2010

End User Resource Valuation in Community College Libraries: A Q Methodology Study

Theodore John Lucy
University of North Florida

End User Resource Valuation in Community College Libraries: A Q Methodology Study

by

Theodore John Lucy

A dissertation submitted to the
Department of Leadership, Counseling, and Instructional Technology
in partial fulfillment of the requirements for the degree of

Doctor of Education

UNIVERSITY OF NORTH FLORIDA

COLLEGE OF EDUCATION AND HUMAN SERVICES

July 2010

The dissertation of Theodore John Lucy is approved:

Signature Deleted

Katherine Kasten, Ph.D., Chair — July 12, 2010 Date

Signature Deleted

Paul Eggen, Ph.D. — July 12, 2010 Date

Signature Deleted

John Venn Ph.D. — July 12, 2010 Date

Signature Deleted

Lynne Carroll, Ph.D. — July 12, 2010 Date

Accepting for the Department:

Signature Deleted

E. N. Jackson, Jr., Ph.D., Department Chair — July 30, 2010
Department of Leadership, Counseling, and Instructional Technology

Accepting for the College:

Signature Deleted

Larry G. Daniel, Ph.D., Dean — July 30, 2010
College of Education & Human Services

Accepting for the University:

Signature Deleted

Len Roberson, Ph.D. — August 9, 10
Dean, The Graduate School

Table of Contents

List of Tables and Figures

Abstract

The purpose of this study was to explore the valuation process of community college library end-users as they decide which information resources to use when conducting research. This study was designed as an exploratory study using Q methodology and focused on five specific information resources that community college library end-users routinely use in their research process: the Internet, the reference librarian, books, newspapers, and subscription databases. Little is known about the valuation hierarchy that end-users overlay on these resources when deciding which ones to use to address a specific research need.

Sixty-four community college library end-users from four main campuses of a large community college sorted 40 statements describing specific value statements pertaining to the information resources under study. The statements were sorted along a continuum ranging from *least like me* (-4) to *most like me* (+4) with 0 representing an opinion of neutrality. Following these procedures, five factors emerged that represented different perspectives on value relating to the five information resources under study. Interpretation of these factors yielded distinct patterns of opinion relating to the perceived value of each information resource. These factors were named: (a) Browsers, (b) Proficient, (c) Vacillators, (d) Bibliophiles, and (e) Traditionalists.

The results of the study suggest that community college library end-users value, to varying degrees, all five of the information resources selected for this study. The results also suggest that while the Internet has become a dominant information resource in the community college library end-user's research process, other more

traditional information resources such as the reference librarian, books, and, to a lesser extent, newspapers still hold value in the research process. The perspectives described and the interpretation provided in this study can greatly assist community college library end-users in the valuation of available community college library information resources.

CHAPTER ONE: INTRODUCTION

Community college libraries today offer a vast array of resources, both traditional and non-traditional, to their patrons. Over the past decade internal and external forces such as a dramatic increase in community college enrollment; rapid technological innovations, including the development of the Internet; and decreased state budgets have made community college library resource valuation both an indispensable library management tool and an economic imperative.

Between the years 1989 and 1999, enrollment in public 2-year colleges jumped 14%, leading some educators to dub the 1990s the "Decade of the Community College" (Manzo, 2004). In 1965 total enrollment at 2-year colleges was 1.2 million. By 1998 total enrollment had reached 5.7 million, with a projection of 6 million in the very near future. In addition, future enrollments at 2-year colleges may see an additional 3 million students enrolled by the year 2015, which represents a 46% increase in enrollments over the next decade (Boulard, 2004). When non-college credit students are added in, more than 11.5 million students take classes at community colleges each year (Boggs, 2004).

Enrollments have increased at such an explosive rate that community colleges have begun to turn away prospective students. In 2003, 2-year colleges in the state of California turned away 200,000 prospective students while the state of Florida was forced to turn away 35,000 during that same time period (Manzo, 2004). The U.S. Department of Education projected that by 2009, 75% of high school seniors would likely attend

college. Because 2-year colleges are a cost effective alternative to 4-year institutions, enrollment problems will undoubtedly worsen (Boggs, 2004).

One external force that has had a considerable influence over 2-year colleges in the last decade is the rapid technological innovations that have occurred, especially the development of the Internet. These innovations have stretched infrastructures and complicated 2-year colleges' ability to meet their traditional educational objectives. Consequently, administrators at 2-year colleges need to ask how these technological innovations can be sustained and aligned with their traditional missions of continuing and developmental education (Foster, 2004).

Technological innovation is expensive. Two-year colleges must now consider the cost of building and sustaining a viable technological infrastructure. New computers must be upgraded after only 3 years. Increases in students, faculty, and staff require comparable investments in computer systems, and updating or replacing computer software and their peripherals are all costs that must be met if 2-year colleges are to prepare students for placement in new and growing industries (Foster, 2004).

As enrollments and technological expenses for 2-year colleges are increasing, state budgeted funding for these institutions is steadily decreasing. Nationwide, community colleges receive an average of 60% of their revenue from state and local funds (Selingo, 2008). A recent survey of members of the National Council of State Directors of Community Colleges (Selingo, 2008) found that 18 of 28 states that relied on community college funding formulas failed to fully finance those community colleges during the 2007 and 2008 fiscal year. The survey also found that among the various public education sectors, community colleges experienced the largest one-year decrease in

funding totaling 5.2% during the 2007-2008 fiscal years. By contrast, flagship universities experienced a 1.8% decline in funding, and regional state colleges experienced a 3.7% decline in funding during that same period. Additionally, 69% of survey respondents believed that rural community colleges would face the greatest financial strain, while 54% of respondents believed that suburban community colleges faced the bleakest financial future, and 46% of respondents believed that urban community colleges faced the worst long-term financial outlook (Selingo, 2008).

While these coalescing forces may not spell the end of community colleges, they do in fact have a prohibitive effect on the primary educative function of community colleges: the pursuit of knowledge. If community colleges are to survive and thrive in a society filled with easily accessible yet academically inferior online alternatives, they must shift their focus to an exploration of the underpinnings of the value of information and, by extension, knowledge.

Knowledge Management

The Merriam-Webster Dictionary (2005) defined knowledge as a range of information. Simply defined, knowledge management (KM) is organizing and sharing information. Clearly, there is a link between information and knowledge. More specifically, KM involves capturing critical knowledge to share within the organization in order to enhance productivity and promote innovation. Increasingly in recent years, KM articles have begun to appear in the literature of the library profession, indicating an emerging sense of the value of KM to libraries in general and reference services in particular. Reference librarians have long recognized the need to capture, codify, and

record the collective knowledge of their colleagues, and KM systems are needed to tap into this "communal knowledge" of librarians (Gandhi, 2004).

Librarians are, by sheer necessity, knowledge workers who have developed their skills over the course of their careers. The idea of knowledge workers is not a new one, but the notion that there is a basic set of skills that each knowledge worker should possess is relatively new. Over the last 30 years, jobs performed by the U.S. workforce requiring complex communication and expert thinking have increased exponentially, while the jobs requiring routine cognitive and manual work have decreased at the same rate. This fact, combined with the rapid rate of globalization, has made it necessary for the American knowledge worker to develop a hierarchy of skills. The five levels of these skills are as follows: level 1 basic skills, level 2 discipline and profession specific skills, level 3 technology skills, level 4 information problem-solving skills and higher-order thinking skills, and level 5 conceptual skills. If today's knowledge workers wish to compete effectively in the global economy and not lose their jobs to outsourcing during this information age, these skills are absolutely essential (Johnson, 2006).

From a purely practical standpoint, the academic library's stock in trade is information, and all information runs along a continuum. The information continuum is composed of four parts: data, information, knowledge and wisdom. As in any other discipline, data are simply the raw materials such as facts, figures, and observations. When those data are organized in a logical manner, they become information. When that information is analyzed and processed, it becomes knowledge. When that knowledge is applied to improve decision making and productivity, it then becomes wisdom (Gandhi, 2004). From a more philosophical standpoint, the academic library exists to put students

and faculty on the path to knowledge (Budd, 2004). In either case, academic libraries, information, and knowledge are inextricably linked.

An internal force within community colleges over the course of the last five years is the development or adoption, in a large portion of these colleges, of an information literacy course. According to the Association of College and Research Libraries (ACRL, 2007), information literacy is the set of skills needed to find, retrieve, analyze, and use information. In the 21st century, a time that many refer to as the Information Age because of the explosion of information output and information sources, this particular skill set is becoming increasingly more important.

In order to combat what author David Shenk refers to as "data smog," the idea that too much information can create a barrier, community colleges around the country are adopting or developing their own information literacy curriculum (Shenk, 1997). This course is designed specifically to address the problem of data smog by teaching students the necessary skills to know when they need information and where to locate it effectively and efficiently.

As early as the high school level, information literacy skills have become an imperative for each student as a result of the development of the Internet. Many high school students do not possess a basic understanding of how to develop an Internet search strategy or how to refine a search beyond using keywords when searching for information, which often results in frustration and failure for the student. High school teachers have begun to analyze the content of their classes and assignments to determine which information literacy skills should be applied where and when. Their goal is to help

their students perform more sophisticated searches in order to harness the potential of this new information age (Scott & O'Sullivan, 2005).

In community colleges, the philosophical commitment to teaching and learning provides an ideal platform for the development of information literacy. The League for Innovation in the Community College is one of many organizations that recognizes the importance of information literacy. The league identified information management skills as one of the eight broad categories of 21st century skills that community college students should possess. According to the league, information management skills are defined as the ability to collect, analyze, and organize information from a variety of sources, one of the basic tenets of information literacy (Warren, 2006).

According to the league, four assumptions underlie the identified skills. These skills are important for every adult to function successfully in society today. Community colleges are well equipped and well positioned to prepare students with these skills. These skills are equally valid for all students whether they transfer to a 4-year college or university or pursue a career path after leaving community college. Finally, these skills may be attained anywhere. Many students will enter the community college having already achieved some or all of the skills, and community colleges must work to document and credential such prior learning (Warren, 2006).

Most students begin their college careers already possessing a number of well developed literacies, what James Paul Gee refers to as their "primary discourse," attained through membership in a primary socializing group (Gee, 1998). The task of today's community college librarian is to move the students from this primary discourse to a "secondary discourse" through overt instruction in the academy, primarily information

literacy. Academic information literacy is the ability to read, interpret, and produce information valued in academia, a skill that must be developed by all students during their college education. For community college librarians to achieve this goal, they must move away from the notion that being a librarian means only acquiring and storing knowledge about libraries and move toward the model of librarianship that encourages librarians to become specialists in coaching intellectual growth and critical development (Elmborg, 2006).

For some librarians, motivating students to become information literate critical thinkers is an uphill battle, made more difficult by a lack of time and support. The lack of an additional library staff member, missed opportunities to collaborate with other librarians, few opportunities for training, less free time because of other duties, inadequate computer support services, and the absence of recognition of their roles by fellow faculty are but a few of the obstacles these teacher librarians face (Small, Zakaria, & El-Figuigui, 2004).

In addition to concerns over effectively motivating students to become information literate, some educators believe that the information literacy pedagogy itself does not adequately address the needs of learners. In a recent study, researchers concluded that undergraduate students perceive information use in three distinct categories: sources of information, information processes, and a knowledge base derived from information resources (Maybee, 2006). These three perceptions must be addressed by educators when selecting information literacy pedagogy, specifically fostering changes in student conceptions of information use.

Problems notwithstanding, information literacy is also gaining a foothold in areas outside of librarianship that one might not expect. In a recent tutorial created at the University of Maryland, College Park, the authors reviewed the tenets of information literacy that parallel and intersect with new American Speech-Language-Hearing Association (ASHA) certification standards requiring clinicians to engage in evidence-based practice (EBP). Their findings indicate that educating clinicians about their options in locating information, including the extensive ASHA database, and helping them to evaluate the information that they locate should provide these front-line clinicians with hands-on experience in using the principles of information literacy to solve their individually relevant clinical questions (Nail-Chiwetalu & Ratner, 2006).

Likewise, in the area of nursing education, the amount and complexity of information nurses are expected to manage continues to increase exponentially. Because the delivery of safe, effective nursing care requires adequate access to and the ability to synthesize information, the development of information literacy skills in nursing students is a must. Practicing clinicians tasked with effective decision making, problem solving, and research issues must be information literate if they are to effectively pursue continuing education in areas of personal or professional interest (Barnard, Nash, & O'Brien, 2005).

In a 2003 survey of institutions granting associate of arts degrees conducted by the Association of College & Research Libraries (ACRL), of the 348 respondents that were asked, 63.8% indicated that librarians and faculty at their institutions have developed information literacy instruction that is taught as an integral part of one or more courses.

Of the respondents, 47.8% indicated that information literacy is integrated throughout the curriculum of one or more programs (ACRL, 2007).

While these courses are developed in conjunction with other faculty, the vast majority of responsibility for creating course content and teaching these courses falls to librarians. As such, the course curriculum directs students to the library as the primary repository of information resources. As information literacy courses become more prevalent in these institutions and students begin to seek information resources in these libraries more frequently, the attendant scrutiny of these information resources will require a valuation hierarchy for fiscal, managerial, and technological reasons.

A large body of research exists on usage patterns of community college library resources, the changing role of the academic librarian, individual community college library resources, both traditional and non-traditional, and the perceptions of community college library users on a few specific resources. There is, however, a dearth of research on a holistic approach to community college information resource valuation. This is the area that I studied. I attempted to discover how a community college library patron ranks, in terms of value to them and their research, the various library resources that are available to them when searching for information, and whether any patterns of opinion existed among community college library end-users.

Did they value an Internet topic search more than they valued the information contained in a book on the same subject? Did they value a keyword search in an online subscription database more than they valued the information obtained from the reference librarian? Were there similar patterns of opinion among end-users with respect to the value of the Internet? Were students aware of what a subscription database was and

where one could be located on the library's homepage? How much value did they place on the information contained in books, the library's primary brand, in the research process? Were there similar patterns of opinion among end-users with respect to the value of books? Did they value the information contained in newspapers when attempting to answer a research question? Did they value the information provided by the reference librarian when attempting to answer a research question? These are just some examples of the resources that were under study.

Statement of the Problem

The Internet contains over 100 million pages of readily accessible information, and it is only one of many information resources available to community college library users today. In addition to the Internet, community college library users also have access to subscription databases and other electronic resources, innumerable print publications, and the expertise of the librarians and library staff. Consequently, the information resource options available to today's community college library user are vast. This over abundance of information resources presents a unique problem for today's community college library user: How does the user decide which information resource has the greatest value relative to their needs? While usage patterns of individual information resources may provide marginal indices as to value, a study of usage patterns alone does not address the issue of the inherent value of an information resource to the end user.

Conducting a thorough study of information resource valuation in community college libraries is important from three distinct perspectives: library end-user, library administration, and the educative function of the community college library. From the standpoint of the end-user, the information gleaned from a study of this nature is

invaluable. Specifically, once the end-users develop a better understanding of their individual system of information resource valuation, they can become more sophisticated in their search strategies. This in turn will save them time and effort when searching for information, improve the quality of that information, and provide them with a more direct route to the knowledge they are seeking.

From the library administration perspective, a more complete understanding of how end users value individual information resources aides administrators in long term decision making with respect to technological and fiscal matters. If the results of a study revealed that certain information resources, regardless of format, are utilized more or less than other resources, administrators could divert budgeted funds away from those resources that do not appear to be highly valued and towards those resources that are. Likewise, as most information resources contained in community college libraries are technology based, the administrators can apply the same principle to deciding which technologies to invest in and which technologies to discontinue.

Finally, the educative function of the community college library is to support the college's diverse curriculum and the mission of meaningful learning and excellence in teaching. To that end, a study of information resource valuation aides community college libraries to fulfill the mission to provide library information services and resources in a variety of formats; serve as a central information resource for a diverse population of students, faculty, and staff; offer a dynamic learning environment, both virtual and physical; and teach and facilitate information literacy skills (FCCJ Library Homepage, 2007).

The past research does not address the valuation process that community college library end users go through to attach a value, real or perceived, to the resources they access when searching for information. It also does not consider whether the completion of an information literacy course by the end user in any way influences that valuation process. A properly executed study like the one I conducted provides valuable information that is helpful to a very diverse audience. In addition to community college libraries, the information contained in this study is beneficial to public, special (corporate), legal, secondary education, and university librarians, administrations, and staff. It also benefits those responsible for the information literacy pedagogy in both community colleges and universities.

Purpose of the Study

The purpose of this study was to use the Q methodology analytical protocol to determine whether there were any patterns of opinion among community college library end-users with respect to the value they place on the various information resources they access when conducting research, including whether those patterns of opinion are in any way informed by demographic variables, and to discover what perceptions community college library end-users hold about the value of those same information resources.

Research Questions

The overall research question was how do community college library end users perceive the value of the various resources they access while searching for information. The following are sub-questions:

1. Are there patterns of opinion among community college library end-users in regard to the value placed on available resources?

2. Do demographic variables help to inform any patterns of opinion among community college library end-users?
3. What value do community college library end-users perceive in the various resources they could access while searching for information?

Significance of the Study

A universal problem for all community college libraries involves too little funding for essential library resources combined with an ever changing technological landscape. For community college library administrators, these coalescing issues present a very unique problem with respect to resource management. The recent recession and decline in state revenues have forced individual state legislatures to consider more pressing state priorities such as health care, K-12 education, and corrections ahead of funding for public institutions of higher education (Kastinas, 2005).

This "back of the line" approach to funding community colleges forces every department within these colleges to extract maximum value from each budgeted dollar. The community college library is no exception. To that end, the community college librarians must ensure that each information resource they purchase for use by students, faculty, and staff is cost effective. Usage patterns determine the inherent value of each information resource to the library, and this study aimed to discover how those usage patterns develop by attempting to understand how end users perceive the value of each resource they access.

Additionally, the area of community college library resource valuation is woefully under researched, and a study of this kind significantly advances the existing

knowledge in the field by providing largely non-existent baseline data. It also provides a blueprint for administrators at other libraries, regardless of specialty, to follow when assessing their own information resources for the sake of fiscal, technological, and managerial decision making.

Methods

Before beginning any of the following actions of this study, I obtained approval from the University of North Florida Institutional Review Board, based upon an approved dissertation proposal. Because this study was primarily interested in community college library resource end users, I selected Florida State College at Jacksonville, which was then Florida Community College at Jacksonville, as the site of my study, and I obtained approval from the Florida State College at Jacksonville Institutional Review Board before proceeding.

Florida State College at Jacksonville requires all degree seeking students to successfully complete the Information Literacy Assessment (ILAS) before conferring their degrees. An outgrowth of this new graduation requirement is the addition to the curriculum of an information literacy course, which was developed by Florida State College at Jacksonville's own librarians.

I conducted my study in the libraries located on the main campuses of Florida State College at Jacksonville, which are the Downtown Campus, as well as the Kent, North, and South campuses. A convenience sample of 16 students was selected at each campus library, for a total of 64. Race, ethnicity and gender of participants were not considered in my selection process.

The two primary components of Q methodology are the Q set and the Q sort. The Q set is a collection of heterogeneous items (library resources) that the participants sorted using statements, each of which makes a different assertion about the subject matter. The research question dictates the nature of and structure of the Q set to be generated and acts as a condition of instruction for the participants, thereby guiding the actual sorting process. Q sorting is the method whereby participants assign each item (library resource) a ranking position in a fixed quasi-normal distribution. Participants are required to allocate all the Q set items an appropriate ranking position in the distribution provided (Watts & Stenner, 2005). The interview instrument I designed served as the post Q sort interview.

Q methodology employs a by-person factor analytical procedure, and it is the overall configurations produced by factor analysis of the participants that result in the factors interpreted. A properly executed Q methodology asks its participants to decide what items in the Q set do or do not have value and significance from their perspective. What results is a single set of relative evaluations made by the participants on the basis of criteria which are personal to each individual (Watts & Stenner, 2005).

The study itself was an exploratory design with Q methodology employed as the method of gathering and analyzing data, wherein the researcher gathers qualitative data first (Q sort), then uses quantitative data analysis (PCQ Software) data analysis, to help explain the relationships found in the qualitative data (Creswell, 2002).

Definition of Terms

For the purposes of this study, some terms required definition.

End user – any student, regardless of age, race or gender, who accesses any of the community college library resources under study during the prescribed period of time.

Resource – any one of the pre-selected information resources that are offered by the community college libraries under study (Merriam-Webster, 2005).

Valuation – refers to the method used by the community college library end user to rank, grade or otherwise order the library resources they access (Merriam-Webster, 2005).

AskALibrarian Virtual Reference – a free online information service provided by Florida libraries. Library staff from public, academic, school, and special libraries answer patrons' questions in real time and via e-mail (AskALibrarian, 2007).

Database – a comprehensive collection of related data organized for convenient access, generally in a computer (Merriam-Webster, 2005).

Organization of the Study

In Chapter One I provided an overview of the research for this study, including some background on the need for this study, and developed the statement of the problem, the purpose of the study, the research questions, the significance of the study, the methodology selected for this study, and the definition of any unique terms.

In Chapter Two I examined the relevant literature. Topics reviewed include information literacy development and curriculum, information seeking and customer service, academic library resource management, and the educative function of the community college library.

In Chapter Three I explained in detail the methodology selected for this study. The Q set and Q sort structure of Q methodology were described more thoroughly, including which information resources from the selected libraries made up the Q set, and a comprehensive description of the Q sort process and its function. This chapter also contains a detailed description of the post Q sort interview I designed, as well as its function. And finally, this chapter contained a detailed description of the study's participants and settings, as well as the method I chose for data analysis.

In Chapter Four I examined the site of the study, Florida State College at Jacksonville, with respect to student population and the information literacy graduation requirements. This chapter also contains a more detailed description of study participants. The data set, relevant correlations, factor loading, and factor analysis are also examined in this chapter. A detailed description of five factors, including demographic descriptions of members of the groups that clustered on each of the five factors and comments from group members, is also contained in this chapter. This chapter also includes comparisons across all five factors, highlighting any similarities or differences. Chapter Four concludes with a chapter summary.

In Chapter Five I summarized the first four chapters of this document and discussed the major conclusions of this study. Specifically, major conclusions relating to the Internet, the reference librarian, books, newspapers, and subscription databases

are examined in detail. Chapter Five also contains my recommendations for future research, recommendations for librarians, recommendations for library administrators, and recommendations for college administrators who are responsible for the management of their institution's library. Chapter Five ends with a conclusion to the entire document.

CHAPTER TWO: REVIEW OF LITERATURE

This chapter explores the theory, empirical research, and best practices related to community college library resource valuation. The concept of information literacy as represented by the work of Riedling as well as other prominent authors in the field is posited as the conceptual framework of the study. This chapter also provides a review of the principles and practices of information literacy and library resource valuation, which represent the research focus of the study.

Information Literacy Development and Curriculum

Over the course of the last several years, a new course entitled Information Literacy has begun to appear in the curricula of colleges and universities across the country. Because of the unique nature of this course, it was developed and is taught primarily by academic librarians, and in the rapidly changing technological landscape, it is fast becoming a course that is considered necessary to the education of today's college student. In fact, the Middle States Commission on Higher Education, in 2002, declared information literacy a necessary requirement of undergraduate education (Ratteray, 2002).

The philosophy behind information literacy is that good decisions require good information. With today's information explosion, individuals must develop perceptive skills if they are to succeed in a global society (Riedling, 2002). As a result, a fundamental question that is generally asked by the uninitiated is what it means to be

information literate. The simple answer is that someone who is truly information literate has the ability to access, evaluate, organize, and use information (Riedling, 2002), but a more fully realized answer to this question is a little more complex. As an example, the American Library Association (ALA) contends that an information literate individual should know how to clearly define a subject or area of investigation; select the appropriate terminology to express the concept or subject; formulate a search strategy that takes into account different sources of information and methods of organizing that information; analyze data for value, relevancy, and quality; and convert that information into knowledge (ALA, 2007). All of these skills involve a deeper understanding of how to locate information, accurately judge its merits, and ultimately use it to address the subject at hand (Riedling, 2002).

To better illustrate the depth of knowledge required to become truly information literate, the American Library Association, in conjunction with the Association for Educational Communications and Technology, has developed *Nine Information Literacy Standards for Student Learning* (Riedling, 2002). These nine standards were then subdivided into groups of three and linked to three specific competencies: information literacy, independent learning, and social responsibility. In order to demonstrate competency in information literacy, the individual must be able to (a) access information efficiently, (b) evaluate information discriminately, and (c) use information precisely. To demonstrate competency in independent learning the student must (a) seek information that is important to them on a personal level, (b) appreciate the creative aspects of information, and (c) seek to improve their information seeking abilities. And finally, to demonstrate competency in social responsibility, the student must be able to (a) recognize

the importance of information, (b) always use an ethical approach to information and information technology, and (c) strive to effectively pursue and generate information.

Academic libraries play a significant role in creating the information literate individual. The mission of the academic library is to provide information services to meet the curricular, research, and recreational needs of users (Riedling, 2002). To that end, it has become the hub of the wheel of information literacy. By providing a variety of print, nonprint, and electronic materials, along with assistance and instruction in the use of information resources by a staff of trained professionals, the academic library now finds itself at the center of the information literacy movement. Hotly debated at times, the idea that the academic library and academic librarians contribute to the goal of producing students knowledgeable in their disciplines and capable of advancing both in college and in life is beginning to receive a groundswell of support (Owusu-Ansah, 2004).

Information Literacy's Emergence as a Discipline

The American Library Association recognized the need for a new view of information when it acknowledged that the information landscape has been transformed and a new foundation called information literacy needed to be established (ALA, 2007). James Wilkinson of Grand Valley State University observed an increasing need for resource-based education, which in turn requires undergraduate students to learn retrieval and evaluation skills necessary to survive in a research-centered environment (as cited in Owusu-Ansah, 2004). The need to learn these skills has a twofold effect: it requires students to familiarize themselves with academic library resources, which in turn influences their attitudes and opinions about said resources, and it requires faculty and

administrators to accommodate the students' needs by adopting and integrating information literacy into the curriculum. Karplus (2006) found that integrating an information literacy site into an educational delivery system such as Blackboard provides students with 24-hour access to tutorials, allows for continuous dialog between students and professors, and provides professors with valuable feedback on student performance.

At Denison University, Andreadis and Firooznia (2006) discovered that several science instructors had begun noticing the poor quality of scientific writing being produced by undergraduate science majors, relative to their year of study, number of writing courses taken, and use of the college writing center. Consequently, the science faculty determined that teaching their students the core information literacy skills, as set down by the Association of College and Research Libraries (ACRL, 2007), was an important part of preparing them for writing in the sciences. During one semester at the university, the science faculty discontinued the traditional one-hour library orientation and instead focused on practice sessions in the library on a sample topic that emphasized the following information literacy skills: learning how to use the various electronic catalogs and search engines, distinguishing sources from scientific journals versus popular periodicals, distinguishing between primary and secondary sources, evaluating websites for appropriateness, summarizing findings reported by others, and practicing the use of the appropriate citation style. A short information literacy quiz based on the ACRL objectives was given to each student at the beginning and end of the semester, before and after participation in the information literacy portion of the course. The performance results were compared statistically and showed that on average the number of questions (out of 10) that students answered correctly on the information literacy

quizzes improved by one after participating in the information literacy practice sessions, which was statistically significant. The addition of the information literacy exercises to the course also dramatically decreased the number of students who asked the instructor for extra help with finding sources for their research paper.

In a similar study at Canisius College in Buffalo, New York, Larkin and Pines (2005) discovered the psychology faculty recognized that the rapid expansion of information resources and computer technology was making it increasingly important for their students to become information literate. The researchers designed a study using 130 undergraduate psychology students. They created an instructional group, and members were provided with written instructions (library project) on how to find and access library databases. The college librarians were given advanced notice that the students might be seeking their assistance. In class, the professors explained that the assignment was intended to improve information literacy skills, which students would need in their college career because each discipline has its own literature, and they may be required to perform a database search of this nature in the future.

Each member of the second group (control) was given a booklet containing different public debate topics. They were instructed to pick one topic, proceed to the library and locate published studies relating to their chosen topic using the library databases, and evaluate the studies and select three to submit as support for their topic. An experienced librarian graded each student's performance after all identifying information was removed and assigned significantly higher grades to the instructional group students who participated in the library project assignment than to the students in the control group.

Additionally, more students in the control group received a low grade than a high grade; of the students receiving a high grade, a large majority had done the library project.

As the value of information literacy becomes more readily apparent to subject faculty, creation of information literacy course content is increasingly becoming a collaborative effort. Whereas creating course content used to fall to librarians alone, there is now a growing trend toward faculty. This trend does not in any way diminish the importance of the academic librarian's role; on the contrary, it validates it. Ralph Waldo Emerson was one of the first to suggest that colleges needed to appoint a "professor of books" (Owusu-Ansah, 2004) to support a liberal education. According to Emerson, colleges would willingly provide students with libraries, but not so willingly a professor of books, which in his opinion left a great void in the overall educational enterprise.

Emerson's comments notwithstanding, in the 1920s and 1930s librarians were actually considered "professors, responsible part-time for the library" and equal in stature to subject faculty (Owusu-Ansah, 2004, p. 7), due primarily to the soaring undergraduate numbers as a result of an increase in new colleges and ballooning admissions. It was quickly discovered that many of these undergraduates were ill prepared for independent study. The resulting collaboration between librarians and subject faculty to improve students' research abilities was the beginning of course related/course integrated instruction (Owusu-Ansah). It is also interesting to note that at that time subject faculty would occasionally perform some librarian duties, such as teaching the history of books, library organization, and bibliography.

The two primary methods of instruction conducted by librarians are bibliographic instruction (lecture), wherein the subject faculty bring their students to the library for a

one-time orientation covering all of the resources that the library has to offer, and credit course offerings, which are exactly that: college credit courses that are conducted in a class room over a 12- or 16-week semester. In a 1973 survey conducted by the Association of College and Research Libraries (Davidson, 2001), one of the first of its kind, 34 of 174 responding institutions reported that they offered a credit course teaching bibliographic instruction or library use, representing 19.5% of the total. Bibliographic instruction (one time lecture) constituted the remaining 80.5%. In a second 1973 study conducted by Project LOEX (Library Orientation Exchange), 22% of responding institutions offered a credit course, while 73% reported using bibliographic instruction, that is, one time lecture (Davidson). By 1979, the number of institutions offering credit courses had increased to 42%, but by 1989 this number had slipped back down to around 29%, a fact that was reaffirmed in a 1999 study. In each case, however, the predominant method of instruction remained bibliographic instruction. In a 2001 survey (Davidson), faculty, students, and library staff were asked about their attitudes toward various instructional methods of teaching library and research skills. It was observed that while student preference for a credit course was weak, 72% of student respondents were willing to take such a course in order to learn library research skills. Additionally, Owusu-Ansah (2004) contended that the library should offer an independent credit course in information literacy and the course should become part of the general education curriculum, as well as a prerequisite for graduation.

Information Literacy's Inclusion in Curriculum

In a 2003 survey of institutions granting associate of arts degrees conducted by the Association of College and Research Libraries (ACRL, 2007), of the 348 respondents

that were asked, 63.8% said that librarians and faculty at their institutions have developed information literacy instruction that is taught as an integral part of one or more courses. Of the respondents, 47.8% answered information literacy is integrated throughout the curriculum of one or more programs. As the importance of information literacy to academic institutions continues to grow, the need for more subject faculty-librarian collaboration is growing at a similar pace in order to ensure successful integration of information literacy into the curriculum.

While this kind of collaboration has yet to become a trend, several new collaborative models are beginning to make inroads into academia. For their part, academic librarians are moving away from tried and true methods, such as relying on reference interviews with subject faculty when they visit the library or formal library instruction, and toward a more proactive approach of seeking out subject faculty and engaging them in various collaborative models (Ivey, 2003). Regardless of the collaborative model utilized, effective models have the following four attributes: shared understood goals; mutual respect, tolerance, and trust; competence for the task at hand by each of the partners; and ongoing communication.

While much is known about the most effective collaborative models, the fact remains that the librarian's role in curriculum planning and course integrated instruction is still not widely accepted by subject faculty and college administration. Real collaboration only occurs when there is an interaction between librarians and faculty that results in a full integration of the library into every aspect of curriculum planning (Lindstrom & Shondrock, 2006). According to Hannelore Rader, successful integration of information literacy into the academic curriculum depends on the following: committed

administration; faculty-librarian collaboration on curriculum; and a strong commitment from the host university to critical thinking, problem solving, and information skills in students (Rader, 1995). It was Rader's contention that these three factors in tandem are the key to successful integration of information literacy into the curriculum of any academic institution, and if any one factor is neglected, successful integration will not occur.

There are many other options when it comes to integrating information literacy into an academic curriculum. One in particular involves subject specialist librarians serving as department liaisons (Lindstrom & Shondrock, 2006). In this capacity, they can develop relationships with subject faculty that may eventually lead to information literacy for their particular discipline. Using learning communities to integrate information literacy has also enjoyed some levels of success. Academic librarians have identified learning objects for course instruction (Lindstrom & Shondrock, 2006) and developed multiple library instruction sessions that covered all of the instructor's course objectives; developed information literacy instruction in an electronic format that was then embedded in a required introductory course that was taken by students in their first semester; developed course integrated library instruction based on the principles of problem-based learning; worked with the office of information technology on campus to develop an online information literacy page which defined the role of the Web with respect to the library information being used; used linked or paired courses wherein the goals for information literacy are imbedded in a course that is then linked to other courses containing a research component; or simply developed their own hybrid collaborative model using one or more of the existing models (Lindstrom & Shondrock, 2006).

While each of these methods has enjoyed varying degrees of success, the general consensus has always been that there are only two consistently successful methods of integration: integrate information literacy into the curriculum as a campus wide initiative, or establish a for-credit information literacy course that is taught by librarians. However, that view is changing. A third alternative now exists in the form of a collaborative effort between academic librarians and the faculty within a selected department. While integrating information literacy into an entire campus may prove too labor and time prohibitive for over-extended librarians, the same approach to one department is not, and it may, in fact, serve as a stepping stone to campus-wide integration. Academic librarians in the California State University system have enjoyed success with this approach by targeting a single academic department and demonstrating how the library and information literacy fit within the department's research agenda (Thomas, 2005). This goal has been achieved in large part by following five basic steps: selecting a departmental entry point; combining information literacy and departmental goals; planning; determining which assessment methods to use; and providing all of the necessary support for the students (Thomas, 2005). This method has already proven successful and is a viable alternative to a campus-wide information literacy initiative that can readily serve as a starting point for full integration.

The critical component in this process is the proper alignment of information literacy with the faculty teaching and learning agenda. Dearden et al. (2005) contended that evidence of proper alignment will manifest itself in three ways: it will meet the information skills needs of strategically important groups, prove itself central to the participating library's outreach strategy, and provide valuable insight into the information

skills levels of its client groups. This alignment can best be achieved through evaluation of library-initiated teaching and learning programs, developing collaborative relationships with subject faculty, and participating in the core teaching and learning agenda of these faculties. Inclusion of an information literacy component in a resource valuation study is critical. As the level of technological skills required to navigate modern society increases, information literacy courses will become more prevalent at community colleges and universities around the country, and this fact should be considered in order to conduct a more thorough study.

Information Seeking and Customer Service

Increasingly, libraries regardless of specialty are moving toward a customer service paradigm. While library patrons are not consumers in the purest sense, they do seek many of the same cost-benefit advantages as the traditional consumer when it comes to searching for information. Consequently, they are also susceptible to many of the same attitudes and opinions. The information processing consumers move through before making a final decision on a good or service is similar in many ways to the process library patrons utilize when selecting an information resource to meet their research needs. Underlying a seemingly simple decision making process are numerous psychological elements that have produced a myriad of studies with varying theories as to what actually occurs. All are in agreement on one point, however; a cognitive process does occur, and it does have a direct bearing on the behavior of the consumer as well as the library patron.

Academic Libraries

The "long tail" theory (Anderson, 2004) suggests that it is the niche items offered by libraries that sustain the consumers' appetites, rather than the best sellers that are popular for a short period of time and then fade away. More specifically, in graphic form the vertical axis represents popularity or the head and the horizontal axis represents products or the tail. What Anderson suggested is that it is not the popular items represented by the head of the graph that maintains customer interest, but rather the "long tail" of the graph representing niche products that keep the customer satisfied and by extension loyal. In much the same way, academic libraries thrive because of librarians' ability to constantly understand and adapt to the needs of their patrons, with respect to niche information resources. That is to say, a specific information resource is provided for a specific research need. The long tail theory also suggests that it is those same bestsellers offered by libraries that drive the demand toward special interest titles; for example, a reader of the Harry Potter series might also enjoy *The Chronicles of Narni* (Mossman, 2006). Similarly, academic libraries today are experiencing an increased demand for their information resources and expertise as a result of the emergence and proliferation of information literacy courses in university systems across the country. Foster (2007) found that at California State University at Fullerton alone university librarians led some 300 faculty-requested information literacy sessions each semester.

As more academic libraries move increasingly toward a business model paradigm, the comparison of academic library patrons to consumers is a natural outgrowth. When a consumer frequents one particular business because they enjoy the service, décor, or some other attribute of the facility, they are exhibiting customer loyalty, a byproduct of customer satisfaction. Satisfaction with the product itself and with the sales

representative also contributes to customer loyalty (Homburg & Giering, 2001). Similarly, Martensen and Gronholdt (2003) contended that user loyalty in academic library patrons is generated by factors such as electronic and print resources provided, technical facilities, the library environment, and the human side of user services. Taken together, all of these factors combine to create user value and user satisfaction which culminate in user loyalty.

In the field of library and information science, achieving and maintaining user loyalty has become of paramount interest to academic library administrators over the course of the last decade. Assessing the academic library's ability to meet users' needs and establishing user loyalty are two of the cornerstones of this process, and the LibQUAL assessment tool has become the industry standard. According to Shi and Levy (2005), LibQUAL is based on the SERVQUAL (Parasuraman, Berry, & Zeitham, 1988) assessment tool introduced in 1985 in the field of marketing, with the primary goal to measure the quality of services across service industries, an area to that point that was largely unexplored. LibQUAL uses the same five dimensions of measurement as SERVQUAL: tangibles, reliability, responsiveness, assurance, and empathy. But where SERVQUAL uses these dimensions to measure many different services, LibQUAL is designed to specifically measure library services. Using terms such as *expectations, library services (quality),* and *needs* as well as the service indicators *minimum, desired,* and *perceived,* LibQUAL strives to identify library service deficiencies and improve those deficiencies using information received from library users' evaluations. Along those same lines, a study of end user resource valuation will help solidify the connection between library patrons' expectations and the products and services that they receive, by

actually measuring, via their own attitudes and opinions, which of those products and services they place a premium upon, and which they do not.

Academic Library Homepages

Another important component influencing academic library users' choice of resources is the Internet. Geissler, Zinkham, and Watson (2006) found that homepages created by academic libraries have a measurable influence over whether library patrons will avail themselves of the services offered by a particular institution. When average consumers are surfing the Internet and decide to browse the homepage created by a specific business or institution, they are subject to a condition known as stimulus complexity, the idea that a more complex homepage (e.g., homepage size, number of links, graphics) may dissuade some consumers from purchasing that business's goods or services.

In a study of 360 undergraduates, Geissler et al. (2006) divided Internet users into three categories: heavy users, medium users, and light users. The findings indicated that the number of graphics and links, as well as the size of the homepage itself, influenced the perceived complexity of the page, thereby influencing the users' decision to or not to access the page. Moreover, it was determined that users prefer a homepage with a perceived level of complexity in the moderate range, rather than a page with a less complex or more complex configuration. Cobus, Dent, and Ondrusek (2005) discovered that academic library homepage users were not interested in spending large amounts of time searching the site for necessary resource links. What users were most interested in were search boxes that allow them to search everything on the library homepage at once, as well as one page on the site that gives a complete list of all of that particular library's

databases. Academic library homepages without these features were less likely to experience significant user traffic.

To help ease users' reticence and improve the overall usability of library homepages, Clyde (2005) contended that research should be an ongoing part of the website development process. First, developers should routinely conduct environmental scans that cover developments in the Internet, browser software, and HTML standards as well as hardware and software use in school libraries and any changes, technological or otherwise, in the needs of school librarians. Second, developers should establish the aims and purposes of the site, which will provide the framework for the strategic planning process. And finally, developers should accurately identify the users of the website as well as their needs. A good faith attempt should also be made to identify potential users of the website. Once this is accomplished, the aims of the website as well as the users' needs should be kept under constant review.

Welch (2005) contended that the academic library homepage must first serve as an effective marketing and public relations tool through increased visibility on the institutional homepage, links to library fundraising activities, links to library news, and links to consultation services such as AskALibrarian. A recent study was conducted to analyze the placement of marketing and public relations links on the library homepages of 106 academic institutions. The results indicated that 80% of respondents had direct links from the institutional homepage to the library homepage, 28% had direct links for gifts or donations, 68% had direct links to library news and information, and over 80% had direct links for consultation services such as AskALibrarian (Welch).

A recent technological endeavor involving a partnership between the Association of Research Libraries (ARL), the Scholarly Publishing and Academic Resources Coalition (SPARC), and the Association of College and Research Libraries (ACRL) may provide a template for future academic website development. These three organizations together have created the Create Change website: a website designed specifically for the purpose of improving scholarly communication by linking academic librarians directly to faculty members. The innovative aspect lies in the fact that the perspective of researchers and scholars drives the content of the site (Hahn, 2006). The underlying idea behind the site is the notion that change is not some distant intangible, but something that is occurring right now, improving research and scholarship. Through interviews with scholars and researchers, the site authors discuss what is happening in the scholarly communication system, its future, and its direct impact on faculty members' daily lives, and the value of academic librarians, as well as partnerships with academic libraries (Hahn, 2006). Another critical aspect of academic libraries is effective resource management.

Academic Library Resource Management

Today's academic libraries offer a myriad of resources in a number of different formats. The advent of the Internet has forced academic libraries to reexamine many of the resources they offer, the formats in which they offer them, and the guidelines that govern those resources. Constant budgetary concerns and necessary cuts have also increased scrutiny by the academic library administration in determining which resources are cost prohibitive and which are cost effective.

Academic Library Funding

Because of the transitory nature of academic library resources today, brought on primarily by the constantly shifting technological landscape over the course of the last decade, an ongoing process in all academic libraries concerns fiscal decisions related to each resource. The methods used to make those decisions enjoy varying degrees of success and satisfaction.

One method that appears to hold promise is the decision grid. Foudy and McManus (2005) found the decision grid process to be reasonably fair and accurate when deciding which resources to keep and which to discard. Each resource is assigned five separate criteria: a team rank assigned by the team library professionals into whose category that particular resource falls; an accessibility criterion based on perceived ease of access; the ever present cost-effectiveness criterion; a breadth-of-audience criterion designed to measure how many users a particular resource serves; and a uniqueness criterion based upon the likelihood that a particular resource is one of a few available. After assessing each resource using these criteria, a numerical value between 1 and 3 is assigned to each. A 1 indicates that the resource meets the criterion very well; a 2 indicates that the resource only somewhat meets the criterion, and a 3 indicates that the resource does a poor job of meeting the criterion. Following numerical assignation, the natural selection process involving each resource begins.

The formula-based model for academic library funding is also gaining popularity. Allen and Dickie (2007) found that the model based upon specific institutional characteristics holds significant promise. The basic idea behind this model is that any funding an academic library receives is influenced, in whole or in part, by demand for

library services generated by the university's faculty, students, and programs. Using seven specific variables - undergraduate enrollment totals, graduate enrollment totals, the number of Ph.D.s awarded annually, total number of subject faculty, total number of doctoral fields, whether the university had a medical school, and whether the university had a law school - Allen and Dickie found that a modest correlation existed between the presence of these seven factors, in various combinations, and increased library funding. With this model, libraries can track their actual spending against the model over a particular period of time, as well as track the spending of other academic libraries with similar resources against the model over time. In a similar study, Neville and Henry (2006) found that academic libraries in Florida that were housed in institutions offering master's and doctoral programs were more likely to have access to necessary funding than academic libraries housed in institutions that did not offer those programs.

With some universities today receiving as little as 10% of their operating budget from state allocations, funding concerns for academic libraries are twofold. Kohl (2006) found that funding problems for the parent institution will ultimately result in funding problems for the libraries in those institutions, because after severe cuts, primary attention and support of the parent institution will naturally fall upon the areas that are most likely to generate income. Libraries do not fall into this category. Second, there is strong evidence to suggest that academic libraries are not getting their fair share of the already reduced amount of funds allotted to the parent institution. Kohl found that the average amount of the university budget that libraries received decreased from 3.5% to just over 2.3% between the years 1982 and 2002. The resultant shortfalls have a direct

and adverse impact on the quality and variety of resources an academic library can offer its patrons. Most states have found creative ways to address these shortages.

Academic Librarian Salaries

The cornerstone information resource of any academic library has traditionally been academic librarians. They were the representative face of the library, and it was their responsibility to ensure that students or faculty members who accessed the library's information resources received the level of assistance necessary to meet their individual information needs. The responsibilities of today's academic librarian are changing, as well as the way in which academic libraries are perceived, and the salaries that these educational professionals receive may not be keeping pace with their constantly evolving job descriptions and working environment.

Bell and Shank (2004) found several external forces that were literally reshaping the way the academic library is perceived and utilized. New educational software systems at colleges and universities allow subject faculty to create their own information portals to course-related information and research sources that don't always include a link to the campus library; many textbook publishers are now including content from library databases on their own textbook companion websites; scholars are now finding new avenues to publishing that don't include the academic library; search engines such as Google and online retailers such as Amazon are using "book searching" technologies that in many cases surpass the academic library method; and Microsoft is attempting to broker a deal that would link their Office software directly to information vendors and bypass the academic library altogether. All of these initiatives chip away at the traditional working environment of the academic librarian. Luzius and Ard (2006) found that 44.4%

of academic librarians studied who left the field cited work environment as the primary reason for their career change, followed closely by compensation coming in at just under 28% of respondents.

In today's academic library these two factors are inexorably linked because of the constantly changing nature of the academic librarian's duties and responsibilities, or what Bell and Shank (2004) refer to as the blended librarian. The blended librarian is the notion that today's academic librarians need to combine the traditional library and information technology skills that they possess with the skills and knowledge of instructional design, in order to aide subject faculty in applying technology and improve teaching and learning. Six basic principles describe the blended librarian. Blended librarians must use innovative methods in delivering library services to faculty and students. They must develop campus-wide information literacy initiatives. They must design educational programs that will help faculty and students use library services and learn information literacy skills. They must work collaboratively with instructional technology designers. They must implement innovative change in library instruction. They must make a priority of assisting faculty in integrating technology and library resources into their curriculum. In Joan Starr's article "A Measure of Change: Comparing Library Job Advertisements of 1983 and 2003," she found that during this time span, "jobs utilizing new and more pervasive technologies have appeared representing a kind of professional transformation" as stated in Starr (2004, p. 2). Indeed, Deekan and Thomas (2006) found that computer skill requirements in technical service library job advertisements are considered so basic as to become meaningless, and therefore collected no data on this skill when conducting their study.

One major problem with this transformation and the attendant expanded duties is the fact that the average salaries of academic librarians are not expanding at a commensurate rate. Maatta (2003) found that those individuals graduating from accredited library and information schools in 2002 enjoyed an average starting salary of $37,456. This figure represents a 1.73% increase over the 2001 average of $36,818, but a significant decrease from the 5.03% annual increase trend enjoyed since 1998. While this does represent a modest increase in average starting salaries, the rate of inflation during that same period of time was 1.6%, all but negating the modest gain. These coalescing forces of expanded duties and decreasing salary do not seem to adversely affect the younger generation of academic librarians. Millet (2005) found that of academic librarians in the age range of 26 to 35, who had been in the field for less than five years, the majority picked "technologically adept" or "creative" when asked to choose self-styling characteristics, rather than "secure job market" or "it was a calling." Shank (2006) found that 60% of library services job announcements advertised would accept an instructional technologies degree in place of a Master's of Library Science degree (MLS), the industry standard, and that Web/Multimedia application skills appeared most frequently as required qualifications in these same position announcements. Shank also found that the two most common desired qualifications in these announcements were project management and coursework in either instructional design or instructional technology, which supports the notion that the position of academic librarian in the 21st century comes with an inherent sliding scale of duties and responsibilities.

Subscription Databases

In most academic libraries today, students and faculty can access a wide array of subscription databases to conduct their research. These databases contain information on subjects ranging from health and medicine to business and biography as well as history and current events and come with an ever-increasing subscription fee attached that is paid by the host institution. These databases are the back bone of the academic library research infrastructure. As these subscription fees continue to rise, educational institutions are continually seeking ways by which to effectively measure the cost-benefit ratio of this staple of educational research and balance its value with dwindling economic resources, in order to make the difficult decisions with respect to renewals as well as future subscriptions.

One method that shows real promise in this regard is simple usage metrics. In a study of subscription database use involving 214 undergraduate psychology, education, and information science majors, Kim (2006) found that while a majority of respondents, 86.3%, reported that they did have some experience accessing the subscription databases located in the host institution's library. Nearly half of all respondents, 49.6%, reported that that access occurred less than four times per year, indicating a less than keen interest on the part of the undergraduates surveyed in regularly accessing a rather expensive educational tool (Kim, 2006). When measuring the frequency of access of subscription databases, this reticence on the part of users to access these databases more frequently cuts directly into what Franklin (2005) contended were operational costs in the cost per use paradigm. Specifically, system costs such as the expense of maintaining the computer workstations and servers, as well as the cost of the necessary software for each

computer and the salaries of the library staff, require payment regardless of frequency of access. Kim also found that 60.7% of respondents used remote access from home. In a similar study, Franklin and Plum (2006) found that 45% of all electronic network resource access originated from off-campus locations. Kim also found that 88.6% of respondents successfully accessed these subscription databases without first attending an online database workshop conducted by librarians, and another 62.6% did so without first attending a library orientation, indicating a technologically savvy generation of users, and lending tentative support to Heinrichs, Sharkey, and Lim's (2006) contention that as students reach a higher level of technological proficiency they are more apt to access electronic resources or the Internet, rather than using the traditional services of the library, thus bringing the question as to the value of academic libraries and librarians squarely into focus.

Another method for measuring subscription database use that is gaining in popularity is the cost per use method. Franklin (2005) found that dividing the total annual cost of all subscription databases currently subscribed to by the host institution by the total number of searches conducted annually on those databases resulted in a per search cost that allowed the host institution as well as the academic library to accurately quantify the value of each database individually. Simply put, a database generating a lower per search cost combined with a higher number of searches performed stands a much better chance of renewal than a database with the opposite combination. According to Franklin, the cost per use data can be calculated several different ways including but not limited to publisher, title, or vendor. This allows libraries flexibility in the area of subscription fee negotiation, in that publishers whose price per download is noticeably higher than other

publishers run the risk of losing valuable business if they refuse to lower or at least reasonably negotiate their fees. Likewise, any vendor who experiences a price increase that outstrips the product's actual usage runs the same risk. In their study, Heinrichs et al. (2006) reduced the question of subscription database usage down to the notion of user satisfaction ratings. Specifically, they examined two components: the "superiority gap," which referred to the difference between the level of service that the patron desired and the level of service the patron perceived that they received; and the "adequacy gap," which refers to the difference between the level of service the patron perceived that they received and the actual minimum level of service. Once established, these two components were used to analyze the overall satisfaction ratings related to three different usage patterns: traditional library access, electronic library access, and any interaction effect that might exist between the two. Heinrich et al.'s contention that library patrons experienced lower levels of perceived satisfaction in tandem with lower electronic access methods provides an effective litmus test for individual subscription databases. Those generating higher levels of perceived satisfaction in library patrons are renewed, while those that generate lower levels of perceived satisfaction are cancelled. Regardless of the method employed to decide which subscriptions to maintain, the issue of escalating subscription fees remains an ongoing problem for academic libraries that requires an immediate and viable solution.

One method of reducing costs and increasing library resources that shows real promise is the library consortium. Ramos and Ali (2005) found numerous factors influencing the increasing number of consortia agreements among academic libraries. Chief among these factors are the sheer volume, quality, and format of available

information resources today; the changing expectations and needs of the academic library user; the staggering increase in the price of information resources; a more sophisticated technological infrastructure that allows for the global sharing of information resources; providing academic libraries with a competitive advantage; and of course the ever dwindling budgets of the member libraries. While consortia are designed to spread the cost of resources across several participating institutions, thereby reducing the cost for each, the question as to how to best distribute those costs among participants has come under scrutiny of late. Anderson (2006) found that several methods of allotment exist, some more complicated than others. He contended that the simplest and fairest method was to allocate all costs equally among all member libraries, which was sometimes problematic in that not all member libraries were the same size, and some felt shortchanged. Anderson also found that factors such as the member library's host institution's annual budget, the member library's collection size or total circulation each year, or a combination of these factors sometimes served as the formula for allotment of consortial funds, but the most widely accepted method was a hybrid combination of two methods as follows: allot some funds proportionately among all of the member libraries, and allot some funds proportionately based upon the number of the host institution's full-time equivalent (FTE) students.

While a library consortium helps to defray the cost of and increase the access to electronic resources, the presence of the consortium alone may tend to influence the perceptions of its users. In his study of the OhioLINK consortium, Gatten (2004) measured users' perceptions based on four criteria: ease of access to information, service, the ability of the patron to control the resources being accessed, and the notion of library

as place. He found that while the OhioLINK had an overall positive effect on the quality of the services offered by the member libraries, it also increased users' expectations, while at the same time only slightly increasing performance. This can prove misleading to users who assume that the presence of a consortium will significantly increase the quality of the service they receive. Inclusion of a subscription database resource in my study will provide valuable feedback from the most important component of the study: the users themselves. This feedback can in turn be used for pricing and selection decisions by academic librarians.

Journals

The vast majority of academic libraries today carry journals in two distinct formats: print and electronic. Balancing the increasing or what Reed (2004) referred to as "extortionate" rates of print journal subscription fees with the level of usage this resource enjoys is a day to day struggle, compounded by the fact that electronic journals are rapidly overtaking print journals as a favored information resource, in terms of convenience and economy. According to Reed, over the course of the last 16 years the price of some journals has increased at a rate equivalent to three times the Consumer Price Index. Jordan (2004) found that the University of California at Los Angeles reduced its number of print journal subscriptions from 1400 to 700, and Cornell University cut 200 print journal subscriptions, while Harvard University cut several hundred print journal subscriptions because of increasing subscription fees, resulting in a $250,000 savings for the university. These increases are not limited to any one university or specific discipline, and the calculation of their cost can sometimes be complex to say the least. Barnett (2004) found that subscription fees for selected marine science journals

increased by 71% between the years 1997 and 2003, while Reed (2004) found that one journal publisher, Elsevier, has collected over half of the journal budgets for approximately 32% of the titles in California's university system. According to Alison Buckholtz as reported in Lustria and Case (2005), another top publisher of scientific journals regularly enjoys a net gain of 40% more than its operating costs. The subscription fee is only one expense associated with journals, however. In their study, Fowler and Arcand (2005) found that the time and costs associated with acquiring and maintaining journal collections is difficult for universities to control due to automation and its requirement of constantly, and manually, reconfiguring data associated with these journals, partnered with increased user expectations because of this same automation. As a result, many academics believe that it is time for the creation of a new cost structure associated with these journals. Bergstrom and McAfee (2005) contended that most for-profit publishers are in effect gouging the academic community, and since most journals are filled with articles written by academics, the only solution is for universities to begin to charge overhead for the services of their faculty and staff, including editors, who are involved in the publication of these articles. In this way, they contend, the universities will be able to recoup some of the escalating subscription fees they have been forced to pay over the last several years.

This unfavorable view of journal publishers and their spiraling subscription fees has turned attention toward the emerging potential of electronic journal databases. While there may be some variation by discipline in the amount of print journal usage, Black (2005) found that there was a 52% drop in the use of print journals between the years 1996 and 2003, after the introduction of a full text journal database, including a 34% drop

in the use of print journals that were not available on the full text database, resulting in an increase in the cost per use from $2.17 in 1996 to $8.82 at the end of the study in 2003. Lustria and Case (2005) found that within the Scholarly Publishing and Resources Coalition (SPARC), 56% of the partners offer both print and electronic versions of scholarly journals. They also found that two of the major reasons for this are competitive pricing between the print journals and their electronic counterparts and a much quicker turn around time for journals in all disciplines: one to three months for electronic publications versus 10 to 12 months for print. As the SPARC initiative indicates, universities are increasingly making the leap to electronic journals, and specific criteria relating to electronic journal resources can help. Walters (2004) found that while timeliness, reliability, and completeness with respect to journal content are important, it is equally important to consider long-term sustainability. Specific criteria of sustainability include the notion that when purchasing the site license for the journal in question, there must be a provision for permanent retention of the content by the library; the university should join a library consortium that has enough legal muscle to ensure that the content provider adheres to its legal obligations; and the provider selected must exhibit a desire to provide the content on a long-term basis. Stemper and Barribeau (2006) contended that access to these journals should be perpetual. In their study of 7,400 university faculty members, they discovered that 75% of respondents believed that an electronic journal publisher should guarantee that its archived material will be preserved indefinitely, and 84% of respondents rated the archiving of electronic material as very important to them.

While the future looks bleak for print journals, there are those who still believe that they can be saved. Crawford (2004) found that some journals available in both print and electronic form include what he referred to as the core journals from each discipline, which makes the print versions of these journals inherently more valuable. He also contended that if journal publishers would begin to moderate their expectations with respect to profit, while at the same time lowering their production costs, they could then pass those savings along to the journal subscriber. Guterman (2004), however, contended that the solution to the problem can be found in open access journals. These online journals do not charge a subscription fee because the authors of the material are required to pay a fee to have their works included, ranging from $500 to $1,500, thereby eliminating subscription fees that can sometimes exceed $20,000 annually. Wu (2005) contended that a balanced library requires print and electronic resources. She found that while electronic formats can sometimes increase ease of access and are more economical, print formats contain vast amounts of information that may not have had the opportunity to be digitized as of yet, and that while electronic access to information is novel, the focus for libraries should remain on access to the information, regardless of format.

The Educative Function of the Academic Library

The proliferation of new technologies, combined with increasing enrollments and user expectations, have propelled the academic library to the forefront of the 21st century institution of higher learning. While some students today use the academic library as a locus of socializing and entertainment, its primary function is still educative and can be fulfilled in a properly designed facility through the offerings of reference services and distance education.

Design

In order to ensure that the design of an academic library will extract the maximum educational use from its allotted space, several questions must first be answered. Bennett (2006) found that at least six basic questions must be considered when designing a higher education learning space: why does the learning that will occur here require a brick and mortar facility rather than a virtual facility; how can this space be designed so that students feel compelled to spend more quality study time here; where will this facility fall on the isolated study/collaborative study spectrum; what assertion will this facility make about the nature of knowledge; should the design encourage teacher/student interaction; and, finally, how will this design enhance the educational experience. Antell and Engel (2006) found that 77% of 1970s graduates surveyed and 61% of post-1990 graduates surveyed conducted research in the physical library. They also found that 31% of respondents studied who were born in the 1980s and 33% of respondents who were born in the 1960s spent time in the physical library in contemplation, and 44% of respondents born in the 1940s and 80% of respondents born in the 1980s routinely made space-only visits, emphasizing the importance of the academic library facility as place.

Because of the uncertainty involved in designing such a facility, more than one approach to the final design should be considered. Bennett (2007) found that at least three different approaches guard against design error. The service and instructional approach to design is predicated on the belief that students and faculty require a design encompassing cutting edge technology combined with traditional library services under

the umbrella of the information commons. This approach combines two normally divergent cultures, the culture of librarians and that of information technology specialists, together to meet the needs of students and faculty. Samson and Oelz (2005) found that this design is most effective when it adheres to the following guidelines: the information commons is located at the front of the facility allowing the library user immediate and unfettered access; all relevant services are incorporated into the information commons design; all of these services are available during normal service hours; and all personnel involved in the information commons receive the level of training appropriate to their position. The second design approach is the marketing approach. Bennett found that 85% of library construction projects he studied between 1992 and 2001 were based primarily upon the needs of the library staff, while 64% were based upon the needs of the user. The marketing approach reverses this trend and bases the design of a library facility primarily on the needs of the user, and the data is gathered from the user in much the same manner as market research. The third and final approach is the mission-based approach, which is essentially what it sounds like, an approach to library design based on the mission of the host institution. The idea behind this approach is simply to design a facility that will foster the kinds of faculty and student learning behavior as set down by the host institution's mission statement and found in national educational benchmarks.

Elmborg (2006) found that academic library designers should be cognizant of one very important element and that is what Mary Louise Pratt referred to as the "contact zone." The contact zone is a place wherein students of different cultures meet, and sometimes clash, while negotiating for power and learning to communicate with each other as well as with their teachers. Elmborg contended that in order for an academic

library to effectively work with students from many diverse cultural backgrounds, which is essentially the makeup of today's average college student body, designers of academic libraries must first envision them as contact zones. In this manner, attention to design is shifted from aesthetic and functional considerations, to ethical and pedagogical considerations, which are the heart of a properly designed contact zone. End user resource valuation study such as the study reported here may provide valuable input from users that could be incorporated into the design process, specifically, more closely matching the most effective educative design with the most valued resources.

Reference Services

The primary function of academic library reference service has always been threefold: helping patrons find accurate answers to their queries or resources to meet their research needs; through purchasing and weeding, creating and maintaining a collection that will help achieve the first goal; and teaching patrons how to effectively use the collection to implement effective research strategies. While these three core functions have remained the same, technological developments, shrinking budgets, and increased user demands and expectations have forced academic libraries to constantly add to their already impressive repertoire of services. Through constant internal examination, academic libraries have continued to improve, while keeping pace with patron demand through the new mediums of digital, virtual, and e-mail reference, as well as electronic books, instructional platforms such as Blackboard, and the latest in academic library technologies.

As academic libraries have advanced technologically, delivery of reference services has taken on many different forms, as has the infrastructure of the libraries themselves.

Bradford, Costello, and Lenholt (2005) found that of 1,373 reference questions asked, the number one resource used to answer them was the reference librarian at 26.4%. However, the next three in order were technological. Specifically, electronic databases accounted for 25.16% of the answers; the online library catalog accounted for 15.86% of the answers; and internal web pages accounted for 12.8% of the answers. Reference books rounded out the top five with 8.12% of the answers. All told, 60% of the top five were electronic or online sources, supporting Khan's (2006) contention that electronic services and traditional services will continue to coexist in today's academic libraries because today's academic library user enjoys the convenience of the Internet and the ease of use of electronic resources, and in real terms the vast majority of these users were weaned on the Internet. E-mail reference continues to gain in popularity as a byproduct of the Internet's prevalence. Kibbee (2006) found that 72% of visitors to the academic library located at the University of Illinois at Urbana-Champaign utilized e-mail reference. Kibbee surmised that 24-hour access, no pressing need for a response, and the ability to anonymously pose a question contribute to the increasing popularity of this mode of reference. Shachaf, Meho, and Hara (2006) found that QuestionPoint, a Collaborative Digital Reference Service (CDRS) initiative launched in 2000 to spearhead the virtual reference movement, began with a partnership between the Library of Congress and 15 academic libraries around the country. By the end of the year 2004, this number had grown to 1,500 libraries located in more than 20 countries, not including several similar initiatives within the United States such as AskColorado and New Jersey's QuadANJ, to name a few.

To ensure the continuation of quality reference services on the part of academic libraries and librarians, a culture of constant internal evaluation must be encouraged. Kuruppu (2007) contended that the appropriate method of evaluation must be used when measuring reference services, in order to ensure efficacy of results. He found that including qualitative service evaluations as part of reference services, combined with the appropriate training necessary to allow librarians to conduct these kinds of evaluations, and basing future decisions on the findings of these evaluations would enable academic libraries to consistently provide the high quality reference services that users have come to expect. Novotny and Rimland (2007) found that the Wisconsin-Ohio Reference Evaluation Program (WOREP) was an effective tool for measuring the quality of reference services. By combining user satisfaction factors such as the user's perception of the librarian's knowledge, how much attention the user received, and the amount of information provided to the user with academic librarian factors such as their perception of the depth of the collection on the given topic and how much activity was occurring at the reference desk during the interaction,WOREP provides in-depth analysis and recommendations for improvements. Stoddart, Bryant, Baker, Lee, and Spencer (2006) contended that the key to quality reference services lies in the liaison function of the academic librarian. To that end, they recommended several activities: academic librarians should take the first step as liaison and introduce themselves to the various departments they will be serving; cultivate these relationships; utilize new and creative approaches to outreach; familiarize themselves with their particular subject areas; use more than one type of communication with faculty; be responsive to faculty requests; and when in doubt, take a cue from their peers.

Distance Education

New and innovative methods of reaching library patrons are continuously being developed and implemented, thereby altering the original job description and duties of academic librarians. Acceptance of the idea of the academic library as a hub for distance education has grown over the last several years, making it one of the most important educational paradigm shifts of the last decade. Yang (2005) found that of the 62 Association of Research Libraries (ARL) libraries surveyed, 21% had a full time librarian specifically for the purpose of distance education, while 35.5% had a librarian who spent between 4% and 50% of their time on distance education. Furthermore, Yang found that over half of these distance education librarians were involved in distance education committee work and 54.4% had at some point participated in the design of an online tutorial for library services. Yang also found that 63.1% of ARL libraries surveyed offered some form of library services to their distance users, indicating an increasing reliance by academic libraries upon distant users. This trend appears to be gaining strength. Sittler (2005) found that 55% of all 2- and 4-year colleges offered graduate and undergraduate distance education courses, 89% of public 4-year colleges, and 90% of public 2-year colleges as well as 56% of all 2-year and 4-year private colleges offered distance education courses. Of the colleges surveyed that did not offer distance education courses, 12% planned to begin offering them in the next 36 months. Sittler also found that through the academic year 2001, over 3 million students were enrolled in distance education courses. The survey also found that 48% of public four year colleges studied offered degree programs that could be accomplished entirely via distance education courses.

The impact of this continuously increasing prevalence of distance education courses on the manner in which students access the academic library is palpable. Kelley and Orr (2003) found that of the 2,713 students surveyed, 66% indicated that they seldom visit the library, while 51.2% of respondents indicated that remote access to the library's full text databases was most important to them. Additionally, 71.7% of respondents indicated that they preferred receiving library skills instruction via web-based tutorials; 72% of respondents indicated that they would be more motivated to use libraries if they could access more online full-text materials; 62.75% of respondents indicated that the best way of communicating information about library resources and services was through the library homepage; and 77.6% of respondents indicated that they used the Internet liberally during the semester. Similarly Zheng (2005) discovered that of the 504 students surveyed, 49.7% indicated that the Internet was their primary source of information; 27.4% of respondents accessed electronic databases weekly; 20.3% of respondents accessed the online catalog weekly; and 14.4% of respondents accessed the electronic reserves weekly. Liu and Yang (2004) discovered that the reasons given for the selection of these primary information resources included ease of access from home, ease of system use, and an abundance of electronic and online materials to choose from, culminating in what they referred to as the principle of least effort, the idea that students will choose the information resource that requires the least expenditure of effort to access, regardless of reliability or validity.

An arms length approach to library services appears to be the order of the day, which is a far cry from just a decade earlier. Carr-Chellman and Duchastel (2000) found that students who were participating in web learning utilized two primary cognitive

components: engagement and adaptiveness. According to the authors, a student is engaged when they are both initiating as well as pursuing interaction with others; they are adaptive when they are striving for just that certain piece of information that is needed at the time. The goal of today's academic librarian is to engage distance education library users and help them adapt to this new electronic pedagogy.

Gandhi (2003) found that 56% of all distance learners live within one hour of the campus offering their classes and that the these students rarely seek out information sources that are not first recommended by their instructors. Consequently, if academic librarians hope to engage distance learners, Gandhi contends that they must first establish contact with their instructors through direct marketing of the library and its offerings to these off-campus students. Ramsay and Kinnie (2006) found that academic librarians need to become part of the day-to-day interaction that occurs between faculty and students by engaging them where they live. Ramsay and Kinnie recommend embedding a librarian directly into courses as an enrolled teaching assistant; creating instant messaging reference linked directly through the library web site; and creating a blog dedicated specifically to the library, containing a list of services, any new announcements, and an area for student input. Dinwiddie (2005) found that the creation of a subject specific online library Blackboard site linking the course the student was enrolled in to the appropriate library course that provided the necessary resources and contact information for the librarian engaged the student more thoroughly. Rieger, Horrie, and Revels (2004) contended that linking web sites created by faculty directly to library collections and services raised awareness of these resources while at the same time creating a seamless integration of the two. According to Rieger et al., 45% of

respondents indicated that they already included library resources in their CourseInfo web site, while 34% of respondents indicated that they would like to. In a study of library web pages, Hahn and Schmidt (2005) found that a collection management link was included on 49% of the library pages studied. Of these collection management links, 82% provided information to contact the collection manager directly; 64% provided directions for purchasing; 59% provided a link describing the collection; 37% provided a link for special collections; and 49% provided a link for policies relating to collection development.

Marketing the library to distance learners is only one of the new non-traditional roles that academic librarians must now play if they are to effectively serve this student population. Cardina and Wicks (2004) found that over a 10-year span between the years 1991 and 2001, the role of the academic librarian changed significantly. Face-to-face reference interviews conducted by academic librarians decreased by 12%, while e-mail reference questions answered increased by 21%; instant messaging reference questions answered increased by 2%; electronic collection development increased by 24%; and online searching by academic librarians increased by 19% over that same period of time. Additionally over this period of time, the design of web pages by academic librarians increased by 19%; the design of online tutorials by academic librarians increased by 5%; computer programming by academic librarians increased by 2%; and teaching Internet navigational skills increased by 4%, indicating that academic librarians are now a significant part of the distance education paradigm, and they must take a proactive stance if they are to remain relevant. End user resource valuation studies such as the study reported here can provide valuable information that will contribute to the development

and maintenance of distance education curriculum and instruction associated with academic libraries.

Conclusion

Four distinct themes emerged from the literature with respect to factors influencing the perceptions of academic library users: information literacy's development as a discipline and its increasing inclusion in the curricula of institutions of higher learning; methods of information seeking and the customer service paradigm; academic library resource management; and the educative function of the academic library. Although all of these factors are important, they do not address the valuation process that academic library users move through as they decide which resources to use to address their research and information needs. A more thorough understanding of this process would enable academic librarians to make well- informed technological decisions, effectively manage limited fiscal resources, and more accurately assess and meet academic library users' needs.

Although this current study did not address all of the aforementioned issues, I believe it will add to the body of existing knowledge in an area that is significantly under researched. Using Q methodology as my analytical protocol, the Q sort identified groupings or clusters of attitudes and opinions of library end users, thereby helping to explain how these end users go about the process of placing a value on library resources. Cross referencing the Q sort results with the demographic information contained in the post-Q sort survey helped to gain a deeper understanding of which factors exert the most influence over this process. An examination of the current literature, while expansive in its coverage of relevant community college library issues, did not reveal any existing

community college library information resource usage studies that utilized the Q methodology analytical protocol. The next chapter will examine in detail the methodology used to conduct this study including the primary research questions, the design of the study, the analytical protocol employed, and any limitations of the study.

CHAPTER THREE: METHODOLOGY

The purpose of this study was to use the Q methodology analytical protocol to determine whether there are any patterns of opinion among community college library end-users with respect to the value they place on the various information resources they access when conducting research, including whether those patterns of opinion are in any way informed by demographic variables, and to discover what perceptions community college library end-users hold about the value of those same information resources.

Research Questions

1. Are there any patterns of opinion among community college library end-users in regards to the value placed on available resources?
2. Do demographic variables help to inform the patterns of opinion among community college library end-users?
3. What value do community college library end-users perceive in the various resources they could access while searching for information?

Design of the Study

Q methodology

According to Brown (1980), Q methodology allows the researcher to systematically study the attitudes and opinions of a study's participants. McKeown and Thomas (1988)

expressed a similar opinion, referring to Q methodology as the scientific study of human subjectivity. What Q methodology attempts to do in a nutshell is quantify subjectivity.

The basic components of the Q methodology analytical protocol are the concourse, the Q set, a collection of heterogeneous items (library resources) that the participants sorted using statements, each of which makes a different assertion about the subject matter; the P set, which is the selected group of study participants; and finally, Q sorting, the method whereby participants assigned each item (library resource) a ranking position in a fixed quasi-normal distribution. Participants are required to allocate all the Q set items an appropriate ranking position in the distribution provided (Watts & Stenner, 2005). The concourse is created by the researcher and consists of all of the comments and statements about the topic at hand that the study participants could consider. A concourse may be created using opinions about the topic that are gathered through interviewing, simple observation, literature, newspapers, magazines, and books, representing the opinions of professionals, politicians, and representative professional organizations (van Exel & de Graaf, 2005). From the concourse, the researcher draws a subset of opinions and statements that become the Q set.

Consisting of 40 to 60 statements, the Q set should contain statements that are sufficiently different from one another so that the Q set captures the entire range of opinions and attitudes about the topic being studied. The Q set I used consisted of statements surrounding the use of five specific academic library resources: subscription databases, newspapers, books, the reference librarian, and the Internet. I selected these five resources because they are the primary research tools used by Florida State College at Jacksonville students when conducting research. Developing the Q set can be achieved

in different ways, namely, the naturalistic approach wherein the researcher uses interviews of respondents combined with written narratives from same; the quasi-naturalistic approach wherein the Q set is derived from sources external to the study such as interviews with non study participants; the ready made Q set wherein attitude and attributes scales can be incorporated into the set; and the hybrid approach wherein items from both the ready made and naturalistic approaches are combined into one hybrid (McKeown & Thomas, 1988). My approach to developing the Q set was closest to the hybrid method. I gleaned information from the current literature in professional librarianship such as Library Journal, and American Libraries, as well as information and technology literature such as the Journal of Information and Knowledge Management, and Wired, and combined that information with my experience with the AskALibrarian e-mail and virtual chat service, my experiences teaching the LIS 1002 Information Literacy course online, and my 9 years of experience as an academic librarian at Florida State College at Jacksonville. Using this combination of professional literature and personal experience, I developed some basic opinions relating to the use of academic library resources that I had read about or heard expressed consistently over the years by both students and faculty as I instructed them in the use of these information resources. My desire to create a balanced Q set led to the creation of two to three positive statements and two to three negative statements for each of the five information resources under study, for a total of 40 statements in the final Q set.

The P set is simply the study participants selected by the researcher who are considered relevant to the topic under study. For this study, the P set consisted of 16 participants from each of the four main campuses, for a grand total of 64 participants in

the study. The final step in the process is the Q sort, wherein each study participant is given the Q set and asked to rank order the entire set (40 statements) along a quasi-normal distribution, usually on a continuum ranging from *most agree* to *most disagree* or *most like me* to *least like me* or something similar, with a range of from either -4 to +4 or −5 to + 5 (van Exel & de Graaf, 2005).

Setting and Participants

The study was conducted at Florida State College at Jacksonville, which at the time the research was conducted was known as Florida Community College at Jacksonville. The college underwent a major restructuring in August of 2008, one month after my data collection was completed. The college was comprised of five campuses and two education centers, with an enrollment of 64,000 full and part-time students in college credit, work force, and continuing education programs at the time of the study. The median age of college-credit students was 27, and the median age of students enrolled in continuing education was 39. The study was conducted at the Downtown, Kent, North, and South campuses, the four main campuses of the college with respect to full time enrollment and programs of study. I conducted my study in the main library of each campus to allow for sufficient pedestrian foot traffic to meet my sample needs. I originally planned to draw a quota sample of 16 participants, 8 who had completed the information literacy course and 8 who had not, from each of the four main campuses. I was only able to locate a total of 8 participants who had completed the information literacy course, due primarily to the fact that I conducted my study during the summer term, a time when fewer students are on campus, thereby decreasing the likelihood of finding the desired participants. The total sample size was 64. The study I conducted

was exploratory in design and utilized Q methodology as the analytical protocol. Q methodology is wholly unique, in that during factor analysis, rather than correlating two variables across a sample of subjects, as is the norm in the 'R' method, Q methodology examines correlations between subjects across a sample of variables. The data for the Q factor analysis was provided by the Q sorts performed by subjects in the study. The Q data was collected simultaneously with demographic data on a post Q sort survey of my own design.

For this study I brought a folding card table, 1 copy of the Florida State College at Jacksonville permission to conduct research letter, 50 blank copies of the informed consent form, a poster board-sized version of the Q sort score sheet, 50 blank copies of the Q sort score sheet, 50 blank copies of the Q sort score sheet instructions, 1 deck of the 40 Q set statement cards, 50 blank copies of the Q methodology prompt, 50 blank copies of the post-Q-sort demographic survey, and two boxes of Krispy Kreme doughnuts to each of the four main campuses: North, South, Kent, and Downtown, every day except Saturday and Sunday, between July 15 and July 30, 2008. I arrived on campus promptly at 8:30 am and headed directly to the campus library. Once I arrived in the library, I set up the card table and placed the poster- board sized version of the Q sort score sheet on it and placed the Q set statement cards in a neat stack on top of the score sheet. I created a sign that read "Free Doughnuts." When curious students approached to inquire about the free doughnuts I was offering, I asked them their age and gave a brief description of the nature of my study and then asked them whether or not they would care to participate. If the students said no or if they were under 18 years of age, I thanked them and declined to invite them to participate in the study. If the students said yes and

were at least 18 years of age, I invited them to participate in the study. After describing the study in detail, I provided the students with an informed consent form to sign, provided them with a photocopy of the signed form from the library's copier, and then gave them a copy of the Q sort score sheet instructions. I answered any questions the students had during and after reading the instructions, and I stepped away from the card table as they completed their sort. After the students completed the sort, I instructed them to leave the cards on the poster board sized Q score sheet so that I could record their score on a blank Q score sheet. As I recorded their score, I asked them to complete the post-Q-sort demographic survey. After I recorded their score and gathered their post-Q-sort demographic survey from them, I recorded their demographic data on their score sheet, attached the demographic survey bearing no name, assigned it a number between 1 and 64, and placed it in the box with the completed score sheets. I then placed their informed consent form in a separate box containing only completed informed consent forms, gave them two Krispy Kreme doughnuts, thanked them, and sent them on their way. I repeated this process until I surveyed 16 participants from each campus. Once all of the study participants had an opportunity to perform the Q sort, the next step was analysis and interpretation of the data.

Data Collection and Data Analysis

The type of data collected consisted of the individual Q sorts from 16 participants on each campus selected. The raw data generated by each Q sort was collected and recorded for each Q sorter. During the data collection portion of the study, I utilized the Q methodology prompt (Appendix A) and the Q set (Appendix B), consisting of 40 relevant

statements about the topic under study, in conjunction with the Q sort Score Sheet (Appendix C) and the Q sort Score Sheet Instructions (Appendix D).

After collecting the 64 Q sorts from all four campuses, I then entered the raw data into my home computer, which contains the PCQ Soft software for Windows analysis software designed specifically for Q technique.

During the first step of analysis, the correlation matrix of all of the Q sorts was created, which represents the level of similarity and dissimilarity between viewpoints that exists among all of the participating Q sorters. The correlation matrix was then factor analyzed to determine which viewpoints grouped naturally together, with the sorters with the same viewpoints sharing the same factor. At this point, a factor structure/pattern coefficient for each Q sort was computed, indicating to what extent each individual participant was associated with each factor. The number of factors in the final set was determined by the amount of variability present in the derived Q sorts. This set of factors was then rotated orthogonally (Table 2, Appendix I) in order to determine the final distribution of participants across the factors. All of the final factors represent a cluster of individual points of view that correlate with one another, but due to orthogonality of the solution, do not correlate with other points of view. Rotation allows the researcher to view the opinions from different angles, while attempting to confirm an idea or theory (van Exel & de Graaf, 2005).

During the final step of the process, regression factor scores and difference scores were calculated. A statement's regression factor score is simply its normally weighted z-score of the participants that define that factor. Using these z-scores, the statements can be assigned to the original quasi-normal distribution, thereby creating a composite Q sort

for each factor. The composite Q sort is a representation of how a theoretical participant who correlated 100% with that factor would have arranged all of the statements of the Q set.

Once the factors have been computed, the researcher can then look back over the Q sorts to determine how high the loadings on each factor are. The difference score is simply the difference between a statement's score on any two factors that is required for it to be statistically significant. If the statement score on any two given factors happens to exceed the difference score, it is then considered to be a distinguishing statement. Any statement that is not actually distinguishing between any of the relevant factors is referred to as a consensus statement. The combination of a factor's composite Q sort and its difference scores indicate which statements to pay close attention to when attempting to interpret that factor. Generally speaking, the characterizing statements, which are those located at both extremes on the continuum, are the ones used to produce the first real description of the composite point of view that a particular factor represents. Both the distinguishing and consensus statements can be used to illustrate any differences or similarities between factors. The explanations of the Q sorters about why they placed statements where they did can also be used in the factor interpretation phase (van Exel & de Graaf, 2005). Using the aggregate totals in this portion of the data analysis, I drew some basic conclusions about the groupings of opinions and attitudes among the Q sorters to answer research questions 1, 2, and 3.

I used the demographic information from the post Q sort survey (Appendix E) each participant completed to refine and clarify the meaning of the Q sorts for research questions 1, 2, and 3, a process considered more art than science. With this information

in hand, I formulated theories with respect to why certain clusters of opinions may have formed and why others may not have. It is at this juncture that final conclusions about the data and what it reveals were reached

According to McKeowan and Thomas (1988), Q methodology can be useful in addressing many problems in the areas of social and behavioral sciences. Similarly, van Exel and de Graaf (2005) found that Q methodology is ideal for any researcher who wishes to explore motives and goals, preferences, opinions, and tastes, areas that according to the authors go largely unexplored. Q methodology proved ideal for this study, in that I was seeking to discover attitudes and opinions community college library end-users held relating to the value they placed on the various information resources they could access while conducting research. A search of the current literature revealed no Q methodology based study of this nature in existence, indicating that my study was unique in its quest for what motivates the community college library end-user.

Ethical Considerations

The research design and protocol for data collection was approved prior to the commencement of the study, by the University of North Florida Institutional Review Board. The approval letter from the University of North Florida is presented in Appendix F, and the approval letter from Florida State College at Jacksonville is presented in Appendix G. Survey respondents were provided an informed consent form to complete before they participated in the study. All participants had to be at least 18 years of age and be able to provide their own informed consent. The identities of the participants remained confidential in order to increase the likelihood that participants would give honest responses during the Q sort process and on the post Q sort interview. The fact that

participant identities remained confidential was clearly stated on the informed consent form each participant signed before they participated in the study. Additionally, because I was concerned with the aggregate totals, there was no chance for any one participant's results to be singled out for scrutiny. It was necessary to secure approval from Florida Community College at Jacksonville Institutional Review Board to conduct the study on the college's campuses.

In that I am educated as a professional librarian, and that Q methodology requires a certain level of subjectivity when analyzing and interpreting the results, I may be prone to interpreting the results in a manner consistent with my own preconceived notions about the value of library resources. In order to help ensure against this potential bias, I reviewed and discussed any theories or conclusions I reached based on the data and the survey with other professional librarians. This helped guard against the imposition of my own personal biases upon the data.

Delimitations and Limitations of Study

This study was limited by the selection of only five library information resources. Academic library information resources are vast and increasing in number every day. At Florida State College at Jacksonville's libraries alone, there are over 100 databases to choose from when searching for information. Major universities have library information resources that dwarf those at the community college and college levels. Choosing only five resources may have provided a picture of the valuation process involved in selecting library information resources, but that picture is the equivalent of a thumbnail at best. Additionally, the study was limited by the participation of only 64 people. It would be unwise to suggest that the attitudes and opinions of 64 participants accurately reflect the

general consensus of a college with an enrollment in excess of 64,000 students. A final and significant limitation was the fact that I was conducting only one study at only one community college in one city in the state of Florida. This most assuredly had an adverse affect on the generalizability of the study's results. The next chapter will examine in detail the results of this study including a detailed description of the study setting and participants, findings of the factor analysis, and detailed descriptions of those findings.

CHAPTER FOUR: RESULTS

The results chapter presents data from the aggregate group of student sorters, as well as the sub groups that were revealed in the study after data analysis. This analysis involved a combination of sort and demographic data, used in tandem to interpret patterns of opinion that were present in the composite factor arrays of any factors deemed significant by the analysis. This analysis also included comparisons between and among any sub groups that were identified as part of the factors deemed significant by the analysis.

Organization of Chapter Four

Chapter Four begins with a brief description of the student population at Florida State College at Jacksonville and the information literacy exam students must pass before a degree is conferred. The next section describes the study participants; sample size and criteria for inclusion are discussed here, followed by a description of the data set including scoring. The correlations section follows with a description of the sorters with the highest and lowest number of correlations as well as those who did not correlate with any other sorters, followed immediately by the factor analysis section which describes the method used for factor analysis and briefly explains the how and why of factor selection. The next section deals specifically with each of the factors that were selected for analysis and includes demographic survey data from each participant along with their written comments and whether or not they had completed an information literacy course. This is

followed by the description across five factors section wherein any similarities or differences among the factors under study are highlighted and discussed, followed by the final section which is the chapter summary.

Florida State College at Jacksonville

All degree seeking students entering Florida State College at Jacksonville in the catalog year 2004 or who changed their program of study to degree seeking since fall term 2004 are required to demonstrate competency in the area of information literacy by passing the college's Information Literacy Assessment (ILAS). The Association of College and Research Libraries defines information literacy as the set of skills need to find, retrieve, analyze, and use information. Because of the nearly infinite amount of information now available, students need to develop a greater understanding of information sources and hone their abilities to acquire, evaluate, use, and communicate information. Regardless of a student's discipline of study, mastering information literacy skills will enable them to become more proficient learners and benefit them in their personal and professional endeavors.

The Information Literacy Assessment (ILAS), implemented by the college in 2004, is a competency-based assessment that adheres to the standards published by the Association of College and Research Libraries (ACRL, 2007). It is administered by the Assessment and Certification Center at Florida State College at Jacksonville and measures the proficiency of each student with respect to finding, retrieving, analyzing, and using information. The ILAS is presented in a six-module, timed, computer-based format with each module containing 15 questions, and the student must correctly answer at least 11 of the 15 questions in each module in order to obtain the requisite passing

score of 70% on each. Students are encouraged to sit for the ILAS after having completed 30 hours in their program of study, but before completing 45 hours. The content of the six modules is as follows:

1. Identify the need for information
2. Select the most appropriate information retrieval system
3. Acquire pertinent information
4. Evaluate the information obtained
5. Manipulate information in a usable form
6. Communicate the information

In order to better prepare for the ILAS, students at Florida State College at Jacksonville are encouraged to enroll in the information literacy course offered by the college and bearing the course number LIS 1002. This is a one-credit hour course presented in an online format which is taught by the college's librarians and culminates with each student sitting for the ILAS as the last course assignment for a letter grade. Students may also prepare for this exam by carefully studying the six modules presented in their entirety in each student's individual Blackboard portal, which includes an online practice exam for each module, or by seeking the direct assistance of one of the college's librarians by making an appointment for a tutoring session.

Florida State College at Jacksonville serves the greater Duval County area with five campuses, two education centers, and an enrollment of 64,000 full and part-time students at the time of the study, in college credit, work force, and continuing education programs. The vast majority of students enrolled at Florida State College at Jacksonville are pursuing either associate degrees or specific vocational training credentials. The

remainder of the student population is enrolled in one of four academic areas: professional development, high school completion, specialized academic programs, or basic education programs (FCCJ Homepage, 2007).

Study Participants

The aggregate group consisted of 64 currently enrolled students from Florida State College at Jacksonville. Each student participant was required to meet the minimum age limit of 18 years at the time of their participation in the study. Study participants were chosen as part of a convenience sample drawn from each of the four main Florida State College at Jacksonville libraries: Downtown Campus, Kent Campus, South Campus, and North Campus. Each participant completed the Q sort and post Q sort demographic survey during a visit to one of the four campus libraries selected for the study sites. The time to complete the sort and survey varied between 20 and 45 minutes. All of the 64 participants completed the Q-sort and post-Q-sort demographic survey with zero participants abstaining. A demographic thumbnail of the study participants is found in Table 1.

Table 1

Demographic data of 64 study participants.

	Number	Percentage
Information Literacy Assessment Completion		
Yes	8	13
No	56	87
Gender		
Male	39	61
Female	25	39
Age		
20s	6	9.4
30s	28	43.7
40s	13	20.3
50+	6	9.4
No response	4	6.3
Level of Education		
High school diploma	37	57.5
Associate's degree	17	26.5
Bachelor's degree	7	11.0
Master's degree	2	3.0
Doctorate	1	2.0
Library Visits		
Less than one visit per week	7	10.9
1-2 times per week	6	9.4
2-3 times per week	13	20.3
3-4 times per week	15	23.4
4-5 times per week	10	15.7
More than 5 times per week	12	18.7
No response	1	1.6
Total	64	100

The demographic data presented in Table 1 includes the gender of participants, age of participants, level of education attained by the participants, number of weekly library

visits by the participants, and whether or not the participants had completed and information literacy course at the time the study was conducted.

Data Set

Through a combination of relevant literature, interviews, and professional experience, a Q set was created containing 40 statements relating to the five specific community college library information resources under study: the Internet, the reference librarian, books, newspapers, and subscription databases. Each of the statements was printed on a blank business card and assigned a number, 1 through 40. These statements represented a broad spectrum of beliefs, attitudes, and opinions about the resources in question and were used by each of the 64 participants to perform their individual Q sort. The same 40 statements, or Q set, were used for all 64 participants with no changes in their composition.

Sixteen study participants were gathered from each of the four campus libraries under study for a total of 64. After study participants completed an individual Q-sort using the Q set and an enlarged version of the Q sort score sheet recreated on poster board for data gathering, they were asked to leave the sort in place and begin completing the post-Q-sort demographic survey. While the study participant completed the survey, the individual Q sort was reviewed, and the score recorded by hand on a blank Q-sort score sheet. After each student sorter completed the post-Q-sort demographic survey, each score sheet was labeled with a number between 1 and 64. After each participant completed the process, the Q-sort score sheet reflecting the individual sort was then attached to the completed demographic survey, bearing no name, only a number, and placed into the completed score sheet box. The informed consent form bearing the

student's signature was placed into a separate box containing only the completed informed consent forms. This process was followed for each of the 64 study participants.

Correlations

What is a correlation? The most useful definition of a correlation for the purposes of this study is a very precise expression of a linear relationship between two Q sorts; a high correlation indicates similarity between the two sorts, while a low correlation indicates that the sorts have little in common. Correlations are a mathematical articulation of the relationships between all of the Q sorts; a perfect correlation of 1.0 is rare. The collection of all the Q sorts in a study is presented as a table or matrix of correlations, providing the basic mathematical relationships from which factors are extracted (*PCQ Soft User's Guide*, 2001).

Among the 64 student sorts, a total of 50 correlated with at least one other sort at the significance level of .41, set by the PCQ Soft program. Of the sorts, 15 correlated appreciably with only one other sort and 14 sorts did not correlate appreciably with any other sorts. The sort with the highest number of substantial correlations was sort 19 which correlated with 10 other sorts at the .41 level or greater.

Factor Loading

The data from the 64 sorts was entered into the PCQ Soft for Windows program. A principal component analysis extracted nine factors deemed significant by a computer generated significance level of .41. The obvious question associated with this number is what criteria are used to associate a particular sort with a particular factor? In Q methodology the significance level, sometimes referred to as the factor saliency criterion, is the key to answering this question. Generally speaking, the significance level is

usually set by PCQ Soft, equal to or greater than two standard deviations away from the mean. Two standard deviations away from the mean translates into the conventional probability statistic $p < .05$ which refers to 95% of the area under a normal curve. The program generated significance level, then, indicates given a certain number of items, at what magnitude would 95 out of 100 loadings be excluded from the factor, which means the significance level is a statistic that is directly related to the number of items in the Q-sample. In essence, the more items there are in the Q- sample the lower the theoretical significance level, and the fewer items there are in the Q-sample, the higher the theoretical significance level. By raising or lowering the significance level, the researcher raises or lowers the difficulty level of any item becoming associated with any factor. A lower level requires less similarity between the sort and the factor, while a higher level requires more similarity between the sort and the factor (*PCQ User's Guide*, 2001).

For this study, there were 40 items and the significance level generated by the PCQ Soft program was set at .41, which meant that any sort in the study must have a factor loading of at least .41 before it could become associated with a factor. If the significance level set by the PCQ Soft program had been set higher than .41, then more similarity between the individual sort and the factor would have been required.

Factor Analysis

When the PCQ Soft program performs its data analysis function, it calculates the eigenvalue decomposition of a data covariance matrix or singular value decomposition of a data matrix, generally after mean centering the data for each attribute. The results are usually discussed in terms of component scores and factor loadings (*PCQ User's Guide*,

2001). The eigenvalue is the variance in a set of variables explained by a factor or component, (i.e., the sum of the squares of the factor structure coefficients for a given factor), and a scree plot is a graphical display, in descending order of magnitude, of the eigenvalues of a correlation matrix. In the context of factor analysis, the scree plot helps to visualize the relative importance of each factor; a sharp drop in the plot signals the subsequent factors are ignorable. The scree plot in Appendix H, representing the nine factors in this study, clearly illustrates the beginning eigenvalue of 8.28 for Factor 1 and the descending slope, including the statistical line of demarcation of 4.0, to the ending eigenvalue of 1.73 for Factor 9.

In the case of factors 1-9, their relative position on the scree plot indicated a beginning eigenvalue of 8.28 for Factor 1 followed by a moderate decrease to an eigenvalue of 5.19 for Factor 2, and a slight decrease to an eigenvalue of 5.07 for Factor 3. After another moderate dip there was an eigenvalue of 4.06 for Factor 4 and an even smaller descent to an eigenvalue of 4.01 for Factor 5. After another moderate slope to eigenvalues of 3.44 for Factor 6 and 3.12 for Factor 7, there was a significant decline to an eigenvalue of 2.23 for Factor 8 and finally to an eigenvalue of 1.73 for factor 9. Two of the nine factors, Factor 4 and Factor 5, had eigenvalues in the range of 4.0, providing a natural line of demarcation for the remaining factors in the data. Therefore all factors with an eigenvalue of 4.0 or greater were selected for further study, while factors with eigenvalues less than 4.0 were omitted from further study.

Each of the nine factors was accounted for by at least 1 but not more than 13 student sorts. Factors 1, 2, 3, 4, and 5 warranted further study based upon their eigenvalues, all of which were equal to or greater than 4.0, and their location on a scree plot. Another

important determinant was the number of sorters who loaded on each of these five factors. Thirteen student sorters loaded on Factor 1, the highest number to load on a single factor in the study, followed by 5 student sorters who loaded on Factor 2, 6 student sorters who loaded on Factor 3, 7 student sorters who loaded on Factor 4, and, finally, 3 student sorters who loaded on Factor 5. Three or fewer students loaded on the four remaining factors, in combination with an eigenvalue below the scree plot numerical line of demarcation of 4.0. Factors 1 through 5 were rotated using a Varimax rotation, which is a strictly mathematical approach, wherein the variance is distributed across the factor structure in a manner that ensures that each sort will have its highest degree of association with only one factor, all factors being taken into consideration (*PCQ User's Guide*, 2001). PCQ Soft generated z-scores for all of the statements in relation to these five factors as well as composite factor arrays for each.

Once the eigenvalues, z-scores, and composite factor arrays were generated for each of the five factors, it became evident that further analysis of these five factors was required to determine what specific information, if any, could be gleaned from the attitudes and opinions of those student sorters that loaded on each of them. A combination of sort and demographic data was interpreted in an attempt to reveal any patterns of opinion reflected by the composite factor arrays of factors 1, 2, 3, 4, and 5.

Factor 1: Browsers

The first of these five factors, Factor 1: Browsers, accounted for 13 of the 64 student sorters, by far the largest number of respondents to load on a single factor in this study. The Browsers are so named because when given a research question, the members of this

group spent the vast majority of their time browsing on the Internet in search of answers to that research question.

Reflection

During the factor analysis using PCQ Soft, a statistical anomaly occurred with Factor 1 wherein all 13 of the student sorters who loaded on this factor loaded with a negative value. In order to correct this anomaly, it was necessary to perform what is commonly referred to as a *reflection* of this factor.

When a centroid analysis such as the one in this study is performed, the factors are extracted from the correlation matrix via the column sums, which require positive sums, but occasionally a column sum will have a negative value, which indicates that some of the correlations between the sorts are negative, insomuch as that they yield a negative sum. In reality, the concept of positive and negative sums in factor analysis is purely arbitrary, so in the event that a negative column sum occurs during factor extraction, the PCQ Soft program multiplies each correlation in that column and the coordinate row by a sum of − 1 (*PCQ User's Guide*, 2001).

In the case of this study, all of the column sums for Factor 1 were negative so that when they were summed, the table sum was also negative giving the factor an overall negative loading. Reflecting a sort will affect the entire table because it will produce a positive sum for a single column and at the same time change all of the signs across the row, which will in turn change the sums of all columns. All of the columns are summed again, which produces a change in the table sum. The primary objective of the reflection process is to produce the largest positive sum for the entire table with the fewest number of negative correlations, which is referred to as a "positive manifold" (*PCQ User's*

*Guide,*2001*)*. The reflection process must also be performed on the composite factor array of the factor in question. The cumulative effect of the negative loadings on the composite factor array is a complete inversion of the actual meaning and interpretation of the data. As a result, a reversal or reflection of the composite factor array is appropriate before any real interpretation of the data can be undertaken. The factor scores are based on the factor loadings; thus, they will take the direction of the factor. Because factor reflection is usually a simple function of merely reversing the factor loadings by hand, the corresponding calculation of the arrays, the scores given to the statements, will still be based on the original factoring results, meaning they will correspond to the negative direction of the loadings. So, by hand, it is appropriate to reverse the direction, positive and negative, of the factor array scores. The composite factor array below represents a cluster of individual points of view of student sorters that correlate with one another and who loaded on Factor 1, but do not correlate with points of view of other student sorters.

Figure 1. Composite factor array of all sorters who loaded on Factor 1: Browsers

Least like me Neutral Most like me

- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4
30	4	1	12	7	2	10	5	11
39	13	3	15	8	16	19	6	20
	32	14	26	9	23	22	28	
		17	29	18	27	25		
		36	33	21	37	35		
			38	24	40			
				31				
				34				

Factor 1: Browsers Results after Reflection

The Browsers strongly agreed with the notion that the Internet is the quickest and easiest way to do research (statement 11) as well as the practice of beginning all research by first conducting an Internet search (statement 20). At a slightly less intense level of strength, this group of student sorters agreed with the notion that Internet websites with the .edu domain contain trustworthy information (statement 5), and disagreed with the idea that they prefer the information found on the Internet to the information found on subscription databases (statement 6). This group also agreed with the idea that the Internet is as reliable as books or journals when it comes to conducting research (statement 28).

This group of student sorters strongly disagreed with the practice of always beginning a search for information by first checking the newspaper (statement 30) and perceived that it was undesirable to use the subscription database *Academic Search Complete* when conducting research (statement 39). At a slightly less intense level of strength, this group disagreed with the idea that they would not ask the reference librarian for help finding the information they need (statement 4) and disagreed with the notion that they were skeptical about all of the information found on the Internet (statement 13). At this level of strength the group also disagreed with the idea that they were not entirely sure how to use the reference librarian as an information resource (statement 32).

Post Q-sort Demographic Survey Factor 1: Browsers

The average age of the 13 student sorters who loaded on Factor 1 was 23. Nine of the sorters had completed high school while the remaining 4 had attained their associate of arts degree. Seven of the sorters were male and 6 were female. One sorter visited the library less than once per week, 3 sorters visited the library two to three times per week, 4 sorters visited the library three to four times per week, 2 sorters visited the library four to five times per week, 3 sorters visited the library five or more times per week, and a total of 1 student sorter had completed the information literacy course at the time of their participation in the study. In order to ensure the confidentiality of the following comments made by the study participants, all of them were encoded using the following student sorter codes. The gender of a student sorter is represented by either M for male, or F for female; completion of an information literacy course by the student sorter is represented by Y for yes or an N for no; the highest level of education attained by the student sorter at the time of their participation in the study will be represented as follows:

high school is represented by HS, associate in arts degree is represented by AA, a bachelor's degree is represented by BA, and a master's degree or above is represented by MA+; and the average number of library visits per week by the student sorter is represented as follows: < 1 represents less than one library visit per week, 1-2 represents one to two library visits per week, 2-3 represents two to three library visits per week, 3-4 represents three to four library visits per week, 4-5 represents four to five library visits per week, and 5+ represents five or more library visits per week. As an example, [M/Y/AA/5+] would indicate that this student sorter was a male who had completed the information literacy course, had attained an associate in arts degree, and who visited the library more than five times per week. The coded information for each student sorter appears in brackets immediately following the comments attributed to that sorter.

Comments from the Browsers

These comments are a representation of the views expressed by the student sorters who loaded on Factor 1 as to why they placed the two statements directly beneath *most like me* on the forced distribution during their individual Q-sort.

> I have never been a fan of books – everywhere I go seems to have an Internet source – it is much easier for me to choose those sources rather than books. [M/N/AA/3-4]
>
> Every time I have a project or paper, my first source is the Internet because it has more information than books. [F/N/HS/2-3]
>
> The Internet is as reliable as books because the information on the Internet is taken from books. Searching on the Internet is like second nature to me –I can't start a paper without one. [M/N/HS/5+]
>
> Because I use the Internet before I even look at a book. [F/N/HS/3-4]

These comments from the Browsers reveal some of the practical reasons why members of this group have a strong predilection for the Internet when conducting research in community college libraries.

Browsers also explained why they placed the two statements directly beneath *least like me* on the forced distribution during their individual Q-sort.

> I don't really believe what is written in newspapers – and don't really use the subscription database. [F/N/HS/3-4]
>
> I never use a newspaper as a source unless doing my own advertisement – The newspaper never has what I need. [F/N/HS/4-5]
>
> I believe the Internet is the best choice. I don't use books for sources. [M/N/HS/5+]
>
> I am not entirely sure what a subscription database is, and not all the information I pull up on the Internet is accurate or true, so I have to be a little skeptical. [F/N/AA/4-5]

These comments from the Browsers reveal some of the practical reasons why members of this group reject the more traditional information resources, when conducting research in community college libraries.

Summary of Factor 1: Browsers Characteristics

With the exception of one student sorter, the entire group place a very high premium on the use of the Internet when conducting research in community college libraries. Their overarching belief was that the Internet is the quickest and easiest way to do research, and consequently they said they begin each round of research by first conducting an Internet search. This fact was borne out by 12 of the 13 written responses on the post Q sort survey completed by the student sorters who loaded on this factor. Their beliefs as to the value of the Internet extend to the information found therein. They consider such information to be as equally reliable as any information found in books or

journals. Five of the student sorters indicated that the Internet is their first choice above books or journals, and one sorter suggested that only if the use of the Internet as a primary information resource were forbidden in the completion of an assignment, would they then use alternate information resources to complete that assignment. This indicates that in most circumstances, the Internet would play a role in that sorter's search for information.

Factor 2: Proficient

The second of these factors, Factor 2: Proficient, accounted for 5 of the 64 student sorters. The Proficient are so named because when tasked with a research question the members of this group efficiently utilized every available community college information resource to obtain the answer to that question. The composite factor array below represents a cluster of individual points of view expressed by the student sorters that correlate with one another and who loaded on Factor 2, but do not correlate with points of view of other student sorters.

Figure 2. Composite factor array of all sorters who loaded on Factor 2: Proficient

Least like me Neutral Most like me

- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4
4	7	1	13	2	6	9	15	5
31	10	3	14	8	12	20	35	11
	27	17	16	19	18	28	39	
		38	24	22	21	32		
		40	36	25	23	34		
			37	26	33			
				29				
				30				

Factor 2: Proficient Results

This group of student sorters strongly agreed with the idea that Internet websites with the .edu domain contained information that was trustworthy (statement 5), and with the notion that the Internet is the quickest and easiest way to do research (statement 11). At a slightly less intense level of strength, this group also agreed with the idea that they are skeptical about all of the information found on the Internet (statement 15) and agreed with the notion that they prefer the information they find on the Internet over any other available information resource (statement 35). At this strength this group also agreed with the idea that they always use the subscription database *Academic Search Complete* when searching for information (statement 39).

This group strongly disagreed with the idea that they would not ask the reference librarian for help finding the information they need (statement 4), and they disagreed with the notion that books represent an outdated method of information gathering (statement 31). At a slightly less intense level of strength, this group of student sorters disagreed with the idea that subscription databases don't seem to contain the information they are looking for (statement 7) and disagreed with the perception that newspapers are outdated almost as soon as they are printed (statement 10). At this level of strength, this group also disagreed with the perception that because of all the available technology, books are no longer the best source of information (statement 27).

Post Q-sort Demographic Survey Factor 2: Proficient

The average age of the 5 student sorters who loaded on factor 2 was 25. Four of the sorters had completed high school while the remaining 1 had attained their associate of arts degree. Three of the sorters were male while 2 were female. One sorter visited the library less than once per week, 1 sorter visited the library one to two times per week, 1 sorter visited the library three to four times per week and, 2 sorters visited the library four to five times per week. None of the 5 sorters who loaded on Factor 2 had completed an information literacy course at the time of their participation in the study.

Comments from the Proficient

These comments are a representation of the views expressed by the student sorters who loaded on Factor 2 as to why they placed the two statements directly beneath *most like me* on the forced distribution during their individual Q-sort.

> The Internet is convenient, quick and easily accessible to relevant information. Just type a keyword and one is there. PsychInfo [database] was recently introduced to me and its help is endless. I consider it a great tool. [M/N/AA/<1]

> I agree because the Internet resources are updated regularly as well as subscription databases in addition are very reliable. [F/N/HS/4-5]
>
> The Internet is a good fast way to look for certain topics. And it is alot faster than [subscription] databases. [M/N/HS/3-4]
>
> There are other resources to use with books – using the Internet to find information is quicker than looking for it manually. [M/N/HS/1-2]

These comments from the Proficient reveal the varied approach taken by the members of this group when selecting information resources for use when conducting research in community college libraries.

The Proficient also explained why they placed the two statements directly beneath *least like me* on the forced distribution during their individual Q-sort.

> I feel I can look for [information] myself, if I can not find it, they [reference librarians] are here to help. If I am in a hurry [it] is the only time I would ask. [F/N/HS/4-5]
>
> Books are published and edited under great scrutiny. With the level of detail that is involved with each book, I find it easier to trust what it says no matter how much time passes, if the level of involvement in publishing a book remains as strict, it will never be [an] outdated way of conducting research. [M/N (test only)/AA/<1)
>
> [Along] with the Internet, you can use other means of gathering information. Newspaper articles have value long after they're published. [M/N/HS/1-2]
>
> I disagree because there are some Internet sources that [are] not reliable. [M/N/HS/4-5]

These comments from the Proficient reveal the level of scrutiny members of this group subject various information resources to when conducting research in community college libraries.

Summary of Factor 2: Proficient Results

The sorts of the Proficient group suggests that they allow the research task at hand to dictate the manner in which they will conduct their research and that they place a premium on the quick execution of that research for information in community college libraries, regardless of whether it is a traditional or emerging information resource. Their collective perception is that the Internet is the quickest and easiest way to do research, and they prefer the information found on the Internet over any other available information resource. However, they appeared to maintain a healthy skepticism about any information they might find therein. They also said they use the subscription database *Academic Search Complete* when conducting research, which suggests an appreciable level of comfort with technology use in the research process.

At the same time, the sorts from this group suggest that they would indeed ask the reference librarian for help in the research process, particularly when time is an issue, that they do not believe books are an outdated method of information gathering, and they do believe that even with all of the available technologies books are still the best source of information when conducting research. These perceptions combined with their belief that subscription databases contain the information they need and that newspapers are not an outdated method of information gathering, indicate that the Proficient follow a balanced approach, blending both traditional print and emerging technological resources, to conducting research in community college libraries.

Factor 3: Vacillators

The third of these factors, Factor 3: Vacillators, accounted for 6 of the 64 student sorters. The Vacillators are so named because when tasked with a research question, the

members of this group were unsure which community college information resources to use to answer that research question. The composite factor array below represents a cluster of individual points of view expressed by the student sorters that correlate with one another and who loaded on Factor 3, but do not correlate with points of view of other student sorters.

Figure 3. Composite factor array of all sorters who loaded on Factor 3: Vacillators

Least like me Neutral Most like me

- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4
31	14	22	3	1	2	6	5	11
33	37	27	4	12	8	13	16	20
	38	28	7	17	9	15	29	
		36	10	19	18	34		
		39	21	23	24	40		
			25	26	30			
				32				
				35				

Factor 3: Vacillators Results

This group of student sorters strongly agreed with the practice of beginning every search for information in the community college library by first conducting an Internet search (statement 20), and perceived that the Internet is the quickest and easiest way to do research (statement 11). At a slightly less intense level of strength, members of this

group agreed with the idea that websites with the .edu domain contain trustworthy information (statement 5) and shared the opinion that books as an information source require more effort than they are willing to expend (statement 16). Members of this group also perceived newspapers as a reliable source of information (statement 29).

Students in this group strongly disagreed with the notion that books represent an outdated method of information gathering (statement 31) and the idea that the reference librarian is responsible for finding all of the information they require when conducting research (statement 33). At a slightly less intense level of strength, students in this group did not agree with the practice of beginning every search for information by first asking the reference librarian (statement 14), did not agree with the idea that a book would not be their first choice as an information resource (statement 37), and did not agree with the perception that newspapers were not meant to be used as information research tools (statement 38).

Post Q-sort Demographic Survey Factor 3: Vacillators

The average age of the 6 student sorters who loaded on Factor 3 was 26.5. Five of the sorters had completed high school while the remaining 1 had attained their associate of arts degree. Five of the sorters were male while 1 was female. One sorter visited the library less than once per week, 1 sorter visited the library one to two times per week, 2 sorters visited the library two to three times per week, 2 sorters visited the library five or more times per week, and 1 sorter had completed an information literacy course at the time of their participation in the study while the 5 remaining sorters had not.

Comments from the Vacillators

These comments are a representation of the views expressed by the student sorters who loaded on Factor 3 as to why they placed the two statements beneath *most like me* on the forced distribution during their individual Q-sort.

> When I receive a research paper, the Internet is where I get valuable information from. But every time you research on the Internet you always get more information than needed. [M/Y/HS/2-3]
>
> I trust in newspapers. Although sometimes biased, they have update[d] information. The Internet is just an abundance of information – some good and some bogus. [M/N/AA/1-2]
>
> Too many books have been written for them to fall by the wayside. But if technology advances sufficiently, maybe they will disappear. If you can't trust a .edu domain, what can you trust? [M/N/HS/5+]
>
> Well for the newspaper one, I use it as a source of local information. I end up starting on the Internet because I'm around a computer almost all day every day. [M/N/HS/<1]

These comments from the Vacillators reveal the uncertainty experienced by members of this group when attempting to decide which information resources to access when conducting research in community college libraries.

The Vacillators also explained why they placed the two statements directly beneath *least like me* on the forced distribution during their individual Q-sort.

> You cannot replace human interaction with a machine. A computer cannot tell that you [are] confused by looking at your facial expression. Far from it. Too much information is made up, and a method does not exist to verify data without doing actual research yourself. [M/N/HS/5+]
>
> Books are a concrete source of information – information online is a little more liquid. [M/N/AA/1-2]
>
> These days the Internet supplies us with all of the information needed. So sometimes there is no need for books. But books have information

> that will help you. [M/Y/HS/2-3]
>
> A newspaper can contain information on a subject – and I don't expect anyone to absorb all research effort on my behalf. [F/N/HS/5+]

These comments from the Vacillators reveal that while unsure of which resource to utilize, members of this group subject each available information resource to a reasonable level of scrutiny when conducting research in community college libraries.

Summary of Factor 3: Vacillators Characteristics

The manner in which the Vacillator group sorted suggests that they are comfortable using the Internet in general and websites with the .edu domain in particular during the research process. It also reflects attitudes and opinions that indicate a high level of comfort with more traditional research tools such as books. Though books would not be their first choice when conducting research, as they believe that books require more effort than they are willing to expend, at the same time they believe that books are not outdated as an information resource, and newspapers, which are perceived by the group as a reliable information resource, are appropriate to use for research purposes. The group collectively perceived less value in consulting the reference librarian at the beginning of a search for information and at the same time assigned little or no responsibility to the reference librarian with respect to finding the information they are searching for. This conflict between perceptions of valuation and perceptions of utilization creates an inconsistent and somewhat random approach to information resource selection during the research process by the Vacillators as a group.

Factor 4: Bibliophiles

The fourth of these factors, Factor 4: Bibliophiles, accounted for 7 of the 64 student sorters. The Bibliophiles are so named because when tasked with a research question, the members of this group relied most heavily on books to answer that question. The composite factor array below represents a cluster of individual points of view expressed by the student sorters that correlate with one another and who loaded on Factor 4, but do not correlate with points of view of other student sorters.

Figure 4

Composite factor array of all sorters who loaded on Factor 4: Bibliophiles

Least like me Neutral Most like me

- 4	- 3	- 2	- 1	0	+ 1	+ 2	+ 3	+ 4
3	16	6	1	11	7	5	9	2
20	28	17	4	13	8	10	12	34
	36	27	30	19	18	14	15	
		29	32	21	24	23		
		35	33	22	38	26		
			37	25	40			
				31				
				39				

Factor 4: Bibliophiles Results

This group of student sorters strongly agreed with the idea that books will never be replaced as an information resource (statement 2) and perceived that books are the most

reliable source of information (statement 34). At a slightly less intense level of strength, members of this group agreed with the idea that the information contained in subscription databases such as *Academic Search Complete* or *Issues and Controversies* is the most widely accepted (statement 9) and agreed with the notion that they are most comfortable using books as an information resource (statement 12). At this level of strength, members of this group also agreed with the notion that regardless of all the available technologies, books are still the best information resource (statement 15).

Students in this group strongly disagreed with the idea that with all of the information resources available in today's library the reference librarian is no longer necessary (statement 3), and they disagreed with the practice of beginning all of their searches for information by first conducting an Internet search (statement 20). At a slightly less intense level of strength, members of this group disagreed with the idea that using books as an information resource requires more effort than they are willing to expend (statement 16), and they disagreed with the notion that the Internet is as reliable as books or journals when conducting research (statement 28). Participants in this group also disagreed with the idea that the reference librarian generally cannot find the information they need when conducting research (statement 36).

Post Q-sort Demographic Survey Factor 4: Bibliophiles

The average age of the 7 student sorters who loaded on Factor 4 was 31. Six of the sorters had completed high school while the remaining 1 had attained a master's degree. Five of the sorters were male while 2 were female. Two sorters visited the library less than once per week, 2 sorters visited the library two to three times per week, 1 sorter visited the library three to four times a week, 1 sorter visited the library four to five times

a week, and 1 sorter visited the library five or more times per week. None of the sorters had completed an information literacy course at the time of their participation in the study.

Comments from the Bibliophiles

These comments are a representation of the views expressed by the student sorters who loaded on Factor 4 as to why they placed the two statements beneath *most like me* on the forced distribution during their individual Q-sort.

> I grew up and went to school and college before the Internet Age. Dot com sites contain information that has to be checked with more reliable information or other sites. Their perspective may be skewed. [M/N/MA/<1]
>
> When I perform Internet search[es] most of the time it's scams or misinformation. A lot of professors tell you that the searches through FCCJ [databases] are more accurate than the Internet. [F/N/HS/4-5]
>
> Books are my favorite source of information! [M/N/HS/2-3]
>
> Never replace books. [M/N/HS/3-4]
>
> I spend a great deal of time reading my text books for classes and other books for pleasure. The Internet is mostly garbage. [M/N/HS/5+]

These comments from the Bibliophiles reveal some of the underlying reasons why members of this group have a strong predilection for books when conducting research in community college libraries.

The Bibliophiles also explained why they placed the two statements directly beneath l*east like me* on the forced distribution during their individual Q-sort.

> Academic books and journals are often juried and reviewed by peers in their professions. Databases hosted by educational institutions often have a higher standard for trustworthiness compared to other sites, especially .com sites. [M/N/MA/<1]
>
> The Internet is not the quickest way to get information because you have

> to scramble through all of the BS to get what you want. I do not trust anything on the Internet unless it's .gov or .edu. [F/N/HS/4-5]
>
> I avoid technology! [M/N/HS/2-3]
>
> The Internet isn't the primary vessel of my education. [M/N/HS/5+]
>
> Librarians are always helpful and usually will look before they give you information and ask questions to further clarify. They will always be needed. The lack of humans in today's world creates more problems. Humans save time and help with the educational process. [F/N/HS/2-3]

These comments by the Bibliophiles reveal a fundamental distrust of technology on the part of members of this group when conducting research in community college libraries.

Summary of Factor 4: Bibliophiles Characteristics

The Bibliophiles composite factor array suggested that this group places a very high premium on using books as an information resource when conducting research in community college libraries. Their collective opinions reflect a belief that books are the most reliable source of information when conducting research, that books will never be replaced as an information resource, that books are the resource with which they are most comfortable using when conducting research, that using books as an information resource when conducting research does not require more effort than they are willing to expend, and that regardless of all the available technologies in today's community college library, books are still the best information resource to use when conducting research.

At the same time, their opinions reflect a belief that the reference librarian is still very relevant in today's technologically laden academic libraries and that the reference librarian can generally locate all of the information they are seeking when called upon to do so. Additionally, the attitudes and opinions expressed by the participants in this group suggest that they shun the practice of beginning every search for information when

conducting research by first performing an Internet search, and they believe that the information found when conducting an Internet search would not be as reliable as the information found in books or journals.

Factor 5: Traditionalists

The fifth and final factor, Factor 5: Traditionalists, accounted for 3 of the 64 of the student sorters, by far the smallest number of sorters to load on a factor in this study. The Traditionalists are so named because when tasked with a research question, the members of this group relied most heavily on traditional community college library information resources such as the reference librarian, books, and newspapers to answer that question. The composite factor array below represents a cluster of individual points of view of student sorters that correlate with one another and who loaded on Factor 5, but do not correlate with points of view of other student sorters.

Figure 5. Composite factor array of all sorters who loaded on Factor 5: Traditionalists

Least like me Neutral Most like me

-4	-3	-2	-1	0	+1	+2	+3	+4
16	3	8	10	7	5	2	1	29
19	4	11	17	13	6	12	15	37
	31	32	20	21	9	18	34	
		33	22	23	14	28		
		40	24	30	25	39		
			27	35	26			
				36				
				38				

Factor 5: Traditionalists Results

These student sorters strongly agreed with the idea that newspapers are a reliable source of information (statement 29), and they perceived that a book would not be their first choice as an information resource (statement 37). Members of this group also agreed, at a slightly less intense level of strength, with the feeling that they are most comfortable using a newspaper as an information resource (statement 1), with the idea that regardless of all the available technologies books are still the best information resource (statement 15), and with the belief that books are the most reliable source of information (statement 34).

Student sorters within groups strongly disagreed with the idea that using books as an information resource would require more energy than they are willing to expend (statement 16) and with the perception that they are not entirely sure what a subscription database is (statement 19). At a slightly less intense level of strength, members of this group disagreed with the idea that with all of the information resources available in today's library, the reference librarian is no longer necessary (statement 3) and with the notion that they would not ask the reference librarian for help finding the information they need (statement 4). At this level of strength, group members also disagreed with the notion that books represent an outdated method of information gathering (statement 31).

Post Q-sort Demographic Survey Factor 5: Traditionalists

The average age of the 3 sorters who loaded on Factor 5 was 31. Two of the sorters had completed high school while the remaining 1 had attained a master's degree. Two of the sorters were female while 1 was male. One of the sorters visited the library three to four times per week and the remaining 2 sorters visited the library five or more times per

week. One of the sorters had completed an information literacy course at the time of their participation in the study while the remaining 2 had not.

Comments from the Traditionalists

These comments are a representation of the views expressed by the student sorters who loaded on Factor 5 as to why they placed the two statements beneath *most like me* on the forced distribution during their individual Q-sort.

> As an attorney I rely heavily on subscription databases and law books. I utilize the reference librarian as a resource but do my own research. [M/Y/MA+/3-4]
>
> Books will always be what I turn to for the most important information when doing research. [F/N/HS/5+]
>
> Books contain a lot of information but some books are now available online. .Edu is always known to be educational, so I [use] those sites as a general tutor. [F/N/HS/5+]

These comments by the Traditionalists reveal knowledge on the part of members of this group of non-traditional information resources when conducting research in community college libraries.

The Traditionalists also explained why they placed the two statements beneath *least like me* on the forced distribution during their individual Q-sort.

> I would always ask a reference librarian for help because they may know more than I do. All of the information found on the Internet can not be trusted and can be altered. [F/N/HS/5+]
>
> The Internet can always crash and can not be truly depended on at all times. [F/N/HS/5+]
>
> Books and newspapers are not outdated. Learned treatises are some of the best sources of information. Problems are not new, just repackaged. How problems were handled in the past provides wisdom to solve current problems. [M/Y/MA+/3-4]

These comments by the Traditionalists reveal underlying reasons for a strong predilection on the part of members of this group for traditional resources when conducting research in community college libraries.

Summary of Factor 5: Traditionalists Characteristics

These student sorters reported that they found lasting value and academic comfort in the established methods of information gathering such as newspapers, books, and the reference librarian and did not feel the need to advance or change their methods of research. This is clearly indicated by their collective perception that newspapers are a reliable source of information when conducting research and that they would feel most comfortable using them in that capacity. While they did perceive that a book would not be their first choice as an information resource, they did share the attitudes and opinions that regardless of all the available technologies in today's community college libraries, books are still the best and most reliable source of information. They further perceived that books do not require more effort than they are willing to expend and that books do not represent an outdated method of information gathering. These perceptions, combined with the collective attitude that the reference librarian is still relevant in today's technology-laden library and that they perceived a willingness to ask the reference librarian for help when conducting research, suggest a more traditional approach to information gathering in community college libraries.

Description Across Five Factors

A comparison of all five factors that emerged during data analysis (Browsers, Proficient, Vacillators, Bibliophiles, and Traditionalists) revealed both similarities and

differences that warranted further review. The findings of that review are presented in the following section.

The Browsers and the Proficient

While comparing the Browsers and the Proficient in a search for similarities between them, it was determined that three of the statements from the Q-set appeared in the same location in the composite factor arrays of the Browsers and the Proficient indicating similar attitudes and opinions shared by both groups. The Browsers and the Proficient value the speed and ease that the Internet provides when conducting research in community college libraries. Statement 11, "The Internet is the quickest and easiest way to do research," appeared in the composite factor arrays of the Browsers and the Proficient beneath *most like me* on the forced distribution. Both groups also value the content found on Internet websites with the .edu domain when conducting research. Statement 5, "Internet websites with the .edu domain contain information that I would trust," appeared in the composite factor arrays of the Browsers and the Proficient beneath *most like me* on the forced distribution. Both groups also value the use of the reference librarian when conducting research. Statement 4, "I would not ask the librarian for help finding the information I need," appeared in the composite factor arrays of the Browsers and the Proficient beneath *least like me* on the forced distribution.

The Bibliophiles and the Traditionalists

While comparing the Bibliophiles and the Traditionalists in a search for similarities between them, it was determined that four of the statements from the Q-set appeared in the same location in the composite factor arrays of the Bibliophiles and the Traditionalists indicating similar attitudes and opinions shared by both groups.

The Bibliophiles and the Traditionalists value the use of books as an information resource when conducting research. Statement 34, "I believe books are the most reliable source of information," appeared in the composite factor arrays of the Bibliophiles and the Traditionalists beneath *most like me* on the forced distribution. Both groups also share the belief that the reference librarian has value as a component of the research process. Statement 2, "With all of the information resources available in today's library, the reference librarian is no longer necessary," appeared in the composite factor arrays of the Bibliophiles and the Traditionalists beneath *least like me* on the forced distribution. Both groups also share the belief that even with all of the available technologies available in today's community college libraries, books are still the best source of information when conducting research. Statement 27, "With all of the available technologies, books are no longer the best source of information," appeared in the composite factor arrays of the Bibliophiles and Traditionalists beneath *least like me* on the forced distribution. Both groups also share the belief that using books as an information resource when conducting research does not require more energy than they are willing to expend. Statement 16, "Using books as an information resource requires more energy than I am willing to expend," appeared in the composite factor arrays of the Bibliophiles and the Traditionalists beneath *least like me* on the forced distribution.

The Vacillators

Upon comparing the Vacillators to the remaining four factors (Browsers, Bibliophiles, Proficient, and Traditionalists), it was determined that five of the statements from the Q-set appeared in the same location in the composite factor arrays of the

Vacillators, the Browsers, the Proficient, and the Bibliophiles, indicating similar attitudes and opinions shared by the four groups.

The Vacillators, the Browsers, and the Proficient shared the opinion that the Internet is a quick and easy method of finding information when conducting research. Statement 11, "The Internet is the quickest and easiest way to do research," appeared in the composite factor arrays of the Vacillators, the Browsers, and the Proficient beneath *most like me* on the forced distribution. The Vacillators, the Browsers, and the Proficient also shared the opinion that information contained on Internet websites with the .edu domain contained trustworthy information that can be used when conducting research. Statement 5, "Internet websites with the .edu domain contain information that I would trust," appeared in the composite factor arrays of the Vacillators, the Browsers, and the Proficient beneath *most like me* on the forced distribution. The Vacillators and the Browsers also shared the opinion that they would begin a search for information by first performing an Internet search when conducting research. Statement 20, "I begin all of my research by first conducting an Internet search," appeared in the composite factor arrays of the Vacillators and the Browsers beneath *most like me* on the forced distribution. The Vacillators and the Traditionalists shared the opinion that newspapers are a reliable source of information when conducting research. Statement 29, "Newspapers are a reliable source of information," appeared in the composite factor arrays of the Vacillators and the Traditionalists beneath *most like me* on the forced distribution. The Vacillators, the Traditionalists, and the Proficient shared the opinion that books are still a viable information source when conducting research. Statement 31, "Books represent an outdated method of information gathering," appeared in the

composite factor arrays of the Vacillators, the Traditionalists, and the Proficient beneath *least like me* on the forced distribution.

Chapter Summary

Chapter Four began with a description of the student population at Florida State College at Jacksonville and the information literacy course and exam offered by the college. A description of the study participants followed, including whether or not each participant had completed the information literacy course, demographic information provided by each participant, the level of education attained by each participant, and the average number of times each participant visited the library each week. A brief description of the creation of the data set followed, including how many study participants, which campuses were studied and what kind of sample was drawn. What correlations are in relation to this study was discussed next, including how many Q-sorts correlated with one another, which Q-sort had the most correlations with all of the other Q-sorts, and which Q-sorts correlated with no other Q-sorts. A description of the factor loading process followed, including how factor loading is achieved using the PCQ Soft program, how a Q-sort is associated with a particular factor, and the statistical level of significance generated by the PCQ Soft program.

A discussion of factor analysis followed, including the calculation of eigenvalues and their purpose in the analysis process, the emergence of the original nine factors, and the criteria used to determine that five of those factors, the Browsers, the Proficient, the Vacillators, the Bibliophiles and the Traditionalists, warranted further study. A discussion of each of these five factors, including results of the Q-sorts, comments from the student sorters who loaded on each factor, and a summary of the characteristics of

each factor followed. And finally, the last section of Chapter Four was a description across all five of the factors under study. A comparison of all five factors, a comparison of the Browsers to the Proficient, a comparison of the Bibliophiles to the Traditionalists, and a comparison of the Vacillators to all four of the remaining factors close out this chapter.

The results presented in Chapter Four provide answers to the research questions that formed the basis of this study. The next chapter examines in detail the major conclusions of this study and provides recommendations for community college librarians, community college library administrators, community college administrators, and recommendations for future research, ending with a conclusion to the overall document.

CHAPTER FIVE: DISCUSSION AND CONCLUSIONS

The first chapter of this study described the purpose and research questions that provided the framework for this study examining community college library end-users' perceptions as to the value of five specific information resources used in the research process: the Internet, the reference librarian, books, newspapers and subscription databases. An examination of knowledge management, the act of capturing critical knowledge to share within an organization and an important theoretical framework for a study of this nature, presented the connection between skilled knowledge workers, the shifting employment landscape, and the increasing importance of the knowledge workers' hierarchy of skills. The Information Age has seen an increase in jobs requiring complex communication and expert thinking and a decrease in jobs requiring routine cognitive and manual work. In order to compete effectively in today's global economy and not lose their jobs to outsourcing, today's knowledge workers must understand and possess this hierarchy of skills: basic skills, discipline and profession specific skills, technology skills, information problem solving and higher-order thinking skills, and conceptual skills. The stock in trade of today's community college library is information, which falls along the information continuum: data, information, knowledge, and wisdom. Data when organized in a logical manner becomes information. When information is analyzed and processed, it becomes knowledge. A thorough understanding of the role of

the community college library as a link between information and knowledge in the creation of today's knowledge worker is essential.

The purpose of this study was to determine what perceptions community college library end-users held about the value of the various resources they accessed when searching for information and whether the completion of an information literacy course by the end-user in any way informed that valuation process. To accurately measure these perceptions, a Q methodology analytical protocol was employed to determine whether there were any patterns of opinion among and between community college library end-users, with respect to five specific community college library resources that they could access when searching for information: the Internet, the reference librarian, newspapers, books, and subscription databases. A post-Q sort demographic survey of my own design was also employed in order to provide context for the information gleaned through data analysis.

The review of the current literature helped provide background and context to the issue of community college library end-users' perceptions and the relationship of those perceptions to the five community college library resources under study. The second chapter also examined the role of information literacy in today's post secondary educational curriculum, including its emergence as a discipline essential to today's global economy and information worker. An overview of the relationship of information seeking behavior to the customer service paradigm was provided, including the role of academic libraries and the academic library homepage. In Chapter Two I also examined the current methodologies relating to academic library resource management, with special attention given to academic library funding and salaries, as well as the annual

costs to community college libraries of subscription databases and academic journals and non-academic periodicals. An exploration of the educative function of the academic library was provided, specifically its relationship to the curriculum provided in institutions of higher learning and its function as a research and socialization catalyst. An examination of the effect of academic library design on educative function, as well as the role of reference services provided by the academic librarians and their contribution to the educative function was also provided in this chapter.

The third chapter explained the methodology used to conduct the study. Included in this examination were the three research questions providing the underpinning of the study:

1. Are there any patterns of opinion among community college library end-users in regards to the value placed on available resources?
2. Do demographic variables help to inform any patterns of opinion?
3. What value do community college library end-users perceive in the various resources they could access while searching for information?

Also included in this chapter was a detailed description of the design of the study, including the setting, more specifically the four main campus libraries of Florida State College at Jacksonville: North, South, Kent and Downtown. A review of the study participants was provided in this chapter, including the selection process, specifically a convenience sample of 64 participants drawn from each of the four campuses. A detailed description of the design of this study was also provided in this chapter, specifically, an exploratory design utilizing Q methodology as the analytical protocol. A brief overview of Q methodology was also provided.

A detailed description of the data collection method provided specifics as to the structure of the research protocol and how it was utilized at each campus. A discussion of the Q methodology prompt, the Q set (40 relevant statements), the Q score sheet and the Q score sheet instructions was presented in conjunction with the process involved in converting the raw Q sort data, through factor analysis, into the composite factor arrays. A brief overview of the use of the post Q sort demographic survey in the interpretation of the analyzed data was also presented. Also presented in this chapter was an examination of any ethical considerations affiliated with the conduct of this study, specifically the issue of prior approval of the study by the University of North Florida Institutional Review Board, an age of consent for study participation of at least 18 years, informed consent, identity confidentiality, and finally, approval through the Florida State College research review process before I conducted this study on their premises. The issue of researcher bias was also addressed in this chapter, in that I am a professional librarian and with that comes a potential bias when interpreting the results of this study. The limitations and delimitations of the study were provided in Chapter Three, specifically the small number of resources under study (5), and the fact that this is only one study with 64 participants, at one community college in one city in the entire state of Florida, which severely limited the generalizability of the study's results.

The fourth chapter provided a brief description of Florida State College at Jacksonville and the importance to each student of completing the Information Literacy Assessment (ILAS) before receiving their degree. The description of the study participants followed. The meaning and significance of statistical correlations and the method of factor loading and analysis were provided in this chapter as well. An

examination of the five significant factors that emerged and their arrays were used to help interpret their meanings. Specifically, the Browsers' propensity for Internet heavy research, the Proficients' tendency to allow the project at hand to dictate the method of research, the Vacillators' relative indecision with respect to which information resource to utilize, the Bibliophiles' overwhelming preference for book research, and the Traditionalists' leanings toward more established forms of research were presented, along with comments from the sorters in each group and accompanying demographic data for each set of sorters. A description across all five of the significant factors, including any similarities or differences, and a chapter summary ended Chapter Four.

Major Conclusions of the Study

This study examined the perceptions of 64 community college library end-users with respect to the five academic library information resources under study: the Internet, the reference librarian, books, newspapers, and subscription databases. A thorough examination of these perceptions further revealed shared attitudes and opinions among these community college library end-users. The following conclusions are the results of that examination and would be of interest to those whose understanding of the constantly shifting research paradigm in today's community college libraries is essential from a personal or professional standpoint. Additionally, these conclusions speak directly to research question 3 of this study regarding community college library end-users' valuation process with respect to available resources.

Most End-Users Perceive Legitimate Value of the Internet as a Research Tool

The convergence of emerging technologies and an aging population has created what is commonly known as the digital divide among community college library end-users, a

division between those who use digital technology and those who can't or won't use digital technology, in the process creating two wholly distinct yet technologically linked categories of end-users: digital natives and digital immigrants. A digital native is most accurately reflected by today's kindergarten through college students, who are the first generation to grow up immersed in new technologies such as computers, video games, cell phones, and digital music players, which have become integral parts of their lives. Current estimates reveal that in the last 10 years television consumption by 8-to 18-year-olds has increased from an average of 3 hours and 47 minutes per day to 4 hours and 29 minutes per day. Cell phone ownership in this age group has increased from 39% to 66% over the last five years, with this age group spending an average of 33 minutes per day talking on a cell phone. Nearly half (46%) of 8-to 18-year-olds send text messages on a cell phone, sending an average of 118 messages per day. A large percentage (84%) of young people now has Internet access at home compared to just 47% in 1999. On an average day 70% of 8-to 18-year-olds go online spending an average of 2 hours and 17 minutes of recreational computer time compared to 58 minutes in 1999. On a typical day 8-to 18-year-olds spend an average of 1 hour and 13 minutes playing video games on one or more of several platforms including Nintendo DS, Sony PSP, or iPod; and on a typical day 8-to 18-year-olds spend an average of 2 hours and 19 minutes listening to music on the radio, CDs, iPods, computers, and cell phones (Rideout et al., 2010).

A study conducted by the Kaiser Family Foundation in January 2010 (Rideout et al., 2010), found that not only are youth today exposed to multiple streams of media, but that they also multitask among several different media at once, thereby increasing their overall amount of exposure. Specifically, using television, music and audio players,

computers, video games, print media, and movies, 8- to 18-year olds spend on average 7.38 hours each day using various forms of media, but their ability to multitask increases overall exposure to media to 10.45 hours per day, resulting in significant changes in the way in which they think and process information (Kaiser, 2010). A digital immigrant, on the other hand, is anyone else. More specifically, a digital immigrant is anyone who was not born into the digital world but has learned to use and assimilated most of the new technologies. As immigrants learn, they retain their accent or their foot in the past, for example, searching the Internet for information second, rather than first. Consequently, because this language was learned later in life, it is compartmentalized in a different part of the brain, thereby deepening the differences in information processing and learning styles between natives and immigrants (Prensky, 2001). In this study, the data analysis relating to the use of the Internet by community college end-users reflected this technological and pedagogical paradigm.

Specifically, the composite factor array for Factor 1: Browsers clearly illustrated an overwhelming preference by the Browsers for the use of the Internet when conducting research. Statements for the Browsers which were placed directly beneath *most like me* in the composite factor array for this factor indicated that the Browsers perceived high value in the Internet based on their perception that the Internet is the quickest and easiest way to conduct research and that they begin every search for information by first conducting an Internet search. Conversely, composite factor array statements for the Browsers which were placed directly beneath *least like me* in the composite factor array for this factor indicated that the Browsers perceived little value in beginning each search for information by first checking the newspaper or using subscription databases.

Composite factor array statements for Factor 2: Proficient which were placed directly beneath *most like me* in the composite factor array for this factor indicated that the Proficient also perceived high value in the Internet as the quickest and easiest way to conduct research and that websites with the .edu domain contained information deemed trustworthy. Conversely, composite factor array statements for the Proficient which were placed directly beneath *least like me* in the composite factor array for this factor indicated that they would not ask the reference librarian for help, and they perceived a book as an outdated method of information gathering.

Composite factor array statements for Factor 3: Vacillators which were placed directly beneath *most like me* in the composite factor array for this factor indicated that the Vacillators also perceived that the Internet was the quickest and easiest way to conduct research and that they always begin a search for information by first conducting an Internet search. Composite factor array statements for Vacillators that were placed directly beneath *least like me* in the composite factor array for this factor indicated that they perceived that books were an outdated method of information gathering and they expected the librarian to find all of the information they need when conducting research. These primarily positive perceptions about the Internet combined with primarily negative perceptions about traditional research methods held by the Browsers, Proficient, and Vacillators accurately portray these groups as digital natives, most comfortable with and accustomed to current technological use at a fundamental level. However, digital natives are also present in the remaining factors in this study, though in slightly smaller numbers. One of the 3 sorters who loaded on the Traditionalist composite factor array was born in the year 1984; of the 6 sorters who loaded on the Vacillators composite factor array, 1

was born in the year 1988, 1 was born in the year 1989 and 1 was born in the year 1990. The Proficient composite factor array contained 2 sorters who were born in the year 1985, of the 4 total sorters who loaded on this factor. And, finally, the Bibliophiles composite factor array contained 1 sorter who was born in the year 1982, making him the only digital native to load on a factor containing 6 participant sorters.

The composite factor array statements for Factor 4: Bibliophiles which were placed directly beneath *most like me* in the composite factor array for this factor indicated that the Bibliophiles perceived a high value in books as an information resource and in their reliability as a source of information, while at the same time indicating that Bibliophiles perceived genuine value in the Internet as a research tool. The composite factor array indicated at a slightly less intense level of strength that Bibliophiles perceived real value in the information found on websites containing the .edu domain, perceived value in subscription databases, and perceived little value in websites containing the .com domain. The composite array also indicated complete neutrality on the part of the Bibliophiles regarding the perception that the Internet is the quickest and easiest way to conduct research. These perceptions, while not overwhelmingly positive in their view toward the Internet, do indicate at least minimal use and perceived value of the Internet by the Bibliophiles when conducting research in community college libraries.

Similarly, the composite factor array statements for Factor 5: Traditionalists which were placed directly beneath m*ost like me* in the composite factor array for this factor indicated that Traditionalists perceived high value in the reliability and steadfastness of books as an information source. At the same time, and at a slightly less intense level of strength, the composite factor array indicated that Traditionalists considered the

information contained on websites with the .edu domain trustworthy, preferred the information found on the Internet to information found on subscription databases, and viewed that information as reliable as books or journals, viewed subscription databases as valid and reliable, and used the subscription database *Academic Search Premier* when searching for information. These minimally positive perceptions of the Internet held by the Traditionalists indicate perceived value of the Internet by the Traditionalists when conducting research in community college libraries. This lack of highly perceived value of the Internet on the part of the Bibliophiles and Traditionalists suggests these groups are today's digital immigrants and confirms that while the Internet is not their primary choice for conducting research in community college libraries, it is perceived as having real value and is at least one of their research tools of choice. The median age of 26 of participant sorters in this study is also highly indicative of digital natives, which includes anyone born during or after the year 1982. Of the five factors that emerged during factor analysis, the highest number of Digital Natives loaded on the Browsers composite factor array, with 4 of the 13 sorters who loaded on this composite factor array born in the year 1982, and 7 born in the years after 1982. These results support the technological immersion theory of the Digital Natives in as much as the Browsers are so named due primarily to their heavy reliance upon the Internet when conducting research.

The Internet has radically altered the community college library end-user's research landscape over the course of the last decade but has not supplanted more conventional methods of community college library research as once predicted. Consequently, most community college library end users, regardless of predilection for one research tool or another, have successfully incorporated the Internet into their research paradigm and will

likely continue to consider it one of their primary research tools into the foreseeable future.

Most End-Users Still Perceive Value of the Reference Librarian as a Research Tool

Ralph Waldo Emerson was one of the first to suggest that colleges needed to appoint a "professor of books" (Owusu-Ansah, 2004) to support a liberal education. Advancements in library infrastructure and governance, combined with emerging technologies, specifically the Internet, and a generation of digital natives have redefined the role of the librarian, primarily through a minimization of their contribution to curriculum and instruction. However, where once there was a pervasive belief that emerging technologies would supplant librarians and their services entirely, in this study data analysis relating to the use of the reference librarian by community college end-users when conducting research indicated that while these coalescing forces have reduced the perceived value of the reference librarian in the research process, end-users still perceive some value of the reference librarian as a research tool.

The composite factor array for Factor 1: Browsers, the group that relies almost entirely on the Internet when conducting research, illustrated that even they perceive value in using the reference librarian during the research process. Statements for the Browsers that were placed beneath *least like me* in the composite factor array for this factor indicated that the Browsers perceived value in asking the reference librarian for help finding the information they need, get exactly the information they ask for when they ask the reference librarian for help, are entirely sure how to use the reference librarian as an information resource, and perceive that the reference librarian generally can find the information that they need. Conversely, composite factor array statements

for the Browsers which were placed beneath *most like me* in the composite factor array for this factor indicated that the Browsers do not perceive value in beginning every search for information by first asking the reference librarian. And, lastly, composite factor array statements for the Browsers which were placed beneath *neutral* in the composite factor array for this factor indicated that the Browsers were neutral in their perceptions as to whether the information that they found themselves was just as good as the information found by the reference librarian.

Composite factor array statements for Factor 2: Proficient which were placed beneath l*east like me* in the composite factor array for this factor indicated that the Proficient also perceived some value in asking the reference librarian for help finding the information they need, perceived that they get exactly what they ask for when they ask the reference librarian for help finding information, and that the reference librarian can generally find what they are looking for when asked, but the Proficient also did not perceive value in beginning every search for information by first asking the reference librarian. Conversely, composite factor array statements for the Proficient which were placed beneath *most like me* in the composite factor array for this statement indicated that the Proficient perceive that the information they find on their own is just as good as the information found by the reference librarian and that they were not entirely sure how to use the reference librarian as a research tool.

Composite factor array statements for Factor 3: Vacillators which were placed beneath *least like me* in the composite factor array for this factor indicated that the Vacillators perceived value in asking the reference librarian for help finding the information they need, that the reference librarian generally can find the information that

they need, and that they do not believe that the information they find on their own is just as good as the information found by the librarian. At the same time, the Vacillators did not perceive value in beginning every search for information by first asking the reference librarian. Composite factor array statements for the Vacillators which were placed beneath *neutral* in the composite factor array for this factor indicated that the Vacillators were neutral in their perceptions as to whether they get exactly what they want when they ask the reference librarian for information and their perceptions as to whether the information they find on their own is just as good as the information found by the reference librarian.

Composite factor array statements for Factor 4: Bibliophiles which were placed beneath *most like me* in the composite factor array for this statement indicated that Bibliophiles perceived value in beginning every search for information by first asking the reference librarian. Composite factor array statements for this factor which were placed beneath *most like me* in the composite factor array indicated that the Bibliophiles perceived value in asking the reference librarian for help finding the information they need and that when asked for information, the reference librarian found exactly what they asked for; that the reference librarian generally can find the information they need; and that they are entirely sure how to use the reference librarian as an information resource. Composite factor array statements for this factor which were placed beneath *neutral* in the composite factor array indicated that the Bibliophiles were neutral in their perceptions as to whether they information that they found on their own was as good as the information found by the reference librarian.

The composite factor array statements for Factor 5: Traditionalists which were placed beneath *most like me* in the composite factor array for this factor indicated that Traditionalists perceived value in beginning every search for information by first asking the reference librarian. Similarly, composite factor array statements for Traditionalists which were placed beneath *least like me* in the composite factor array for this factor indicated that they perceived value in asking the reference librarian for help finding the information they needed, that when they asked the reference librarian for information they got exactly what they asked for, and that they were entirely sure how to use the reference librarian as an information resource. Composite factor array statements for Traditionalists which were placed beneath *neutral* in the composite factor array indicated that the Traditionalists were neutral in their perceptions as to whether the information that they found on their own was just as good as the information found by the reference librarian and as to whether the reference librarian generally could not find the information that they needed.

The tools used by the reference librarian continue to evolve in tandem with emerging technologies, but the skills necessary to excavate meaning from research questions remain intact and relevant. Consequently, the role of the reference librarian continues to evolve as well. The current moniker *cybrarian* is increasingly used, allowing reference librarians to consistently and successfully apply their knowledge and skills to a constantly shifting research landscape (Johnson, 2010).

Most End-Users Still Perceive Value of Books as a Research Tool

Books are without question the primary brand of libraries. A 2005 report commissioned by the Online Computer Library Center (OCLC) entitled "Perceptions of

Libraries and Information Resources" that surveyed literally thousands of library users found that 70 percent of those surveyed, regardless of age, gender, or geographic location, associated libraries first and foremost with books (Peters, 2009). However, in the last decade print books have lost valuable ground to emerging technologies such as the Internet, video games, computers, iPods, electronic books, and electronic readers such as Amazon's Kindle and the Sony Reader. The supposition has all but vanished that avid readers would never abandon the tactile and aesthetic qualities of printed books such as heft, smell, and design for text presented on electronic devices of varying sizes and methods of presentation. As of 2009, it was estimated that 2.5 million Kindle electronic reading devices have been sold, with another 500,000 expected to sell during Amazon's 2009 Christmas season alone. This is paltry by comparison to Apple, who it is estimated has sold 75 million iPods and iPhone touch devices to date, with an expected 20 million units sold during the same 2009 holiday season. Interestingly, each of those Apple units comes equipped with iPhone OS 2.0 which allows them to run Kindle applications (Peters, 2009). But Kindle, iPods, and iPhones represent only a portion of the media vying for the attention of today's print book readers.

Given the magnitude of the current technological barrage, coupled with the evidence of a decreased consumption of print materials, the fact that participant sorters still perceived value in the use of print books as a research tool ran contrary to current trends. In this study, data analysis relating to the use of print books by community college end-users when conducting research indicated that while today's youth utilize multiple media formats simultaneously in their daily quest for information and entertainment, they still perceive value of the printed book as a viable option when conducting research.

The composite factor array statements for Factor 1: Browsers which were placed beneath *most like me* in the composite factor array indicated that while the Browsers perceived that using books as an information resource required more effort than they were willing to expend, that with all of the available technologies books are not still the best source of information, and that a book would not be their first choice as an information resource, they also perceived that books will never be replaced as an information resource. Composite factor array statements for Browsers which were placed beneath *least like me* in the composite factor array indicated they perceived that they are not most comfortable using a book as an information resource, and they perceived that with all of the available technologies books are no longer the best source of information. Composite factor array statements for the Browsers which were placed beneath *neutral* in the composite factor array indicated that the Browsers were neutral in their perceptions as to whether books represent an outdated method of information gathering and whether they believed that books are the most reliable source of information.

The composite factor array statements for Factor 2: Proficient which were placed beneath *most like me* in the composite factor array indicated that the Proficient perceived that they were most comfortable using books as an information resource, that regardless of all the available technologies books are still the best information resource, and that they believed that books are the most reliable source of information. Composite factor array statements for the Proficient which were placed beneath *least like me* in the composite factor array indicated that the Proficient perceived that using books as an information resource did not require more effort than they were willing to expend, that with all of the available technologies they did not perceive that books are no longer the

best source of information, that books represent an outdated method of information gathering, and they did not perceive that a book would not be their first choice as an information resource. Composite factor array statements for the Proficient which were placed beneath *neutral* in the composite factor array indicated that the Proficient were neutral in their perceptions as to whether books will never be replaced as an information resource.

Composite factor array statements for Factor 3: Vacillators which were placed beneath *most like me* in the composite factor array indicated that the Vacillators perceived that books will never be replaced as an information resource, that regardless of all the available technologies books are still the best information resource, and that books are the most reliable source of information, while at the same time they perceived that using books as an information resource required more effort than they were willing to expend. Composite factor array statements for the Vacillators which were placed beneath *least like me* in the composite factor array indicated that the Vacillators did not perceive that with all of the available technologies books are no longer the best source of information, did not perceive that books represent an outdated method of information gathering, and did not perceive that a book would not be their first choice as an information resource. Composite factor array statements for the Vacillators which were placed beneath *neutral* in the composite factor array indicated that the Vacillators were neutral in their perceptions as to whether they were most comfortable using books as an information resource.

Composite factor array statements for Factor 4: Bibliophiles which were placed beneath *most like me* in the composite factor array indicated that the Bibliophiles

perceived that books will never be replaced as an information resource, that they were most comfortable using books as an information resource, that regardless of all the available technologies books are still the best information resource, and that books are the most reliable source of information. Composite factor array statements for the Bibliophiles which were placed beneath *least like me* in the composite factor array indicated that the Bibliophiles perceived that using books as an information resource did not require more effort than they were willing to expend, with all the available technologies they did not perceive that books are no longer the best source of information, and they did not perceive that a book would not be their first choice as an information resource. Composite factor array statements for the Bibliophiles which were placed beneath *neutral* in the composite factor array indicated that the Bibliophiles were neutral in their perceptions as to whether books represent an outdated method of information gathering.

Composite factor array statements for Factor 5: Traditionalists which were placed beneath *most like me* in the composite factor array indicated that the Traditionalists perceived that books will never be replaced as an information resource, that they were most comfortable using books as an information resource, that regardless of all the available technologies books are still the best information resource, that books are the most reliable source of information, while at the same time they perceived that a book would not be their first choice as an information resource. Composite factor array statements for the Traditionalists which were placed beneath *least like me* in the composite factor array indicated that the Traditionalists perceived that using books as an information resource did not require more effort than they were willing to expend, that

with all of the available technologies they did not perceive that books are no longer the best source of information, and they did not perceive that books represent an outdated method of information gathering.

As a research tool the format of books is constantly evolving, as evidenced by the increasing prevalence of electronic book collections, virtual books accessible only online, in community college libraries. But the absence of the tactile quality of books has not significantly diminished their perceived value to community college end-users. Books appear to maintain a consistently strong position in the community college end-user's research arsenal.

Most End-Users Perceive Limited Value of Newspapers as a Research Tool

As a research tool, the hierarchal position that newspapers traditionally held in academic libraries has been one of limited value, and that status remains essentially unchanged despite recent economic downturns for print newspapers combined with competition from emerging electronic media. Publishing the news once was required vast buildings, huge presses, and great wealth, but one now need only own a personal computer and know how to create an Internet web log (blog), making the cost of news production almost negligible. As a result, by the end of June 2009, 105 print newspapers, including stalwarts like *The Rocky Mountain News, Seattle Post-Intelligencer,* and the *San Francisco Chronicle* have either shut down production completely or converted to a wholly online version. At the same time, industry giants such as the *New York Times, Boston Globe, Chicago Tribune,* and the *Los Angeles Times* are facing life-threatening financial crises of their own (Miller, 2009). These economic hardships stem primarily from their belief that there is still merit in publishing the news 24 hours after it has

happened (Grensing-Pophal, 2009), while a 24-hour multimedia news cycle provides constant coverage of happenings both local and international.

While all of these factors taken together would seem to spell the end of traditional media such as print newspapers, this is in fact not the case. Mainstream journalists are in fact citing blogs with increasing regularity, an increase of 45% between 2007 and 2008 alone, but mainstream media journalists still cite other mainstream media more heavily than blogs. As an example, the Huffington Post blog, probably the most heavily cited blog on the Internet, is still cited less frequently than most regional print newspapers. And while the Internet may seem pervasive and constantly expanding, most consumers still get the lion's share of their news and information from local print newspapers and broadcast television stations (Miller, 2009). Much of the print newspaper's consumer loyalty is generated by the uniquely exploitable resources print newspapers possess such as professional quality news reporting and writing (Gensing-Pophal, 2009). Study participants surveyed supported this notion in that, while print newspapers are not perceived as a highly valuable research tool, they are also not perceived as having no value at all.

Composite factor array statements for Factor 1: Browsers which were placed beneath *most like me* in the composite factor array indicated that the Browsers perceived that newspapers are outdated almost as soon as they are printed, that a newspaper would not be their first choice as an information resource, and that a newspaper is only valuable as an information resource when researching local matters. Factor array statements for the Browsers which were placed beneath *least like me* in the composite factor array indicated that the Browsers perceived that they were not most comfortable using a newspaper as an

information resource, that newspapers are not a reliable source of information, that they do not always begin their search for information by first checking the newspaper, and at the same time perceive that newspapers are meant to be used as information research tools. Factor array statements for the Browsers which were placed beneath *neutral* in the composite factor array indicated that the Browsers were neutral in their perceptions as to whether most newspapers contained too little information on the topics they were researching.

Factor array statements for Factor 2: Proficient which were placed beneath *least like me* in the composite factor array indicated that the Proficient perceived that they were not most comfortable using a newspaper as an information resource, and at the same time that newspapers are not outdated almost as soon as they are printed, that most newspapers did not contain too little information on the topics they were researching, and that newspapers were in fact meant to be used as information research tools. Factor array statements for the Proficient which were placed beneath *neutral* in the composite factor array indicated that the Proficient were neutral in their perceptions as to whether a newspaper would be their first choice as an information resource, whether a newspaper is only valuable as an information resource when researching local matters, whether newspapers are reliable sources of information, and whether they always begin their search for information by first checking the newspaper.

Factor array statements for Factor 3: Vacillators which were placed beneath *most like me* in the composite factor array indicated that the Vacillators perceived that most newspapers contained too little information on the topics they were researching, and at the same time perceived that newspapers were a reliable source of information and that

they always began their search for information by first checking the newspaper. Factor array statements for the Vacillators which were placed beneath *least like me* in the composite factor array indicated that the Vacillators perceived that newspapers are outdated almost as soon as they are printed, that a newspaper would not be their first choice as an information resource, and at the same time perceived that a newspaper is not just valuable as an information resource when researching local matters, and that newspapers are in fact meant to be used as information research tools. Factor array statements for the Vacillators which were placed beneath *neutral* in the composite factor array indicated that the Vacillators were neutral in their perceptions as to whether they were comfortable using a newspaper as an information resource.

Factor array statements for Factor 4: Bibliophiles, the only group in the study to perceive no real value of newspapers as a research tool, which were placed beneath *most like me* in the composite factor array indicated that the Bibliophiles perceived that newspapers are outdated almost as soon as they are printed, that most newspapers contained too little information on the topics they were researching, and that newspapers were not meant to be used as an information research tool. Factor array statements for the Bibliophiles which were placed beneath *least like me* in the composite factor array indicated that the Bibliophiles perceived that they were not most comfortable using a newspaper as an information resource, that newspapers were not a reliable source of information, and that they did not always begin their search for information by first checking the newspaper. Factor array statements for the Bibliophiles which were placed beneath *neutral* in the composite factor array indicated that the Bibliophiles were neutral in their perceptions as to whether a newspaper would be their first choice as an

information resource and whether a newspaper is only valuable as an information resource when researching local matters.

Factor array statements for Factor 5: Traditionalists which were placed beneath *most like me* in the composite factor array indicated that the Traditionalists perceived that they were most comfortable using a newspaper as an information resource, that a newspaper was only valuable as an information resource when they were researching local matters, and that newspapers were a reliable source of information. Factor array statements for the Traditionalists which were placed beneath *least like me* in the composite factor array indicated that the Traditionalists perceived that newspapers are not outdated almost as soon as they are printed, that a newspaper would be their first choice as an information resource, and that most newspapers did not contain too little information on the topics they were researching. Factor array statements for the Traditionalists which were placed beneath *neutral* in the composite factor array indicated that the Traditionalists were neutral in their perceptions as to whether they always began their search for information by first checking the newspapers and whether newspapers were not meant to be used as information research tools.

In the hierarchy of research tools utilized by community college end-users, newspapers have never held a prominent position, and the onset of the information age has diminished their perceived value even further. Perceived by end-users as valuable primarily for researching local matters, and seen as possessing a brief shelf life with respect to information, the ease with which end-users may access the Internet and other technology-based research tools has exacerbated the perceived problems while positioning newspapers even lower in the hierarchy of available research tools.

Most End-Users Unsure as to the Value of Subscription Databases as Research Tool

Generally preferred by college professors because of the reliability and breadth of the information they provide, subscription databases have yet to gain a firm foothold in the community college library end-user's research process. The primary reason for this dearth of database research by community college end-users appears to be apathy, and it seems to be an apathy motivated primarily by the existence of another research tool, specifically the very powerful and easily accessible Internet browser known as Google. While subscription databases have proliferated considerably over the last decade, providing multiple access points at the majority of post-secondary institutions, the major obstacle to their routine inclusion in the end-user's research process is logistical in nature. Specifically, the problem is twofold: First, subscription databases require a very specific set of research skills to effectively navigate the multitude of entry boxes, drop down menus, and check boxes in order to maximize their efficacy as a research tool, and second, most, if not all, of the operational knowledge gained in the use of one subscription database does not necessarily carry over to the use of a different subscription database they may access while conducting research in the community college library, forcing end-users to start over operationally with each new database they access. Simultaneously, the end-user's strong operational knowledge of the Internet browser Google as a research tool tends to negate any desire on the part of the end-user to master the more complex machinations of subscription databases, regardless of the questionable value of the information found in cyberspace (Newton & Silber, 2007). The results of this study support this trend in under use of subscription databases by community college end-users in the research process.

Factor array statements for Factor 1: Browsers which were placed beneath *most like me* in the composite factor array indicated that the Browsers perceived that they would prefer the information they find on the Internet to the information they find on subscription databases, that they were not entirely sure what a subscription database is, and that subscription databases were too difficult and time-consuming to use as an information resource. Factor array statements for the Browsers which were placed beneath *least like me* in the composite factor array indicated that the Browsers did not always use the subscription database *Academic Search Premier* when looking for information. Factor array statements for the Browsers which were placed beneath *Neutral* in the composite factor array indicated that the Browsers were neutral in their perceptions as to whether subscription databases did not seem to contain the information they were looking for, whether they would not know where to find a subscription database, whether the information contained on the *Academic Search Premier* and *Issues and Controversies* subscription databases was the most widely accepted, and as to whether subscription databases were a reliable and valid source of information.

Factor array statements for Factor 2: Proficient which were placed beneath *most like me* in the composite factor array indicated that they perceived that they preferred the information they found on the Internet to the information they found on subscription databases, but they also perceived that the information contained on the *Academic Search Premier* and *Issues and Controversies* databases was the most widely accepted, that subscription databases were a reliable and valid source of information, and that they always used the subscription database *Academic Search Premier* when searching for information. Factor array statements for the Proficient which were placed beneath *least*

like me in the composite factor array indicated that they perceived that subscription databases did seem to contain the information they were looking for and that subscription databases were not too difficult and time consuming to use as an information resource. Factor array statements for the Proficient which were placed beneath *neutral* in the composite factor array indicated that they were neutral in their perceptions as to whether they would not know where to find a subscription database and whether they were not sure what a subscription database was.

Factor array statements for Factor 3: Vacillators which were placed beneath *most like me* in the composite factor array indicated that they preferred the information they found on the Internet to the information they found on subscription databases, that they would not know where to find a subscription database, that the information contained on the subscription databases *Academic Search Premier* and *Issues and Controversies* was the most widely accepted, that subscription databases were a reliable and valid source of information, and that subscription databases are too difficult and time-consuming to use as an information resource. Factor array statements for the Vacillators which were placed beneath *least like me* in the composite factor array indicated that they perceived that subscription databases did seem to contain the information they were looking for, but that they did not always use the subscription database *Academic Search Premier* when they were searching for information. Factor array statements for the Vacillators which were placed beneath *neutral* in the composite factor array indicated that they were neutral in their perceptions as to whether they were not sure what a subscription database was.

Factor array statements for Factor 4: Bibliophiles which were placed beneath *most like me* in the composite factor array indicated that they perceived that subscription

databases didn't seem to contain the information they were looking for, that they would not know where to find a subscription database, that the information contained on the *Academic Search Premier* and *Issues and Controversies* databases was the most widely accepted, that subscription databases were a reliable and valid source of information, and that subscription databases were too difficult and time-consuming to use as an information resource. Factor array statements for the Bibliophiles which were placed beneath *least like me* in the composite factor array indicated that they did not prefer the information they found on the Internet to the information they found on subscription databases. Factor array statements for the Bibliophiles which were placed beneath *neutral* in the composite factor array indicated they were neutral in their perceptions as to whether they were not sure what a subscription database was and whether they always used the subscription database *Academic Search Premier* when searching for information.

Factor array statements for Factor 5: Traditionalists which were placed beneath *most like me* in the composite factor array indicated that they perceived that they preferred the information they found on the Internet to the information they found on subscription databases, that the information contained on the *Academic Search Premier* and *Issues and Controversies* databases was the most widely accepted, that subscription databases were a reliable and valid source of information, and that they always used the subscription database *Academic Search Premier* when searching for information. Factor array statements for the Traditionalists which were placed beneath *least like me* in the composite factor array indicated that they perceived that they would know where to find a subscription database, that they were sure what a subscription database was, and that subscription databases were not too difficult and time-consuming to use as an information

resource. Factor array statements for the Traditionalists which were placed beneath *neutral* in the composite factor array indicated they were neutral in their perceptions as to whether subscription databases didn't seem to contain the information they were looking for.

Florida State College at Jacksonville currently offers the use of over 100 subscription databases to its students when conducting research, but a lack of knowledge of their existence on the part of the end-user, perceived difficulties by the end-user in locating them, and an uncertainty as to their content on the part of the end-user severely restrict the routine use of subscription databases in the research process. Consequently, the perceived value of subscription databases by end-users will remain limited until such time that these difficulties can be effectively surmounted. The major conclusions of this study effectively lend themselves to recommendations for a specific coterie of academic personnel. Those recommendations and a description of the personnel follow.

Recommendations

The findings and conclusions of this study resulted in recommendations which can be effectively utilized by three specific groups whose clear understanding of the perceptions of community college library end-users with respect to the Internet, reference librarians, books, newspapers and subscription databases would be of direct benefit to them, as well as specific recommendations for future research in the area of community college libraries. The first and most important of these groups is reference librarians, charged with providing technological, bibliographic, and reference services to the community college library end-user. The second group is the community college library administration, whose primary responsibility it is to allocate funding of technological,

traditional library, and human resources. The third group is the college administration tasked with clearly defining the fiscal and philosophical role of the community college library within their institutional hierarchy.

Recommendations for Reference Librarians

Reference librarians represent the front-line workers of the Information Age in community college libraries, and, as such, they require the most current data available relating to the demographic they serve in order to provide meaningful and relevant assistance to the end-user. The results of this study provide reference librarians with baseline data in the form of attitudes and opinions of today's community college library end-users, relating to five of the primary tools they utilize when conducting research, specifically the Internet, books, newspapers, subscription databases, and reference librarians. This baseline data is important to reference librarians on three levels: professional development, marketing community college library services and technologies, and consistent monitoring of community college library end-users' changing needs through annual services and technologies surveys.

First and foremost, community college reference librarians must always keep abreast of professional developments within their field, and now that field increasingly requires a constantly updated technological skills set. The participants of this study who clustered primarily into five of the factors that emerged after factor analysis clearly indicated that most community college library end-users value the Internet as a research tool. Librarians who entered the field prior to 1995, which is the year largely credited with the inception of the Internet, were taught a curriculum that became almost instantaneously obsolete on that date. With the exception of courses relating to the reference interview

process, which is a highly transferable skill regardless of technology, the bulk of the curriculum at most schools of library and information studies required retooling for the onslaught of integrated technology.

The new term *cybrarian* which has recently emerged in the professional library literature is a direct response to the reference librarian's new responsibilities with respect to the seamless blending of the Internet into the conventional reference interview process (Johnson, 2010). Florida State College at Jacksonville currently requires all of its reference librarians to teach an Internet-based information literacy course each semester, requiring a skill which most traditional librarians do not possess. The results of this study, specifically the perceptions of the Browsers, indicate an increasing need for more advanced and rigorous technological training for reference librarians if they are to remain relevant and useful to the end-users they serve.

Second, the marketing of community college library services and technologies must be prioritized and improved. A recurring perception among community college library end-users in this study was a consistent lack of knowledge as to the existence, purpose, and location of subscription databases. Florida State College at Jacksonville has offered subscription databases, currently totaling more than 100, through the college's library homepage to its students for over a decade, yet users in all five groups were largely unaware of this fact. Another consistent perception among study participants was the limited value of newspapers as an effective research tool. Community college libraries now offer Internet access to newspapers from around the world including stalwarts like the *New York Times, Washington Post,* and the *London Times* in the event that local newspapers do not meet the end-user's research need and they wish to utilize other

newspaper publications. Additionally, perceptions among study participants indicated a consistent lack of knowledge as to the use and purpose of the reference librarian, with some study participants suggesting that if they approached the reference librarian with a research question that they were somehow disrupting their real work.

Each of these misconceptions represents a failure on the part of community college libraries to effectively market their available services and technologies to the student bodies they serve. As the community college library model continues to redefine itself, through emerging technologies, shrinking budgets, and changes to educational requirements for entrance to the field of librarianship, so too should the methods used to market community college libraries to the faculty, staff, and student body of the institutions they serve. Marketing through current social networking sites such as Facebook and MySpace and instant messaging technologies such as Twitter and Tweet would effectively reach the college age demographic that make up the bulk of the college library's clientele. The decades old approach of waiting for students to initiate contact will lead today's community college libraries and librarians farther down the road to obsolescence. But aggressive marketing on the part of the community college library reference librarians could turn the tide of public opinion, and the baseline data from this study provides the basic framework of very specific deficiencies from which to begin.

Third, constant and close supervision of the changing needs of the community college library end-user through an annual survey would help ensure the continued relevance of the community college library in the research process of the end-user. Annual surveys that measure end-users' perceptions with respect to services and technologies offered and that are administered by the community college library

administration would provide consistent and accurate needs assessment data, which could increase responsiveness to end-users' needs, provide the basis for more needs specific professional development on the part of the reference librarians, and provide more accurate marketing data for the community college library administration.

And finally, in the event that a college makes the transition from a 2-year institution to a 4-year institution, it is the responsibility of the reference librarian to ensure that library services, courses, and technologies offered appropriately reflect the modified mission, and curriculum of the new institution. In this capacity fact finding missions to the libraries of other 4-year institutions would provide reference librarians with the infrastructural template needed to transition to the new paradigm. This is turn would ensure that any students attending the former 2-year institution would experience a seamless transition, with respect to library services and technologies, to any 4-year institution they may transfer to in the future. Additionally, it is the responsibility of the reference librarian to ensure that any information literacy courses offered by their institutions contain the most current curriculum. This requires the inclusion in the curriculum of all current and emerging technologies relating to libraries, the Internet, books, and electronic entertainment devices. These components must be integral to the curriculum, assessments, and expected outcomes of any information literacy courses offered.

Recommendations for Community College Library Administrators

Community college library administrators are responsible for articulating a shared vision and common goals, from a fiscal, technological and human resources standpoint, and then motivating those around them to achieve those goals and move the community

college library forward, while at the same time ensuring that it remains relevant. End-user perceptions are the foundation upon which those common goals are built. The perceptions expressed by the participants in this study provide a current snapshot of the attitudes and opinions of today's community college library end-user and an infrastructure road map for community college library administrators to follow, on many different levels. Specifically, knowledge of end-user perceptions about technological, conventional, and emerging library services aid library administrators in their efforts to provide a full compliment of library services those end-users consider valuable and discontinue any services end-users determine to be of little or no value.

As the emergence of community college library technologies has begun to accelerate, so too have their portion of library budgets increased exponentially. The results of this study indicate that a majority of community college library end-users prefer to use the Internet when conducting research, and that, regardless of preferred method of research, the Internet is utilized by almost all end-users to a greater or lesser extent. As such, it is reasonable to assume that technologies have begun to play an increasingly important role in the end-user's research process and will continue to do so into the foreseeable future. The data from this study provide community college library administrators with the evidence necessary to warrant increased technology budgets to effectively meet end-users' needs.

At the opposite end of the spectrum, study participants also indicated an enduring preference for using books in the research process. While this group, most accurately represented by the Bibliophiles, did not represent a majority of end-users, they did in fact represent a reasonably sized contingent in relation to the size of the study, in which

participants who clustered on all five factors found some value in books as a research tool. Current thought in librarianship places books at a far lower level of preference as a research tool among end-users, but the results of this study indicate that, while small, the group preferring books prefers them completely. These results, while surprising, are valuable and provide community college library administrators the necessary rationale for increased rather than decreased book budgets at a time when this practice is not considered progressive.

While extremes do exist within this study, there are also recurring perceptions by end-users who prefer more traditional library services. These participants represent end-users who utilize a blend of current technologies such as the Internet and subscription databases with more traditional library services such as the reference librarian, books, and newspapers when conducting research. Community college library administrators, in an attempt to update facilities and services, sometimes give short shrift to services that range across the spectrum, in an attempt to focus on only one extreme or the other. The results of this study will support administrators who attempt a more balanced approach to provision of emerging technologies and services, as well as more traditional services.

Community college library administrators are also responsible for both short-term, generally 5 years, and long-term, generally 10 years, planning. Historically, community college libraries have hung their fiscal hat on end-user usage statistics, a basic break-down of how many books have circulated in a particular time period, how many reference questions were asked of the reference librarians over a period of time, or how many end-users accessed a particular library-based website or database during a specific time period. These usage patterns effectively answer questions such as what resources

were used and how much they were used, which are routinely posed by community college library administrators when they are constructing short and long-term plans. They do not, however, answer the most important question which is why the resources are used. Usage statistics provide only basic information because they are recorded after the resource or service is provided by the community college library, then utilized by the end-user, making it nearly impossible to spot emerging trends in user preference. Answering the question of why a particular resource or service is utilized by the end-user is more likely to aid in answering the tangential question of what the end-user will utilize next, which is a hallmark of trend analysis. The information provided by the study participants on the post Q sort demographic survey as to why a particular statement was either most or least like them advances the knowledge of community college library administrators attempting to answer the question of why and provides them the opportunity to more precisely identify emerging usage trends and more effectively allocate technological, fiscal, and human resources.

Recommendations for College Administrators

Over the course of the last decade, defining the role of the community college library in the mission of the college as a whole has become increasingly murkier. Traditionally, the community college library's primary directive has been curricular support coupled with the provision of reference services. With the inception and prevalence of the Internet, the availability of electronic books, the proliferation of chain universities, and the emergence of an instant gratification approach to higher education, college administrators gradually began to acknowledge the need for an updated and more clearly defined role for the library in their institutions. Hard copy books, once a staple of student

research, are slowly being replaced by electronic book collections, the Internet is now one of the primary research tools utilized by community college library end-users, and the traditional library model is giving way to the library learning commons model in colleges across the country. The library learning commons model, as the name implies, is a commons area generally housed in the library wherein students may obtain assistance with information and research needs. This model combines individual and group study space, reference librarians, and information technology staff that provide reference services and instruction in a variety of areas, such as research, technology use, and reading or writing. The assumption is that an integrated learning environment will increase student success and reduce student stress (Sinclair, 2009).

The perceptions of the participants in this study indicate a preference for library models across the entire spectrum. The Browsers and Proficient indicate a proclivity for a learning environment closer in philosophy and delivery of service to the library learning commons model, technology laden and cutting edge, while the Bibliophiles and Traditionalists gravitate more toward the older more traditional libraries of the last century. If these perceptions are an accurate representation of the current, somewhat schizophrenic state of the modern day community college library in the midst of a complete transfiguration, they may be helpful to college administrators attempting to clearly define the current and future role of the library in their institutions of higher learning. Additionally, because the results of this study provide a jumping off point with respect to community college library end-user perceptions, college administrators could use these baseline data to help more accurately tailor the services offered by their libraries to the needs of their faculty, staff, and student body.

Recommendations for Future Research

The sample size of this study was 64 participants, which is appropriate for a Q methodology study attempting to examine the attitudes and opinions of community college library end-users. If a future study of this nature is to gain a more thorough insight into these perceptions, and increase generalizability of results, a similar sample size is appropriate, but more studies utilizing different methods, for example a survey study utilizing Likert scales, must be conducted in order to increase the likelihood that the sample more closely resembles the general population.

Any future studies involving community college library resources must include electronic books, as this emerging technology is becoming increasingly prevalent as a research tool for the community college library end-user. Additionally, the number of community college library resources examined in this study totaled five, a relatively small number considering the number of available resources, so any future research conducted in this area should include a significantly larger number of resources in order to more accurately reflect today's community college library technologies and services.

With respect to location, this study was conducted on the four main campuses of one community college located in one city. To broaden the spectrum of perceptions more effectively, a future study of this sort should be conducted at several post-secondary institutions located in different cities, possibly even different states. An interesting ancillary component of future research could include a comparison of the perceptions of community college library end-users to the perceptions of university library end-users, to determine if the type of post-secondary institution attended by study participants has any effect on perceptions. The inclusion of completion of an information literacy course as a

variable in this study had no measurable effect on participants' attitudes and opinions about community college library resources, but that variable should be included in any future research as a larger sample size would provide more opportunity to evaluate its influence more accurately. Any future research in this area should be conducted using Q methodology as the primary research tool, as it is superior to similar tools meant for the same purpose such as Likert scales or surveys. With a relatively small sample, Q methodology produced remarkable insight into the attitudes, perceptions, and opinions of the community college library end-users that would not have been achieved with a simple Likert survey. The value of weighing the attitudes and opinions of the end-users against their own beliefs, and against the beliefs of others, through the Q methodology forced distribution, provided invaluable insight.

Future research in this area should also include technological developments outside the realm of the community college library. Since 2008 when this study was conducted, the Kindle reader provided by Amazon has begun a revolution in the way average people access and read books, newspapers, and periodicals. Ownership of a single Kindle device provides its owner access to 1,500 books, newspapers, and periodicals virtually anywhere in the world that provides wireless capabilities. Any future research into the community college library end-user's valuation process regarding books must include the Kindle or similar devices such as the Nook from Barnes and Noble or the Sony Reader as a resource option in order to accurately assess attitudes and opinions relating to books. This is also true of technologies relating to the Internet such as iPad or iPhone, which provide Internet portability to the user. If future research is undertaken to measure the attitudes and opinions of community college library end-users with respect to their

valuation process regarding the Internet, these hand-held devices must be included, as their portability and convenience will most certainly influence end-users' perceptions about the Internet as a resource. Additionally, any future research into reference librarian services must include virtual reference services such as AskALibrarian, which provides both real-time and e-mail reference services to all users via the Internet. Community college library end-users' ability to remotely access reference librarians via the Internet will have an impact on their valuation process and should be a component of any future research conducted in this area.

Conclusion

The results of this study provide insight into how community college library end-users perceive the value of using the Internet, the reference librarian, books, newspapers, and subscription databases when conducting research. These perceptions clearly indicate that end-users perceive varying degrees of value in all five of the research tools, with only the Internet receiving a clear consensus. The approach to and combination of resource use distinguished from one another the groups of end-users who clustered on each of the five factors. The largest segment of community college library end-users relies most heavily on the Internet as a research tool when conducting research; one segment of community college library end-users utilizes all of the available information resources equally and with great efficiency when conducting research; one segment of community college end-users is unable to effectively align an available resource with an information need when conducting research; one segment of community college library end-users, finding value in all available resources, places the greatest value on books as an information resource when conducting research; and one segment of community

college library end-users places the highest value on a combination of traditional information resources when conducting research.

The community college library end-users in this study represent a broad spectrum of valuation processes used to determine which information resource best suits their research needs and clearly indicates that currently end-users do not perceive value in only one community college research tool to the exclusion of all others. End-users who perceived high value in one research tool generally perceived some value in all of the other tools under study, though at a slightly less intense level of strength. With few exceptions, today's community college library end-users perceive value in most of the research tools at their disposal and parcel out research needs among them as required.

These results run contrary to my personal beliefs at the commencement of this study. My primary motivation for choosing this topic of research, beyond my vocation as a professional librarian, was my belief that the role of the reference librarian in community college libraries was not only diminishing, but vanishing. The inception of the Internet, emerging library technologies such as electronic books and the AskALibrarian virtual reference service, combined with diminishing educational requirements for entering the field of professional librarianship, had convinced me that my vocation was becoming obsolete. The results of this study proved me wrong, however, in that each of the groups of end-users who clustered on the five factors found some level of value in the reference librarian when conducting research. It appears that the primary skill of the reference librarian, the reference interview, has successfully transitioned into the twenty first century technology-laden community college library and preserves the value of the reference librarian in the research process.

Accompanying my belief that librarianship was no longer a valued component of the research process was a persistent belief on my part that books were no longer an integral part of the community college library end-users' research process either. Because books are the brand of libraries and the fates of librarians are inextricably linked to the fate of print books, I believed this one-two punch of devaluation spelled the end of my career. Again, the research suggested otherwise, as all of the groups of participants who clustered on the five factors placed some value on books when conducting research. While the group that placed the highest value on books when conducting research did not constitute a majority, they were vehement in their commitment to books as an important part of the research process, and it is this vehemence that surprised and encouraged me. My belief that my chosen profession and print books were facing imminent obsolescence was disproved by my own research, and the experience was very encouraging.

Community college libraries of the future must become adept at rapid change and receptive to innovative and sometimes non-traditional ideas of librarianship if they are to remain relevant to the research process. Although print books and reference librarians remain valued foundational components of the community college library end-users' research process, electronic books, electronic readers such as Kindle and Nook, and virtual librarian services such as AskALibrarian live chat and e-mail are rapidly becoming a reasonable expectation of end-users. If community college libraries are to survive and flourish in the foreseeable future, library staff and administrators must successfully articulate a vision for the community college library that encompasses both traditional and non-traditional resources and assume a more proactive leadership role in closely monitoring end-users' needs and expectations. They must also show a

willingness to continually redefine that vision, utilizing constant technological innovation combined with the reasonable expectations of today's end-user, thereby creating a perpetually shifting but consistently relevant community college library paradigm.

Appendix A

Q Methodology Prompt

Q Methodology Prompt

Prompt

The academic libraries of Florida Community College at Jacksonville provide a myriad of information resources for conducting research, both academic and non-academic in nature. Usage pattern studies conducted by the college indicate that these information resources are fully utilized by the student body. However, no data currently exist to indicate what value, if any, is placed on these information resources by the students who use them. Your participation in this study will provide the baseline data necessary to begin to understand how these information resources are valued by those who use them most.

As you sort the following statements about the information resources under study, consider the following scenario: You have been given an assignment by a professor that is vital to your success in their class. You may utilize some or all of the five information resources under study in the libraries at Florida Community College at Jacksonville: the Internet, books, journals, newspapers and the reference librarian. With that in mind, you must determine which of these information resources is of greater value, and which of these resources is of lesser value, and sort the statements accordingly.

Appendix B

Q Set

Q Set

1. I am most comfortable using newspapers as an information resource.
2. Books will never be replaced as an information resource.
3. With all of the information resources available in today's library, the reference librarian is no longer necessary.
4. I would not ask the reference librarian for help finding the information I need.
5. Internet websites with the .edu domain contain information that I trust.
6. I prefer the information I find on the Internet to the information I find on subscription databases.
7. Subscription databases don't seem to contain the information I am looking for.
8. I would not know where to find a subscription database.
9. The information contained on subscription databases such as Academic Search Premier and Issues and Controversies, is the most widely accepted.
10. Newspapers are outdated almost as soon as they are printed.
11. The Internet is the quickest and easiest way to do research.
12. I am most comfortable using books as an information resource.
13. I am skeptical about all of the information found on the Internet.
14. I begin every search for information by first asking the reference librarian.
15. Regardless of all the available technologies, books are still the best information resource.
16. Using books as an information resource requires more effort than I am willing to expend.
17. When I ask the reference librarian for information, I never get exactly what I

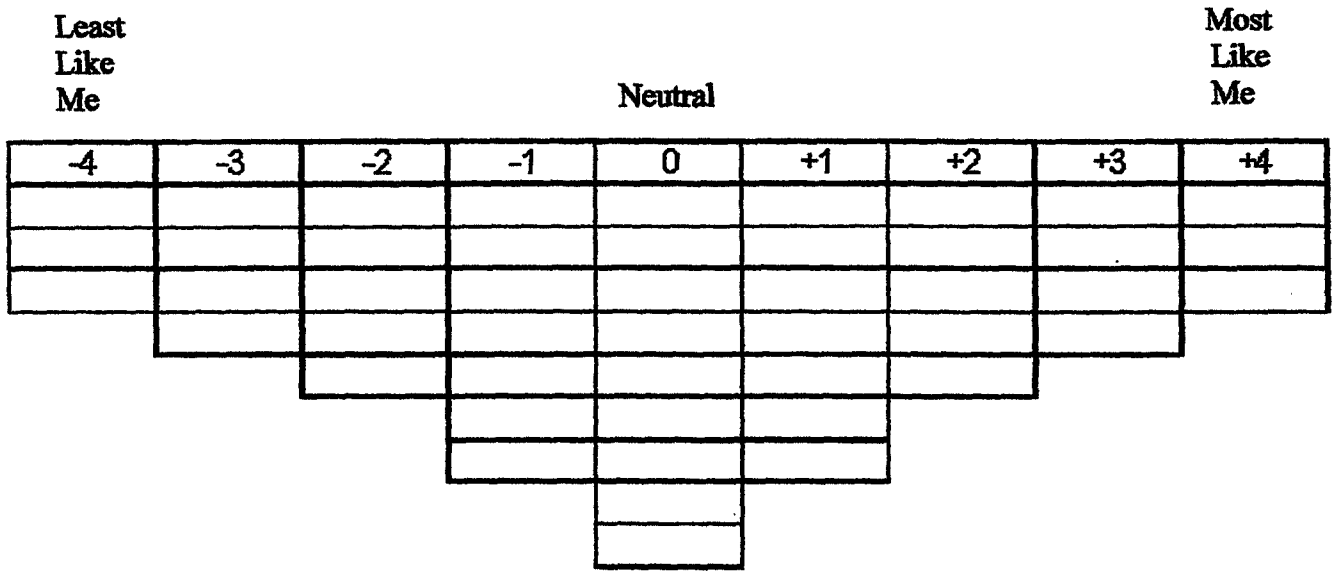
asked for.

18. Subscription databases are a reliable and valid source of information.
19. I'm not sure what a subscription database is.
20. I begin all of my research by first conducting an Internet search.
21. Information that I find is just as good as the information found by the reference librarian.
22. A newspaper would not be my first choice as an information resource.
23. I receive too much irrelevant information whenever I perform an Internet search.
24. Most newspapers contain too little information on the topics I am researching.
25. A newspaper is only valuable as an information resource when researching local matters.
26. Internet websites with the .com domain contain information that I would not trust.
27. With all of the available technologies, books are no longer the best source of information.
28. The Internet is as reliable as books or journals when conducting research.
29. Newspapers are a reliable source of information.
30. I always begin my search for information by first checking the newspapers.
31. Books represent an outdated method of information gathering.
32. I'm not entirely sure how to use the reference librarian as an information resource.
33. I expect the reference librarian to find all of the information I need.
34. I believe books are the most reliable source of information.
35. I prefer the information I find on the Internet over any other available information resource.

36. The reference librarian generally cannot find the information I need.
37. A book would not be my first choice as an information resource.
38. Newspapers are not meant to be used as an information resource.
39. I always use the subscription database Academic Search Premier when I am looking for information.
40. Subscription databases are too difficult and time consuming to use as an information resource.

Appendix C

Q Sort Score Sheet


Least
Like
Me
Neutral
Most
Like
Me
-4
-3
-2
-1
0
+1
+2
+3
+4

Appendix D

Q Sort Score Sheet Instructions

Q Sort Score Sheet Instructions

1. All 40 cards in the deck contain a statement about specific academic library information resources. I will ask you to rank order these statements from your own point of view. The question you must answer is: "To what extent are the statements most or least like me". The numbers on the cards (from 1 to 40) have been assigned to the cards randomly and are only relevant for the administration of your response.

2. This study is about academic library information resources. I am interested in your attitude towards how you place a value on specific academic library information resources.

3. Read the 40 statements carefully and split them into three piles: a pile for statements that are least like you, a pile for statements that are most like you, and a pile for statements that are neither like you nor unlike you or that are not applicable to you.

4. Take the cards from the "Most Like Me" pile and read them again. Select the two statements that are *most like you* with respect to your views on academic library information resources, and place them in the two last boxes on the right of the score sheet below the 4. Next, from the remaining cards in the deck, select the three statements that are *most like you*, and place them in the three boxes below

the 3. Follow this procedure for all of the cards in the "Most Like Me" pile.

5. Now take the cards from the "Least Like Me" pile, and read them again. Just like before, select the statements that are *least like you* with respect to your views on academic library information resources, and place them in the last two boxes on the left of the score sheet, below the – 4. Follow this procedure for all cards from the "Least Like Me" pile.

6. Take the remaining cards and read them again. Arrange these cards in the remaining open boxes of the score sheet. When you have placed all cards on the score sheet, please go over your distribution once more and shift cards if necessary (van Exel, 2005).

Appendix E

Post Q Sort Demographic Survey

Post Q Sort Survey

In order for me to better understand the results of your individual Q sort; please complete the following brief survey.

1. Birth Date_____

2. Gender _____M _____F

3. Have you completed the LIS 1002 Information Literacy course required for graduation from Florida Community College at Jacksonville?

   Yes_____ No _____

4. Highest level of education completed.

   High School _____

   Associate's in Arts/Associate's in Science _____

   Bachelor's _____

   Master's _____

   Doctorate _____

   Post Doctorate _____

5. Reason for current enrollment at Florida Community College at Jacksonville.

   College Credit _____

   Certificate _____

6. Please indicate the average number of times during the week that you visit the Florida Community College at Jacksonville libraries.

   Less than once per week _____

   1 – 2 times per week _____

   2 – 3 times per week _____

   3 – 4 times per week _____

   4 – 5 times per week _____

   More than 5 times per week _____

7. Briefly explain why you *agree most* with each of the statements you placed directly beneath the + 4.

_____

_____

_____

8. Briefly explain why you *disagree most* with each of the statements you placed directly beneath the – 4.

_____

_____

Appendix F

University of North Florida Approval Letter

UNF
UNIVERSITY *of*
NORTH FLORIDA.

Office of Research and Sponsored Programs
1 UNF Drive
Building 3, Office 2501
Jacksonville, FL 32224-2665
904-620-2455 FAX 904-620-2457
Equal Opportunity/Equal Access/Affirmative Action Institution

MEMORANDUM

DATE: May 11, 2008

TO: John Lucy

VIA: Dr. Katherine Kasten,
Leadership, Counseling and Instructional Technology

FROM: Nicole Sayers, Asst. Director of Research Integrity,
On Behalf of the UNF Institutional Review Board

RE: Review by the UNF Institutional Review Board IRB#08-066:
"A Study of End User Resource Valuation in Community College Libraries"

This is to advise you that your study, "A Study of End User Resource Valuation in Community College Libraries," has been reviewed on behalf of the UNF Institutional Review Board and has been declared exempt from further IRB oversight (Category #2).

This approval applies to your project in the form and content as submitted to the IRB for review. Any variations or modifications to the approved protocol and/or informed consent forms as they relate to dealing with human subjects must be cleared with the IRB prior to implementing such changes.

Should you have any questions regarding your approval or any other IRB issues, please do not hesitate to contact me at 620-2498 or nsayers@unf.edu.

Thank you.

Appendix G

Florida State College at Jacksonville Approval Letter

FLORIDA
COMMUNITY
COLLEGE
AT JACKSONVILLE

RE: Permission Letter to Conduct a Study by John Lucy, doctorate student at University of North Florida

June 16, 2008

John Lucy, Graduate Student
Florida Community College at Jacksonville
Downtown Campus
501 West State Street
Jacksonville, FL 32224-3457

John Lucy

This letter is to grant permission to conduct a survey targeting currently enrolled college credit students for the dissertation topic *A Study of End User Resource Valuation in Community College Libraries.* The survey is to be conducted either in the libraries of each main campus, or in a common area from which an adequate sampling of student responses may be gathered. Their participation in this study will be voluntary and participants will be advised of the nature of the study.

The research activities do not appear to present more than minimal risk to the human subjects. The probability and magnitude of physical or psychological harm or discomfort anticipated in the research do not appear to be greater, in and of themselves, than those normally encountered in daily life or during the performance of routine examination or tests. If there are any changes made to the program or the project protocol, or if the project extends over a period of one year, please notify my office immediately.

You may contact Dr. Kathryn Birmingham, Executive Dean, Liberal Arts (or her designee), for assistance in conducting your study. Good luck with your project.

Sincerely,

Dr. Donald Green, Jr., Executive Vice-President
Instruction and Student Services, Florida Community College

Cc: Dr. Edythe Abdullah, President, Downtown Campus
Dr. Kathryn Birmingham, Liberal Arts Dean, Downtown Campus

Appendix H

Scree Plot for Nine Factors in Study

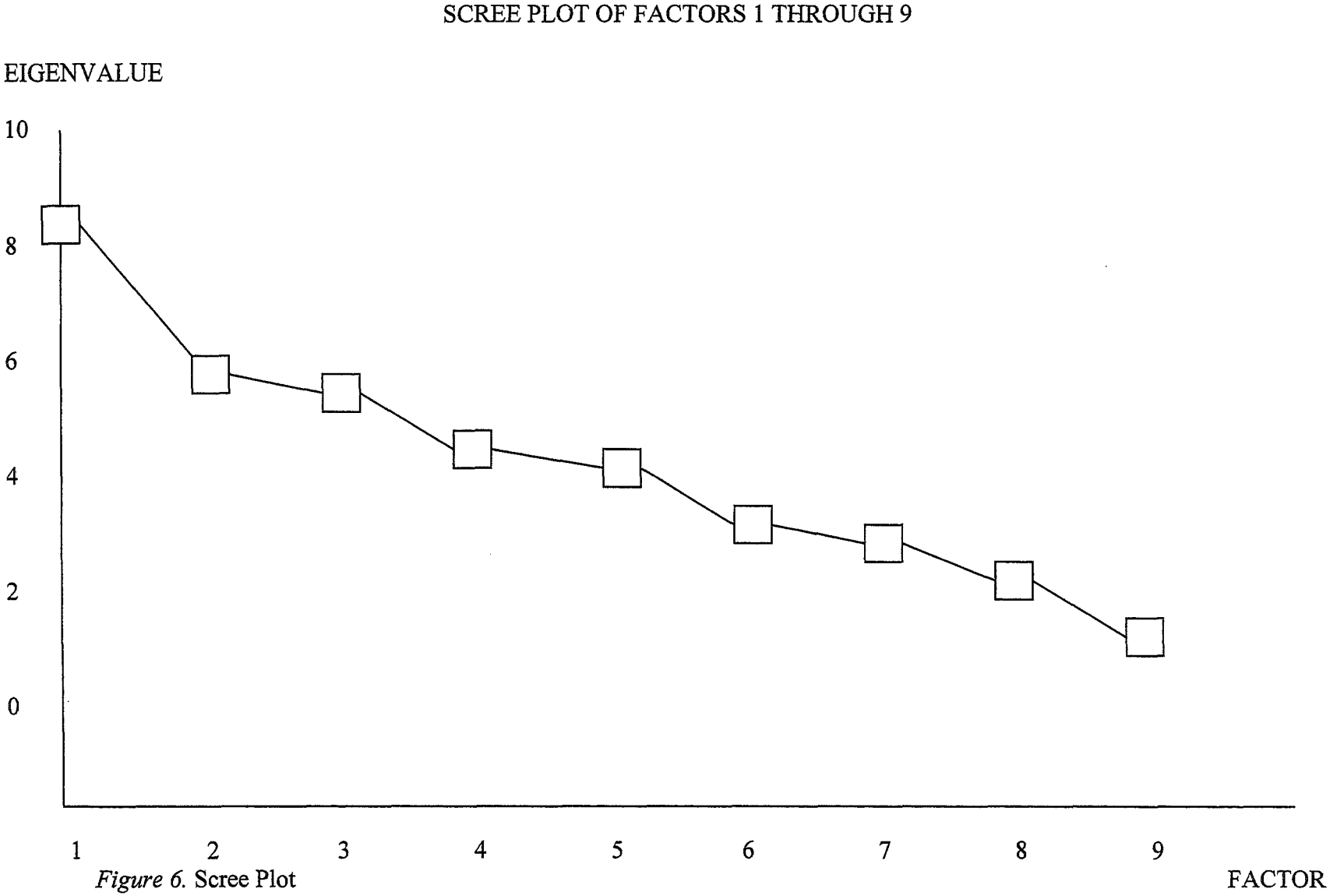


Figure 6. Scree Plot

Appendix I

Varimax Rotation of Factors 1 through 5

Table 2

Varimax rotation of factors 1 through 5

Sort	Factor 1	2	3	4	5
1	21	**-48**	-14	19	-3
2	32	**-70**	29	19	-1
3	**60**	-3	0	3	-14
4	0	**-73**	8	21	-2
5	5	**-58**	-3	1	-7
6	2	-37	-13	4	33
7	**46**	-30	-3	10	20
8	35	-38	-3	19	7
9	24	**-57**	-5	0	31
10	**48**	-14	1	33	3
11	17	-14	3	20	-2
12	22	**-70**	- 5	0	-7
13	**48**	0	20	30	56
14	**41**	30	9	**59**	16
15	-10	**-49**	25	13	21
16	-7	**-53**	-29	-21	-17
17	20	12	1	9	-7
18	23	4	**49**	35	22
19	12	**-51**	6	**43**	28
20	12	17	3	28	**68**
21	10	-40	8	13	4
22	-9	-4	**54**	-6	7
23	26	-29	5	21	29
24	21	**-57**	0	-8	28
25	37	-36	-7	17	40
26	15	-31	-13	**41**	21
27	25	-22	-1	**67**	8
28	29	2	31	-8	17
29	14	**-58**	-8	24	-11
30	-18	0	-12	28	**52**
31	17	**-66**	-35	-4	-12
32	9	-13	**68**	13	-13

Note. Factor loadings >.40 are in boldface.

Table 2

Varimax rotation of factors 1 through 5

Sort	Factor 1	2	3	4	5
33	38	**-52**	-22	-4	0
34	10	**-52**	3	-8	-14
35	10	**-49**	24	21	-8
36	16	-13	28	12	10
37	15	1	3	-19	-4
38	**45**	-27	18	38	37
39	2	12	**49**	7	33
40	-7	-3	-12	3	-4
41	13	0	**-41**	22	-5
42	**54**	10	17	11	11
43	**66**	-12	11	20	10
44	26	**-43**	10	10	36
45	28	0	**58**	14	36
46	**58**	-17	-26	32	13
47	-4	-4	**54**	4	30
48	-13	15	32	5	**60**
49	-3	-12	6	19	29
50	-7	-23	-14	-15	-4
51	**46**	-29	21	9	14
52	-1	0	-7	28	-6
53	12	6	10	18	**54**
54	11	-9	21	**69**	16
55	9	-28	14	**42**	36
56	**69**	-28	-12	8	2
57	21	-11	17	11	-57
58	18	-33	**-58**	-1	8
59	16	-36	-11	30	29
60	0	-43	10	**41**	**-2**
61	-10	**-83**	-5	16	-2
62	35	-13	**42**	**58**	29
63	0	-14	0	**49**	25
64	15	-30	-35	**43**	-13

Note. Factor loadings >.40 are in boldface.

References

Allen, F. R. (2007). Toward a formula-based model for academic library funding: Statistical significance and implications of a model based upon institutional characteristics. *College & Research Libraries, 68*(2), 170-181.

American Library Association. (2007). Retrieved from homepage at http://www.ala.org.

Anderson, C. (2004). The long tail: Why the future of business is selling less of more. *Wired, 12*(10), 22-31.

Anderson, D. (2006). Allocation of costs for electronic products in academic library consortia. *College & Research Libraries, 67*(2), 123-135.

Antell, K., & Engel, D. (2006). Conduciveness to scholarship: The essence of academic library as place. *College & Research Libraries, 67*(6), 536-560.

AskALibrarian. (2007). Retrieved from homepage at http://www.askalibrarian.org .

Association of College & Research Libraries. (2007). Retrieved from homepage at http://www.ala.org/acrl.

Barnard, A. Nash, R., & O'Brien, M. (2005). Information literacy: Developing lifelong skills through nursing education. *Journal of Nursing Education, 44*(11), 505-510.

Barnett, J. B. (2004). Marine science journal prices: A case study. *Journal of Educational Media & Library Sciences, 41*(3), 315-323.

Bell, S. J., & Shank, J. (2004). The blended librarian. *College & Research Libraries News, 65*(7), 372-375.

Bennett, S. (2006). First questions for designing higher education learning spaces. *The Journal of Academic Librarianship, 33*(1), 14-26.

Bennett, S. (2007). Designing for uncertainty: Three approaches. *The Journal of Academic Librarianship, 33*(2), 165-179.

Bergstrom, T. , & McAfee, R. P. (2005). End free ride for costly journals. *Library Journal, 130*(20), 88-90.

Black, S. (2005). Impact of full text on print journal use at a liberal arts college. *Library Resources & Technical Services, 49*(1), 19-26, 56-57.

Boggs, G. R. (2004). Community colleges in a perfect storm. *Change, 36*(6), 6-11.

Boulard, G. (2004). Educators say school-state relations in flux. *Black Issues in Higher Education, 21*(20), 6-8.

Bradford, J. T., Costello, B., & Lenholt, R. (2005). Reference service in the digital age: An analysis of sources used to answer reference questions. *The Journal of Academic Librarianship, 31*(3), 263-272.

Brown, S. R. (1980). *Political subjectivity: Applications of Q methodology in political science.* Connecticut: Yale University Press.

Budd, J. M. (2004). Academic libraries and knowledge: A social epistemology framework. *The Journal of Academic Librarianship, 31*(5), 361-367.

Cardina, C., & Wicks, D. (2004) The changing roles of academic librarians over a ten-year period. *Reference & User Services Quarterly, 44*(2), 133-142.

Carr-Chellman, A. A., & Duchastel, P. (2000). The ideal online course. *British Journal of Educational Technology, 31*(3), 229-241.

Chanlin, L. J., & Chang, C. C. (2003). Web-based library instruction for promoting information skills. *Journal of Instructional Psychology, 30*(4), 265-275.

Clyde, L. A. (2005). Research as part of the web site development process: The case of school libraries online. *School Libraries Worldwide, 11*(2), 73-95.

Cobus, L., Dent, V. F., & Ondrusek, A. (2005). How twenty-eight users helped redesign an academic library web site. *Reference & User Services Quarterly, 44*(3), 232-246.

Crawford, W. (2004). Journals revisited: A survivable future. *American Libraries, 35* (5), 56-60.

Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* NJ: Merrill Prentice Hall.

Davidson, J. R. (2001). Faculty and student attitudes toward credit courses for library skills. *College & Research Libraries, 62*(2), 155-163.

Dearden, R., Dermoudy, J., Evans, C., Barmuta, L., Jones, S., Magierowski, R., Osborn, J., Sargison, J., & Waters, D. (2005). Aligning information literacy with the faculty teaching and learning agenda. *Australian Academic & Research Libraries, 36* (4), 138-152.

Deeken, J., & Thomas, D. (2006). Technical services job ads: Changes since 1995. *College & Research Libraries, 67*(2), 136-145.

Dinwiddie, M. (2005). Looking for ways to provide online library services equal to on-campus services. *Distance Education Report, 9*(18), 21-22.

Elmborg, J. (2006). Critical information literacy: Implications for instructional practice. *The Journal of Academic Librarianship, 32*(2), 192-199.

Elmborg, J. (2006). Libraries in the contact zone: On the creation of educational space. *Reference & User Services Quarterly, 46*(1), 56-64.

Firooznia, F., & Andreadis, D. K. (2006). Information literacy in introductory biology. *Journal of College Science Teaching, 35*(6), 23-27.

Florida Community College at Jacksonville Library. (2007). Retrieved from homepage at http://www.fccj.edu/library.

Foster, A. L. (2007). Information navigation 101. *The Chronicle of Higher Education,* 53 (27), 40-41.

Foster, L. (2004). Meeting the next phase of challenges. *New Directions for Community Colleges, 128*, 73-78.

Foudy, G., & McManus, A. (2005). Using a decision grid process to build consensus in electronic resources cancellation decisions. *The Journal of Academic Librarianship, 31*(6), 533-538.

Fowler, D. C., & Arcand, J. (2005). A serials acquisitions cost study: Presenting a case for standard serials acquisitions data elements. *Library Resources & Technical Services, 49*(2), 107-122.

Franklin, B. (2005). Managing the electronic collection with cost per use data. *International Federation of Library Associations & Institutions, 31*(3), 241-248.

Franklin, B., & Plum, T. (2006). Successful web survey methodologies for measuring the impact of networked electronic services (MINES for libraries). *International Federation of Library Associations & Institutions, 32*(1), 28-40.

Gandhi, S. (2003). Academic librarians and distance education: Challenges and opportunities. *Reference & User Services Quarterly, 43*(2), 138-154.

Gandhi, S. (2004). Knowledge management and reference services. *The Journal of Academic Librarianship, 30*(5), 368-381.

Gatten, J. N. (2004). Measuring consortium impact on user perceptions: OhioLINK and LibQUAL+. *The Journal of Academic Librarianship, 30*(3), 222-228.

Gee, P. (1998). *Negotiating academic literacies: Teaching and learning across languages and cultures.* New York: Lawrence Erlbaum.

Geissler, G. L., Zinkhan, G. M., & Watson, R. T. (2006). The influence of home page complexity on consumer attention, attitudes and purchase intent. *Journal of Advertising, 35*(2), 69-80.

Grand Valley State University. (2007). Retrieved from homepage at www.gvsu.edu.

Grensing-Pophal, L. (2009). The evolution of old media. *Information Today, 26*(8), 16-19.

Guterman, L. (2004). The promise and peril of 'open access.' *The Chronicle of Higher Education, 50*(21), A10-A12, A14.

Hahn, K. (2006). Create change web site provides faculty perspectives on scholarly communication. *Association of Research Libraries, 247,* 6.

Hahn, K. L., & Schmidt, K. (2005). Web communications and collections outreach to faculty. *College & Research Libraries, 66*(1), 28-40.

Heinrichs, J. H., Sharkey, T. W., & Lim, J. S. (2006). Research investigation of information access methods. *The Journal of Academic Librarianship, 32*(2), 183-191.

Homburg, C., & Giering, A. (2001). Personal characteristics as moderators of the relationship between customer satisfaction and loyalty – an empirical analysis. *Psychology & Marketing, 18*(1), 43-46.

Ivey, R. (2003). Information literacy: How do librarians and academics work in partnership to deliver effective learning programs? *Australian Academic & Research Libraries, 34*(2), 100-113.

Johnson, D. (2006). Skills for the knowledge worker. *Teacher Librarian, 34*(1), 8-13.

Johnson, M. (2010). *This book is overdue: How librarians and cybrarians can save us all.* NY: HarperCollins.

Jordan, A. (2004). Harvard, Cornell slash journal subscriptions. *American Libraries, 35* (1), 23-24.

Karplus, S. S. (2006). Integrating academic library resources and learning management systems: The library Blackboard site. *Education Libraries, 29*(1), 5-11.

Kastinas, S. G. (2005). Increased competition for scarce dollars. *New Directions for*

Community Colleges, 132, 19-32.

Kelley, K. B., & Orr, J. G. (2003). Trends in distant student use of electronic resources: A survey. *College & Research Libraries, 64*(3), 176-191.

Khan, A. (2006). Digital/virtual reference services in libraries: An internet-based reference service. *Pakistan Library & Information Science Journal, 37*(1), 13-18.

Kibbee, J. (2006). Librarians without borders? virtual reference service to unaffiliated users. *The Journal of Academic Librarianship, 32*(5), 467-473.

Kim, J. A. (2006). Capturing metrics for undergraduate usage of subscription databases. *Online, 30*(3), 32-39.

Kohl, D. F. (2006). Dealing with the double whammy. *The Journal of Academic Librarianship, 32*(6), 555-557.

Kuruppu, P. U. (2007). Evaluation of reference services. *The Journal of Academic Librarianship, 33*(3), 368-381.

Larkin, J. E., & Pines, H. A. (2005). Developing information literacy and research skills in introductory psychology: A case study. *The Journal of Academic Librarianship, 31*(1), 40-45.

Lindstrom, J., & Shondrock, D. D. (2006). Faculty-librarian collaboration to achieve integration of information literacy. *Reference & User Services Quarterly, 46*(1), 18-23.

Liu, Z., & Yang, Y. L. (2004). Factors influencing distance-education graduate students' use of information sources: A user study. *The Journal of Academic Librarianship, 30*(1), 24-35.

Lustria, M. L. A., & Case, D. O. (2005). The SPARC initiative: A survey of participants and features analysis of their journals. *The Journal of Academic Librarianship, 31* (3), 236-246.

Luzius, J., & Ard, A. (2006). Leaving the academic library. *The Journal of Academic Librarianship, 32*(6), 593-598.

Maatta, S. (2003). Salaries stalled, jobs tight. *Library Journal, 128*(17), 28-34.

Manzo, K., K. (2004). Report dubs '90s 'decade of the community college.' *Black Issues in Higher Education, 21*(11), 6-7.

Martensen, A., & Gronholdt, L. (2003). Improving library users' perceived quality, satisfaction and loyalty: An integrated measurement and management system.

The Journal of Academic Librarianship, 29(3), 140-147.

Maybee, C. (2006). Undergraduate perceptions of information use: The basis for creating user-centered student information literacy instruction. *The Journal of Academic Librarianship, 32*(1), 79-85.

McKeown, B., & Thomas, D. (1988). *Q methodology.* CA: Sage Publications.

Meriam-Webster. (2005). *The Meriam-Webster dictionary.* Springfield: Meriam-Webster.

Miller, R. (2009). Can 20th-century news survive in a digital world? *EContent, 32*(8), 22-27.

Millet, M. S. (2005). Is this the ninth circle of Hell? *Library Journal, 130*(5), 54-56.

Mossman, K. (2006). Serving the niche. *Library Journal, 131*(12), 38-40.

Nail-Chiwetalu, B. J., & Ratner, N. B. (2006). Information literacy for speech-language pathologists: A key to evidence-based practice. *Language, Speech, and Hearing Services in Schools, 37*(3), 157-167.

Neville, T. M., & Henry, D. B. (2006). Support for research and service in Florida academic libraries. *The Journal of Academic Librarianship, 33*(1), 76-93.

Newton, V. W., & Silber, K. (2007). Simplifying complexity through a single federated search box. *Online, 31*(4), 19-21.

Novotny, E., & Rimland, E. (2007). Using the Wisconsin-Ohio reference evaluation program (WOREP) to improve training and reference services. *The Journal of Academic Librarianship, 33*(3), 383-392.

Owusu-Ansah, E. K. (2004). Information literacy and higher education: Placing the academic library in the center of a comprehensive solution. *The Journal of Academic Librarianship, 30*(1), 3-16.

Parasuraman, A., Zeitham, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64,* 12-40.

Peters, T. (2009). The future of read. *Library Journal, 134*(18), 18-22.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, 9*(5), 1-3.

Rader, H. (1995). Information literacy and the undergraduate curriculum. *Library Trends, 44*(2), 270-71.

Ramos, M. M., & Ali, K. M. (2005). Maximizing library resources through consortial subscriptions: The case of the CGIARLIS consortium. *IAALD Quarterly Bulletin, 5*(1-2), 5-9.

Ramsay, K. M., & Kinnie, J. (2006), The embedded librarian, *Library Journal, 131*(6), 34-35.

Ratteray, O. M. T. (2002). Information literacy in self-study and accreditation. *The Journal of Academic Librarianship, 28*(6), 369-371.

Reed, C. A. (2004). Just say no to exploitative publishers of science journals. *The Chronicle of Higher Education, 50*(24), B16, F20.

Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). Generation *M2*: Media in the lives of 8- to 18-year-olds. Menlo Park: The Henry J. Kaiser Family Foundation.

Riedling, A. M. (2002). *Learning to Learn.* New York: Neal Schuman.

Rieger, O. Y., Horrie, A. K., & Revels, I. (2004). Linking course web sites to library collections and services. *The Journal of Academic Librarianship, 30*(3), 205-211.

Samson, S., & Oelz, E. (2005). The academic library as a full-service information center. *The Journal of Academic Librarianship, 31*(4), 347-351.

Scott, T. J., & O' Sullivan, M. K. (2005). Analyzing student search strategies: Making a case for integrating information literacy skills into the curriculum. *Teacher Librarian, 33*(1), 21-25.

Selingo, J. J. (2008). State budgets are likely to squeeze 2-year colleges. *The Chronicle of Higher Education, 55*(11), 1-2.

Shachaf, P., Meho, L. I., & Noriko, H. (2006). Cross cultural analysis of e-mail reference. *The Journal of Academic Librarianship, 33*(2), 243-253.

Shank, J. D. (2006). The blended librarian: A job announcement analysis of the newly emerging position of instructional design librarian. *College & Research Libraries, 67*(6), 515-524.

Shenk, D. (1997). *Data smog: surviving the information glut.* New York: HarperOne.

Shi, X., & Levy, S. (2005). A theory guided approach to library services assessment. *College & Research Libraries, 66*(3), 266-275.

Sinclair, B. (2009). The blended librarian in the learning commons: New skills for the blended library. *College & Research Libraries News, 70*(9), 504-516.

Sittler, R. L. (2005). Distance education and computer-based services: The opportunities and challenges for small academic libraries. *Bookmobiles Outreach Services, 8*(1), 23-35.

Small, R. V., Zakaria, N., & El-figuigui, H. (2004). Motivational aspects of information literacy skills instruction in community college libraries. *College & Research Libraries, 65*(2), 96-121.

Starr, J. (2004). A measure of change: Comparing library job advertisements of 1983 amd 2003. *Libres, 14*(2), 1-2.

Stemper, J., & Barribeau, S. (2006). Perpetual access to electronic journals: A survey of one academic research library's licenses. *Library Resources & Technical Services, 50*(2), 91-109.

Stoddart, R. A., Bryant, T. W., Baker, A. L., Lee, A., & Spencer, B. (2006). Going boldly beyond the reference desk: Practical advice and learning plans for new reference librarians performing liaison work. *The Journal of Academic Librarianship, 32* (4), 419-427.

Stricklin, M. (2001). *PCQ Analysis Software for Q Technique User's Guide.* Portland: Stricklin & Almeida.

Thomas, W., J. (2005). Department-integrated information literacy: A middle ground. *The Southeastern Librarian, 53*(3), 38-42.

Van Exel, J., & de Graaf, G. (2005). Q methodology: A sneak preview. Retrieved from homepage at www.jobvanexel.nl.

Walters, W. H. (2004). Notes on operations: Criteria for replacing print journals with online journal resources: The importance of sustainable access. *Library Resources & Technical Services, 48*(4), 300-304.

Warren, L., A. (2006). Information literacy in community colleges: Focused on learning. *Reference & User Services Quarterly, 45*(4), 297-303.

Watts, S., & Stenner, P. (2005). Doing Q methodology: Theory, method and interpretation. *Qualitative Research in Psychology, 2*, 67-91.

Welch, J. M. (2005). The electronic welcome mat: The academic library web site as a marketing and public relations tool. *The Journal of Academic Librarianship, 31*(3), 225-228.

Winner, M. C., (1998). Librarians as partners in the classroom: An increasing imperative. *Reference Services Review, 26*(1), 25-27.

Wu, M. M. (2005). Why print and electronic resources are essential to the academic law library. *Law Library Journal, 97*(2), 233-256.

Yang, Z. Y. L. (2005). Distance education librarians in the U.S. ARL libraries and library services provided to their distance users. *The Journal of Academic Librarianship, 31*(2), 92-97.

Theodore John Lucy

3503 Peach Drive, Jacksonville Florida
Duval County, 32246
Tel: (904) 642-2723
Email: johnlucy@att.net

PROFILE

Theodore John Lucy was born in in . He is a versatile, analytical and hard-working librarian and professor with a practical hands-on approach, who always perseveres to achieve the best results. He is able to collect and analyze information, digest facts/figures quickly, and grasp complex technical issues in providing the highest quality reference services and instruction to both his online and face to face students. He swiftly identifies the root of any problem and develops an effective solution. He has a proven ability to manage and complete projects to the highest standard, with a meticulous attention to detail, and within agreed deadlines.

EDUCATION

2001-2010 University of North Florida, Jacksonville Florida
Degree Conferred: Doctor of Education

1992-1993 The Florida State University, Tallahassee, Florida
Degree Conferred: Master of Science in Library and Information Studies

1987-1990 University of North Florida, Jacksonville, Florida
Degree Conferred: Bachelor of Business

CAREER HISTORY

2008-Present Librarian, San Juan Del Rio Catholic School, Jacksonville, Florida

1999-2008 Librarian, Florida State College at Jacksonville, Jacksonville, Florida

1998-1999 Librarian, Jacksonville Public Library, Jacksonville, Florida

1993-1998 Librarian, Bishop Kenny High School, Jacksonville, Florida