the institution, how much and to what degree faculty should be aware of accrediting standards for the institution is something that has to be determined at a local level. It may be enough that faculty are only be familiar with the standards in a general way and/or only be familiar with standards specific to their discipline.

Regardless of faculty's awareness of standards, though, universities must address accreditation concerns. Looking ahead to the University's next reaccreditation, the findings of this study and subsequent campus discussions will provide a starting point which can be used to begin to address the concern noted in the last accreditation report about the lack of a structured IL program. First, it is clear that faculty are unclear about concerns expressed during the last reaccreditation visit. It is even more unclear what priorities have been assigned to such. That is, while the lack of a structured IL program is clearly a concern, it may be relatively low compared to other concerns the University wishes to address. By knowing the emphasis attached to such, faculty will be better able to direct their time, attention, and efforts accordingly.

A key part of this will ultimately involve developing instructional opportunities for faculty. It is clear that faculty are not entirely clear as to what is meant by "information literacy" and how such will impact their courses and the assignments they

give to many of their students. It may still be perceived as something "extra" or something that is the responsibility of the library faculty. Because technologies change so quickly and because so many faculty indicated an emphasis on the technology aspects of IL, it seems a reasonable starting point would be to develop faculty instruction in the use of electronic information resources. Currently, the library faculty provide such instruction to classes at the request of faculty members. Because of time constraints, these sessions typically focus on utilizing resources appropriate to a specific assignment. These sessions could easily be adapted and new sessions developed specifically with faculty interests and needs in mind.

However, this risks exacerbating the perception that IL and IL instruction are the responsibility of librarians, thereby comprising the idea of IL and IL instruction being something with which all faculty and the entire curriculum needs to be involved. Many times, IL is seen as being "owned" by librarians or as only have relevance to librarians (e.g. Albrecht, 2002; Grafstein, 2002). Worse, faculty may see IL instruction as a form of remediation and not seek assistance (Cunningham, 2002). These images and models of librarians and IL need to be overcome if IL initiatives are to succeed.

As with accreditations standards and expectations, many faculty may not be familiar with the specific wording of the campus' General Education requirements, but they do seem to understand and support the intent. That is, faculty do seem to understand and to support the idea of incorporating IL into the curriculum but do not recognize current requirements as being elements of IL. The University is nearing completion of its first round of assessing its General Education curriculum's objectives. The data produced from such is being collected and will play a key role in the next review and

revision of the entire General Education curriculum. Given the nature of existing

expectations and an academic culture becoming increasingly focused on assessment, IL is

sure to play a key part in discussions about revision of the General Education curriculum.

And yet, despite faculty members' general agreement about the importance of IL,

incorporating it into the curriculum may not be as straightforward. Aside from being

unaware of how to do so noted earlier, there are many other worthy curricular needs.

Faculty may need stronger arguments to support IL over these other curricular needs.

Hutchins et al (2002), for example, observe that "a general education requirement

attached to a course or limited number of courses, counters the notion that research skills

are embedded in disciplinary traditions" (p. 14).

For IL initiatives to succeed, faculty must see that IL is not discipline specific. To

do so, it is imperative that those working on developing IL initiatives work to develop a

unified vision with respect to IL and IL instruction. As Breivik (2005) observes "At the

institutional level, there needs to be agreement on the definition of, and a commitment to,

IL as a core competency for all graduates" (p. 25). This type of institutional thinking is

reflective of Senge's notion of "Team Learning" (1990). Everyone must be involved if

new initiatives are to succeed. It can not be a single department or group of committed

individuals. Countless authors point to the need for collaborations and campus-wide

initiatives if information literacy is to take hold and flourish (e.g. Arp, 1990; Ivey, 2003;

Snavely and Cooper, 1997).

Links to Theoretical Framework

The notion of a "learning organization" and, in particular, the "disciplines" of

Peter Senge outlined earlier can provide a framework for better understanding this

study's findings. These ideas can also provide a context for initiating discussions about

how to develop and implement the recommendations which emerged from this study.

Systems Thinking
The incorporation of IL has implications for higher education on a number of levels. It is also something which faculty believe should be integrated into the entire curriculum and with which faculty believe all faculty should be involved if such integration is to be successful.

> • Strengthen the expectations for IL already present in the General Education curriculum.
> • Explore additional ways of further integrating IL into the curriculum, particularly through General Education.
> • Determine the relative priority assigned to Middle States' concern over the lack of a structured IL program.
> • Work with faculty and staff to develop a structured IL program suitable to the priority it has been assigned.

Personal Mastery
Lacking information about IL can be a significant obstacle to successfully integrating IL into the curriculum

> • Develop learning opportunities through which faculty can share and otherwise learn about successful and effective methods of and techniques for integrating IL into the curriculum.

Mental Models
Faculty members' awareness and understanding of IL tend to emphasize the more technology-based elements of IL more so than the cognitively based ones. Faculty members need to see IL as a process rather than the mere acquisition of skills and that IL is something with which all faculty can and should be involved.

> • Develop opportunities for faculty to learn about how to effectively and efficiently use information technology.
> • Use these learning opportunities as a foundation for discussions revolving around the more process-based elements of IL.
> • Determine discipline-/department-specific expectations with respect to IL and IL instruction.

Building a Shared Vision
The lack of a clear understanding of what is meant by IL presents a significant obstacle to meaningful discussion and creates challenges on a number of other levels.

> • Use this study's findings as a starting point for developing a campus-wide definition of IL.
> • Develop ways that help faculty to better understand what is meant by IL and IL instruction.

Team Learning
Lacking a clear understanding of what is meant by IL, many faculty may not know how to incorporate it into their courses. And yet, many faculty, courses, and assignments already integrate elements of IL. Sharing this information with faculty across disciplines will help efforts to implement IL campus-wide.

> • Identify individuals, courses, and assignments that successfully integrate elements of IL.
> • Identify and utilize organizations and forums on campus that discuss pedagogy and curriculum.
> • Organize inter- and intra-departmental meetings to share ideas and concerns.

Contributions to Research and Literature

The findings of this study contribute to the research and literature on faculty beliefs about and understandings of IL and IL instruction on several levels.

Colleges and universities no longer have a "monopoly" on education. To remain competitive and to remain relevant, institutions of higher learning must make the transition from the industrial to the knowledge era. To do so, they must adopt new ways of thinking about and providing instruction. The faculty in this study seemed to clearly understand the importance of IL to the curriculum even if they were not familiar with the details of what exactly that means to them, their classes, and the instruction they provide.

When talking about higher education in the 21st century, many authors and educators discuss the need to create more active learning environments to better prepare students for lifelong learning and problem solving (e.g. Blackstone, 2001; de Weert,

1999; Forest, 2002; Frostd, 2001; Newby, 1999). For a number of reasons, IL is increasingly seen as a way to make this transition (e.g. Cunningham, 2002; Grafstein, 2002). Its emphasis on "learning to learn" and its ability to provide measurable student outcomes can be used to help address the growing demand for accountability – both public and institutional – for institutions of higher learning.

Although faculty lack clarity about IL and how to incorporate it into the curriculum, this is not inconsistent with the literature (e.g. Arp, 1990; Behrens, 1994; Grassian, 2001). Often those outside of the library and information science professions are unfamiliar with IL or have alternate understandings and interpretations. By better understanding faculty perceptions and degrees of understanding, a more "universal" definition of IL and IL instruction can be developed. Such a common definition will facilitate the effective use of time, resources, and effort to create IL initiatives and enhance IL instruction.

In creating such a definition, faculty in this study tended to emphasize the more technology and resource-based elements over the more cognitive, process-based ones. Moreover, faculty indicated they believe that existing IL instruction tends to focus on these elements. Because such elements are already present and because they produce readily identifiable and measurable outcomes, IL programmers may wish to focus on these technology-based elements first as a stepping stone to the more cognitively based ones.

The data from this study clearly show that faculty feel IL should be an integral part of the entire curriculum and that all faculty from all departments and disciplines should be involved in IL instruction. In the past, such instruction was often relegated to

191

or seen as the responsibility of librarians. This contributed to the perception that it was a discrete set of skills and, as such, something that could be accomplished via "training." This study contributes to the growing body of literature (e.g. Breivik, 1998; Tyner, 1998; Serotkin, 2006) which supports the idea that, to be successful and sustainable, IL instruction needs to be integrated across the entire campus and involve faculty from every discipline and department. That is, IL instruction should not be seen as mere "training" but as a broader concept with applicability across all disciplines.

<div align="center">Recommendations and Suggestions for Further Study</div>

<div align="center">*Recommendations*</div>

Incorporation of and Best Approaches to Integrating IL into the Curriculum

Given the growing emphasis on IL in Middle States' standards, it seems prudent to alert faculty to the campus' needs regarding IL in this respect. The data from this study clearly indicate faculty believe IL to be an important curricular concern. In terms of accreditation, for example, more than four times as many faculty indicated IL as being "Important" or "Very Important" compared to other accreditation expectations than those who indicated "Not Important" or "Not Important at All."

And yet, despite this perception, it is equally clear that faculty awareness of Middle States' standards and accreditation expectations is, at best, mixed. With growing expectations for accountability and because accreditation affects all levels and areas of the curriculum, faculty should make themselves somewhat familiar with the accreditation process and standards for such. In addition, many departments also have discipline-specific accreditation requirements. It is suggested that the University take a more active role in assisting faculty in learning about the accreditation process and finding a balance

<div align="center">192</div>

between University and Departmental needs regarding such. With regard to IL, the priority assigned to addressing Middle States' specific concern about the "lack of a structured IL program" needs to be clearly articulated.

The most logical forum for discussions about the above and related issues would be the *21st Century Planning Group*. The latter is a representative group comprised of faculty and staff from numerous departments across campus. One of the group's primary responsibilities is to begin preparing for the next reaccreditation visit. It is recommended that this group examine the issue of IL in terms of expectations expressed in MSA standards and, more specifically, the concerns expressed after the last visit to see how such concerns might be addressed. In turn, sharing this information with faculty will be critical in engendering campus wide awareness and, ultimately, support of and participation in whatever IL initiatives are proposed and developed.

In terms of the University' ongoing day-to-day operation, the campus' University-wide Curriculum Committee should also play a key role in this process. As an elected body, it insures every faculty constituency has representation. As the body responsible for approving the campus' curriculum, this body is empowered to make changes to the University's curricular courses and programs. Because oversight of the General Education curriculum is the responsibility of this committee, it seems that this might provide an ideal starting point for discussions concerning revision of the General Education program.

Along these lines, the data from this study found that more than half of all faculty indicated IL was an important requirement of General Education compared to all other General Education requirements. However, several of the commonly accepted elements

of IL are already present in the University's General Education requirements, This could be interpreted to mean that faculty see IL as something different than what is already articulated in the campus' General Education requirements. Another interpretation might simply be that faculty either are not aware that these are IL elements and/or that they are not familiar with the University's General Education requirements. Given the data presented in this section and elsewhere, both possibilities seem likely.

With the above in mind, it is suggested that the University and Curriculum Committee work with those teaching courses included in the General Education curriculum. While elements of IL are already present in the General Education curriculum, it is not clear to what extent these elements are being integrated into courses and/or assignments. The Curriculum Committee could examine such and make recommendations accordingly when new courses and programs are proposed for General Education and/or when existing courses and programs are being revised.

However, incorporating IL into the General Education curriculum should not be seen as the only solution. Graduate students, for example, do not take General Education courses. Moreover, curricular change at the University level takes considerable time. In the interim, many students will miss critical opportunities to acquire necessary information skills. As a starting point, it is suggested that courses requiring research be identified by each Department. Arguably, IL instruction would benefit these students directly and immediately. Then, as time and resources permit, work on integrating IL into other courses and curricula could take place.

Obstacles to the Implementation of IL Instruction

The need for instruction about IL and how to incorporate such into the curriculum is central. As noted earlier, one of Middle States' concerns during the last reaccreditation process was that "A structured IL program developed by librarians and faculty to foster IL skills that are relevant to the curriculum does not exist." Developing programming for faculty will help to address this need. Such programming will also play a huge role in coordinating efforts among faculty and departments – another key obstacle to emerge from this study.

The data from this study suggest numerous starting points for the development of such programming. First and foremost, the lack of knowledge about IL should clearly be addressed.   On a number of levels, the findings from this study clearly show this as being the most significant challenge to incorporating IL into the curriculum. "Insufficient Time," for example, was cited as a key obstacle. Modifying existing courses and assignments should be an ongoing process. The amount of time needed to incorporate IL should be no different than for any other modification. In fact, many faculty may already be incorporating IL into their courses and assignments but may simply be interpreting such as something other than IL. The latter is probably especially true at the graduate level and/or for courses already involving a research component.

To alleviate the concerns over time, it is suggested that programmers begin with identifying various ways IL can be incorporated into the curriculum and then providing a method for faculty to learn about how to do so. Part of this process should also entail identifying the ways and methods to which faculty are most likely to respond and benefit. This will help to create a sense of ownership and "buy-in" on the part of faculty, thereby

facilitating the effective adoption of IL. In turn, determining ways to publicize such materials and activities will play a critical role in insuring all faculty are able to receive instruction and information as needed or desired.

Another key obstacle cited was "Insufficient Staffing." Here again, this suggests faculty see IL as something "other" that will require additional staffing or that it is something they themselves can not do. As programming is developed, clearly faculty will need to be informed about various ways IL can be incorporated into their classes. While there will be many similarities, each discipline is likely to have unique, specific expectations. Addressing the latter will be central if IL is to truly be integrated into the entire curriculum.

All Faculty Should Be Engaged in the Process of Providing IL Instruction

Whatever shape IL instruction eventually takes, it is clear from this study that faculty feel that all faculty should be involved in the process if IL instruction is to be successful. This finding is consistent with the literature. While there are various ways and methods for this to take place, it is imperative that faculty understand more about the concept. They will need to have a clearer understanding of exactly what IL is and what is expected of them. But, they will also need to be made aware of the importance of doing so. That is, they need to see a campus commitment to IL and IL instruction.

University Administration can play a key role in this process. Department Chairpersons, Deans, the Provost, and ultimately the President need to be involved. As the ones "on the front lines" in the classrooms, faculty involvement is certainly critical. But, lacking a commitment from University Administration may be interpreted as a "vote

of no confidence" and may result in any IL initiatives not reaching all students and otherwise falling short.

Although librarians can and should provide some degree of leadership in the process, they should not be the only ones involved in developing IL initiatives on campus. First and foremost, they are not representative of the entire faculty. If only librarians are involved, it would reinforce the notion that IL and IL instruction are something different and that such are the responsibility of librarians. Moreover, data from this study demonstrated that librarians' understanding of IL and IL instruction is "mixed." Lacking a clear definition and set of goals will make it impossible for librarians – or any single group of faculty – to develop successful IL initiatives.

Demographic Variations in Perceptions and Understanding of IL and IL Instruction

It is clear that faculty have mixed understandings and perceptions of IL. First and foremost, a clear working definition needs to be developed. Lacking such a definition will make ongoing discussions particularly problematic. Clearly most faculty in this study place a great deal of significance on the more technologically based elements as compared to the more cognitively based ones. As such, it is suggested that perhaps discussions should begin with an examination of the role technology plays in IL and IL instruction as well as what role such should play in defining IL for the campus. The data from this study can serve as a starting point in this regard.

In addition, discipline-specific needs and expectations need to be examined. Some departments and/or courses may feel the need to emphasize some elements more so than others. Insuring that such emphases are included without compromising a definition applicable to the entire campus will be essential. Again, since the majority of faculty in

this study seem to agree as to the importance of technology-related elements, it is suggested that perhaps these should serve as the foundation for all definitions and that other aspects be developed upon further consultation with faculty in various disciplines.

Suggestions for Further Study

Suggestions for further study can broadly be placed into one of three categories: Generalizability, Administrative Beliefs and Perceptions, and Methodological Considerations. Each of these is outlined below.

Generalizability

As a descriptive case study, the findings from this study were intended to benefit the University studied. However, as it is likely that some of the findings and implications are appropriate to other institutions, using the survey instrument developed for this study and administering it to faculty at other institutions seems a logical next step in determining this study's generalizability – if any. Along those lines, administering the survey to the faculty of the other thirteen institutions comprising the Pennsylvania State System of Higher Education (PASSHE) might be a first step. Determining commonalities among faculty at all fourteen institutions would be of interest to many involved with curriculum design across the Commonwealth. Such a study would also greatly facilitate planning and coordination of any IL initiatives that might emerge.

Administrative Beliefs and Perceptions

Conducting a similar study of Administrators also seems warranted. At most institutions, the Administrators are the individuals responsible for things such as setting Departmental budgets and creating University policies. Lacking strong Administrative support and reinforcement campus-wide, the establishment of any sort of IL initiative is

bound to have limited success. By synchronizing findings from both sides of the issue, there is a greater likelihood of creating programs that can be sustained on a number of levels, not the least of which are financial, pedagogical, and motivational.

Methodological Considerations

As with any study, there are methodological issues of which future researchers should be aware. First, the survey used must be studied for validity and reliability. As detailed earlier, the survey used in this study was intentionally created for this study and for administration at the research site. As noted above, this obviously raises questions of applicability outside of the University. However, it also raises questions about the instrument's overall validity and reliability. Subsequent administration of the survey in different settings is necessary to help establish both validity and reliability data.

Looking closely at the construction of the survey questions themselves will play a key role in this process. The specificity of some of the questions to the study site (e.g. about General Education), for example, may void or seriously compromise their applicability to other institutions. Such questions may need to be worded more broadly to be interpretable at other institutions. In so doing, though, determining the instrument's validity and reliability will become extremely problematic if not impossible. Likewise, some of the questions themselves (e.g. demographic) will need to be reworded to provide more appropriate response options. For example, Non classroom and Library faculty do not teach and some faculty teach both at the Undergraduate as well as the Graduate level. As such, it is unclear how these individuals responded to the question about what level of students they teach. No option was given for "mixed" or for "none."

Finally, it is suggested that future researchers incorporate some sort of supplementary interview and/or focus group data. The instrument used in this study provided valuable data but not the kind of subjective data that is helpful in providing context or for otherwise better understanding the study's findings. For example, as many of the definitions and models of IL have emerged from the library and information science fields, it seems critical to determine why Library faculty were essentially split as to whether or not the University has a clear definition of IL. While the instrument used provided useful data about such, it was not possible to gain insight into the origin or extent of such beliefs and perceptions.

Conclusion

The notion of "information literacy" is gaining renewed attention in higher education. The latter has always been concerned with providing students the environment, knowledge, and tools needed to become "lifelong learners." The need for such has become even more imperative with the advent of the "Information Age." Recognizing this need, accrediting bodies (e.g. Middle States) have begun incorporating expectations for IL instruction into their accreditation standards. In turn, to meet these growing expectations for accountability and relevance, colleges and universities are looking at IL and IL instruction as a means to insure their students acquire the skills needed to effectively and efficiently access, retrieve, and utilize information in order to be successful, productive citizens upon graduation.

Despite this growing emphasis, however, a common understanding of the term remains elusive for educators and those otherwise interested in developing IL initiatives. Since the term first appeared in 1974, "information literacy" has come to mean many

things to many different people. Many of these definitions often share common traits and themes. In addition, other definitions have emerged to meet discipline-specific needs. Such definitions are as likely to be called "information literacy" as they are "resource-based learning" or "critical thinking." Exacerbating this confusion, many faculty still associate IL with librarians and, as such, are reluctant to take ownership of the concept.

Recognizing the need for a common vision in order to develop and successfully integrate information literacy instruction, this study examined how faculty at one University perceive and understand IL and IL instruction. Consistent with the literature, this study found that faculty do, indeed, have mixed understandings of the terms and that most tend to focus on the more technology-related elements than the more cognitive, process-based ones. Even so, the findings suggest general agreement that information literacy is important to all students at all levels of the curriculum and that all faculty should play a role in providing IL instruction. However, lack of knowledge about IL presents obstacles on a number of levels. This study is a crucial first step in opening a campus dialog about the best way to integrate IL into the curriculum.

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APPENDIX A: AMERICAN LIBRARY ASSOCIATION (ALA) DEFINITION OF

INFORMATION LITERACY AND ASSOCIATION OF COLLEGE AND RESEARCH

LIBRARIES (ACRL) INFORMATION LITERACY COMPETENCY STANDARDS

FOR HIGHER EDUCATION

Definition of Information Literacy

As the American Library Association Presidential Committee on Information Literacy (January 10, 1989, Washington, D.C.) says "Ultimately, information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand."

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Information Literacy Competency Standards for Higher Education

STANDARD ONE
The information literate student determines the nature and extent of the information needed.

Performance Indicators:

1. The information literate student defines and articulates the need for information.

   Outcomes Include:

   a. Confers with instructors and participates in class discussions, peer workgroups, and electronic discussions to identify a research topic, or other information need
   b. Develops a thesis statement and formulates questions based on the information need
   c. Explores general information sources to increase familiarity with the topic
   d. Defines or modifies the information need to achieve a manageable focus
   e. Identifies key concepts and terms that describe the information need
   f. Recognizes that existing information can be combined with original thought, experimentation, and/or analysis to produce new information

2. The information literate student identifies a variety of types and formats of potential sources for information.

Outcomes Include:

    a. Knows how information is formally and informally produced, organized, and disseminated
    b. Recognizes that knowledge can be organized into disciplines that influence the way information is accessed
    c. Identifies the value and differences of potential resources in a variety of formats (e.g., multimedia, database, website, data set, audio/visual, book)
    d. Identifies the purpose and audience of potential resources (e.g., popular vs. scholarly, current vs. historical)
    e. Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline
    f. Realizes that information may need to be constructed with raw data from primary sources

3. The information literate student considers the costs and benefits of acquiring the needed information.

Outcomes Include:

    a. Determines the availability of needed information and makes decisions on broadening the information seeking process beyond local resources (e.g., interlibrary loan; using resources at other locations; obtaining images, videos, text, or sound)
    b. Considers the feasibility of acquiring a new language or skill (e.g., foreign or discipline-based) in order to gather needed information and to understand its context
    c. Defines a realistic overall plan and timeline to acquire the needed information

4. The information literate student reevaluates the nature and extent of the information need.

Outcomes Include:

    a. Reviews the initial information need to clarify, revise, or refine the question
    b. Describes criteria used to make information decisions and choices

STANDARD TWO
The information literate student accesses needed information effectively and efficiently.

Performance Indicators:

1. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

    Outcomes Include:

    a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork)
    b. Investigates benefits and applicability of various investigative methods
    c. Investigates the scope, content, and organization of information retrieval systems
    d. Selects efficient and effective approaches for accessing the information needed from the investigative method or information retrieval system

2. The information literate student constructs and implements effectively-designed search strategies.

    Outcomes Include:

    a. Develops a research plan appropriate to the investigative method
    b. Identifies keywords, synonyms and related terms for the information needed
    c. Selects controlled vocabulary specific to the discipline or information retrieval source
    d. Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, and proximity for search engines; internal organizers such as indexes for books)
    e. Implements the search strategy in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters
    f. Implements the search using investigative protocols appropriate to the discipline

3. The information literate student retrieves information online or in person using a variety of methods.

   Outcomes Include:

   a. Uses various search systems to retrieve information in a variety of formats
   b. Uses various classification schemes and other systems (e.g., call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration
   c. Uses specialized online or in person services available at the institution to retrieve information needed (e.g., interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners)
   d. Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information

4. The information literate student refines the search strategy if necessary.

   Outcomes Include:

   a. Assesses the quantity, quality, and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be utilized
   b. Identifies gaps in the information retrieved and determines if the search strategy should be revised
   c. Repeats the search using the revised strategy as necessary

5. The information literate student extracts, records, and manages the information and its
   sources.

   Outcomes Include:

   a. Selects among various technologies the most appropriate one for the task of extracting the needed information (e.g., copy/paste software functions, photocopier, scanner, audio/visual equipment, or exploratory instruments)
   b. Creates a system for organizing the information
   c. Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a wide range of resources
   d. Records all pertinent citation information for future reference
   e. Uses various technologies to manage the information selected and organized

STANDARD THREE
The information literate student evaluates information and its sources critically and
incorporates selected information into his or her knowledge base and value system.

Performance Indicators:

1. The information literate student summarizes the main ideas to be extracted from
   the information gathered.

   Outcomes Include:

   a. Reads the text and selects main ideas
   b. Restates textual concepts in his/her own words and selects data accurately
   c. Identifies verbatim material that can be then appropriately quoted

2. The information literate student articulates and applies initial criteria for
   evaluating both the information and its sources.

   Outcomes Include:

   a. Examines and compares information from various sources in order to
      evaluate reliability, validity, accuracy, authority, timeliness, and point of
      view or bias
   b. Analyzes the structure and logic of supporting arguments or methods
   c. Recognizes prejudice, deception, or manipulation
   d. Recognizes the cultural, physical, or other context within which the
      information was created and understands the impact of context on
      interpreting the information

3. The information literate student synthesizes main ideas to construct new concepts.

   Outcomes Include:

   a. Recognizes interrelationships among concepts and combines them into
      potentially useful primary statements with supporting evidence
   b. Extends initial synthesis, when possible, at a higher level of abstraction to
      construct new hypotheses that may require additional information
   c. Utilizes computer and other technologies (e.g. spreadsheets, databases,
      multimedia, and audio or visual equipment) for studying the interaction of
      ideas and other phenomena

4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

   Outcomes Include:

   d. Determines whether information satisfies the research or other information need
   e. Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
   f. Draws conclusions based upon information gathered
   g. Tests theories with discipline-appropriate techniques (e.g., simulators, experiments)
   h. Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
   i. Integrates new information with previous information or knowledge
   j. Selects information that provides evidence for the topic

5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

   Outcomes Include:

   k. Investigates differing viewpoints encountered in the literature
   l. Determines whether to incorporate or reject viewpoints encountered

6. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

   Outcomes Include:

   m. Participates in classroom and other discussions
   n. Participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., email, bulletin boards, chat rooms)
   o. Seeks expert opinion through a variety of mechanisms (e.g., interviews, email, listservs)

7. The information literate student determines whether the initial query should be revised.

   Outcomes Include:

   a. Determines if original information need has been satisfied or if additional information is needed
   b. Reviews search strategy and incorporates additional concepts as necessary
   c. Reviews information retrieval sources used and expands to include others as needed

STANDARD FOUR

The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

<u>Performance Indicators</u>:

1. The information literate student applies new and prior information to the planning and creation of a particular product or performance.

   Outcomes Include:
   a. Organizes the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, storyboards)
   b. Articulates knowledge and skills transferred from prior experiences to planning and creating the product or performance
   c. Integrates the new and prior information, including quotations and paraphrasings, in a manner that supports the purposes of the product or performance
   d. Manipulates digital text, images, and data, as needed, transferring them from their original locations and formats to a new context

2. The information literate student revises the development process for the product or performance.

   Outcomes Include:

   a. Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process
   b. Reflects on past successes, failures, and alternative strategies

3. The information literate student communicates the product or performance effectively to others.

   Outcomes Include:

   c. Chooses a communication medium and format that best supports the purposes of the product or performance and the intended audience

   a. Uses a range of information technology applications in creating the product or performance
   b. Incorporates principles of design and communication
   c. Communicates clearly and with a style that supports the purposes of the intended audience

STANDARD FIVE
The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Performance Indicators:

1. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

   Outcomes Include:

   a. Identifies and discusses issues related to privacy and security in both the print and electronic environments
   b. Identifies and discusses issues related to free vs. fee-based access to information
   c. Identifies and discusses issues related to censorship and freedom of speech
   d. Demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material

2. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

   Outcomes Include:

   a. Participates in electronic discussions following accepted practices (e.g. "Netiquette")
   b. Uses approved passwords and other forms of ID for access to information resources
   c. Complies with institutional policies on access to information resources
   d. Preserves the integrity of information resources, equipment, systems and facilities
   e. Legally obtains, stores, and disseminates text, data, images, or sounds
   f. Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as his/her own
   g. Demonstrates an understanding of institutional policies related to human subjects research

3. The information literate student acknowledges the use of information sources in communicating the product or performance.

   Outcomes Include:

   a. Selects an appropriate documentation style and uses it consistently to cite sources
   b. Posts permission granted notices, as needed, for copyrighted material

from Association of College and Research Libraries (2000). Information literacy competency standards for higher education. Available at:
http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.cfm Retrieved August 13, 2006.

APPENDIX B: COVER LETTER SENT TO INSTRUMENT REVIEWERS

October 3, 2007

This request is being sent to a number of university administrators, professional colleagues and personal acquaintances, all of whom have earned doctorates.

As most of you are aware, I am nearing the completion of my doctoral work on information literacy. I have created a survey instrument to aid me in the data collection process. The survey attempts to characterize how faculty conceptualize and understand the idea of information literacy and its incorporation into the curriculum.

I am writing to you today to ask for 10-15 minutes of your time to assist me with such by helping me to determine some measure of construct validity. I am *not* asking you to take the survey nor do you have to have any knowledge of information literacy. In fact, *not* having knowledge of such might actually be better in that those ultimately taking my survey may not have much knowledge of the topic either – part of why I'm doing the survey in the first place.

If you are interested in assisting me, please open/use the attached documents. The first (i.e. Question Matrix) includes instructions. Basically, you will be "mapping" my twelve survey questions to my six research questions in an effort to help me determine to what extent my survey actually answers (or not) my research questions.

The second document (i.e. Final Survey) is the actual survey instrument. It consists of twelve "content" questions (1-12). I have included the "demographic" (a-f) questions (e.g. department affiliation, rank) for review purposes only. The demographic questions are *not* to be used in completing the matrix.

In order to maintain privacy and confidentiality, I have hidden the names and addresses of those to whom this is being sent. Similarly, information in any responses I receive will be kept strictly confidential and will only be used for the purpose indicated above.

I know all of you have busy schedules. But, if at all possible, I would like to have your responses back as soon as possible (but not later than October 10th) in order to meet institutional deadlines, proceed with the next stage of my research, and so on.

Finally, for those that choose to assist me in this matter – thanks in advance. I would like to include a list of survey reviewers in the "Acknowledgements" section of my dissertation. Please let me know if you do *not* want to be included in this list. If I do not hear from you otherwise, I will assume it is ok to include you in this section.

If you aren't interested in helping, that's fine too and I thank you for taking the time to consider this request.

Sincerely,

Monty L. McAdoo

Prof. Monty L. McAdoo
Instruction and Electronic Resources Librarian
Baron-Forness Library, Room 231
Edinboro University of PA
Edinboro, PA 16444
Phone: 814-732-1070

APPENDIX C: BLANK QUESTION MATRIX SENT TO INSTRUMENT

REVIEWERS

<u>Instructions</u>

1) Please examine the twelve (1-12) questions of the attached survey.
   a. Do **not** complete the actual survey itself.
2) For each research question in the matrix below, indicate which survey question (or questions) you feel might help to answer that research question.
   a. Do **not** map the six (a-f) "demographic" questions. They are included for review purposes only.
3) As you may feel some questions overlap one another, numbers 1-12 may be used more than once.
   a. If you feel a survey question might help to answer more than one research question, please place the survey question number in each box that you feel is appropriate.
4) If you feel a survey question does not address any of the research questions, place those survey question numbers in row G.
5) If you have any questions, feel free to contact me by phone (814-732-1070) or via email (mmcadoo@edinboro.edu).
6) Please return your completed matrix/send your responses and any comments you may have to me by Wednesday, October 14th. Thank you!

I believe *Research Question*	…is addressed by *Survey Question(s)* ___.
A. What are faculty members' beliefs and attitudes towards information literacy?	
B. What are faculty members' beliefs and attitudes towards incorporating information literacy into the curriculum?	
C. What are the obstacles in the implementation of information literacy instruction faced by the faculty?	
D. What are the best approaches to information literacy instruction perceived by the faculty?	
E. Who is perceived by the faculty to have primary responsibility for providing information literacy instruction?	
F. How do the faculty members' demographic characteristics relate to their understandings and perceptions of information literacy and information literacy instruction?	
G. How do the understandings and perceptions of information literacy and information literacy instruction differ among the faculty from different academic disciplines?	
H. Use this cell to indicate survey questions you feel don't address any of the research questions listed above.	

APPENDIX D: INSTRUMENT REVIEWERS' RESPONSE MATRIX

In reviewing the survey instrument, reviewers were asked to "map" each of the twelve content questions of the survey to each of the research questions associated with this study. The following grid represents their responses ranked by the inter-rater reliability values for each pairing.

		Survey Content Question *Inter-Rater Reliability Value*										
A	13	14	18	16	17	11	15	9	10	7	8	12
	0.66	0.66	0.66	0.55	0.55	0.44	0.44	0.33	0.11	0.0	0.0	0.0
B	11	12	7	8	9	13	18	10	14	15	16	17
	1.0	0.77	0.11	0.11	0.11	0.11	0.11	0.0	0.0	0.0	0.0	0.0
C	14	12	13	7	10	8	16	17	18	9	11	15
	0.55	0.44	0.33	0.22	0.22	0.11	0.11	0.11	0.11	0.0	0.0	0.0
D	13	11	14	16	18	10	17	7	8	9	12	15
	1.0	0.33	0.22	0.22	0.22	0.11	0.11	0.0	0.0	0.0	0.0	0.0
E	7	10	8	9	15	14	12	13	16	11	17	18
	1.0	0.88	0.77	0.66	0.66	0.55	0.44	0.44	0.44	0.33	0.33	0.22
F	8	10	7	14	15	9	11	12	13	16	17	18
	0.88	0.88	0.77	0.55	0.55	0.44	0.44	0.44	0.44	0.44	0.33	0.11

Research Question (vertical label on left)

Note. A = What are faculty members beliefs and attitudes towards incorporating information literacy into the curriculum?
B = What are the obstacles faced by faculty in the implementation of information literacy instruction?
C = What are the best approaches to information literacy instruction perceived by faculty?
D = Who is perceived by the faculty to have primary responsibility for providing information literacy instruction?
E = How do the faculty members' demographic characteristics relate to their understanding and perceptions of information literacy and information literacy instruction?
F = How do the understanding and perceptions of information literacy and information literacy instruction differ among faculty from different academic disciplines?

APPENDIX E: COVER LETTER INCLUDED WITH SURVEY INSTRUMENT

October, 2007

Colleagues,

For those that don't know me, I am a member of the library faculty here at EUP. I am writing to you today to ask for 5-10 minutes of your time to assist me in the research portion of my doctoral work by completing a brief, 12-question survey. You do not necessarily need to be familiar with the topic to complete the survey.

The survey is located at http://surveys.edinboro.edu/infoliteracy/infoliteracy.htm.

The primary purpose of this study is to identify the perceptions and understandings our faculty here at EUP have of information literacy and its integration into the curriculum. Among the outcomes, it is hoped that this study will generate a campus-wide definition of the concept which can then be used to develop a variety of instructional initiatives and programs on our campus. The results will also be relevant to discussions of the curriculum (especially General Education) and will be helpful to the 21st Century Planning Group as it prepares our 5-year Periodic Review Report and begins preparing for our next Middle States' reaccreditation process.

The following information is provided in order to help you make an informed decision of whether or not to participate. You are eligible to participate in this study because you are a member of the EUP faculty as determined by the Collective Bargaining Agreement. There are no known risks or discomforts associated with this research. Your participation in this study is strictly voluntary.

In responding to survey items, please respond as a representative of all faculty members at-large rather than as a faculty member of a given discipline. As only demographic and affiliation data is requested, your name will not be divulged nor associated with findings in any way. All information obtained will be kept confidential and incorporated into group data.

Please complete the survey in two weeks by clicking on the link above. Your response will be sent to me automatically. Your return of the completed survey implies consent. A summary of the findings from this study will be made available to you upon request. If you have any questions or require additional information, please feel free to contact me.

Your time and cooperation are highly valued and deeply appreciated.

Thank you in advance,

Sincerely,

Monty L. McAdoo   Dr. Wenfan Yan
Principal Investigator   Faculty Sponsor
Doctoral Candidate, IUP   Professor of Professional Studies in Education
231 Baron-Forness Library   113 Davis Hall
Edinboro University of PA   Indiana University of PA
Edinboro, PA 16444   Indiana, PA 15705
Phone: 814-732-1070   Phone: 724-357-7931

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects. Phone: 724-357-7730

APPENDIX F: SCREEN SHOTS OF SURVEY INSTRUMENT

Screen 1 of 14

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

This survey is part of a doctoral project on information literacy. The purpose of this study is to develop a baseline understanding of how faculty perceive and understand information literacy and information literacy instruction. Data collected from this survey will be used to develop information literacy lectures, programming, and other activities. Unless specified otherwise, please respond as a representative of all faculty members at-large rather than as a faculty member of a given discipline. Your responses to each of the following will only be used for comparative and data analyses purposes.

Thank you.

Section I (Demographic Information)

Q1   Please select your department from the list. *Please do not use scroll button on your mouse - doing so may change your response.*

--Click Here--

Page 1/14

[Reset] [Next >>]

Screen 2 of 14

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q2   Please select the option that best describes your current status.
- ○ *Tenured*
- ○ *Non-tenured, tenure track*
- ○ *Non-tenured, non-tenure track*

Q3   **What is your age?**
- ○ *<30*
- ○ *30-39*
- ○ *40-49*
- ○ *50-59*
- ○ *>59*

Page 2/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q4 **What is your current rank?**
- ○ *Instructor*
- ○ *Assistant Professor*
- ○ *Associate Professor*
- ○ *Full Professor*

Q5 **I typically teach____ (select from below) General Education courses each semester.**
- ○ *0*
- ○ *1*
- ○ *2*
- ○ *3*
- ○ *4*

Q6 **The majority of my students I teach are (select one)**
- ○ *Undergraduate students*
- ○ *Graduate students*

Page 3/14
[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Section II (Information Literacy Questions)

Q7 There are many definitions and interpretations of information literacy. The elements listed below are shared by many definitions. In developing a definition of information literacy for this campus, please indicate what you believe should be the relative priority of each item.

A '1' indicates highest priority through '7' indicating lowest priority. Please only use each number once.

Determine the nature and extent of needed information	
Access information effectively and efficiently	
Evaluate critically the sources and content of information	
Incorporate selected information in the learner's knowledge base and value system	
Use information effectively to accomplish a specific purpose	
Understand the economic, legal and social issues surrounding the use of information and information technology	
Observe laws, regulations, and institutional policies related to the access and use of information	

Page 4/14
[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q8 Information literacy instruction incorporates both discrete, skills-based (e.g. learning to retrieve information) instruction and cognitive, process-based (e.g. evaluating information) instruction. On the following continuum, please characterize your beliefs about existing information literacy instruction at Edinboro University.

1 Skills-based	2	3	4	5	6	7	8	9	10 Process-based
○	○	○	○	○	○	○	○	○	○

Q9 I believe Edinboro University has a clearly defined definition of information literacy.

- ○ Strongly Agree
- ○ Agree
- ○ Disagree
- ○ Strongly Disagree

Page 5/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q10 Information literacy is often conceptualized as an umbrella term incorporating various other literacies. Please indicate which of the following literacies you feel should be a part of Edinboro University's definition of information literacy (**check all you feel apply**):

- ☐ Technology
- ☐ Network
- ☐ Computer
- ☐ Communication
- ☐ Cultural
- ☐ Mathematical
- ☐ I believe information literacy is a unique, distinct type of literacy, separate from these other types

- ☐ Media
- ☐ Visual
- ☐ Information
- ☐ Digital
- ☐ Scientific
- ☐ Global
- ☐ Other

Other: (please specify)

Page 6/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy
And Its Incorporation Into The Curriculum

Q11   There are many factors that can create obstacles to incorporating information literacy instruction into the curriculum. From the following list, please select the three (3) factors you feel are the most significant challenges to incorporating information literacy instruction at Edinboro University.

- ☐ -Insufficient staffing
- ☐ -Insufficient time
- ☐ -Uncertainty about who's responsible for providing instruction
- ☐ -Uncertainty about how to incorporate IL into course assignments
- ☐ -Insufficient administrative support
- ☐ -Increased workload
- ☐ -Unclear program goals and objectives

- ☐ -Need for assessment
- ☐ -Developing working relationships with other faculty
- ☐ -Inadequate resources
- ☐ -Lack of knowledge about information literacy
- ☐ -Coordinating efforts among faculty within my department
- ☐ -Creating faculty buy-in
- ☐ -Coordinating efforts among departments

- ☐ -Lack of a clear, consistent definition
- ☐ -Curricular constraints
- ☐ -Creating a common agenda for the campus
- ☐ -Lack of need
- ☐ -Other

Other: (please specify)

Page 7/14

<< Back   Reset   Next >>

A Survey Of Faculty Perceptions Of Information Literacy
And Its Incorporation Into The Curriculum

Q12   To effectively integrate information literacy into the curriculum, faculty...

	Strongly Agree	Agree	Disagree	Strongly Disagree
...have to alter their assignments	○	○	○	○
...will have to alter their courses	○	○	○	○
...will need extra time in their courses	○	○	○	○
...need to learn how to do so	○	○	○	○
...won't feel they can incorporate information literacy into their courses	○	○	○	○
...will need to understand more about what "information literacy" is	○	○	○	○
...will need to be convinced it's appropriate for students to receive instruction	○	○	○	○

Other, (please specify)

Page 8/14

<< Back   Reset   Next >>

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q13   **Who should have responsibility for providing information literacy instruction at Edinboro University? (select one)**

- ○ *Library faculty only*
- ○ *Classroom faculty only*
- ○ *Teams comprised of both a librarian and a classroom faculty member*
- ○ *All faculty from all Schools and all Departments*
- ○ *Other*

Other (please identify)

[   ]

Page 9/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q14   **I believe the most effective method of providing information literacy instruction is one that...(select one)**

- ○ *Meets specific needs within my School*
- ○ *Meets specific needs within my discipline*
- ○ *Targets specific courses from multiple disciplines*
- ○ *Is integrated into the entire curriculum*
- ○ *None of the above. What's done now is sufficient.*

Page 10/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q15 Please indicate your belief about the relative importance of information literacy education compared to other curricular needs at Edinboro University.

	5 Very Important	4 Important	3 Not Sure	2 Not Important	1 Not important at all
Information literacy compared to computer skills.	○	○	○	○	○
Information literacy as a component of all classes compared to a component of a specific set of classes.	○	○	○	○	○
Accreditation expectations for information literacy compared to other accreditation expectations.	○	○	○	○	○
Information literacy as a General Education requirement compared to Computer Competency as a General Education requirement.	○	○	○	○	○
Information literacy as a General Education requirement compared to all other General Education requirements.	○	○	○	○	○
Information literacy instruction for students compared to information literacy instruction for faculty.	○	○	○	○	○
Need for general information literacy instruction for all students compared to information literacy instruction for specific needs of students in specific disciplines.	○	○	○	○	○

Page 11/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q16 The courses in the "Skills" area of our general education curriculum are designed to provide a foundation for students during their education at Edinboro University of Pennsylvania. Of the following skills, which do you believe is/are specifically articulated in General Education Requirements for the BS and BA degrees - the document outlining General Education for Edinboro University? **Please check all that you feel apply.**

☐ *Acquire skills to conduct library and Internet research*
☐ *Develop skills to document source materials*
☐ *Formulate skills to organize, synthesize, analyze and compute data*
☐ *Develop skills to present information clearly and effectively, both in writing and speaking*

Page 12/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q17   There are 14 standards upon which Middle States bases university (re)accreditation. These standards are articulated in *Characteristics of Excellence in Higher Education (2006)* - a publication designed as a guide to assist institutions engaged in self-review and peer evaluation. The fourteen Middle States' standards are listed below. Please indicate the number of the standard(s) for which you believe the desirability of information literacy is noted in this publication. <u>Please check all that you feel apply.</u>

☐ *Standard 1: Mission and Goals*
☐ *Standard 2: Planning, Resource Allocation, and Institutional Renewal*
☐ *Standard 3: Institutional Resources*
☐ *Standard 4: Leadership and Governance*
☐ *Standard 5: Administration*
☐ *Standard 6: Integrity*
☐ *Standard 7: Institutional Assessment*

☐ *Standard 8: Student Admissions and Retention*
☐ *Standard 9: Student Support Services*
☐ *Standard 10: Faculty*
☐ *Standard 11: Educational Offerings*
☐ *Standard 12: General Education*
☐ *Standard 13: Related Educational Activities*
☐ *Standard 14: Assessment of Student Learning*

Page 13/14

[<< Back] [Reset] [Next >>]

A Survey Of Faculty Perceptions Of Information Literacy And Its Incorporation Into The Curriculum

Q18   Which of the following do you believe was/were specifically listed as a concern(s) in Middle States' Final Report during Edinboro University's last accreditation process? <u>Please check all that you feel apply.</u>

☐ *A structured information literacy program developed by librarians and faculty to foster information literacy skills that are relevant to the curriculum does not exist.*
☐ *While the curriculum incorporates opportunities for students to learn about and use new technologies and information resources, similar opportunities for faculty members are lacking.*
☐ *The University's "computer competency requirement" does not adequately address the use of technology to access, retrieve, and manipulate information.*

Thank you!

Page 14/14

[<< Back] [Reset] [Submit]

APPENDIX G: RESPONDENT DEMOGRAPHIC INFORMATION

School/Department Affiliation

The first survey question asked respondents to indicate their specific departmental affiliation. However, due to the limited number of responses for some departments, respondents were aggregated by School or Division. The following lists shows the six Schools or Divisions and how departments were aggregated. Academic Support Services and Student Affairs faculty were grouped into a category entitled Non-Classroom Faculty. While individuals in these departments are considered to be faculty, their primary responsibilities lie outside of the classroom. Library faculty are classified similarly. However, because of the nature of this study, Library respondents were maintained as a separate category.

School of Education Faculty (5)

Elementary Education
Health & Physical Education
Middle & Secondary Education
Special Education and School
 Psychology

School of Graduate Studies (1)

Professional Studies

School of Liberal Arts Faculty (12)

Art
Communication & Media Studies
English/Theatre Arts
Foreign Languages
History/Anthropology
Music
Philosophy
Political Science/Criminal Justice
Psychology
Social Work
Sociology
Speech, Language, and Hearing

Library Faculty (1)

Non-Classroom Faculty (2)

Academic Support Services
Student Affairs (includes Athletics)

School of Science, Management, & Technology Faculty (7)

Biology and Health Sciences
Business Administration/Economics
Chemistry
Geosciences
Mathematics & Computer Science
Nursing
Physics

238

APPENDIX H: "OTHER" COMMENTS PROVIDED BY RESPONDENTS

Several questions gave respondents an "Other" option to provide additional

information, alternate answers, and comments. These responses are included verbatim.

Question #10
Information literacy is often conceptualized as an umbrella term incorporating various other literacies. Please indicate which of the following literacies you feel should be a part of Edinboro University 's definition of information literacy (check all you feel apply).

1. "Information literacy combines all the above. The learner's needs determine how much of each."
2. "Health/personal"
3. "This cannot be determined out of context. It is circumstantial."
4. "political, social, environmental"
5. "Web or internet"

Question #11
There are many factors that can create obstacles to incorporating information literacy instruction into the curriculum. From the following list, please select the three (3) factors you feel are the *most* significant challenges to incorporating information literacy instruction at Edinboro University.

1." PRECEIVED lack of need"
2." Information literacy is an integral part of ENGL102, but an aspect of all other courses that I teach."
3. "My graduate students arrive with a broad range of skills. I don't know where to send students who need support. Plus, my own skills are wildly out of date and I would like to update my skills. Ofte"
4. "Outdated Technology"
5. "Information literacy has changed and, in my opinion, Edinboro has not kept pace. One example is the faculty's insistence on continuing to purchase hardcopies of journals. Full text electronic journals"
6. "Wide variety of abilities of those disseminating the information."

Question #12
To effectively integrate information literacy into the curriculum, faculty…

1. "In my discipline, it is critical for graduates to be literate on information technology"
2. "Number five is non-sensical..."
3. "This question is somewhat unclear. My answers assume embedded information literacy requirements in my normal classroom approach. I think you may be assuming that IL objectives, separate from course objectives, should be included as course objectives. (?)"
4. "you need an "na" space to respond."
5. "Feel that their students are benefitting from each and every presenter."

Question #13
Who should have responsibility for providing information literacy instruction at Edinboro University? (select one)

1. "It depends on the discipline and the course."
2. "technical support is always the primary factor for me"
3. "I don't know"