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# An Analysis of the Academic Library and the Changing Role of the Academic Librarian in Higher Education: 1975 – 2012

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# An Analysis of the Academic Library and the Changing Role of the Academic Librarian in Higher Education: 1975 – 2012

by

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A Dissertation submitted to the Education Faculty of Lindenwood University

in partial fulfillment of the requirements for the

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School of Education

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| Dr. Yvonne Gibbs, Committee Member | Date |

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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Finally, to all of the people who have made me smile throughout the years, I also thank you.

## Dedication

I must give thanks to God first, for giving me the strength to finish this project. I know for a fact your hand is on my life, my struggles are your struggles. Next, I would like to state the completion of this dissertation is due to the hard work of my great, great grandfather, Matt Virgil, and my grandfathers, Mr. Atrice Virgil and Mr. Simon Cohen, your spirits encourage me to want to live an excellent life. I want to thank my parents Mr. and Mrs. Atrice and Joan Virgil Jr. for teaching me perseverance and to work hard for the things I want to acquire in life, no matter what circumstances I may come against. I thank God every day for exceptional parents. My siblings; Katina, Monica, Jennifer, Atrice III, Craig, and Scott, I am still having fun growing up with you all. Also, to the youngest Virgil, my nephew, Aidan C. Virgil (2008 - ), keep growing and learning, Aunt Candy loves you!

## Abstract

This document analysis examined the academic library and the changing role of the academic librarian in higher education. A comparison of the trends and issues reported by prominent librarians in the 20th century was made to those reported in the 21st century. Emphasis was placed on the following decades: 1970s, 1980s, and 1990s in the 20th century and 2000s (through 2013) in the 21st century. Initial topics from the 20th century were selected from the cornerstone article, "College Libraries and the Teaching/Learning Process: A 25-Year Reflection" by Farber (1999). Farber, who was well known for research regarding bibliographic instruction at Earlham College, observed, reported, and predicted for the future many changes in the field of librarianship. His cornerstone article presented an historical view of bibliographic instruction, the development and oversight of the Ohio College Library Century, the rise of the use of microfilm and microfiche, the drastic change in processes for establishing and maintaining the card catalog, and an overview of technological changes as they relate to the academic library located in institutions of higher learning. The issues Farber discussed were compared to discussion by prominent librarians from the 21st century. An overview of the similarities, differences, and topics which have almost disappeared, as discussed by Farber, were reviewed. Also examined were current academic library topics Farber discussed which have changed immensely in the early years of the 21st century. The changing role of the academic librarian, motivated by changing media and technology availability was reviewed by decade.

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# Chapter One: Introduction

## Background of the Study

The changing roles in the field of librarianship and the changes in the services offered and provided to students, faculty, and staff in the academic library setting has transformed in the last three decades. The bibliographic instructional processes have changed greatly, but there has been a tremendous increase in the amount of accessible information due to new technology, to help retrieve the information and the challenges in educational processes, such as online courses, and policies regarding copyright laws (Eby, 2007; Butters, 2007; Freeman, 1981). There is also a greater importance to reach undergraduate students and make them aware of the campus library. It is likely that college libraries will continue to change in the coming decades and therefore important to look at what libraries are doing regarding media delivery. Electronic information is more prominent in libraries than in the past and its use must be reviewed.

Computers have changed the process of how libraries function. At one time, computers were used to perform standard operations, provide access to databases from long distances, automate card catalogs, and allow users to create their own subject headings. In addition, computers changed just about every aspect of academic librarianship, from the widespread use of bibliographic instruction in the classrooms to the impact of electronic sources of information. The effects of media used in the higher education academic library will be explored within this document analysis.

## Statement of the Problem

The changing roles in the field of librarianship and the services offered to students and provided by higher education academic institutions have created a need to examine the delivery

of media to those pursuing higher education degrees. With many individuals returning to higher education due to career changes, employment insecurities, and the increasing rate of unemployment, it is important to address the evolving role of the academic library delivery systems.

This study examined the change in use of media in academic libraries at institutions of higher learning as it has been affected by societal changes over four decades: 1970s, 1980s, 1990s, and 2000s. There has been a documented change in the past four decades in the use of library media in every aspect of librarianship, from the public, specialized, and academia sectors (Farber, 1999). Bibliographic instructional processes have changed, and there has been an increase in the amount of accessible information due to new technology. Electronic information is more prominent in libraries than in the past and its use must be reviewed. This is due to the technological advances which evolve in society and the advent of the availability of electronic information, such as the use of electronic journals versus the hardcopy editions and the Online Public Access Catalog (OPAC) versus a card catalog. For example, the publishers of *Newsweek* magazine made an announcement on October 18, 2012, to implement a digital copy only and disband the paper copy altogether (Newsweek Global, 2012). Electronic information is the future.

Other challenges in educational processes related to librarianship include the offering of online courses, promoting the need for policies regarding copyright law within this newer use of library media (Farber, 1999).

Computer usage has changed the processes affecting how libraries function. At one time, computers were used to do standard operations, such as cataloging books. Next they were used to access databases from long distances, automate card catalogs, and let users create their own subject headings. Before periodicals were offered in full-text in online databases, they were offered as indexes on CD-ROM's. In 1991, EBSCO publishing first began covering scholarly journals in its database (Enyart, 2004). By 1999, EBSCO publishing had established itself as the

dominant provider of online full-text databases, according to Enyart (2004), who interviewed Sam Brooks, Senior Vice-President of Sales & Marketing, EBSCO publishing.

This researcher experienced the advent of technology first hand while working for a large corporate library in the 1980s and 1990s. The Online Public Access Catalog (OPAC) was introduced to libraries in the 1980s and cataloging rules continued to change, due to items in the catalog's context, according to Coyle (2010). A technological advance, such as the World Wide Web (WWW) and the fact that most patrons may not visit the physical library, made it so that the cataloger must become creative when cataloging items to be added to the collection.

Lastly, computer use has changed many aspects of librarianship from the widespread use of bibliographic instruction in the classrooms to the effect upon electronic sources of information (Farber, 1999).

It is likely that college libraries will continue to change in the coming decades. Within the context of the use of library media, it is important to examine past and current processes and policies and how they affect students of higher learning and the role of library media specialists (Farber, 1999).

## Research Questions

What are the similarities and differences between the academic issues discussed by Farber (1999) in each decade of his review of the years 1975 to 1999 and those same identified issues from 2000 to 2012?

What are the changes in the types and uses of library media in the higher education academic setting that have taken place for each decade included in the years 1975-1999, as compared to library media use in the years 2000-2012?

What are the changes in roles and responsibilities of higher education library media specialists that have taken place for each decade included in the years 1975-1999, as compared to roles and responsibilities in the years 2000-2012?

What are the future implications for library media specialists and library program directors resulting from the analysis of theories, issues, academic library positions, and academic library media offerings for the years represented in this study?

**Purpose of the Study**

The purpose of this study is to analyze the differences in media use in the higher education academic library setting for the years 1975 through 2012 as they relate to major educational issues identified by Farber (1999). A comparison of Farber's discussion of issues for each decade in the 20th century (70s, 80s, and 90s) to the existing issues in the current era, the 21st century (2000-2012), and will provide a framework for discussion of the changing roles of library media specialists and the media they make available to academic library constituents. This study will replicate Farber's (1999) examination of library issues for the years 1975-1999, with respect to library media usage, for the current decade represented by the years 2000-2012.

**Importance of the Study**

The benefits from this study may be the establishment of an understanding of how technology has affected the field of librarianship, how libraries effect research skills of those attending higher learning institutions, how changes in media have affected those present to conduct their research, and how changes in library delivery systems have impacted the research efforts of students, staff, and faculty when doing so. The researcher will review and uncover potential need for improvement in areas related to academic library resources, efficiency, and personnel.

**Background**

Libraries have formally been a part of our history for a long time. Five thousand years ago the Sumerians produced inexpensive writing instruments. When these pressed

into wet clay, they left a wedge-shaped mark, called cuneiform from the Latin word for wedge. The Sumerians baked their clay tablets in kilos, or dried them in the sun. Tens of thousands of these tablets have come down to us, to be read, studied, and translated by generations of scholars (Lerner, 1999, p. 13). The first recorded library was the Library of Alexandria, founded by Ptolemy Soter of the Diadochian dynasty in Egypt (Hessel, 1955).

A library can be, and is at the time of this writing, more than a building full of books. It is a place where books, periodicals, and other items are organized and available for use for those who are in need of research, entertainment, or just in need of something to do. The founding of the Library of Alexandria may be called the greatest accomplishment in the library history of ancient times (Hessel, 1955). Most items in this library were not available in English translation (written in Greek), but mention of the Library of Alexandria was often found in the bibliography of many research documents. The planning of this library is ascribed to Ptolemy Soter (d. ca. 283 B.C.), the first of the Diadochian dynasty in Egypt, and the execution of the plan to his son, Ptolemy Philadelphus (Hessel, 1955). These rulers collected all of the Greek literature available, which meant they must have had large funds to do so, according to Hessel (1955). The Library of Alexandria consisted of several hundred thousand, papyrus rolls.

The library was in two divisions, the large one within the royal palace in the Brucheum section of the city, and the small one in the temple of Serapis (Hessel, 1955). During Caesar's campaign in Alexandria, the former library was destroyed in 47 B.C. and the Serpeum museum became the real book center of the city (Hessel, 1955).

An academic atmosphere flourished in the ancient library setting. Located on the northern coast of Egypt and founded by Alexander the Great, the Serpeum museum was part of the royal compound (the Brucheion) linked by a colonnade. Along the colonnade were three seating areas, where some scholars discussed the books they had read (Lerner, 1999). According to Lerner (1999), the courtyards of the museum offered additional room for reading and discussion, and an indoor dining hall offered free meals to the resident scholars. Part of the building contained the library's administrative offices and workrooms for its staff, as well as the storerooms in which book-rolls were shelved. The collections consisted of Greek poetry and its scholars edited and arranged the items and made them available for copying by the public. The role of the academic librarian was established early. The librarian was appointed by the king, and had to be courtier as well as scholar. He served as tutor to the children of the royal family, and selected books for the king's reading (Lerner, 1999, p. 22).

According to Lerner (1999), the librarian was chosen among the leaders of Alexandrian intellectual life and often advised the king on political as well as literary matters, which sometimes got them into troubles, yet the librarian would mainly focus on science and literature and their library duties would allow time to contribute to scholarship and serve the many scholars who came from other places to use the library.

The temples of Assyro-Babylonian civilization held similar collections of administrative records and literary remains. But, surpassing these was the library of Assurbanipal, whose clay tablets were brought to light during excavation of the royal palace at Nineveh about the middle of the sixth century. Assurbanipal (668-626 B.C.) belonged to the last great dynasty of Assyrian kings, the Sargonids (Hessel, 1955). There

were resemblances between the libraries of Nineveh and Alexandria. Both were institutions of a universal character brought into being by reigning princes (Hessel, 1955). The Hellenistic library was also similar to the Assyrian library. There was, however, a major difference in writing materials; clay tablets at Nineveh and papyrus rolls at Alexandria. There was four centuries between the existences of the two.

The development of the Greek library began in the decade of two intellectual giants, Plato and Aristotle. The library became solidly linked to academia when Alexander the Great, Aristotle's pupil, helped to create a systematic study of Greek literature, in the library of the museum (The Museion of Alexandria). After the Roman conquest of Egypt, the museum and library continued to exist, and scholarly work continued in Alexandria. However, Rome became the center of intellectual life, and the leading thinkers and writers gravitated there (Lerner, 1999).

The establishment of libraries in Rome began when the King of Pergamon sent a scholar, Crates of Mallos, on a diplomatic mission to Rome to try to build a library as great as the Alexandria library. Most Roman libraries were not heavily used, due to Romans maintaining their own libraries in their town houses and country homes (Lerner, 1999, p. 25).

The emperor Augustus was determined to shape Rome's greatness and his own (Lerner, 1999). He established two public libraries, one in the Portico of Octavia in the Campus Martius and the other in the Temple of Apollo on the Palatine Hill. Each contained Greek and Latin books. Other emperors followed Augustus' lead and built libraries in Rome and Athens. The development of the Christian church helped to evolve

the book that we know today. The papyrus rolls were transferred to sewn folded sheets, and placed between plant fibers (Lerner, 1999, p. 27).

By 1700, the universities of Europe had become strong holds of orthodoxy, playing little role in the enhancement of knowledge. To anyone other than a future clergyman, they had nothing to offer (Lerner, 1999). Similarly, the first American universities, such as Harvard, William and Mary, and Yale were designed essentially to train new members of the ministry (Hessel, 1955). University libraries contributed little to intellectual life, although the 16th and 17th centuries produced masterworks of imaginative literature, the writings of Shakespeare, Cervantes, and Moli´ere were not studied in universities or collected by their libraries. The scientific writings of Copernicus and Galileo, and Harvey and Newton all were ignored by the university curriculum and the libraries that existed to support the curriculum. This was due to the fact that most European libraries had become strong holds of orthodoxy, to educate the clergyman. If a person was not interested in becoming a clergyman, then the library really had nothing to offer and the university library contributed little to intellectual life (Lerner, 1999).

People began to rethink the idea of education and the university. A strong contribution to the development of the academic library came in 1737. The University of Göttingen opened a few miles from the German city of Hannover, which was intended to be a research university as well as a teaching institution. It became well known as the leading university of the German-speaking world, because of its strong, well-developed library and the care that went into the conception and organization of the library. Christian Gottlob Heyne, Göttingen's chief librarian for nearly 50 years, believed that,

"the number of books is that which counts least" (Lerner, 1999, p. 83). He called for a working library whose books would "Illuminate the art and taste, not only of one country, but all educated nations" (Lerner, 1999, p. 83). By the end of the 18th century, library patrons were expected to use library books in their homes and printed books were replacing manuscripts because they could be easily and cheaply replaced. In North America, professional training was lacking. The opportunities available in Europe were not available in the United States. American colleges were small and were mostly concerned with educating physicians, lawyers, men in business and ministers of the Gospel (Lerner, 1999, p. 83).

**Limitations**

This document analysis is limited to researcher selected topics from the works of Evan I. Farber, chosen for his expertise and perceived renown within the field of academic librarianship. The cornerstone article by Farber (1999) chosen for this research study, "College Libraries and the Teaching/Learning Process: A 25-Year Reflection," specifically discussed issues from the late 20th century, specifically the 70s, 80s, and 90s. Comparative analysis included literature from the same field published in the 21st century, specifically the years 2000 through 2012. Again, the later analysis was limited to major topics discussed in Farber's work.

**Definition of Terms**

**Academic Library**. A library which focuses on serving an institution of higher learning, such as a university or college.

**American Library Association (ALA).** In 1853, 80 men attended a conference held in New York City with the intent of forming the organization. A committee was

formed in 1854 to have a second meeting, which did not happen. Eventually, the organization was formed October 6, 1876 (ALA, 2012).

**Association of College and Research Libraries (ACRL).** The ACRL is the largest division of the American Library Association (ALA), which consists of a professional association of academic librarians and other interested individuals. It was founded in 1889, by a group of 13 college librarians caucused at the annual ALA Conference in St. Louis, as it was recommended that a college library section be formed. ACRL represents librarians working within all types of academic libraries; community and junior college, college, and university, and also comprehensive and specialized research libraries and their professional staffs (ACRL, 2012).

**Bibliographic Instruction (B.I.).** Also known as library instruction and now often referred to as information literacy. It is the process of teaching library users to locate and use information available in the library. Usually covers research methodologies regarding each discipline, is course related, may be a hands on experience or available via an online tutorial. The process usually includes the basics, such as locating books via an online catalog, may be taught how to use the electronic databases, how to cite electronic resources, and learning how to read bibliographic information.

**Card Catalog.** Introduced in the 1800s, the card catalog is a list of cards neatly arranged in a cabinet, representing each item in a library. Each item is neatly listed on a card. (Most libraries no longer have card catalogs. Some exceptions include the small, rural library).

**College Library.** A library associated with a college usually located in a separate building or located in an area within a building, on a college campus.

**Evan Ira Farber.** Farber was the head librarian and Faculty Emeritus at Earlham College before his death on February 12, 2009. He was well known for his research on the subject of bibliographic instruction in academic libraries. He was active in various library associations and held key positions in many of them.

**International Standard Book Number (ISBN).** Once nine digits long in 1966, then 10 digits in 1970, and since January 1, 2007, the ISBN number contains 13 digits to uniquely identify a published book.

**International Standard Serial Number (ISSN).** An eight digit number assigned to a periodical and magazine in print or electronic format.

**Library Orientation Exchange (LOEX).** Founded in 1971, it is a self-supporting, non-profit educational clearinghouse for library instruction and information literacy information.

**Microfiche.** A microfiche is a flat sheet of microfilm in a form suitable for filing, typically measuring 4 by 6 in. (10 by 15 cm) and containing micro reproductions in a grid pattern.

**Microfilm.** A microfilm is a film, usually reel to reel, bearing a miniature photographic copy of printed or other graphic matter, usually of a document, newspaper, magazine, or book pages, etc., made for a library, archive, or the like.

**NetLibrary.** A leading supplier of electronic books (e-books) and Internet based content management services (purchased by EBSCO in 2013).

**Online Catalog.** Bibliographic records of a library's holdings, available in machine-readable form.

**Online Public Access Catalog (OPAC).** An online database of materials held by a library, which lists materials held, such as books, periodicals, videos, etc.

## Summary

This chapter provided an introduction to the study and the history of libraries, conducted in the form of a document analysis. The study focused on the changing roles of the academic librarian and discussed some of the major topics related to the academic library, such as bibliographic instruction, OCLC, and computers in libraries. The electronic information era and the use of the computers widespread throughout society have motivated a change in the demands placed upon the offerings, services, facilities, and personnel in the field of academic librarianship. The bibliographic instructional processes has changed, and there has been an increase in the amount of accessible information due to new technology used in information retrieval, challenges in meeting the needs of learners enrolled in online courses, and policies regarding copyright laws. Since electronic information is more prominent in libraries than in the past, its use must be reviewed.

The purpose of this study was to analyze the differences in media use in the higher education academic library setting for the years 1975 through 2012 as they relate to major educational issues identified by Farber (1999). A comparison of Farber's discussion of issues for each decade in the 20th century (70s, 80s, 90s) to the existing issues in the current era, the 21st century (2000-2012), and will provide a framework for discussion of the changing roles of library media specialists and the media they make available to academic library constituents.

This document analysis was limited to researcher selected topics from the works of Farber (1999), chosen for his expertise and perceived renown within the field of academic librarianship. The cornerstone article by Farber (1999) chosen for this research study, “College Libraries and the Teaching/Learning Process: A 25-Year Reflection,” specifically discussed issues from the late 20th century, specifically the 70s, 80s, and 90s. Comparative analysis included literature from the same field published in the 21st century, specifically the years 2000 through 2012.

## Chapter Two: Methodology / Procedures

The purpose of this study was to compare the academic issues Farber (1999) discussed in his article, "College Libraries and the Teaching/Learning Process: A 25-year Reflection" for the years 1975 through 1999 to the issues faced by academic librarians in the 21st century, years 2000 through 2012. Farber reflected on issues that affected the academic library, such as the traditional card catalog, microfilm and microfilm/microfiche readers, computers, the educational role of the college librarian, and faculty views of the college library, college libraries as aids to the instructors, Ohio College Library Center (OCLC), and bibliographic instruction.

Farber reviewed several surveys, including the Bureau of Education Survey (1914), a survey of instructional programs (1965), and a review from the Carnegie Commission on Higher Education, which published 21 volumes of information between 1969 and 1973, as well as 80 or more reports. He found the college library was mentioned in one paragraph within one volume, even though the library on college campuses was usually referred to as "The Heart of the Institution" by college and university officials (Farber, 1999, p. 172).

### Rationale

This study was of interest to this researcher because of familiarity with the work of Farber, and is perceived by the researcher to be important to academic librarianship based on his contributions to the field. Farber (1999) was Head of Reference at Earlham College in the 1970s. Farber was known for producing a very successful bibliographic instruction program, which included an informational book, quizzes and other written materials. Farber taught reference librarians how to transition incoming college freshmen

from the setting of high school libraries to academic libraries. Farber also found it to be important to establish an excellent rapport between the college librarian and the faculty, as well as with upper management. Farber's (1999) article focused on a large range of topics and was considered by some library scholars to be somewhat ahead of his time. The following is a list of items discussed by Farber (1999) in his original article, "College Libraries and the Teaching /Learning Process: A 25-year Reflection," through the years 1975 to 1999: 1) Microfilm; 2) OCLC; 3) An increased use of Computers in Libraries; 4) An increased instructional role on college campuses, caused a great need to develop professional organizations focusing on bibliographic instruction (BI) and in turn, BI's became a requirement in the advertisements of reference librarian positions; 5) The librarian must play a less passive role in the teaching process at the university; 6) The librarian must become key players in the undergraduate experience.

Figure 1 was constructed by this researcher and illustrates the researcher-identified topics from Farber's (1999) article that represent the main trends related to academic librarianship in the late 20th century. Topics included: 1) the card catalog, 2) computers in the library setting, 3) technological advances, 4) faculty culture and attitudes, 5) electronic information, 6) bibliographic instruction, 7) changes in the academic library, 8) OCLC, and 9) microfilm and microfiche.

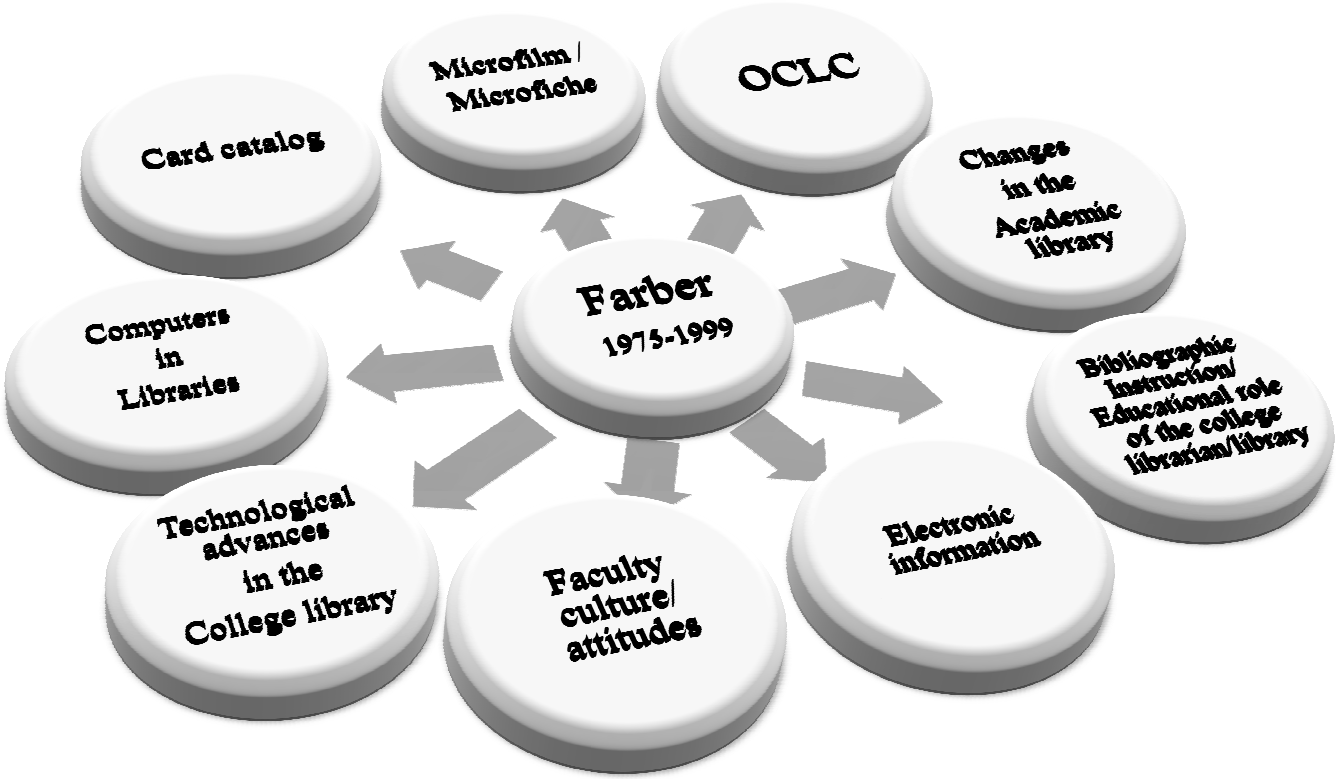


*Figure 1*. Topics from Farber's work included in this research

**Background**

Farber's (1999) reflection included discussion of academic librarianship issues through the late 20th century decades. A list of topics is included, by decade, on Tables 1 through 3. Throughout this study, the researcher focused on five areas: 1) Card catalog; 2) OCLC; 3) Computers in libraries; 4) Microfilm/Microfiche; and 5) Bibliographic instruction. In the 20th Century, the card catalog was replaced with its computerized version, an online public access catalog (OPAC). The online catalog was the tool used to locate items in the collection of a library, which may be part of a consortium. The Ohio College Library Center (OCLC) was created in the 1970s with a dual purpose to connect libraries around the world and to share as much information as possible with all library patrons (Jordan, 2009). It was renamed Online Computer Library Center, Inc. in 1981 (OCLC, Inc., 2013). The use of computers made online library catalogs a possibility, as well as a new storage process for library materials through increased use of microfiche (Dodson, 1977). The online public access catalog (OPAC) replaced most card catalogs and OCLC made it possible for libraries to share their holdings with other libraries around the world (Bailin & Grafstein, 2005). The WorldCat catalog included access to 71,000 or more public library, specialized libraries, such as hospital libraries or corporate libraries, colleges and universities around the world, and other more obscure libraries, which a patron may not even know exists on another continent (Jordan, 2009). Bibliographic instruction was supported by the OCLC throughout the last half of the 20th century. As computer cataloging became a reality and the size of library collections increased, it became a more important topic for academic librarians to consider.

**Card Catalog**

The replacement of the card catalog began in the 1970s and became a reality in the 1980s with the creations of Online Public Access Catalogs (OPAC). First generation OPACs in the 1980s were often referred to as 'phrase indexed' or pre-coordinate OPACs and provided access via author, title, or class mark in a way similar to the COM fiche catalogues of the 1970s. Derived, or acronym, keys were also used as a search mechanism (e.g. 'tedd, luc, a', for an author search) or a combination of author/title information might be used. These OPACs were good when searching for a known item (i.e. when the author and/or title of a work was known). The next (second) generation of OPACs were based on the information retrieval techniques developed by the online search services, such as Dialog, in the 1970s and were also known as keyword or post-coordinate OPACs. Access points in such OPACs were words from the title, subject headings or author fields and search statements could be compiled by linking the search terms using Boolean operators (Tedd, 2007, p. 311).

The replacement of the card catalog in academic libraries began in the 1970s, and during this decade the Ohio College Library Center (OCLC) expanded its services beyond the state of Ohio (Farber, 1999). Table 1 includes these historic library actions and a list of other issues from the 1970s discussed by Farber in the article, "College Libraries and the Teaching/Learning Process: A 25-year Reflection."

As the use of computers in the academic library increased, online card catalogs became more prominent, as well as the visibility of computer terminals in workstations located in the library. First generation Online Public Access Catalogues (OPAC) were created and used in the 1980s (Tedd, 2007).

Table 1.

*Issues Discussed by Evan Ira Farber, the 1970s.*

- Microfilms on the cutting edge of technology
- The Ohio College Library Center extends its services beyond Ohio
- Card catalog replaced with clusters of terminals and printers
- Conference, workshop, and publication use of computers increased
- The state of college libraries 25 years ago
- Advantages within college libraries 25 years ago
- End of Carnegie Commission on Higher Education study -1973
- Faculty not predisposed as scholars to recognize acknowledge an educational role for the library and for librarians
- Academic Librarians saw a need for an increased instructional role on campus
- A number of organizational developments reflected the increase in interest and practice
    - 1972, establishment of LOEX
    - 1973, formation of the Library Instruction Round Table
    - 1973, The Bibliographic Instruction section of the Association of college and Research Libraries (ACRL)
- 1970s through 1990s developments affected the language in the advertisements of jobs for Reference Librarians

*Note;* Compiled from Farber, E. (1999). "College Libraries and the Teaching/Learning Process: A 25-year Reflection."

Farber's (1999) discussion of prominent academic library issues from the 1980s centered on the role of the librarian, interactions with colleagues, and library changes that affected both of these categories. Table 2 includes a list of major events from the 1980s, as discussed by Farber in his article.

**Ohio College Library Center (OCLC)**

In 1967, the Ohio College Library Center (OCLC) was founded by Frederick G. Kilgour, along with the presidents of colleges and universities in the State of Ohio. Its foundation was in academe (Jordan, 2009, p. 728). OCLC was categorized as a nonprofit and membership organization.

Table 2.

*Issues Discussed by Evan Ira Farber, the 1980s.*

- Gresham Riley, president of Colorado College, was not encouraging, during a talk to academic librarians
- Arthur W. Chickering and Associates –known for innovative views of higher education
- "New Directions for Teaching and Learning" was devoted to Increasing the Teaching Role of Academic Libraries
- Carnegie Foundation for the Advancement of Teaching was planning a "comprehensive study" of undergraduate education.
- "The Library in Undergraduate Education" – Farber
- College: The Undergraduate Experience - Boyer
- Middle State Commission on Higher Education held a workshop to discuss the recently adopted standard on Bibliographic Instruction
- Instructional librarians collaborate with systems personnel in developing user-friendly interfaces and the content for the online subject guides
- Instruction librarians instruct students and faculty how to make more effective use of electronic information resources
- Faculty attitudes change and will change even more
- The new library technology changes attitudes in several ways
- Timothy Heiskel, a Henry Luce fellow at Harvard, wrote about the impact of electronic information on scholars and teachers as well as students
- College presidents and deans look upon the role of librarians very differently than they did 25 years ago, even differently than they did 15 years ago

*Note;* Compiled from Farber, E. (1999). "College Libraries and the Teaching/Learning Process: A 25-year Reflection."

Member libraries were required to create original catalog records for items which did not exist in the OCLC database and complete all Roman alphabet cataloging online. OCLC membership was a commitment to contribute to the cooperative. OCLC's main objective, when established, was to make library resources more readily available to the public and to reduce the rising cost of purchasing items for libraries (Jordan, 2009, p. 728). OCLC remained a strong organization, offering guidance to library systems in the development of academic processes, throughout the decades represented in this study.

**Computers in Libraries**

According to Tedd (2007), in the early 1960s, many libraries in the UK and in North America, decided to use computers to assist in the processing of information. Most of these systems evolved from the eighty-column punched card data processing systems that had been pioneered by Herman Hollerith to aid in the processing of information from the 1890 US Census. The idea for these cards had been given to Hollerith by Dr Billings, then librarian of the Library of the Surgeon's General Office, considered to be the forerunner of the National Library of Medicine (Tedd, 2007).

The 1960s brought challenges to the use computers in the academic library world. These included:

> 1) Computers were large and expensive and were owned by the parent authority; 2) Programmers were needed to write the appropriate software for each application; 3) Programs were often written in machine-code language, i.e. the specific computer language for the particular computer, as general programming languages, such as Algol, Basic, COBOL, Fortran, were all rather new; 4) The computer technology of the time was not always adequate for the job; 5) Computer people thought they knew what library staff required; and 6) Library staff were not always too sure about what was possible. (Tedd, 2007, p. 303)

Table 3 highlights the academic library issues from the 1990s discussed by Farber (1999) in his article. Computers had become more visible in the academic library than during previous years. The role of the academic librarian was still prominently discussed and was changing because of technology demands. The importance of bibliographic instruction was more widely recognized.

Table 3.

*Issues Discussed by Evan Ira Farber, the 1990s.*

- The card catalog was gone, but there was still;
  - The familiar circulation counter
  - The reference librarian's desk
  - Current periodicals display
  - Recent book acquisitions display
  - Study carrels in the stacks
  - Clusters of terminals and printers in place of card catalogues
- Invisible changes
  - Services provided by library
  - Resources available through library
  - Means by which those services and resources were acquired and distributed
- Howard Simmons, executive director of the commission on Higher Education of the Middle States Association of Colleges and Secondary Schools reiterated the important role of the library
- The Southern Association of Colleges and Schools 1992 standards echoed the implementation of instruction in library use and the cooperative working relationship of librarians and teaching faculty
- Uses of electronic information
- Faculty culture
- Major Technological advances
- Farber – The more prestigious the institution, the more resistance there would be to working with librarians
- Gateways to Knowledge: The Role of Academic Librarians in Teaching, Learning, and Research
- According to Farber
  - Two developments
    - The widespread success of bibliographic instruction
    - The impact of electronic sources of information
- Teachers realize they need to be familiarized with the new electronic sources
- A forum of approximately 20 provosts representing the country discussed various library-related issues at the AAHE Conference
- 1970s through 1990s developments affected the language in the advertisements of jobs for Reference Librarians

*Note;* Compiled from Farber, E. (1999). "College Libraries and the Teaching/Learning Process: A 25-year Reflection."

Computers located in libraries were once used to process cards for card catalogs in the early 70s. Throughout the 70s, 80s, and 90s, the use of computers by the academic library continued to evolve (Farber, 1999). It was usual to see academic libraries with

desktop computers located throughout the library, or more recently, laptops and I pads, available to patrons for checkout. Also, computers were used to assist in bibliographic instruction sessions, to access the catalog, or assist the circulation and reference staff with patron questions. The computer held access to a wealth of information which the reference staff was trained to access. Computers also assisted the librarians with online surveys for each department of the library (Farber, 1999).

**Microfilm/Microfiche**

At the time of this writing, microfilm is not used as much as it once was during its initial conception. At the time of this writing it is mostly found in the archives or government document sections of libraries. Microfiche are also found in museum and medical libraries. Thus, it is important for librarians to have a microfilm/microfiche reader on hand, just in case one is needed (Farber, 1999).

**Bibliographic Instruction**

Bibliographic instruction evolved throughout the timeline discussed in this study and will remain necessary in an academic environment. The process has changed considerably and, in the 21st Century, varied according to each academic institution, based upon technological advances, availability of budgets to purchase electronic products to produce and execute electronic bibliographic instructional materials, and a knowledgeable staff properly trained to provide a variety of online BI services. It became essential that every reference librarian knew and learned as much as possible about the resources purchased in the library and had the ability to share and teach students and faculty how to use the available databases and resources, whether they were in an electronic format or in hardcopy (Farber, 1999).

## Research Questions

What are the similarities and differences between the academic issues discussed by Farber (1999) in each decade of his review of the years 1975 to 1999 and those same identified issues from 2000 to 2012?

What are the changes in the types and uses of library media in the higher education academic setting that have taken place for each decade included in the years 1975-1999, as compared to library media use in the years 2000-2012?

What are the changes in roles and responsibilities of higher education library media specialists that have taken place for each decade included in the years 1975-1999, as compared to roles and responsibilities in the years 2000-2012?

What are the future implications for library media specialists and library program directors resulting from the analysis of theories, issues, academic library positions, and academic library media offerings for the years represented in this study?

## Procedure

The following procedure was followed in this document analysis study:

1. The researcher chose the cornerstone article by Farber (1999), "College Libraries and the Teaching/Learning Process: A 25-Year Reflection," in which academic library issues from the late 20th century were discussed.
2. The researcher analyzed and identified major educational issues discussed by Farber (1999).
3. The researcher categorized issues according to decade (70s, 80s, or 90s).
4. The researcher examined academic library literature from the late 20th century, including existing documents, case studies, qualitative and quantitative research,

as well as conference proceedings, books, periodicals, microfiche, documentaries, etc., to identify works that supported views stated in the cornerstone article.

5. The researcher used the review of literature to narrow the field of potential academic library issues to those most strongly represented by Farber (1999) and other authors of the time.
6. The researcher developed a rubric listing major issues and topics from the cornerstone article for use in examining related literature.
7. Guided by the rubric, the researcher reviewed literature, including existing documents, case studies, qualitative and quantitative research, as well as conference proceedings, books, periodicals, microfiche, documentaries, etc., concerning academic librarianship in the 21st century.
8. Following review of literature, the researcher reviewed major trends/movements in librarianship in the 21st century, for the years 2000-2012.
9. Following review of literature, the researcher reviewed media changes in librarianship from in the 21st century, for the years 2000-2012.
10. The researcher summarized the literature with respect to the chosen topics.
11. The researcher compared and contrasted the 20th century and 21st century information.

Research discussion was organized by themes represented by Farber, (1999) 21st century themes that reflected Farber's (1999) views, and 21st century themes not represented by Farber (1999).

**Academic Libraries**

Academic libraries were examined in this study. According to the National Center for Education Statistics (NCES), an academic library is associated with a degree-granting institution of higher education and are identified by the post-secondary institution of which they are a part of and provide the following services: 1) An organized collection of materials; printed, electronic, etc.; 2) A staff trained to provide and interpret materials as required to meet the educational needs of the patrons; 3) An established schedule of services by staff available to patrons; and 4) The facility to support the collection, staff, and schedule (Institute of Education Sciences [IES], n.d.).

**Cornerstone Article by Farber**

The researcher chose the key article by Farber (1999), because it covered many issues which affected the academic library as a whole. The beginning of the article assessed an 1880 government publication, which stated the college librarian should become a teacher with a world of books. Most would define a teacher with a world of books as a teacher with access to a large collection of books, such as a library. Next, Farber (1999) looked at the 1914 Bureau of Education Survey and then reviewed a survey from the 1960s. The 1960s survey covered 157 instructional programs in college libraries in 1965. The results of the article written about these surveys led to the creation of the Carnegie Commission on Higher Education (1967-1973). The Carnegie Commission existed for six years and represented the most comprehensive study of American higher education. The results of the study appeared in a 21 volume set, and the library was discussed in just one paragraph in only one volume. The impact of the one paragraph led to the development of the Council on Library Resources, Inc. and the

National Endowment for the Humanities (CLR-NEH). CLR-NEH College Library Program was sponsored by the Council on Library Resources. Due to the development of this program, the college library programs, sponsored by CLR-NEH grants, were given to 36 institutions in 1969, with cooperation of the National Endowment for the Humanities (NEH). The grants helped the institutions explore innovative ways of enhancing the library's participation in the education process. For example, in 1981, Arthur W. Chickering and Associates, a group noted for their innovative views of higher education, wrote "The Modern American College: Responding to the New Realities of Diverse Students and a Changing Society". Academic librarians, however, had seen the need for an increased instructional role on campus, and as a result the bibliographic instruction movement made considerable progress during the 1970s (Farber, 1999).

In 1939, Lyle (1961), Farber's (1999) boss and mentor wrote the classic book, *The Administration of the College Library*, which was the beginning of a position of strength for the college library in educational programs and a strengthening of respect for librarians with the faculty. The important information that strengthens libraries is the role it plays in the researching part of the education process.

Farber (1999) discussed the position of microfilm in the college library in the 1970s, OCLC, the card catalog, the use of computers and reviewed the college library as it existed 25 years ago. Farber elaborated on the state of the college library as a whole which included the lack of contributions to the educational program, the manageable size, which permitted a clear focus on the kind of materials acquired and distributed, the services performed, and the captive clientele. Farber also looked at the effectiveness of the college library and delivery of instruction. Farber investigated the issues beginning

1970 through 1973, which was the end of the Carnegie Commission on Higher Education.

In 1975, the Oberlin College Librarian, William Moffett, surveyed a large number of academic librarians, about expectations of faculty and administrators and vice versa. At this time, Farber (1999) was interested in the attitude of key administrators to the role of the college library. Articles written about bibliographic instruction (BI) also began to take off during that time, and there was a major increase in the number of articles written on the subject of the BI (Farber, 1999).

Various organizations, such as the CLR-NEH continued to grow regarding the college library. From the 1970s to the 1990s, Farber (1999) discussed the changes taking place in the language used to advertise for reference librarian positions.

In the 1980s, Farber (1999) still, according to an article reporting the results of the CLR-NEH College Library Program, relationships between the college librarian and university administrators had not changed much. Farber continued to review speakers, reports, and other data, and concluded between the years 1984 and 1989 college administrators attitudes were changing about the role of the academic librarian.

In the 1990s, according to Farber (1999), the card catalog had mostly disappeared, except in the small rural libraries and the circulation desk, reference desk, periodical display, book acquisition display, study carrels, clusters of terminals, which also took the place of card catalogues were visible. The changes were new services, resources, and the means by which the services and resources were acquired and distributed.

Farber (1999) believed the early 1990s were a time to reiterate the importance of the college library to the academic community. It was also a time to look at major

technological advances, such as the many uses of computers in libraries. Farber reviewed how computers permitted librarians to do what they had always done, but better and faster, how they had helped to do things they had not been able to do before, and the changes they had made when doing everyday work assignments, such as keeping records, producing cards for card catalogs/MARC records, using information from distances through access to online databases. Farber believed the technological advances alone and the need for the user instruction movement would increase the teaching and learning process of the college librarian (workshops and sessions for faculty), thus increasing the positive relationships between faculty and librarians and upper management, such as the provost, and the educational role of the librarian.

For this literature review, the researcher also read works by other authors published in the 21st century. Most articles examined were related to the five topics the research found to be most pertinent, such as microfilm, OCLC, card catalogs, computers in libraries, and bibliographic instruction (BI). Again, evidence of Farber's (1999) vision regarding bibliographic instruction as timely and notable was present. The researcher reviewed peer-reviewed literature, books, conference proceedings, presentations, reports, and other means of published materials between the years 1975-1999 and 2000-2012.

**Choice of 21st Century Authors**

The rubric in Table 4 was created to guide the researcher's examination of the articles published in the year 2000 and beyond. The researcher decided on the rubric to display topics of interest in the original article. Although Farber (1999) discussed a large range of topics, the researcher decided upon the included categories as those researched the most, as referenced within items published during the years 2000 to 2012.

Table 4.

*Rubric to Facilitate Organization of Research Materials, as Related to Farber's Identified Educational Issues*

| Issues Identified by Farber | Issue(s) | Author Years 2000 + | Article title | Discussion Points |
|---|---|---|---|---|
| Microfilm / Microfiche | | | | |
| OCLC | | | | |
| Computers in Libraries | | | | |
| Bibliographic Instruction (B.I.) | | | | |
| Teaching / Librarians | | | | |
| Uses of electronic information | | | | |
| Major Technological advances | | | | |
| Faculty attitudes | | | | |
| New library technology | | | | |

*Note*: Researcher compiled. Researcher added issues to this list, as needed during analysis.

The researcher searched many articles and books to focus on the rubric topics. The researcher found OCLC continued to grow and change. Microfilm had lessened in its production, unless it was a government document or part of a special collection. Card catalogs continued to exist in the smaller rural libraries and in some unique collections, such as museums. Bibliographic instruction had changed drastically, due to technological advances. Computer use affected the field of librarianship radically, from keeping track of cards for card catalogs, to online database usage, to social media (Farber, 1999).

The researcher focused on the five chosen main topics, since there had been documented changes within the field of academic librarianship, regarding those topics. There continues to be research concerning OCLC, card catalogs, bibliographic

instruction, and computers in libraries, though the amount of research has decreased significantly when dealing with Microfilm (Jordan, 2009). The researcher searched the literature via online databases, multiple catalogs, most of which were a part of a consortium agreement, books, reports, reputable online sites, and other items.

As articles were examined, the researcher used the rubric to decide how the information was related to or not related to Farber's (1999) historic knowledge, experience in the field of academic librarianship, and vision for the future of the field. Most of the articles were related to five of the many topics Farber (1999) discussed.

While reading articles published in the year 2000 or later, the researcher chose the main themes represented by Farber (1999), and chose additional themes represented by 21st century authors that were not addressed by Farber. The topics for academic libraries discussed in the 21st century included: 1) 24-hour reference services; 2) e-books; 3) informational workshops; 4) loaning laptops; 5) loaning textbooks; 6) more library collaborations; 7) printing from smart phones; 8) proving value to upper management; 9) texting receipt of requested items; 10) virtual reference; and 11) wireless printing. Figure 2 illustrates the topics from Farber's (1999) cornerstone article identified by the researcher to represent a relevant comparison between the late 20th century and early 21st century with regard to academic librarianship. Topics representing the greatest changes and greatest connections between the two eras were: 1) microfilm and microfiche, 2) bibliographic instruction, 3) computers in libraries, 4) card catalogs, and 5) OCLC.

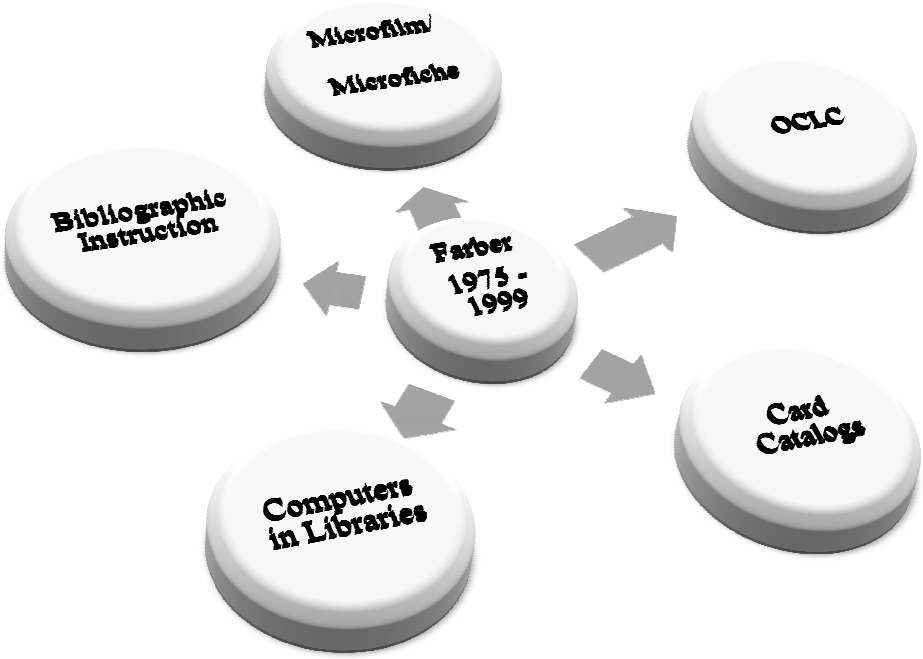


*Figure 2*. Main issues included in a content analysis in this study

The researcher conducted a content analysis through a process of compare and contrast of the materials gathered. Discussion included main issues mentioned in Farber's (1999) work only, issues mentioned in both Farber's work and that of 21st century authors, and those items mentioned only by 21st century authors, yet not included Farber's work. Conclusions concerning the state of current affairs for academic libraries and the future outlook for the professionals in the field were drawn from the content analysis. Recommendations for sustainment of current efficient processes and improvement of academic libraries with respect to content analysis discussion are included.

In conclusion, Farber's (1999) article was an interesting source of information and provided insight into the motivations for some of the changes in academic librarianship that evolved in the 21st century libraries.

**Summary**

This chapter covered the processes followed in the analysis portion of the study and the original research questions addressed. It reviewed the key issues Farber (1999) discussed in his article, "College Libraries and the Teaching/Learning Process: A 25-year Reflection": 1) the card catalog, 2) computers in the library setting, 3) technological advances, 4) faculty culture and attitudes, 5) electronic information, 6) bibliographic instruction, 7) changes in the academic library, 8) OCLC, and 9) microfilm and microfiche. It also discussed the selected issues the researcher discussed in the document analysis conducted: 1) microfilm and microfiche, 2) bibliographic instruction, 3) computers in libraries, 4) card catalogs, and 5) OCLC. A step-by-step list of what the researcher did to compare and contrast 20th century issues and 21st century issues in academic librarianship is included. Chapter Three provides a detailed summary of Farber's (1999) article, with a focus on the nine researcher-identified categories. Chapter Four provides a summary of literature from the field of academic librarianship intended to represent the movement into the 21st century. These two in-depth literature reviews are used in a compare and contrast of issues summarized in Chapter Five. Conclusions and recommendations are discussed in Chapter Six.

## Chapter Three: Review of Cornerstone Article

### Academic Librarianship in the Late 20th Century: According to Farber

Evan Ira Farber (1922 – 2009) was a well know leader and authority on the subject of bibliographic instruction in academic libraries, according to those in the field of librarianship. He was the head librarian at Earlham College and was one of the most respected and influential contemporary librarians of his time. Farber served as the president of the Association of College and Research Libraries (ACRL) and was also chairperson of the College Libraries section of ACRL (Hardesty, 1999, p. v.).

In 1980, Farber received the Academic/Research Librarian of the Year award, through ACRL and in 1987 he received the Miriam Dudley Bibliographic Instruction Librarian of the Year award. Most of his admiration was gained from the time he spent promoting bibliographic instruction at Earlham College in the 1960s. The program Farber created at Earlham gained national prominence among librarians when he spoke at the 1969 American Library Association conference. That speech helped librarians realize that there was a great interest in work on the processes for bibliographic instruction (Hardesty, 1993). From the late 1960s to the present, no other college or university had provided a better model of active library involvement in the educational enterprise (Hardesty, 1993).

For this document analysis, the researcher first chose a key article written by Farber (1999), and then identified key categories to use as a guide in searching literature by other academians in the field of librarianship. Topics included are: 1) OCLC, 2) microfilm and microfiche, 3) the card catalog, 4) bibliographic instruction, 5) changes in the academic library, 6) technological advances, 7) electronic information, 8) computers

in the library setting, and 9) faculty culture and attitudes. A number of these topics connect to each other. The views and philosophies from one area are described as motivating change in others (Farber, 1999).

**Microfilm, Ohio College Library Center (OCLC), Card Catalogs**

The article, "College Libraries and the Teaching/Learning Process: A 25-Year Reflection" written by Farber (1999), is an excellent article, in the researcher's opinion. It evaluated the issues librarians were discussing in the late 20th century, which included the early 1970s through 1999, and focused on the changes in the role of librarianship during those years. Some of the key issues discussed in this piece of writing during the 70s were microfilm, OCLC, and the utilization of card catalogs. Also included were the use of computers in libraries, which was the main focus of conferences and workshops at the time, as well as subject specific content of most professional publications and peer-reviewed articles (Farber, 1999).

From 1973 to 1998, some of the most notable changes in librarianship were the removal of card catalogs from many libraries, which were replaced by clusters of computer terminals and printers. Farber (1999) noted that the familiar circulation counter/desk was still visible, along with the reference desk, the display of current periodicals, recent book acquisitions, and study carrels; and hopefully, an atmosphere conducive to study also existed in most college libraries during this time. Most things that had changed, according to Farber (1999), were those unseen, such as the services provided by the library, the resources available, and the means by which the resources and services could be acquired and distributed.

**Bibliographic Instruction**

Farber believed college librarians should have been more effective when providing bibliographic instruction, since they have been giving instruction in the use of the college library for over a century (Farber, 1999). In 1880, Winter, the Harvard Librarian wrote in the government publication, *College Libraries as Aids to Instruction*, the college librarian should become, "a teacher, not that mock substitute who is recited to: a teacher, not with a text book, but with a world of books" (Winter, 1880, p. 171). This supported the thought that librarians at many institutions had historically presented instructional courses and/or lectures in the use of libraries, well before Farber's time.

In 1914, a survey by the Bureau of Education found that about one-fifth of the 446 responding colleges and universities provided instruction in the use of libraries. But the instruction was basic and did not play an important role in the education of a student. The situation remained the same over the next several decades, from the 1970s into the 21st century (Farber, 1999). In 1965, a survey was conducted on the subject of instructional programs offered at 157 college libraries. It was found that most of the librarians were offering some form of instruction, but there was little interest and therefore not enough being done, according to Farber (1999). Also, faculty cooperation was minimal (Farber, 1999).

In the 1970s, Farber (1999) reported that academic libraries perceived a need for an increased instructional role on campus. The bibliographic instruction (BI) movement had made considerable progress and had taken off in academic libraries. Farber (1999) believed this was due to a new generation of reference librarians and library administrators. Between 1958 and 1971, there were about 35 articles published regarding

bibliographic instruction, and in 1974, the publication *Library Literature* listed more than 70 articles (Farber). Due to the surge of popularity of bibliographic instruction in academic libraries, several organizations were developed to increase an interest in the practice of BI, the most well-known were: the CLR-NEH started in 1968, next LOEX, created in 1971, and in 1973, the creation of the Library Instruction Round Table and the Bibliographic Instruction Section of the Association of College and Research Libraries (ACRL) (Farber).

The educational role of the college librarian remained the same from the 1900s through the 1960s. Farber (1999) believed it continued to be a supportive and passive one, and it consisted of maintaining a supportive role of the college library devoted to getting materials quickly, making materials accessible with effectiveness, and the availability to answer reference questions.

> From the late 1960s to the early 1970s during a socially turbulent time and due to political movements, Algo Henderson, the founder and director of the University of Michigan's Center for the Study of Higher Education and former president of Antioch College, made a call for change in 1970: "The colleges and universities have tended to be defensive about their programs and policies rather than open to ideas for change. The times require change. The solutions to problems must be found in action, even if it involves departures from tradition." (Farber, 1999, p. 172)

Similar calls for change, but especially the many educational reforms proposed or actually being tried at colleges and universities around the country, led to the creation of the Carnegie Commission on Higher Education, an exceptionally prestigious body.

During the six years of its existence, from 1967 to 1973, the commission made perhaps the most comprehensive study ever of American higher education (Farber, 1999). The result from the study, which focused on American higher education and was created by the Carnegie Commission on Higher Education, was published in 21 volumes between 1969 and 1973. The Commission also issued 80 or more reports by experts on various additional topics related to higher education (Carnegie Commission on Higher Education, 1972).

The role of the library, which was often referred to as, “the heart of the institution,” was surprisingly discussed in one volume and in one paragraph only. That paragraph acknowledged that while college libraries are usually looked upon as rather passive centers on campus, they "can, and in some places do, play a more active role," and ended with the recommendation that "The library should become a more active participant in the instructional process with an added proportion of funds, perhaps as much as a doubling” [Underlining in the original] (Farber, 1999, p. 172).

Farber (1999) wondered why the commission made that recommendation. He believed the commission observed the stirrings in academic librarianship and/or he felt there must be some change, and/or the influence of the findings in the report created by the commission may have caused the development of the CLR-NEH College Library Program, which is a program of the Council Library Resources.

In 1969, the Council and the National Endowment for the Humanities (NEH), decided to give grants to 36 institutions to “explore innovative ways of enhancing the library’s participation in the education process” (Farber, 1999, p. 172). An article with the results of the program activities noted that a team of evaluators had learned, "that the

joint program focused the attention of the college and university administration on the importance of the library in the total teaching effort" (Farber, 1999, p. 172). This did get the attention of some administrators and faculty.

Around 1971, William Moffett, the Oberlin College Librarian, created a survey and surveyed a large number of academic librarians. He wanted to know what they expected from administrators and faculty and vice versa. According to Farber (1999), the results were discouraging, based upon the comments of librarians and the attitudes of key administrators. The literature regarding higher education in the 1960s and 1970s had little discussion concerning the educational role of the library (Farber, 1999, p. 172).

Farber (1999) referred to a couple of essays he wrote in 1980 on the present state of the college library during that time, in which he commented on the lack of their contributions to their institutions' educational programs. Farber believed that the lack of contributions was "deplorable," since college libraries had advantages, among which was a manageable size.

> that should permit a focus on the kind and level of materials they acquire and distribute, and the relative clarity of institutional goals [that] should point out more or less precisely the services they perform ...."The college library" has, so to speak, a captive clientele . . . With that clientele the library can establish as intimate, as helpful, and as educational a relationship as its imagination, energy, and desire allow. And yet, I concluded, "Is there any knowledgeable observer who can say that college libraries are really doing the job they should?" It was, of course, a rhetorical question, but why were they not? (Farber, 1999, p. 171)

In 1981, a group known for innovative views of higher education, Arthur W. Chickering and Associates, created, “The Modern American College: Responding to the New Realities of Diverse Students and a Changing Society” (Farber, 1999, p. 172). This book was 700 pages long, contained 42 chapters, and covered many aspects of the topic of college teaching and learning, but there was no mention of the library. This discouraged Farber, for he was devoted to making the college library an essential part of the undergraduate educational experience (p. 172).

In June 1984, an issue of the quarterly series, *New Directions for Teaching and Learning* was devoted to, “Increasing the Teaching Role of Academic Libraries” (Farber, 1999, p. 173). This was the first time the library was featured. Tom Kirk, who was the librarian at Berea College at the time, noted that the, “professional focus of academic libraries has shifted from a passive and, at best, responsive role to an active involvement in the educational program of the institution" (Farber, 1999, p. 173). Kirk then elaborated on a few of the things he believed had led to the shift; the new technology to help retrieve information, changes in educational practices and policies, and the tremendous increase in the amount of accessible information. The beginning of the issue focused on the teaching library (Farber).

A teaching library is one “that is actively and directly involved in advancing all aspects of the mission of instructions of higher education; teaching, learning, and community service" (Farber, 1999, p. 173). An un-named university chancellor and two librarians were the authors of the first piece in the June 1984 quarterly issue of *New Directions for Teaching and Learning* article. They believed that in order for the teaching library to succeed, it is necessary for the librarian to have a close relationship

with the faculty. When that happens, "the library and the librarians become a powerful campus force helping the institution adapt to the changing demands of society" (Farber, 1999, p. 173). Also during the same period, in the summer of 1984, Farber (1999) read in *The Chronicle of Higher Education* that the Carnegie Foundation for the Advancement of Teaching was planning a "comprehensive study" of undergraduate education" (p. 173). While reading about the up and coming study, Farber found that there was no mention of the college library. So, he contacted Boyer, founding president of the Carnegie Foundation, and he was given the opportunity to write on the subject. His section was included in the Carnegie Foundation study and consisted of 85 pages. It was titled "The Library in Undergraduate Education" and submitted in March, 1985 (Farber).

So, Farber (1999) wrote about the role of the undergraduate library. He believed the college library made a real difference in the "quality of undergraduate education" (Farber, 1999, p. 173). The paper also focused on three developments Farber believed were having a major effect on the role of the library. They are the following: 1) The financial retrenchment; 2) The impact of technology; and 3) Instruction in use of the library (Phipps, 1968, p. 172). "Those three developments have come together in the last ten or fifteen years, and the combined impact will be increasingly evident" (Farber, 1999, p. 173). Yet, Farber gave most of his interest to the development and significance of bibliographic instruction.

Two years later, *College: The Undergraduate Experience*, by Boyer (1987) was published. Seven pages were dedicated to the library and librarians. Some of the comments were as follows:

> The college library must be viewed as a vital part of the undergraduate experience . . . The library staff should be considered as important to teaching as are classroom teachers. Since the library expresses the philosophy of education and the distinctive characteristics of the college, its role should be to "bring students, faculty, and books together in ways that would encourage learning, intensive scholarship, and casual browsing." We further recommend that every undergraduate student be introduced carefully to the full range of resources for learning on campus. Students should be given bibliographic instruction . . . For the library to become a central learning resource on the campus, we need, above all, liberally educated librarians, professionals who understand and are interested in undergraduate education, who are involved in educational matters . . . (as cited in Farber, 1999, p. 173).

The final chapter in Boyer's book, "Epilogue: Guide to a Good College," asked many questions, but one that really interested Farber was, "Are those who direct the library also considered teachers?" (Boyer, 1987, p. 292). Librarians were very encouraged about the book, for this reason alone. Boyer's recommendations did not influence college faculty and administrators as much as librarians hoped for, but the topics relating to libraries did open up discussions (Farber, 1999, p. 173-174).

In the fall of 1989, the Middle States Commission on Higher Education held a workshop to discuss the recently adopted standard on bibliographic instruction (Farber 1999). It stated that "the centrality of a library/learning center in the educational mission of an institution deserves more than rhetoric and must be supported by more than lip

service. An active and continuous program of bibliographic instruction is essential to realize this goal" (Farber, 1999, p.173).

To implement the standard the workshop suggested that members of evaluation teams should have "an understanding of the relationship between library use instruction and the wider educational process of the institution" (Farber, 1985, p. 173).

> And, because the standard also declared that excellence in the professional staff of the library is "measurable in part by the extent to which they are active participants in the academic enterprise, not merely custodians" evaluation teams should also discuss the extent to which faculty "are committed to library research for undergraduates . . . as well as the extent to which they view librarians as resource people who can not only offer students instruction in library use, but also help faculty in designing research projects." (Farber, 1999, p. 173-174)

In 1991, Howard Simmons, the executive director of the Commission on Higher Education of the Middle States Association of Colleges and Secondary Schools, commented on the workshop and restated the important role of the library.

> If we are to be serious about improvement in the teaching-learning cycle . . . the library ought to play a pivotal role... And to make it work, librarians need to be empowered. I decided that the influence of an accrediting agency would help them do so. I saw this also as a way of improving the college curriculum. (Farber, 1999, p. 174)

According to Farber, (1999) The Southern Association of Colleges and Schools' 1992 standards repeated support of the implementation of instruction in library use and the cooperative working relationship of librarians and teaching faculty:

> Basic library services must include an orientation program designed to teach new users how to obtain individual assistance, access to bibliographical information and access to materials . . . The library must provide students with opportunities to learn how to access information in a variety of formats so they can continue life-long learning. Librarians must work cooperatively with the teaching faculty in assisting students to use resource materials effectively. (Farber, 1999, p. 174)

Farber (1999) hoped that, the expression, "a variety of formats," did not allude to microforms and other print-based formats, but rather applied to the uses of electronic information (p. 174).

In any case, because of the prestige and clout of an accrediting association this development was a most significant one; it helped focus the eyes of college and university administrators on what their libraries were doing to teach students to make more effective use of library resources. But whether or not it could change the attitudes of most faculty members toward the role of the library was another question. The "faculty culture" and its resistance to bibliographic instruction were insightfully discussed by Hardesty (Farber, 1999).

**Electronic Information and Technological Developments**

Farber (1999) believed the resistance to enhance the educational role of librarians, had improved over the years, yet it still seemed to be a major problem. However, Farber believed the impact of electronic information had helped improve the resistance. He thought it was a predictable development to those familiar with the, “social history of major technological developments” (p. 174).

Farber (1999) stated,

> There is a maxim in that field of study that goes like this: the first stage of a major technological advance permits us to do what we did before, but better or faster, or both; the second stage permits us to use the advance to do things we had not been able to do before; in the third stage it changes the way we work, or live, or even how we think. (1999, p. 174)

**Computers in Libraries**

Farber (1999) believed that one could voluntarily apply his three discussed stages to the use of computers in libraries. First, he believed computers permitted us to do some of our standard operations in libraries, such as keeping records, producing catalog cards, creating bibliographic lists, and creating them faster or better, or both (Farber). In the second stage, Farber believed we were able to use computers to permit access to databases from long distances, to automate the card catalog, and let users create their own subject headings, therefore do many other things we could not do before but which we now take for granted. In the third stage, Farber stated that with the exception of archival preservation, computers were changing just about every aspect of librarianship in areas such as the following: building design, professional education, financial requirements, administrative concepts, and traditionally accepted standard definitions. Computers were also helping change faculty attitudes toward the role of librarians. Farber (1999) asked the question, “Should they also change our approach to library use instruction which, until recently, has been the most important factor in helping librarians play a more significant educational role?” (p. 174).

Herrington (1998), the author of the article, “Way beyond BI: A Look to the Future", published in *The Journal of Academic Librarianship*, in September 1988, that

bibliographic instruction must have a new prototype. Herrington believed that computers had changed the way a bibliographic instruction should be conducted and stated that "basic principles must be examined, revised, or even discarded" and that "instead of focusing on teaching, instructional librarians could collaborate with systems personnel in developing user-friendly interfaces and the content for the online subject guides" (Herrington, 1998, p. 174). The simple belief was that instruction librarians did not really need to change much.

The point remains, instruction librarians must continue to instruct students and faculty on how to make an effective use of electronic information resources, available to them via their university library. As Farber (1999) explained in his article, we must do what we did for the world of print, the resources are different, but the method of bibliographic instruction is just a little different, "our clientele, however, is very much the same, and so is the rationale for our purpose" (p. 174)

In Farber's (1985) paper for the Carnegie Commission, he wrote that "Faculty attitudes are changing and will change even more" (p. 174). And he believed that library technology should change attitudes in several ways. Farber (1985) stated that, "faculty will increasingly recognize the importance of instruction by librarians to help find and evaluate all the material available to them and their students" (p. 174). Most librarians agreed with Farber (1985), and just a few faculty members at some colleges and universities (p. 174).

Farber (1999) reported, in 1988, that Timothy Heiskel, a Henry Luce Fellow at Harvard University wrote about the impact of electronic information on scholars, teachers and students. Heiskel believed that faculty and students will need to be instructed with

reference, “to the possibilities and actual techniques of electronic research . . . [I]t is becoming clear that major new commitments to teaching tasks are emerging within the university independent of the traditional mechanisms of control by the faculty” (as cited in Farber, 1999, p. 174).

> Faculty who wish jealously to guard their role as teachers may find they muzzle or restrain the teaching role of the professional librarian whose expertise in these realms they can barely hope to match . . . Few faculty are even aware that there is a problem here; even fewer have helpful suggestions. Librarians may have to take the initiative in this realm, as they have in so many other domains related to the information revolution. (Farber, 1999, p. 174)

Farber (1999) perceived that the more prestigious the institution, the more resistance there would be to working with librarians. Yet, he believed he had found an exception to the rule. He reported a comment from the preface of the book, *Gateways to Knowledge: The Role of Academic Libraries in Teaching, Learning and Research*, which is a collection of papers given at a conference hosted by the Harvard College Library, by Dowler (1997), associate librarian of Harvard College and the editor of the volume. Contributor’s comments included, "Most surprising is a tendency to define the library's role not as a passive agent within the university but as an active partner contributing to the educational mission of the university" (as cited in Farber, 1999, p. 175).

According to Farber (1999), an essay written by James Wilkinson, Director of Harvard University's Derek Bok Center for Teaching and Learning stated,

> A point of entry for libraries to aid learning through technology lies first in aiding students and faculty to maneuver onto the information superhighway . . .

> [Librarians] can offer useful filters to students and faculty in need of them . . . Clearly, this filtering must be done intelligently . . . But who better suited to the task than those who understand both the available resources and the needs of the client--the librarians? (p. 175)
>
> Included in a later section:
>
> What are libraries for? To their two traditional roles as custodians of knowledge and hosts for creative research, I would suggest that we add a third role--as locus and advocate for electronic teaching. This role will mean creating new partnerships among librarians, faculty, and students and pursuing an ongoing effort to master technologies subject to constant change. (Farber, 1999, p.175)

The "gateway" concept of the library, as seen in this volume of essays, is nothing really new; it served as the point of access to other research resources, a traditional role for an academic library. What is new is the emphasis on using electronic technology, and how that changed much of what the library did and how it accomplished the tasks. And what is especially important is the recognition of the role of the librarians in this new environment (Farber, 1999, p. 175).

**Faculty Culture and Attitudes**

Farber believed that, “the recognition of the educational role of librarians now is a result of the convergence of two developments: one, the widespread success of bibliographic instruction; and two, the impact of electronic sources of information” (Farber, 1999, p. 175).

> The first development got librarians recognized by faculty as colleagues who permitted their students to make more effective use of the library, and thus to do

> better work, more satisfying for the teacher; the second, the new world of electronic information, has made faculty and administrators aware that they, as well as their students, need assistance in sorting through the myriad of available databases so that faculty members can use them in their teaching and research. (Farber, 1999, p. 175)

Next, Farber (1999) reviewed the advertisements for reference librarians between 1970 and 1990. He believed that a reader rarely found a phrase in an ad regarding giving instruction, yet 20 years later, it was rare to find mention of bibliographic instruction. The description was supplemented with technological duties and a comment of a role in the educational process. Required qualifications included a description such as, "Library faculty members are active participants in the overall instructional mission of the college, participating in curriculum development, direct instruction, outcomes assessment, and other teaching endeavors. Experience in library instruction. Experience integrating technology with reference and instruction" (Farber, 1999, p. 175).

Another advertisement read:

> seeking a Reference Team Coordinator: . . . responsibilities include proactive reference service in an automated environment, innovative library instruction, development of active working relationships with faculty . . . The successful candidate will have . . . creative teaching ideas; skill in the use of electronic information sources, including web-based and other Internet sources . . . (Farber, 1999, p. 175)

The realization of teachers needing to be more familiar with the new electronic resources, led the reference staffs and staff of the computing centers of a number of

colleges and universities to offer workshops and other sessions for faculty (Farber, 1999). As reported by Farber (1999), the National Conference of the AAHE, in 1998, noted that "in this era of explosive technological advances, on many campuses librarians have been asked to take on an instructional role to the faculty" (p. 175).

Lafayette College, for example, where "For the past three years, both the library and computing services . . . have been facing a growing demand for training and support from faculty using the World Wide Web," workshops and brown bag sessions have been offered and readily attended (Farber, 1999, pp. 175-176). Initiated by the library staff, and with the cooperation of computing staff members and an educational technologies specialist, the instructors felt "they have made much progress in pooling Web expertise on campus, coordinating support, and providing a forum for sharing ideas about instructional uses of the Web" (Farber, 1999, pp. 175-176). For some, perhaps many faculty members, the active participation by librarians in the teaching and learning process was expected, not just for their students, but for themselves.

Interaction with institutional administrators was considered. There was not much question that college presidents and deans looked upon the role of librarians differently than they did 25 years ago, even differently than they did 15 years ago. President Gresham Riley commented that faculty do not "acknowledge a legitimate educational role for the library and for librarians" because they are "likely to be influenced by the local conditions . . . in particular the attitude of key administrators" (Farber, 1999, p.176). That was in 1984. Farber described a 1998 meeting in a forum at the AAHE Conference, where 20 provosts from all over the country discussed various library-related

issues. A main focus was how to increase partnerships between librarians and faculty (Farber, 1999).

Summarizing the discussion, the report stated: Provosts have seen librarians come out of the library to support learning in new ways.... First, the provosts agreed that librarians were providing a necessary service by instructing all, from students to administration; to critically evaluate and choose sources from the wealth of information available . . . Another idea addressed several times was the importance of librarians serving on instructional teams (Farber, 1999).

Almost anyone who has administered a college library over decades to include the 1970s – 1990s can confirm the improvement in their provost's view of the librarian's role. The change in the expectations from university presidents or provosts for library directors is clear, and can be seen by the wording in the advertisements seeking college library directors. Years ago, advertisements stressed administrative experience and ability; rarely was the educational role of the library mentioned and there was little mention of coping with "automation." Today's advertisements, seeking applicants with proven administrative talent, frequently emphasize the needs of the library's educational role, especially in conjunction with technology (Farber, 1999).

A few examples of the view of academic libraries and librarians, at the time of Farber's (1999) writings, from representative institutions included:

> "The Director will exercise energetic and creative leadership ... to develop a vision for the future of the library, including the integration of new information technologies into library instruction and services to support the university's teaching and learning mission" (p. 176).

> The Director will articulate a clear vision of the library's vital role in supporting the teaching, learning and research activities of students, faculty, and other constituents ". . . Minimum qualifications include . . . knowledge of emerging technologies and their impact . . ." (Farber, 1999, p. 176). Qualifications [include]: ". . . Clear vision of the evolving role of the academic library in digital environment and evolving integration of technology into curriculum and teaching . . . A commitment to user instruction and the educational mission of the academic library . . ." (p. 176).

Of course, not all advertisements for directors mentioned or alluded to the library's educational role; even so, there is no question that the convergence of the user instruction movement and the impact of the new technologies have given today's college library a much more significant role in the teaching and learning process (Farber, 1999). Farber (1999) spoke of his personal mentor:

> Almost 40 years ago, my boss and mentor, Guy R. Lyle, wrote in his classic *The Administration of the College Library,* that "by mid-century the college library was beginning to achieve a position of strength in the educational program and commanded greater respect than ever before from the faculty" (Lyle, 1961). . . . His optimism, unfortunately, was premature, as I have tried to show above. Guy, who was a real book-man--as well as a superb administrator--, remarked to me once that he was glad he would be retiring before technology took over. I wish that he could have seen the situation today, how technology has supplemented the work of academic librarians, and given the college library the educational role he knew it deserved. (p. 176)

**Summary**

Categories identified in Farber's (1999) Cornerstone Article by the researcher are: 1) OCLC, 2) microfilm and microfiche, 3) the card catalog, 4) bibliographic instruction, 5) changes in the academic library, 6) technological advances, 7) electronic information, 8) computers in the library setting, and 9) faculty culture and attitudes. This chapter provided a summary of issues discussed by Farber. The researcher chose to emphasize and narrow the focus of the study on those issues perceived to be most important.

# Chapter Four: Review of Literature

## Academic Librarianship in the 21st Century

The issues discussed in this literature review are the categories for study selected by the researcher; microfilm/microfiche, WorldCat, card catalogs, computers and their uses in libraries, and bibliographic instruction. Even though Farber (1999) discussed many topics in the initial article reviewed in this study, the researcher found the previously mentioned topics most commonly referred to in recent professional literature, concerning academic libraries. Each topic has a strong connection to the development and continued operation of the Ohio College Library Center (OCLC).

The researcher compared and contrasted the information gathered, regarding the aforementioned topics. The purpose of this chapter is to summarize what library professionals, other than Farber, were saying about pre and post 21st century library media practices and issues pertinent to academic libraries, in various decades. The 20th century decades represented in this paper are the 70s, 80s, and 90s, and the 21st century decades and years are the 00s, 10s, 2011, and 2012.

Microfilm and microfiche are discussed from the introductory phase to the current usage in the 21st century, and WorldCat is discussed from its inception, and as it continues to evolve as a key player in libraries. Card catalogs are discussed and reviewed as the timeline moves into the 21st century. The changes in how computers affect the environment of academic libraries and the way bibliographic instruction has developed to keep up with technological advances are also discussed, among other 21st century topics, in this literature review.

**Microfilm and Microfiche**

Microforms, a word defined by Bernard Williams as "…the generic term for all media containing man-readable text which has been reduced to a point where it is no longer readable by the unaided human eye," are not new (Dodson, 1977, p. 91). Centuries before Christ, Assyrians were recording historical information by using microscopic cuneiform characters on clay tablets. However, in 1839 an Englishman named John Benjamin Dancer invented the microfilm we know today. Microfilm was used during the Franco-Prussian War for the "Pigeon Post." In 1928, Kodak mounted a camera for the Empire Trust Company and in 1938 University Microfilms began (Dodson, 1977, p. 91).

There have been a number of different types of microfilm available for use, including roll microfilm and microfiche, those produced through photographic and lithographic processes, those that use transparent and opaque formats, as well as those produced through numerous reduction possibilities. A library must be prepared to house several kinds of microforms in the same way in which it must manage every possible size and shape of book in its collection. Microforms were being used increasingly in libraries for in-house records including acquisitions, circulation, and cataloging, and because of this a librarian needed knowledge of Computer Output Microfilm/fiche (COM) (Dodson, 1977, p. 91).

The following are among the reasons for considering the use of microforms: 1) conserving space; 2) acquisition of rare materials; 3) preservation of deteriorating materials; 4) provision of working copies of rare items; 5) reduction in mutilations; 6) saving money: storage and binding costs; and 7) provision of easy access to bulky materials (Dodson, 1977, p. 92).

Whether or not to bind a title is often a librarianship concern. In making that decision there are issues to consider, such as 1) cost to convert to microfilm, 2) physical type of the item, 3) inclusion of color illustrations, text on the same page, advertisements, and bulk, 4) risk of stealth or damage, 5) type, as in index or abstract, 6) type of usage and clientele, and 7) availability in micro format. Some micropublishers act as distributors for other micropublishers, which can become confusing if one is uncertain of the true publisher. In some instances, the title for a collection may cause confusion as to whether or not one is considering two different collections or only a single collection. Prices may vary, too, from publisher to distributor (Dodson, 1977, p. 92).

Evaluating a micro publication for purchase is important and since Microform Review came into existence, it was also possible to find reviews of many of the micro publications currently available to libraries. According to Dodson (1977), there were five questions which needed to be asked: 1) Has the collection or project been well designed? 2) Has the project been filmed using a format compatible with the material filmed? 3) Does the project have internal and external bibliographical control? 4) Is the filming technically excellent? and 5) Does the project employ clearly identified target notes, e.g., “best copy”, “pages lacking”, etc. (Dodson, 1977, p. 92)?

In regards to bibliographic control, there are various ways to make microfilmed materials available to users. One way is to catalog each item in a set, and the other is the use of printed indexes or guides for each individual library’s collection, which would be produced by a librarian. Storage conditions for microfilm were appropriate for books during the 1970s. The archival storage conditions were not more than 70 degrees Fahrenheit with a humidity not to exceed 40%. Steel cabinets were the most convenient

storage units for microfilm, but new modular structures became useful for many libraries (Dodson, 1977, p. 93).

Equipment for the microforms was important. It was recommended that excellent equipment was available to library patrons and the collection was well organized. Points to be considered when selecting a microform viewer were to take a sample microfilm or microfiche from the current collection and address the following questions: 1) Does the screen provide even illumination over the entire surface? 2) Is it possible to vary the magnification? 3) Does the carriage operate smoothly? 4) Are the controls well designed? 5) Do(es) the lens or lenses provide a screen image which is 100% full-sized? 6) Is the machine relatively indestructible? and 7) Is prompt and efficient service available (Dodson, 1977, p. 93)?

**Controversy: Impact of Microform Media on Historical Preservation**

Books, journals, photographs, and microfilm are analog media and digital scanning could be viewed as **a** successor to microfilming (Cain, 2003). Bottomore (2004) stated most believed the copies of newspapers in microfilm were as good as the original copies of newspapers and that most of the older editions of newspapers in America had been discarded, due to space constraints. Many scholars believed newspapers were invaluable. They believed they held the key to major events in detail, which could not be found in other print media (Bottomore, 2004).

The availability of microform motivated a contribution to historical preservation of a valued source of information. Since the 18th century, millions of newspapers and other periodicals had rolled off the world's presses in increasing volume. Librarians provided bounded issued of newspapers in the microfilm format to contribute to the

historical preservation of information. Most of the issues were bound into volumes and then stored (Bottomore, 2004). These publications became, in a sense, a test case for library policy and management of archived materials (Bottomore, 2004).

The country which failed this 'newspaper test' more than any other was the United States, and despite all the successes of American libraries in other areas, the system managed to allow the destruction of millions of issues of historic newspapers. Some believed librarians allowed millions of historic newspapers to be destroyed. Clive James considered the situation to be, "the thriller of the year," which was critiqued in Nicholson Baker's (2004) book, *Double Fold* (as cited in Bottomore, 2004, p. 296).

Some of the information which was considered historic was lost, which motivated the beginning of the process of microfilming the newspapers. This took place soon after the Second World War. Across America, librarians and officials believed microfilming could solve two problems; the falling apart of the wood-pulp paper used and the space constraints, due to the storage of large bound volumes of newspapers (Bottomore, 2004). Also, during the 1950s, most newspapers were microfilmed by commercial providers in the United States. Most librarians believed the microfilm copy of the newspapers would be as good as the original newspapers. The originals were often sold to souvenir dealers (Bottomore, 2004).

Bottomore (2004) believed microfilm was not appropriate for filming newspapers. He believed two issues existed: the lack of color and the quality of half-tone reproduction. Most of the artistic values were lost in cartoon images, which most believed was a major issue. Bottomore also believed very few librarians defended newspaper preservation in the United States. Yet, it continued to be a major issue, due to

the visual images contained in newspapers. Bottomore believed microfilming was not a replacement for hardcopy items and he felt they should always be accessible regardless (p. 297).

According to Bottomore (2004), microfilming should have been seen as a preservation backup and tool for facilitating research, not a replacement for print. Microfilm enabled easy handling and access by scholars, and allowed several libraries to keep copies of the newspaper. But one master run of the original paper issues should have always been kept intact in volume form (Bottomore, 2004). But while discussion of these preservation issues in the community of moving picture archivists had been relatively open and had continued for many years, the fate of newspapers in America was much less openly discussed, let alone debated, either among librarians or in public—until Baker's book appeared (Bottomore, 2004).

**Contribution of Private Collection**

Private collectors and some intuitions in the United States managed to keep some of the original copies of newspapers before they were destroyed. Bill Blackbeard drove to various libraries in western America to collect huge volumes of newspapers in his truck, to save them from being dumped. He was most interested in preserving the colored comics and donated his collection to a Cartoon Research Library (Bottomore, 2004).

**The British Library**

During the 1990s, the British Library (BL) decided to discard foreign newspapers from the 19th century and the beginning of the 20th Century. These newspapers were thought to be exclusive, due to the destruction of many newspapers in the United States.

Yet, the BL decided to discard and microfilm issues, knowing originals were preserved by subscribers and were a part of their personal collections. The librarians were also required to make sure disposed issues were acquired by a responsible institution. Nevertheless, in 1999, most of the BL newspaper collection was auctioned off to the highest bidder, and Baker attempted to purchase most of the collection. Some of his bids for selected titles were successful and he managed to save some of the newspapers later, to store the items in a facility in New Hampshire at his own expense. Baker created the Baker's American Newspaper Repository, which was a non-profit corporation and included a small reading area for researchers by appointment only. It held about 5,000 newspaper volumes, which were mainstream newspapers and periodicals published in the United States, and also included immigration and foreign language papers and specialist trade journals (Bottomore, 2004).

Also, at that time, John Ashworth, head of the British Library board and Brian Lang, chief executive were in charge of the newspaper conversion to microform. "We believe we have acted both responsibly and within our powers," according to Lang (as cited in Bottomore, 2004, p. 300). Lynne Brindley, his successor, also supported his actions and believed it was less costly to film and store the newspapers than store the hardcopy. The British press was unhappy about what was decided, yet librarians in the United States continued to wonder if all newspapers should be microfilmed (Bottomore, 2004, p.300).

**Ohio College Library Center (OCLC)**

In 1967, the Ohio College Library Center (OCLC) was founded by Frederick G. Kilgour, along with the presidents of colleges and universities in the state of Ohio.

OCLC's roots were in academe, as represented by the following, "The fundamental purpose of furthering ease of access to and use of the ever expanding body of worldwide scientific, literary and educational knowledge and information" (Jordan, 2009, p. 728).

OCLC was once categorized as a nonprofit and membership organization. All libraries linking to OCLC were required to create original catalog records for items which did not exist in the OCLC database and all libraries were required to complete all Roman alphabet cataloging online. OCLC membership was a commitment to contribute to the cooperative, as well as to use the OCLC system for the stated objectives of reducing the rate of increase in per-unit library costs and increasing the availability of library resources. To remain key participants in OCLC, all members were able to have control over the organization by electing members to the Board of Trustees (Jordan, 2009).

OCLC's main objective, when established, was to make library resources more readily available to the public and to reduce the rising cost of purchasing items for libraries. Its objective was not to receive a large return on shareholders' investments or maximize profits. The key founders of OCLC believed it would pay for itself and become self-sustained. A statement in OCLC's first annual report called "for each institution to pay for operational costs prorated on the amount of use each member makes of the system" (Jordan, 2009, p. 728).

Kilgour managed the growth of OCLC from the beginning, when the organization consisted of 54 Ohio academic libraries. It is presently an international network of libraries. He created the OCLC Office of Research in 1978 and he also led the development of the OCLC Interlibrary Loan (ILL) system (1975) and the OCLC online union catalog and shared cataloging system (1971) (Jordan, 2009).

Table 5.

*OCLC Activities: 1970s Through 2000s*

| | |
|---|---|
| 1970s | 1970 – Librarians were able to order custom printed cards for card catalog<br>1971 – Online union catalog and shared cataloging system<br>– Catalog books and order custom-orienting catalog cards<br>1975 – Interlibrary Loan (ILL) System<br>1978 – OCLC Office of Research<br>1979 – Participants in all 50 states and one in Canada |
| 1980s | 1980 – Home delivery of library services through Cable TV and electronic publishing<br>1981 – First OCLC office outside of US – Birmingham, UK<br>- Electronic Information Delivery Online System (EIDOS)<br>1983 – The Enhance Program ( United Kingdom and South Africa) |
| 1990s | - Launched the first peer-reviewed electronic journal, *The Online Journal of Current Clinical Trials*<br>- Introduced Electronic Collections Online<br>- FirstSearch<br>1992 -2002 SiteSearch software<br>1993 - Direct delivery of ILL requests for patrons<br>- The board of trustees of Mid-Atlantic Preservation Service (MAPS) voted to transfer control of the organization to OCLC (later name changed to Preservation Resources)<br>- PromptCat<br>1995 - ILL Fee Management<br>1999 – CatExpress<br>- EMEA |
| 20th Century | 2000 (March) – OCLC services became Internet based<br>- Merged with Public Affairs Information Service, Inc. (PAIS,<br>- Began distributing OCLC ILLiad Resource Sharing Management software<br>2002 – Acquires NetLibrary<br>- Launched the Connexion cataloging service<br>- QuestionPoint (OCLC and Library of Congress)<br>- The OCLC Digital Archive service began operations<br>- began distributing Contend software (Web)<br>2004- Published the *2003 Environmental Scan: Pattern Recognition*<br>2005 - Acquired Openly Informatics<br>- Published second study, *Perceptions of Libraries and Information Resources*<br>2006 - OCLC's eHoldings Service<br>– WorldCat Selection service (Cornell University Library)<br>- Celebrated the 20th anniversary of its partnership with the Kinokuniya Company<br>- OCLC acquired DiMeMa (Digital Media Management) – supported |

(CONTENTdm),
- August 8, 2006, OCLC launched the WorldCat.org Web site

2007 – Worldcat.org and Worldcat Local
- Introduced a Terminologies service
- Honored to host the fourth China-U.S. Library Conference in Dublin, Ohio

2008 – Creation of second data center in Westerville, Ohio
- Qwidget (a chat widget)
– Worldcat developers Network
- Implemented Search Retrieval via URL (SRU)
- Began providing server hosting to ILLiad users
- Began the Next Generation Cataloging pilot
- OCLC and Google agreed to exchange data to facilitate the discovery of library collections through Google search services
- OCLC and the Royal Library sold Strata to KMM Group in the Netherlands

2009 – WorldCat Navigator
- Second implementation with Libraries Australia

*Note:* Compiled from Jordan (2009).

Table 5 lists major activities for OCLC from the 1970s through the early years of the 21st century. Kilgour was one of the leading figures in librarianship in the 20th century. In the 1980s, he conducted home delivery of library services through electronic publishing and cable television and he also pursued extending the value of libraries, archives, and museums (Jordan, 2009).

From that point libraries would either use the information that already existed in the database to catalog an item in the new system, or manually place information in the system for use by other libraries. The economies of scale increased as the database and number of users grew. By 1979, OCLC included participants in all 50 of the United States as well as the first participant from Canada. The original design of the OCLC online system called for six subsystems: 1) online union catalog and shared cataloging; 2) interlibrary loan; 3) acquisitions; 4) serials control; 5) subject access (reference); and 6) circulation control (Jordan, 2009).

From 1971 to 1981, OCLC focused on creating and expanding the online cataloging system and telecommunications network and adding subsystems to complete the original system design (Jordan, 2009). Table 6 provides a timeline for this work on the cataloging system.

Table 6.

*Explansion of OCLC Online Cataloging System: 1971 to 1981.*

| | |
|---|---|
| 1975 | Serials Control |
| 1979 | Interlibrary Loan |
| 1981 | Acquisitions, plus prototype circualtion control subsystem |

The first OCLC office outside of the United States was opened in 1981 in Birmingham, and led by David Buckle initially provided libraries in the United Kingdom with an online shared cataloguing service (Lees, 2009).

**WorldCat**

By 2007, with the implementation of WorldCat.org and WorldCat local, OCLC was finally realizing the integrated system design envisioned by Kilgour in 1967. Before OCLC, the main tool for accessing the library collection was the card catalog, which was expensive to maintain. Preparing cards for a card catalog for each individual title would cost a library $30 to $60 dollars in the year 1970, but due to the available computer applications within the OCLC system, a library was able to order custom-printed cards for its own individual catalogs. The cards were shipped in boxes or envelopes in alphabetical order or call number order, ready to file (Jordan, 2009).

Throughout the 1990s, OCLC continued to lead the way in electronic publishing. OCLC launched the first peer-reviewed electronic journal, *The Online Journal of Current Clinical Trials*, a collaboration with the American Association for the Advancement of Science. The Electronic Collections Online program, which was developed by OCLC researchers, originally referred to as the Guidon Graphical User Interface, was discontinued when newer technology became available (Jordan, 2009, p. 172).
In 1990, OCLC introduced Electronic Collections Online as a Web interface which provided access to a large collection of academic journals (Jordan, 2009). OCLC also decided to leave the stand alone local library systems business and focus on creating more services in cataloging and resource sharing, in order to create a new service for reference, this was also due to achieving 8% of the market in the United States. In 1991, OCLC created FirstSearch which provided access to bibliographic, abstract, and full-text databases (Jordan, 2009).

According to Jordan (2009), OCLC created SiteSearch software in 1992. This software was developed to help groups of libraries share resources and to assist with large projects. In turn, OCLC decided to change its processes from individual hardware and software installations to linking its central system with the local area networks on individual college and university campuses and regional networks. At the time of this writing, SiteSearch was no longer available, as it was dispersed in 2002 (Jordan, 2009, p. 731).

In the 1990s OCLC created PromptCat. PromptCat was produced to provide an automated delivery of cataloging information. This cataloging service was also associated with its resource service with ILL Fee Management. The ILL Fee

Management processed debit/credit interlibrary loan transactions, this saved libraries from writing checks (Jordan, 2009, p. 731)

The Internet forced academic librarians to consider the new era of digital librarianship by 1998. Technology offered new demands for librarians. Search engines, E-Commerce, and Web browsers, made it possible for librarians to think about what they were offering technically. Librarians embraced the Internet and looked forward to the new services it could provide (Jordan, 2009, p. 731).

OCLC management and the Board of Trustees met in 1999 during the strategic planning process set forth in OCLC's charter and created a vision of how OCLC would pursue its purpose over the next decade. That vision was stated as, "OCLC will be the leading global library cooperative, helping libraries serve people by providing economical access to knowledge through innovation and collaboration" (Jordan, 2009, p. 731).

OCLC created a new global strategy designed to provide services around the world. This was based upon the regional needs of libraries. OCLC also put into place a strategy, which was summarized as, "weaving libraries into the Web, and the Web into libraries;" thus WorldCat was created to take the OCLC organization into the next decade (Jordan, 2009, p. 731). OCLC moved WorldCat from a bibliographic database and online union catalog into a global networked information resource of text, motion, sound, and graphics. The new WorldCat would interweave the World Wide Web with the electronic collections of libraries, museums from around the world, and archives and would help information professionals manage their collections and library services (Jordan, 2009, p. 732).

OCLC continued to create new services, such as CatExpress. CatExpress made it much easier for small libraries to catalog their items into OCLC. The next step for OCLC was to expand and create a cooperative through strategic alliances and mergers with the following; Research Libraries Group (RLG), the CAPCON Library Network (CAPCON), Washington Library Network (WLN), and The Pica foundation of the Netherlands (Pica) (Jordan, 2009). OCLC created a new governance structure for their cooperative in 2008. It was designed to broaden participation in the OCLC cooperative by a number of libraries and institutions from around the world (Jordan, 2009).

OCLC faced the Y2K situation in the year 2000, just like the computer industry. OCLC began preparing for Y2K by December 31, 1999. The main concern was the year 1999 turning into 2000, since many computer applications tracked dates in a two-year digit year within a six-digit date format (YYMMDD). The concern was most computers would read the New Year as 1900 instead of 2000. OCLC spent about $8 million to modify, test, and reinstall 7.2 million lines of code in its system. OCLC suspended access to its online user systems for 24 hours as a precaution at 7 p.m. Eastern Standard Time on New Years' Eve into the Year 2000 (Jordan, 2009).

At the end of the 20th century, OCLC faced substantial growth due to an increase in memberships, and the online system was running out of institutional holding symbols. The institutional holding symbols consisted of three-character institution symbols and holding libraries had a unique four-character symbol. The symbol system had been in existence since 1971. By October of the year 1999, 29,689 of 39,000 of the available three-character codes had been used and it was projected the remaining would be used by October 2002. OCLC completed the $3.8 million holding symbol expansion project

ahead of the time scheduled in August, 2001, and began assigning five-character symbols to new institutions joining the cooperative (Jordan, 2009, p. 735).

OCLC services became Internet based in March 2000, and the 10-year old X-25 network was removed. The new system used Oracle database technology and contained open architectural models, which allowed better interoperability within its services and with external services. OCLC also began to move from an environment which had, for 30 years, built its own proprietary system to one existing of a collection of hardware and licensed software with widespread industry adoption (Jordan, 2009, p. 735).

OCLC FirstSearch was transferred to the new platform in 2004 and the cataloging and resource-sharing services were transferred in 2005. OCLC created a second data center in Westerville, Ohio, which was located 15 miles from the Dublin center. The Unicode standard allowed WorldCat to support access in 12 language scripts and character sets in the following dialects: 1) Arabic 2) Bengali, 3) Chinese, 4) Devanagari, 5) Greek, 6) Hebrew, 7) Japanese, 8) Korean, 9) Latin, 10) Tamil, 11) Thai, and 12) English. OCLC improved its batch loading techniques to accommodate large files from international organizations to merge national union catalogs (Jordan, 2009 p. 736).

The newly created platform supported the LC MARC 21 and Anglo-American Cataloguing Rules 2, the Dublin Core, and other standards, such as 1) Open URL, 2) LDAP (Lightweight Directory Access Protocol), 3) Encoded Archival Description (EAD), 4) Simple Object Access Protocol (SOAP), 5) Extensible Markup Language (XML), 6) Search Retrieval via URL (SRU), 7) Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH), and 8) Shibboleth (Jordan, 2009).

All of the new features in WorldCat allowed users to have access to digital documents, evaluate content, and review objects in the database. All of the new items allowed OCLC to become more inclusive and able to maintain relationships with more institutions in more countries, and OCLC was able to offer more items in most languages from around the world (Jordan, 2009).

There were six reasons why a country which is not a part of the United States would want to include their holding in WorldCat. Those reasons are: 1) unicode support; 2) ability to FRBRize (Functional Requirements for Bibliographic Records) a catalog; 3) open WorldCat on the Web; 4) group catalog capability with customized views; 5) WorldCat Collection Analysis service; and 6) international resource sharing (Jordan, 2009).

Every 10 seconds a new record was added to WorldCat in 2008. On April 1, 2008, the number of records surpassed 100 million. It took six years to add another 50 million. It took OCLC 31 years (1971-2002) to add the first 50 million records. Between April 1, 2008 and March 31, 2009, libraries added 27 million records, bringing the total to 135 million records and 1.4 billion location listings (Jordan, 2009). According to Jordan (2009), WorldCat continued to grow at a high rate.

At the time of Jordan's (2009) writing, WorldCat continued to be the leading database in bibliographic databases. The OCLC cataloging system was a cooperative database shared among users, and the users agreed to commit to adding highly qualified information when adding to the database. As new uses were developed for WorldCat and as new users joined WorldCat, the integrity of bibliographic information entered into the database was very important (Jordan, 2009, p. 739).

In 1983, the Enhance program was created. This program included 229 institutions (359 OCLC holding symbols). The Enhance program included two South African institutions which volunteered to do quality control work for the cooperative and one in the United Kingdom (Jordan, 2009). Those members of an OCLC library could edit a record that it contributed, but not those contributed by another member, unless they were a part of the Enhance program.

Ninety members of the Enhance program were a part of the National Level Enhance. The National Level Enhance consisted of selected participants, who were a part of the Program for Cooperative Cataloging (PCC) and Library of Congress (LC) cataloging staff. Members of the National Level Enhance were allowed to lock, edit, and replace records in WorldCat. The PCC and LC staff could also replace national-level records provided by the National Library of Medicine (NLM), National Agriculture Library, and the LC staff (Jordan, 2009, p. 740). The 226 enhance libraries voluntarily invested their expertise into making nearly 3 million improvements to records in WorldCat. Two point nine million records were edited by Enhance participants since 1983 and 1.6 million since 1998 (Jordan, 2009).

Two million one hundred thirty seven thousand nine hundred and bibliographic records were corrected by WorldCat Quality Management staff. Not only did actual staff correct records, OCLC decided to have machines monitor and improve records in OCLC. This was an ongoing project for OCLC for the end of the year, June 30, 2008. Cataloging-in-Publication (CIP) Upgrade Unit staff enhanced 20,501 CIP records, added 1,006 new authority records, and uploaded 857 authority records. Jordan (2009) defined CIP records as bibliographic information supplied by the Library of Congress to book

publishers prior to publication for inclusion in the book for the cataloging system. All of the records, which were loaded into WorldCat were complete, due to the OCLC CIP upgrading program. Librarians also found the CIP records to be useful for ordering books before they were published. The CIP system sped up the processing of materials and the items were place on the shelves in libraries much more quickly (Jordan, 2009). One million five hundred ninety-two thousand five hundred eighty-six duplicate book records were deleted due to duplicate detection and resolution software. To maintain quality in WorldCat OCLC ran the software through the WorldCat system 16 times between June 1991 and July 2005. OCLC created a new version of the same software to run through WorldCat in 2009 (Jordan, 2009).

**Program for Cooperative Cataloging (PCC)**

To increase the delivery of high quality records and to keep acceptable standards, OCLC participated in the PCC. The PCC included programs which contained records to be contributed directly or indirectly to WorldCat by the OCLC authority databases. OCLC authority file databases consisted of: NACO for name authority records, SACO for subject authority records, BIBCO for bibliography bibliographic records, and CONSER for serial records (Jordan, 2009). The Virtual International Authorities File (VIAF) was created by OCLC, the Library of Congress, and Die Deutsche Bibiothek (German National Library) in 2003. The VIAF file used matching algorithm software to process bibliographic and personal name authority records from members. It was updated regularly with metadata from participating national authority files using Open Archives Initiative (OAI) protocols. In order to have international library cooperation, The National Library of Sweden and the Biblioth^ equenationale de France participated.

The long-term goal of the VIAF was to include global service freely to users available via the Web (Jordan, 2009).

OCLC services were originally created to improve services to end users and reduce costs, which helped libraries to manage their collections. In 1998, OCLC enhanced their existing services, discontinued some services, and created many new services (Jordan, 2009).

OCLC continued to advance financially, due to the cataloging services offered to libraries. In 1998, cataloging services generated $136.2 million (40% of cost-sharing revenues) and $246.4 million (34.8% of cost-sharing revenues). The governing members of OCLC continued to increase cataloging records to the WorldCat system, which made it a unique source of information for libraries/librarians in the world. Members of OCLC continued to insist it was important to include as many small libraries as possible to OCLC and noted it could really make a difference to add their, often times, unique collections (Jordan, 2009).

**CatExpress**

In 1999, OCLC introduced CatExpress. CatExpress was a Web-based service created to provide cataloging records for the public and school libraries. Most of these libraries created fewer cataloging records than the universities and colleges. This service was cheaper than the original system and libraries were able to obtain MARC records, without having to create and fill in each individual field. There were 359 subscriptions initially, in the first year and in 2008, 2,119 subscriptions (Jordan, 2009).

In 2009, OCLC continued to recruit the smaller libraries and in 2008 the Members Council created the Small Libraries Advisory Committee to continue to provide avenues to the rural and smaller libraries around the world (Jordan, 2009). Throughout its history,

> OCLC member libraries volunteered to participate in experimental programs and pilot projects. In 1980, for example, the Columbus Metropolitan Library volunteered to participate in OCLC's Channel 2000 project, which delivered the world's first electronic library catalog to the television sets of 200 households in Columbus, Ohio. (Jordan, 2009, p. 742)

In 1998, the Cooperative Online Resource Catalog (CORC) continued to grow. OCLC research scientists continued to automate tools for classifying electronic resources, such as the Web version of the Dewey decimal classification system. CORC was created to enhance Web resources and develop those resources to better serve the users of the library (Jordan, 2001).

In 1999, CORC included more than 350 libraries and went online the same year. By 2001, the member libraries had contributed 500,000 bibliographic records and Web bibliographies for resources available via the Internet. Due to the technological advances created by CORC, OCLC created Connexion (Jordan, 2001). In 2002, OCLC launched the Connexion cataloging service on the new technological platform. It combined

> functionality from existing OCLC services such as CORC, CatExpress, the Cataloging Micro Enhancer, Passport, and Web Dewey. Connexion supported cataloging of all materials and formats from a single interface the library could customize. It provided access to WorldCat, linked authority control, automatic classification, and the ability to build subject guides. (Jordan, 2009, p. 743)

In 2005, OCLC created WorldCat Collection Analysis. This product was created to manipulate the data in WorldCat. This service made it possible for libraries to review the subjects covered in their catalogs, which in turn would greatly improve collection development. Also, in that same year, OCLC acquired Openly Informatics. Openly Informatics made it possible to link software to the 1.2 million metadata records with links to electronic resources, which accelerated the development of OCLC's eHoldings service (Jordan, 2009).

The OCLC eHoldings Service was launched in 2006. This service made it possible to manage the E-serials, which consisted of automatically setting and updating E-serials holdings in WorldCat each month. This service also kept WorldCat informed of full-text availability electronically via individual E-journals and combined databases. This product worked with setting and maintaining the holdings for the International Standard Serial Number based (ISSN) electronic serials in WorldCat. The following databases were used to make this process possible: WorldCat Link Manager, EBSCO Link Source, Serials Solutions 360 Link, and the TDNet e-Resource Manager (Jordan, 2009).

Also, in 2006, OCLC partnered with the Cornell University Library to create the WorldCat Selection service. The symbols CUL made it possible to select and order items from other libraries; based upon the Integrated Tool for Selection and Ordering. This streamlined the selection and ordering process for libraries to acquire new materials, thus making it possible to share selection decisions with other institutions, view new titles from multiple vendors in one central system and add those titles to their catalogs. The

holding symbols could be set in WorldCat, added automatically or added later on in the cataloging process (Jordan, 2009).

OCLC introduced a Terminologies service in 2007. This service was created to make it easier for museums and archives to participate in the OCLC cooperative by providing access to multiple controlled vocabularies, enabling the creation of metadata for their collections (Jordan, 2009).

In 2008, OCLC created Search Retrieval via URL (SRU) Update, which made it possible for national libraries and others to synchronize their union catalogs with WorldCat. The Dutch Union Catalogue was able to update records in real time using the SRU technology and OCLC also began the Next Generation Cataloging pilot. This pilot program enhanced the metadata in WorldCat by capturing ONIX metadata from publishers and vendors. In turn, this process improved the use of metadata for the technical processing function in libraries and increased the end-user interfaces. There were many positive outcomes from this pilot, especially the creation of the enhanced metadata in WorldCat and the outputted enhanced data in MARC and ONIX (Jordan, 2009). “In 2009, the second implementation occurred with Libraries Australia. Records appearing in the Australian National Bibliographic Utility showed up 5 seconds later in WorldCat. This machine-to-machine process was introducing system-wide efficiencies that benefitted the entire cooperative” (Jordan, 2009, p.744).

The “Report on the Future of Bibliographic Control” by the Working Group on the Future of Bibliographic Control and created due to the Next Generation Cataloging pilot. This report focused on the modifications in libraries due to the digital information era. The Working Group was created by the Library of Congress, and recommendations

produced were that librarians must gain the ability to leverage upstream publisher data effectively. The belief was that OCLC was moving in the right direction (Jordan, 2009).

OCLC continued to pursue two objectives, cataloging and metadata in 2008. Cataloging had always been a manual labor of love for most catalogers, but OCLC set up a service to reduce the cost of laboring over selection, acquisitions, and cataloging practices. This service was based on pulling records from WorldCat and matching that data from a library, publisher, or vendor, which continued to lower staff costs, yet improved the library user's access to information (Jordan, 2009).

The second entity was to create a WorldCat global metadata network. This network was intended to make many library collections visible to the worldwide users. To achieve this goal, WorldCat created linkages to print, media, and licensed electronic and digital collections from general collections to the highly detailed collections (Jordan, 2009).

> In 2009, the second implementation occurred with Libraries Australia. Records appearing in the Australian National Bibliographic Utility showed up 5 seconds later in WorldCat. This machine-to-machine process was introducing system-wide efficiencies that benefitted the entire cooperative. (Jordan, 2009, p. 744).

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The belief was that OCLC was moving in the right direction (Jordan, 2009). The number of ILL Fee Management

> participants increased from 1,070 in 1996 to 2,938 in 2008. These institutions used the service to exchange over $13.9 million in interlibrary loan fees in fiscal 2008, avoiding processing charges for about 967,000 invoices and a similar number of checks. (Jordan, 2009, p.746)

In 2000, OCLC began distributing OCLC ILLiad Resource Sharing Management software. This software enhanced the resource-sharing capabilities and made it possible to create ILL tracking statistics. This software was created by Virginia Polytechnic Institute and State University (Virginia Tech) and was maintained by Atlas Systems. In 2008, 940 libraries in the U.S. used ILLiad: 527 academic libraries, 89 Association of Research Libraries (ARL), 8 Hong Kong, and 1 each in Canada, Egypt, Qatar, Scotland, and Sweden. And 50% of the ILL requests via WorldCat Resource Sharing were initiated by ILLiad users. Server hosting was provided to ILLiad users, and Atlas Systems signed an agreement for the two organizations to eventually integrate the software into the OCLC delivery services (Jordan, 2009).

In the following years, OCLC strategized to weave libraries into the Web and reviewed all possibilities concerning the best interest of the cooperative. One of the questions which concerned the people of OCLC, was whether or not it made sense to continue to offer a product to a small portion of the membership. So, in 2001 OCLC decided to discontinue the development of SiteSearch products and discontinued technical support for the service 18 months later, at the end of 2002. The service was made available to any institution that desired to complete its mission. The SiteSearch

software was originally created in 1992 to help libraries integrate and manage their electronic library collections and deliver information resources through a Web-based location (Jordan, 2009).

In 2004, OCLC introduced Group Services, a product which provided an integrated solution for searching, cataloging, and resource sharing for consortia and other groups of libraries. Web-based participating institutions did not have to purchase hardware or software, and a library consortium would have a union catalog, which gave the world access to their collection (Jordan, 2009).

By the end of 2004, 5,700 libraries used customized group viewed WorldCat as their online public access catalogs for their groups. In early 2009, WorldCat Navigator was introduced. This product was a combination of the group catalog: Virtual Document eXchange (VDX) document delivery, WorldCat Resource Sharing, and the interlibrary lending management system, and was created to integrate its resource-sharing and delivery services. The service handled both returnable and nonreturnable items and worked well with the Interlibrary Library Systems (ILS). During this same period, OCLC was developing Navigator and closing a year-long WorldCat Delivery pilot program with 12 libraries in the state of Montana (Jordan, 2009).

The pilot program enabled users to create requests for library held materials via the library's local system and users were able to receive the items at home and could return them in enclosed, specially designed mailers. Ten thousand items were sent to patrons homes, but based upon the results of this pilot OCLC stopped pursuing home delivery as a separate offering. Users could track for major shippers in a future release of WorldCat Resource Sharing (Jordan, 2009).

In 1991, OCLC introduced the FirstSearch service. This service provided users with access to 65 databases, including WorldCat. No initial training was given and it did not require a professional librarian be present during searching. In 1997, FirstSearch was ranked number one in online reference services, due to its excellent connect time. The online searches took off and peaked in fiscal 2003 at 99.8 million, and by fiscal 2008 it had declined to 79.7 million. This was due to the popularity of search engines, such as Google, founded in 1998, and Yahoo, founded in 1994. Some database providers offered access to their databases directly (Jordan, 2009).

In 2000, OCLC merged with Public Affairs Information Service, Inc. (PAIS), a nonprofit organization and then sold it in 2004 to Cambridge Scientific Abstracts (CSA). The PAIS database continued to be a part of OCLC FirstSearch service and editors were using CORC to develop subject bibliographies from the electronic resources (Jordan, 2009).

OCLC acquired NetLibrary in 2002. NetLibrary was a leading provider of electronic books. Seven thousand three hundred libraries were using 42,000 titles from 315 publishers in NetLibrary in 2002. OCLC created a new technological platform, which made it much easier for librarians to add eBooks to their collections by accessing an online catalog of all eContent titles available from NetLibrary, and an option was created to order individual eBook titles. OCLC-MARC records were provided for every eBook title, and in late 2008, 170,000 eBook and eAudioBook titles were available. Also, by 2009 a new NetLibrary Media Center was created. This allowed library patrons to search and listen to eAudiobooks from their local library (Jordan, 2009).

On January 12, 2001, at the ALA Midwinter Meeting in Washington, DC, 600 or more people attend a symposium at the Library of Congress (LC). The symposium was titled, "Building the Virtual Reference Desk in a 24/7 World", sponsored by LC and OCLC. At the symposium, the Library of Congress (200 years) and OCLC (30 years) announced they were developing a new reference service based upon the Collaborative Digital Reference Service (CDRS) pilot created by Library of Congress in 2000 and 16 participating libraries. QuestionPoint was launched in 2002. One thousand nine hundred libraries in 23 countries were using QuestionPoint in 2008. This product provided reference services 24 hours a day, 7 days a week to 13 statewide services in the U.S. and nationwide services in the United Kingdom and the Netherlands (Jordan, 2009).

In 2008, Qwidget (a chat widget) was released. Qwidget allowed libraries to embed QuestionPoint on their Web pages and in other Web environments. Since 2009, there were more than 3 million reference questions answered.

In 1997, Deanna Marcum, President of the Commission on Preservation and Access and the Council on Library Resources, wrote:

> While the number of information producers grows steadily, libraries, archives and museums have assumed primary responsibility for collecting systematically the information that has lasting value and for taking steps to preserve that information for subsequent generations. Meeting this obligation for print materials has been difficult. The challenge of preserving materials in digital form is even greater. Libraries, archives and museums are now able to provide their users with access to information resources they do not own. But who is responsible for preserving this digital information? Libraries, archives and museums must work with

> organizations that are willing to help overcome the technical and financial challenges to creating and maintaining digital archives. Such partnerships are not yet common but are critical if cultural repositories are to meet their obligations in the future. (as cited in Jordan, 2009, p. 749)

OCLC continued to advance in digital preservation and electronic archiving, and in the 1990s the board of trustees of Mid-Atlantic Preservation Service (MAPS) voted with the resulting decision to give control of the organization to OCLC. MAPS was an organization founded in 1985 to develop and test high-quality microfilm and store micrographics. The 17,150 square foot facility was located in Bethlehem, PA at the time of this writing. OCLC renamed MAPS to Preservation Resources, and in 1997 the organization was chosen to digitize the microfilmed papers of George Washington and Abraham Lincoln, and the organization continued to work on an additional eight projects, including the African Americana project (Jordan, 2009).

In 2002, the OCLC Digital Archive service began. This service was an answer to producing the most efficient processes for digitization and the archival of materials. This included a process of preserving metadata for digital objects, capturing Web documents, adding documents to archival databases, and creating a smooth process of retention of items to add to a collection. Technological advances aided a great deal in these processes. Those advances included, scanning, indexing, and technology migration (Jordan, 2009).

OCLC opened the Strata Preservation N.V. in The Hague to assist with the preservation of materials in Europe. Eventually, OCLC and the Royal Library sold Strata to KMM Group in the Netherlands in 2008 (Jordan, 2009). Also in 2002, OCLC began

issuing Contend software, to help libraries place their special collection on the Web. In 2006, OCLC surface manage digital objects and surface their special collections on the Web. In 2006, OCLC attained an organization that developed and supported CONTENTdm. The company was DiMeMa (Digital Media Management) (Jordan, 2009).

The software grew from an effort by the University of Washington Libraries to transform

> the unique scholarly collections of faculty and libraries into a rich multimedia digital archive. The Library partnered with the College of Engineering's Center for Information Systems Optimization to develop a software package for multimedia digital collection management. The Library brought its expertise in cataloging standards and guidelines and end-user searching behavior, while the College of Engineering provided systems knowledge for archiving, retrieval, and display. (Jordan, 2009, p. 750)

The CONTENTdm product proved to be a growth area for OCLC. In 2004, the first institution to add records from the CONTENTdm collection into WorldCat was the Indiana Historical Society and by 2008, there were 456 institutions with licenses to use the CONTENTdm product and over 3 million objects were in the management system. But, only about 200,000 of the objects had MARC records in the WorldCat system. These unique records in WorldCat.org, sparked a connection to libraries' special collections (Jordan, 2009).

In 2009, the OAIster database, a cooperative agreement between the University of Michigan (U-M) and OCLC was created. OAIster began with support from the Andrew

W. Mellon Foundation, to test the practicality of creating a portal to open archive collections using the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). The OCLC and U-M partnership (OAIster) continued to grow and became the largest archive collection in the world, with over 19 million contributions to the database by 1,000 organizations worldwide. The database continued to grow from 2009 and OCLC provided a version of OAIster in the FirstSearch database, which was available in the FirstSearch Base Package, free of charge. At the time of Jordan's (2009) writing, the OAIster database was completely transferred from the U-M to OCLC.

Also, in 2009, the University of California system and 13 universities of the Committee on Institutional Cooperation, who formed, Hathi Trust, signed an agreement with OCLC. This agreement created the OCLC WorldCat Local. The OCLC WorldCat Local was a digital repository, consisting of more than 2.5 million digitized volumes from 25 research libraries in the United States. This repository gave Hathi Trust an opportunity to share its digitized collections (Jordan, 2009).

OCLC reentered the local systems business with the creation of OCLC EMEA. OCLC EMEA was a combination of Pica VB and OCLC. The OCLC EMEA merge also maintained three other library systems and, in 2008, completed a 5-year project which consisted of creating a new public catalog for the U.S. National Archives and Records Administration. Also, the SunRise Library system, which was developed by Sisis was installed in over 150 libraries in Switzerland and Germany and the Bavarian State Library, located in the Netherlands. Also, 500 or more installations of the Amlib system were completed in library systems in Africa, Australia, and the United States (Jordan, 2009).

OCLC continued to strategize to create a solution to manage library business processes. The process was to create a new service implemented in a building block process, to eventually unify solutions in the existing infrastructure and ILS. The idea was to preserve the role of the ILS and place it into a network environment and extend it to manage print, license and digitize material in one result (Jordan, 2009). In 2004,

> OCLC published the *2003 Environmental Scan: Pattern Recognition.* This report to the OCLC membership identified trends that were affecting libraries, museums, and archives in five landscapes: social, economic, technology, research and learning, and library. The Scan was based on interviews with 100 information professionals and a review of 300 relevant articles endpapers. (Jordan, 2009, p. 752)

Four patterns emerged. First, there continued to be a decrease in guided access to content. More recent information seekers were relying less on traditional guides to information, such as reference librarians, databases, reference guides, and library catalogs. Instead, they were going to the Internet for their information needs, and taking new paths to information that did not rely on shapes of information containers, books, journals, or other formats to guide them. As a result, libraries and OCLC were changing how libraries presented information, performed reference, and provided customer service (Jordan, 2009, p. 752).

Second, information was being disaggregated and provided to users when and where they needed it. People were seeking a table, a fact, a quote, a picture, or a single song from what used to be aggregated content in books, journals, or CDs. Libraries were

changing the way they managed and provided access to their collections in order to meet the new expectations of information consumers (Jordan, 2009, pp. 752-753).

Third, there was an increase in collaboration in the information community's advances in collaborative technologies which enabled organizations to work together in new ways. Open-source software, wikis, Web conferencing, blogging, instant messaging, learning objects, and gaming were new forms of technology-assisted collaboration that allowed people to work together and talk to one another seamlessly. Libraries were motivated to continue to combine technology with collaboration to continue to weave their services into the new information environment and meet users at the point of need (Jordan, 2009, p. 753).

Fourth, information had become globalized. More people around the world were coming online to read, download, copy, distribute, or link to information. Institutions were now challenged to manage and provide access to information across boundaries of language, culture, and geography (Jordan, 2009).

OCLC published another study in 2005, *Perceptions of Libraries and Information Resources.* Librarians were not happy with the findings, even though the survey was based upon information from users across six countries. The results from the respondents were: 84% used search engines to being their research; 1% began their research on a library Website; and 90% were pleased using search engines. Also, most believed the services and collection were important. They believed the library was full of books and unable to provide information readily, and it was up to the library to define and market itself in the virtual world. Libraries found themselves competing with search engines and other information resources, thus incurring the cost of purchasing additional digital

materials. Cloud computing also became a trend. This enabled OCLC libraries to store applications and data on the Internet, instead of their local computers. This also allowed librarians to focus on serving their organizations and users without the need to maintain the software themselves. The next generation OCLC services were moving into a Web environment, which empowered the library cooperative (Jordan, 2009, p. 754).

OCLC began the Open WorldCat pilot in 2003. This process enabled librarians to intertwine into Web based products. This product was available to the general public, not just the participating libraries, and provided access to WorldCat and library holdings via the Web, through search engines, such as Google and Yahoo!Search, which in turn gave users an opportunity to locate items in their local library. OCLC believed it was necessary to try this service, to provide a greater awareness to library resources on the Web. After consultations with the Board of Trustees, Members Council, member libraries, and regional service providers this project was administered in two different phases. Phase 1 gave users access to Open WorldCat through specific Web sites, such as Alibris, Abebooks, Book Page, HCI Bibliography, and Antiquarian Booksellers Association of America (ABAA). Phase 2 of the pilot made WorldCat records available to search engines. Two million abbreviated records were available on Google and Yahoo!Search with links to Web catalogs and sites of 12,000 academic, public, and school libraries participating in OCLC. In 2005, Open WorldCat pilot became an ongoing program with 1.7 million searches to library services and by 2008, 134.5 million searches, due to referrals from partner sites (Jordan, 2009, p. 754).

In 2004, OCLC increased the input of special collections into WorldCat, by converting the CONTENTdm-supported collections into the MARC format, which was

loaded into WorldCat, thus creating the “Postcards of Indiana” collection available via the Web, a special collection from the Indiana Historical Society (Jordan, 2009, p. 755).

The WorldCat.org site was launched on August 8, 2006, which was a tribute to Frederick G. Kilgour, the founder of OCLC. Since 1971, items were added to the WorldCat database by catalogers, record by record. Kilgour and the initial pioneers of OCLC dreamed of a time when WorldCat would be available to the general public (Jordan, 2009).

In 1994, the first public use terminals appeared in libraries for WorldCat, and the key users were categorized as young, registered, frequent patrons of libraries. The users began tackling the search keys. An author-title search was keyed as a 4 to indicate the first four letters of the author’s last name and first four letters of the title; and a title search was 3, 2, 2, and 1. (Jordan, 2009, p. 755).

In 1980, OCLC was introduced in home delivery via WorldCat. People in 200 households accessed the library’s catalogs and ordered books using a huge remote control, which was attached to a TV set by a 10-foot cable. This project was a united effort between WorldCat and the Columbus Metropolitan Library. In 1991, OCLC created FirstSearch. This allowed people to serach WorldCat by subject, and people did not have to bother with consequential truncated search keys. OCLC hailed this latest advance as “a revolutionary new concept in providing the general public with online reference information” (Jordan, 2009, p. 755).

In 2005, OCLC created the Open WorldCat program. In 2005, OCLC launched the program, which let people search a subset of WorldCat through popular search engines such as Google and Yahoo! Then, in August 2006, people were able to search the

entire OCLC database on the Internet through the OCLC Cooperative's search site, WorldCat.org, as well as find the item in a nearby library. By the year, 2008, WorldCat.org contained 58 million records, linked to full-text journal articles, and extra developments were added to WorldCat.org. These extra developments were created to provide a summary page of more than 25 million personal and corporate authors in WorldCat. There were other items created in WorldCat at that time, such as an option to build bibliographies, create lists, tag records with personal descriptions, and install search plug-ins on Firefox and Facebook (Jordan, 2009, p. 756).

OCLC created another pilot in April 2007, called WorldCat Local. This product provided a single interface to a collection of libraries consisting of University of Washington Libraries, Lincoln Trail Library Systems, Peninsula Library System in California, Ohio State University Libraries, and eight other libraries in Illinois. The end results of a search provided patrons with the local and group library holdings at the very top of the results and rights to all WorldCat libraries. WorldCat Local also provided services for hosting, operating, and maintaining software (Jordan, 2009).

Another Web-based service by OCLC was the xISBN service. This service was developed by OCLC Research, supplied International Standard Book Numbers (ISBN's) associated with an individual's intellectual work and was based on information found in the WorldCat database. xISBN found all related editions of a book, including hardback, paperback, audiobook, foreign, and out-of-print editions. This was a product offered free of charge to OCLC cataloging members and was easily incorporated into library catalogs (Jordan, 2009).

WorldCat Registry was another product available to libraries via OCLC. WorldCat Registry allowed libraries to manage its institutional identity efficiently and on a secure Web platform. Librarians could create and maintain profile information, such as E-content providers, funding agencies, consortium members, and technology vendors. Libraries could also activate a new subscription service or renew an existing one, among other routine daily tasks. In 2008, there were more than 120,000 institution records for OCLC members and nonmembers (Jordan, 2009, p. 757).

In that same year, 2008, OCLC created the WorldCat Developers Network, which consisted of a small group of developers from cataloging institutions in Europe and North America. Together these two groups formed a network that used the WorldCat Applications Programming Interface (API) to build applications to guide people from the Web to library services. These developments linked WorldCat information to Internet applications, presentations, E-mails, and blogs, and thus developed creativity and usage of WorldCat. The WorldCat Developers Network sponsored events to bring other developers together to create and collaborate open-source, code-sharing OCLC data and to encourage use of the newly created Web services, such as access to the New York Public Library library's WorldCat Hackathon, held in 2008 and in 2009 at Mashathon in, Amsterdam (Jordan, 2009, p. 758).

In 2008, OCLC teamed with Google to create the Google Book Search ™ program, to exchange data and include library collections through Google search services. OCLC members agreed to participate and made one million books searchable in the full-text. Libraries could share their WorldCat-derived MARC records with Google, linked via Google Book Search to WorldCat.org, which in turn connected users to library

OPAC and other library services. Google continued to share data and links to digitized books with OCLC, and OCLC member libraries were greatly represented in WorldCat (Jordan, 2009 p. 758).

**Worldwide Reach of OCLC**

At the time of this writing, according to Jordan (2009), OCLC operated offices outside of the United States in other countries, such as Australia, Canada, France, Germany, Mexico, the Netherlands, Switzerland, and the United Kingdom. OCLC continued to retain and maintained relationships with distributors in many other countries and had a number of excellent partners, such as the Bill and Melinda Gates Foundation, IFLA, ARL, LIBER, and 34 national libraries. OCLC continued to connect 69,000 libraries and other organizations in 112 countries (Jordan, 2009 p. 758).

In 2006, OCLC offered services to libraries in Japan through a partnership with the company Kinokuniya. Kinokuniya served 400 institutions, and OCLC and this Japanese publisher formed the first Japanese e-book collection through NetLibrary. Also, the relationship with OCLC and Kinokuniya promoted the growth of Japanese language records in WorldCat and, in turn created a global database accessible by many (Jordan, 2009).

In 2007, OCLC hosted the fourth China-U.S. Library Conference, which consisted of three days of presentations and meetings to form cooperative agreements among their institutions. The event was held in Dublin, Ohio and brought together 60 leaders from research libraries, archives in China, and museums. In November 2008, about 60 people attended the RLG Programs' European Partners Meeting in Paris. This meeting consisted of organizations sharing similar goals, advancing research, scholarship,

open access information, and education. Services continued to evolve, due to the opening of an office by OCLC, at the University of St. Andrews in Scotland to represent RLG Programs in Europe (Jordan, 2009, p. 759).

From 1971 through 2009, and at the time of this writing, OCLC offered over 40 products to libraries in the United States, contracted with 15 regional service providers, shared services to libraries in the United States, and, due to the drop in regional service providers, was implementing new programs to reduce service costs and increase value to member libraries. The new services included an increase in online account information, a centralized calendar listing training and educational opportunities, simplified account information, and modernized billing statements, regardless of an institution's size, location, or type (Jordan, 2009, p. 759).

**Interlibrary Loan and OCLC**

According to Crowe (2009), the dream of achieving "universal bibliography" was central to the work of librarians and scholars for centuries (Crowe, 2009, p. 669). Kilgour and the other pioneers of the mid-20th century who created OCLC WorldCat believed everything was motivated by librarians' desires to discover and obtain information beyond their local collections and also their need for cooperation among themselves. OCLC continued to be the world's largest library cooperative (Crowe, 2009).

By 1979, OCLC launched its second service, the Interlibrary Loan Subsystem. The Interlibrary Loan Subsystem was created eight years after launching the cooperative online cataloging, which proved to be successful. The story of the effects of the OCLC Interlibrary Loan Service on libraries, librarians, and library users was told in a compilation of essays published to celebrate the 20th anniversary of the service and was

titled, *What the OCLC Interlibrary Loan Service Means to Me* (Crowe, 2009, p. 670). The words used by many of the contributors were powerful and often very personal, according to Crowe (2009).

In 2000, OCLC introduced OCLC ILLiad Resource Sharing Management software. This software was created by the interlibrary loan staff at Virginia Polytechnic Institute and State University and was developed and enhanced by Atlas Systems, Inc., along with OCLC staff. It was a fully integrated system between OCLC WorldCat and the OCLC InterLibrary Loan Subsystem and made possible the submission of requests for electronic documents to be received at the desktop. OCLC ILLiad was used by 1,032 libraries in the United States and, at the time of this writing, Canada, Egypt, Greece, Hong Kong, and Qatar (Crowe, 2009, p. 671).

ILLiad enabled library staff to send, receive, and track requests in real time via the U.S. National Library of Medicine's DOCLINE service. I n a like development overseas, OCLC promoted "Unity," a Web-based resource-sharing and interlibrary loan service, in partnership with the Combined Regions. UnityUK was the United Kingdom's national network for resource sharing and its first and only network, bringing together various union catalogs, including COPA (the academic and national library catalog), and the catalog of the National Library (Crowe, 2009, p. 671).

In 2009, UnityUK was used by 153 library services, 141 public and in the United Kingdom; 128 in England; seven in Scotland; and 12 in Wales (Crowe, 2009). Because OCLC was a major source of bibliographic and library holdings information and provided direct access to large amounts of digital content, as well as the knowledge and

experience of expert staff at OCLC and member libraries, OCLC continued to be at the center of a proliferation of experiments in resource sharing (Crowe, 2009).

OCLC continued to help many libraries test methods and processes to meet the needs of people who might possibly never step foot in a library and those whose outlooks for access to information were shaped by the increase of E-commerce and E-learning. OCLC continued to be committed to changes in how libraries function electronically and digitally and to the changes in how people seek and use information in their everyday lives. The model for OCLC's, then current, and future work to promote "resource sharing," would need to keep this worldview in mind (Jackson, 2004, p.132). Indeed, the many studies of interlibrary loan and document delivery undertaken during the end of the 20th and the beginning of the 21st centuries, in particular those sponsored by the Association of Research Libraries, drew not only from OCLC's store of data on patterns of lending and borrowing, but also on the expertise of OCLC researchers (Prabha & O'Neill, 2001). These studies proliferated, often highlighting the effects in individual libraries and in library consortia of OCLC systems and services (Madarash-Hill & Hill, 2008).

OCLC continued to offer services to streamline and connect interlibrary services through the OCLC WorldCat Delivery Network, and in 2009, OCLC introduced the WorldCat Navigator service to move resource sharing to a new level. More than 9,100 libraries participated at the time of this writing, which began in 1979 with the implementation of the interlibrary loan subsystem, and OCLC was approaching 10 million interlibrary loan transactions a year (Crowe, 2009, p.673).

**Card Catalogs**

One of the most topical issues in the library world in the 1980s was whether or not to close the card catalog. The card catalog had traditionally been a cabinet which housed the bibliographic records of a library's collection; each entry usually in the form of an index card. Each card contained basic bibliographic information; the title, author, subject, category, and edition of an item. The card catalog informed patrons of what was housed in a particular library. It continued to provide the identification, description, and location of the library's many holdings. However, the card catalog was becoming obsolescent for a number of reasons: 1) the large number of titles added to library collections generated more cards for the card catalog, thus causing a space problem; 2) the drain on the library budget for catalog maintenance; and 3) the time lapse which often occurred in getting cards into the catalog after new titles were processed (Ryans, 1981b).

At the 1975 American Library Association (ALA) conference, Robert Wedgeworth made in his Executive Director's Report a forecast for the library profession. He reported that a glimpse into the future of the technical services segment of the profession might reveal this picture: most of the libraries in the country joined networking systems interconnected by CRT terminals. The cataloging information necessary for virtually all titles purchased by libraries of every type is available instantaneously through the on-line system. All of the information is standardized to conform to Library of Congress practice. There are few card catalogs still in existence. Most bibliographic information is provided in book, microform, or "electronic" catalogs (Dickinson, 1981, p. 105).

According to Dickinson (1981), as a result of the technological changes in bibliographic control and processing, the technical services staff of most small and medium-sized libraries consisted of a few clerical workers and a library assistant, who headed the Technical Services Department. Only the largest libraries and processing centers employed professional staff in technical services, and library schools no longer taught the art of cataloging.

According to Ryans (1981 b), the Library of Congress announced that on January 2, 1981 it would begin cataloging by Anglo-American cataloging rules (AACR2) and freeze its current card catalog. This action meant that it would no longer add cards to its present card catalog and would rely on automated data to provide access to its collections.

> Over the past few months many catalogers have been spending a good deal of their time trying to evaluate the impact the revised edition of the Anglo-American cataloging rules [underlined in original], scheduled to be published this fall, will have on the catalogs they administer. (Bright, 1981, p.35)

One reason for this decision was the anticipation of problems created by the new cataloging rules in interfiling new entries into the existing catalog; the new rules not only changed access points, but also created different forms of headings (Ryans, 1981b).According to Bright (1981), the most reliable estimates of the impact of adopting the new code were the announcements that were made by the Library of Congress. After preliminary study, it announced that, under the revised code, 37% of the entries used on all machines readable LC cataloging (MARC) records would be affected, and 49 percent of the records would have a different form of entry. Five months after the announcement,

at the Annual Conference of the (ALA) American Library Association, the Library of Congress announced that further study, which had taken into account the most favorable of the options offered at various places in the new code, would result in a new code that would require a different form for 17% of the entries, affecting 22% of the records. Further, they pointed out that more than half of these changes were not caused by the revised edition, but resulted from the failure to implement fully the first edition of AACR, the "superimposition" decision (Bright, 1981, p. 35).

Although the size of the library's collection, as well as library policy, were important timely factors in determining the decision regarding the library catalog, the Library of Congress set the pace for the actions of libraries in this country. Many libraries may have felt it was best to follow the Library of Congress decision. This decision would naturally have an effect on libraries throughout the country, even if they chose not to follow the Library of Congress' lead to freeze the catalogs. For those who decided not to freeze their card catalogs, or even for those who preferred to delay the decision, the issue should have, perhaps, been viewed in greater depth (Ryans, 1981b). Some libraries, mainly smaller and mid-sized, had replaced their card catalogs with book catalogs as long ago as the early 1960s. In the latter half of the 20th century, the 7.5 x 12.5 cm card replaced the book catalog (Kreiger et al., 1976, p.172).

The cost factor was very important in the determination of an alternative form of bibliographic access. Decisions involved a study of the costs of maintaining the then present type of card catalog and of converting existing records to a machine system, as well as the projected cost of maintaining the new system. The costs involved included

not only hardware and software, but also expenditures for staff time, planning, and development (Ryans, 1981b).

The term, “bibliographic control” refers to various means of retrieving library materials, the most common of which had been a card or a printed catalog, and in the latter 20th century an on-line catalog. The catalog, in whatever form the library chose, required a design that would tell the library user what materials were in the library and where they could be found (Ryans, 1981b).

The type of bibliographic control that a library chose was determined by a number of factors. Perhaps the most prominent one for many libraries was cost or financial considerations. User needs was another important factor to be considered. These, of course, could vary in different types of libraries. Many library users were accustomed to using the card catalog and found it difficult to change to any other form of bibliographic control. Naturally, this could have been just a matter of preference, since they would not know how to use another technique or were afraid to change (Ryans, 1981b).

In order to have an effective system of bibliographic access, regardless of the technique used, the system needed to provide the types and the quality of information needed by its patrons. The most important access points included author, title, subject, and perhaps series information. For certain types of libraries, such as research and special libraries, even more detailed access points were necessary (Ryans, 1981b).

The adoption of the revised edition of the *Anglo American Cataloguing Rules* (AACR 2) and the future of the card catalog were two decisions which faced library administrators. Regardless of the decision made on whether or not to close the card catalog, the adopted use of AACR 2 would have a great impact on the future of the card

catalog (Ryans, 1981b).Although the card catalog had been the standard form of bibliographic access for many years, its adequacy was called into question because of a number of factors. Perhaps one of the most important was size. More books were being added to library collections, thus generating more cards to be filed into an already existing card catalog. This growth required staff time to file the cards and required more space as more catalog drawers were needed. In addition, cards tended to wear out with constant use and needed continuous replacement (Ryans, 1981b).

As in many other fields, libraries were beginning to use computers. For example, in 1971, the Ohio College Library Center (OCLC), a computerized data base for library catalog records, went on-line (Ryans, 1981b). With the advent of computer technology and its application to libraries, the question arose as to the validity of continuing to maintain the card catalog manually when a machine-assisted form of bibliographic access was feasible. There were several types of bibliographic access that could be used in libraries. For example, the book catalog was perhaps the first type used in libraries. One of the new forms of machine-assisted catalogs was the Computer Output Microform (COM), and an even more sophisticated form was an on-line system. Any one of these systems could be used alone with the proper preparations, such as conversion of the library's existing records, or they could be used in combination with one another. Another alternative was to use a machine-assisted catalog in concert with existing card catalog (Ryans, 1981b).

An Automated Catalog (Dusenbury, 1981) for the public services librarian offered clear advantages in an alternative format catalog. Some of the major advantages were:

easier access, display, holdings, a “cleaner” catalog, and non linear “free text” search (Dusenbury, 1981).

According to Hazen (1981), there were four sets of suppositions that supported the conclusion to mobilize for systemic automation: 1) Library automation was inevitable; 2) The card catalog was on the verge of collapsing under its own weight,; 3) The Library of Congress was and would remain the model for library practice and procedure, and drastic transformations would occur in each of these after 1980; and 4) Cornell would lose status as a vanguard automater, if not among the pioneers of integrated on-line systems (Hazen, 1981).

According to Dusenbury (1981), “The most fundamental obstacle we as librarians face in contemplating the future of the card catalog is our psychological attachment to the traditional format” (p. 17). Dusenbury also stated that, “Not only to ourselves, but to many of our patrons, a library is as much symbolized by the card catalog as by shelves of books” (p. 17). A corollary to the inevitability of automation maintained that an automated system must move toward appropriation of all compatible library functions, such as acquisitions, serials control, cataloging, circulation, reserve, accounting, and access to on-line databases (Hazen, 1981). Again, according to Hazen, librarians were assured that the computer’s theoretical capability to control such operations constituted adequate grounds for embracing a mechanized approach. Hazen also believed that the catalog card and card catalog were created for particular reasons at a certain point in time. Hazen believed it was parallel to urban renewal.

In 1981, many catalogers spent a lot of time trying to evaluate the impact of the revision in the AACR, which was published in the fall of that year. Kennedy (1981)

stated that according to John Rather, the card catalog was a living organism, and as a living organism, it was subject to growth, change, and deterioration. Carrying that analogy further, the growth of this organism, the card catalog, tended to resemble the growth of weeds in the garden; rapid and relatively uncontrollable.

Research library growth studies indicated that collections grow at an exponential rate and tend to double in size every 16 years (Kennedy, 1981). Experts considered that alternative forms of bibliographic access must be in place before a library should close its card catalog, and once it had been decided to use some form of automation systems, research must still be done. Alternatives included the book catalog, which was the first type used as an alternative to the card catalog; the Computer-Output-Microfilm (COM) catalog; and the on-line catalog (Ryans, 1981b). A chief disadvantage of an on-line catalog was cost (Freeman, 1981).

A disadvantage of the book catalog was production costs and the information had to be typeset. For the user, one disadvantage was the difficulty of keeping the information current. At times, the information was several months behind and updated by supplements. The supplements became a problem due to the increase in amendments to added information. Photography provided a faster, cheaper alternative, yet proved to be costly, too. So the technology contributed to a creation of machine readable databases, which were cost effective. Information was captured once and could be reused continually by other libraries in various products (McElderry, 1981).

The Library of Congress created the MARC distribution service, which was an example of data collection. Another form of a bibliographic catalog was one in

microform, yet the disadvantage of the micro image catalog was the difficulty of making additions and corrections (McElderry, 1981).

The major accepted alternative to the card catalogs was the on-line catalog. The general characteristics of the on-line catalog were: 1) Bibliographic information was stored in a computer in machine readable form; 2) The data were accessed on-line by terminal but were also available in various batch-produced forms, such as a printed list, COM, or cards; 3) Information was accessible by a variety of "keys" primarily author, title, author-title, subject, call number, LC card number, record number, and ISBN; 4) Access keys could be approached algorithmically and in various combinations; and 5) The search was conducted interactively so the user could respond to the data displayed in refining the search (McElderry, 1981, p. 128). According to McElderry (1981), on-line bibliographic systems in the United States usually contained Library of Congress MARC data and data input locally in MARC compatible format.

With regard to research, one major advantage of the automated catalog was its ability to collect information concerning user behavior and user habits (Chan, 1976, p.177). According to Krieger et al. (1976), cooperative cataloging, or the work of cataloging a title, needed to be done only once and would thereafter be available to all. To be effective, such cataloging required the acceptance of a single point of view and agreement on standardized form. Most libraries made changes to the data of individual records to conform to local needs, yet it was difficult to change the centrally accepted core of information or the rules on which it was based (Krieger et al., 1976, p. 172). One of the attractions of on-line catalogs was the access to data through use of words or phrases without reliance on traditional main entries and tracings. In many libraries,

cataloging with copy had been delegated in varying degrees to paraprofessional catalogers (Dowell & Krieger, 1976, p.174).

According to Borgman (1996), lessons learned from information retrieval studies called for substantial changes in online catalog design based on increasing knowledge of user behavior. Online catalogs continued to be difficult to use because design did not incorporate sufficient understanding of search behavior. Research in information seeking indicated that users formulate questions in stages, gradually coming to the point where they can begin to articulate a query. Even though the search process may be iterative, it served to refine the question rather than to build a set of documents that matched an explicit query. A "search" could be conducted over a number of sessions with different information technologies and sources, both online and offline. The design of most operational online catalogs assumed that users formulated a query that represented a fixed goal for the search and that each search session was independent (Borgman, 1996, p. 493).

**Computers: Their Use in Libraries**

According to Marcum (2003), Al Gore described the virtues of technology by painting a verbal picture of a day when the contents of the Library of Congress would be available online to every school child in America. Librarians protested by saying, "No, no, that image is too simple. We can't put everything online. We don't have enough money. We don't have all the legally required rights and permission[s]" (Marcum, 2003, p. 276). Marcum was asked, "What do we have to do to realize the potential of digital libraries?" (p. 276). The answer was simple, "We must build massive, comprehensive digital collections that scholars, students, and other researchers can use even more easily

than they use the book-based collections we have built up over the centuries" (Marcum, 2003, p. 276).

During the late 20th and early 21st centuries, academic libraries experienced major shifts in technology (Denda & Smulewitz, 2004, p. 145). Integrated library systems and the Internet changed the workflow in libraries from technical services to public services. In this environment, the processing of library material ranging from print to digital formats, as well as demanding expectations from the user community were stimulating additional challenges and the old ways of work were under critical evaluation**.** Furthermore, increasing fiscal constraints, such as diminished budget allocations were pressuring libraries to look inward to evaluate their own organization and to establish means to cope with this situation (Denda & Smulewitz, 2004, p. 145).

The E-rate program was developed by the United States federal government. It was a part of the Telecommunications Act of 1996. A vital part of the E-rate program was to provide financing for access to telecommunications for schools, libraries, and healthcare providers. The discounts became obtainable in 1998, which caused the program to make about $2.25 billion dollars available every year for organizations. Customers of telecommunications companies and recipients could receive discounts on their bills or reimbursements for specific services (Jaeger, McClure, & Bertot, 2005).

The Federal Communications Commission (FCC) watched over the Universal Service Administrative Company (USAC). The USAC's Schools and Libraries Division (SLD) managed the distribution of the E-rate discounts to libraries or library consortiums. Libraries had to meet the definition of a library within the constraints of the Library Services and Technology Act and have a budget separate from a school. Libraries were

allowed to apply for discounts between 20 to 90% for communication services, such as internal connections, Internet access, and telecommunications services. The discount varied according to the rural or urban area-type served and the percentage of students eligible to receive free or reduced-price lunches. "In June 2002, 43.4 percent of public libraries were receiving E-rate discounts" (Jaeger et al., 2005, p. 57). Many libraries did not apply for E-rate funds because they were not aware of their eligibility (Jaeger et al., 2005).

Academic libraries established computer workstations for public use to give access to the electronic resources. However, most students were not using the computers for library use; they were using the them to view their electronic mail and Internet surfing, thus creating a broader use of the stations in the academic library, such as creating a "learning center" (Shoham & Roitberg, 2005).

Research by Shoham and Roitberg (2005) examined two topics: 1) whether an increased number of workstations in the library building encouraged an increased amount of non-library purposes for visiting the library and non-library workstation use; and 2) whether the non-library-related computer use was connected to electronic learning. Differences among users from various academic faculties and with varied academic status were also investigated.

The academic library's website was the gateway to electronic resources, according to Shoham and Roitberg (2005). Students and others, such as professors, used the electronic resources instead of coming to physical library building. They used the electronic library from their dormitories, offices, and homes. At the time of their writing, Shoham and Roitberg believed the combination of on-line resources along with printed collections

completed the academic library, yet the physical library was still needed, due to the slow process of integrating electronic resources. According to Bailin and Grafstein (2005),

> libraries went through a rapid change in 2005. Libraries moved from card catalogs to OPACS, from printed indexes to CD-ROMs, and from CD-ROMs to Web-based databases that could be searched remotely. The networked environment had expanded the means of access available to users. In a traditional library, a patron wanting periodical literature had to physically go to the library's shelves to locate the needed volume. In a networked environment, however, this material could often be downloaded to a remote computer. This had become a standard means of accessing periodical literature. Libraries had responded to patron demand for remote access to the full text of periodical literature by allocating a growing proportion of their budget to periodical databases. (Bailin & Grafstein, 2005, p. 318)

Library catalogs continued to be the means to access a library's holdings. If a patron wanted to know what was available in a library, he or she just needed to access the online catalog. All items were easily accessible via the OPAC, such as electronic books, Web sites, and government documents. Thus, it became unnecessary to go to the physical library, even for reserves since some professors were making their reserves available electronically. This made downloading necessary assignments possible for students from any Internet accessible computer (Bailin & Grafstein, 2005, p. 318).

When librarians think of assistance, what comes to mind is generally reference. Reference, as it was normally conceived,

> refers to an interaction between a librarian and a patron at an information desk, on the telephone, through e-mail, or via chat. This concept of reference was based on a model in which the interaction must involve a patron requesting information from a librarian. This was actually a highly restricted view of reference, and various attempts at defining reference over time had included other types of assistance, rather than simply a patron requesting information from a librarian. (Bailin & Grafstein, 2005, p. 319)

Reference face-to-face between the librarian and patron no longer existed, due to the newly networked library environment. The networked environment allowed librarians to make resources available to patrons electronically, so the patron did not have to come to the physical library. Patrons were able to access the databases and other electronic materials on their home computers but still needed even more assistance from home. Librarians found themselves assisting patrons over the phone more often, or via e-mail to assist with the electronic materials. Making the content usable required remote assistance from the librarian in its use (Bailin & Grafstein, 2005, p. 319).

Many librarians were taking advantage of access to various databases through consortium pricing, which meant many libraries were able to obtain access to many different databases. The wider access to databases could prove to be very daunting for most patrons. There was a need to try to figure out which database to use for what information. Most patrons were used to using the World Wide Web to search for information and were unaware of how to search for information in an online database (Bailin & Grafstein, 2005, p. 319).

Librarians continued to try to reach patron needs by providing reference via the telephone, e-mail, chat, and one-on-one at the reference desk. The results of LibQUAL™ research specified that patrons wanted to be able to access the library resources independently, and usage statistics proved that chat reference was not meeting patron needs (Bailin & Grafstein, 2005, p. 319).

According to Samson and Oelz (2005), the academic library should serve as a full-service Information Center (IC). The IC evolved to allow control of technology to integrate the library's growing collection of networked resources with its service mission, to build a team of personnel committed to the success of the IC, and to integrate assessment into the cycle of change (Samson & Oelz, 2005, p. 347).

At the beginning of the IC process, the following goals were identified in an effort to integrate new needs with a new model of service: “1) maintain consistent hours of access at fewer service points; 2) maximize the talents of all personnel; 3) provide one-stop service for library users; and 4) expedite referrals to qualified personnel” (Samson & Oelz, 2005, p. 348). Proposals resulted in the decision to implement the IC with the following guidelines:

> 1) the location of the IC was targeted for front and center as library users entered the building; 2) the design of the IC would incorporate all relevant service points, media and monograph circulation, integrated reference, and interlibrary loan, with the exception of the Copy Services and Archives; 3) all services would be available during all open hours with the exception of Archives; and 4) training appropriate to quality levels of service would be provided to all IC personnel. (Samson & Oelz, 2005, p. 348)

The design and construction of the IC desk included merging the reference and technical support with seated service with dual-monitor computers and circulation and interlibrary loan with stand-up service points. All media collections, government documents, interlibrary loan, and ready reference materials were included in the new IC. All hard copy reference materials with little use were moved into the main collection to allow focus on the expanding electronic reference collection. The large cluster of computer workstations throughout the library came together and was situated outside of the IC, technical support, and information services. For example, reference and instruction were placed in clear view and near the computer cluster. There continued to be a service desk for walk-up assistance for patrons, and reference assistance was positioned in the center of the service area. According to Samson and Oelz (2005), library patrons could approach the desk and receive assistance, which could lead to a personal referral to the correct reference personnel to assist them, and the needs could be readily addressed. The final part of the plan included a series of continuing education opportunities for all IC staff during a two-week period, prior to the fall semester and the opening of the IC (Samson & Oelz, 2005, p. 349).

Tiny radio frequency identification (RFID) helped librarians keep track of their inventory and allowed patrons to checkout and return library materials automatically at any time of day, according to Singh, Brar, and Fong (2006). In 1998, RFID was proposed as a way to make possible the self-serve processing of books and media by patrons in North America. The library of Rockefeller University in New York was the first to use the new technology. The first public library to use RFID was the Farmington Community Library in Michigan in 1999.

At the time of their writings Singh et al. (2006) stated that more than 300 libraries had, or were in the process of implementing, an RFID system. According to the research service *RFID Knowledgebase,* United States libraries led the world in RFID use, with the United Kingdom and Japan tied for second place. It estimated that 35 million library items had been tagged worldwide. Even the high-profile Vatican library in Rome had started tagging 120,000 volumes of its collection. It was estimated that it would take the administrators at the Vatican library only half a day to inventory these tagged volumes as compared to the one month required prior to tagging. This speeded up the checkout process, kept collections in order, and alleviated repetitive strained injuries among the librarians and RFID provided better control of thefts, returns and misfiling of a library's collection. At the time of this writing, the RFID system resolved privacy issues, lack of standardization, and cost (Singh et al., 2006, p. 24).

Process automation refers to the application of technology to previously manual activities performed by library staff (Butters, 2007, p. 34). The issues in consideration for automation in the library were the processes associated with issuing books to borrowers, and then retrieving and returning them to the shelves at the end of the loan period (Butters, 2007, p. 34). According to Butters (2007), in 1991 commercial equipment was designed to automate the loan process and appeared on the market.

In the language of computer hackers, social engineering is a non-technical hack. According to Thompson (2006), regardless of an institution's commitment to computer security through technology, it is vulnerable to social engineering. Computer hackers use trickery, persuasion, impersonation, emotional manipulations, and abuse of trust to gain information or computer-system access. The institute of Management and

Administration (IOMA) reported social engineering as the number-one security threat for 2005. According to the IOMA, the methods of security violation were on the rise due to continued improvements in technical protections against hackers (Thompson, 2006, p. 222).

Libraries were vulnerable to social-engineering attacks for two major reasons:1) ignorance and 2) institutional psychology. The first of these difficulties was the easiest to address. The ignorance of library professionals in this matter was easily explained; there was little literature to date about the issue of social engineering directed at library personnel. What existed was usually mixed in larger articles on general security issues and received little focus (Thompson, 2006, p. 224).

Integrated library systems, such as Koha and Evergreen, proved to be a great benefit to libraries. LibraryFind and Umlaut, were great for metasearch and OpenURL resolvers, DSpace, and Fedora were great digital library and repository software. Scriblio and SOPAC were OPAC replacements. Lucene and Solr, MARC, OAI, SRU and SRW were excellent programming libraries, according to Eby (2007).

According to Bejune (2007), wikis were invented in the mid-1990s to help facilitate the exchange of ideas between computer programmers. A wiki allowed a person to add, remove, change, and edit content on a webpage. Related to this tool, on January 15, 2001, Wikipedia was launched by Larry Sanger and Jimmy Wales as a complementary project for the defunct Nupedia encyclopedia. Nupedia was a free, online encyclopedia with articles written by experts and reviewed by editors. Wikipedia was designed as a feeder project to solicit new articles for Nupedia that were not submitted by experts. The two services coexisted for some time, but in 2003 the Nupedia servers were

shut down. Since its launch, Wikipedia underwent rapid growth. At the close of 2001, Wikipedia's first year of operation, there were 20,000 articles in 18 language editions. As of this writing, there were approximately 7 million articles in 251 languages, 14 of which had more than 100,000 articles each. As a sign of Wikipedia's growth, at the time of Benjune's writings, there were more than five million articles in 250 languages (p. 26).

In the early 21st century computer-supported cooperative work (CSCW) environments became prevalent. As libraries were, by nature, collaborative work environments where library staff worked together and with patrons. As digital libraries and computer technologies became prevalent, there was a natural fit between CSCW and libraries (Bejune, 2007, p. 27). The Peer Assisted Learning (PAL) scheme was initially based on the Supplemental Instruction (SI) scheme created by Deanna Martin in 1973 at the University of Missouri-Kansas City (Parton & Fleming, 2007, p.79). Initially, like the SI scheme, PAL was intended to be used to reduce attrition on historically difficult courses, to improve student grades on these courses and to increase graduation rates (Capstick & Fleming 2002, p. 70).

PAL followed five aims that encompassed both the social and the academic. The scheme was intended to help students to 1) integrate quickly into university life; 2) acquire a clear view of course direction and expectations; 3) develop their learning and study skills to meet the requirements of higher education; 4) enhance their understanding of the subject matter of their course through collaborative group discussion; and 5) prepare better for assessed work and examinations (Parton & Fleming, 2007, p. 80). PAL was fully integrated into course programs, with academic staff operating as Course PAL Contacts, meeting with leaders regularly, and contextualizing PAL to the specific

requirements of the course (Parton & Fleming, 2007, p. 80).As this list of aims indicates, conveying information about the library and the wider concepts of information literacy had become an integral part of any PAL program, whether it was orientating students around the library building or discussing topics such as plagiarism and referencing. However, this was not always the case. Before 2005, these topics were often only touched upon, and when leaders did attempt to address these subjects in sessions, they were not always successful (Parton & Fleming, 2007, p. 81).

**Bibliographic Instruction**

According to Hardesty (1995), bibliographic instruction (BI) had a long history among academic libraries dating to at least the 1880s, and librarians found the BI movement was due in part to Evan I. Farber. In the study, *Teaching with Books,* Branscomb found such limited use of the library by most college students during the 1930s that he asked "whether we need these large libraries, if present teaching methods continue" (Hardesty, 1995, p. 340). A decade later, the eminent librarian Louis Round Wilson raised a similar issue when he wrote: "Although colleges spend a considerable portion of their educational budgets for library materials and services, the contribution that libraries make to furthering the education program is less than it should be" (Hardesty, 1995, p. 340).

During the 1950s and 1960s, Knapp led the way in BI and Shores attracted attention to the librarian's role in higher education by creating a library-college movement. At the end of the 1960s, Phipps established that librarians were frustrated, disappointed, and disheartened in the lack of time, staff, money, and cooperation and interest from faculty and the administration. In 1969, Farber's presentation to the

College Libraries Section of the Association of College and Research Libraries, followed by an article by Kennedy regarding the Earlham College program, became widely known (Hardesty, 1995, p. 340).

By the early 1970s, a BI movement had emerged and included an annual conference at Eastern Michigan University. BI champions hosted own section within the Association of College and Research Libraries in the mid-1970s and their own journal, *Research Strategies*, by the 1980s. In the 1990s, regional accreditation agencies began recognizing the importance of BI's (Hardesty, 1995)

Also, according to Hardesty (1995), there seemed to remain an irritating feeling regarding the importance of BI. From the 1960s to the 1980s, the National Endowment for the Humanities and the Council on Library Resources funded programs to enhance the library's educational role, and about $3 million went to more than 50 academic libraries (Hardesty, 1995, p. 341).

Hardesty (1995) found Gwinn's review to be an important part of the history of BI. Gwinn found librarians' difficulties with faculty members frequently mentioned among the largest problems in establishing programs. The difficulties included: 1) poor cooperation from faculty, 2) faculty and administrative turnover, and 3) lack of adequate planning input from faculty. She concluded with the understatement: "Bibliographic instruction programs in general, have not caused a major revolution among the American teaching faculty" (Hardesty, 1995, p. 341). Also, according to Hardesty (1995), Whitlatch commented, "In the United States, the tradition in faculty teaching does not involve extensive use of the library nor encourage students to use the library to formulate research topics or independent inquiries" (p. 341). As BI entered the 1990s, Farber

(1999) wrote: “[The] problem [of faculty resistance to bibliographic instruction] is still with us. Many faculty members are still unwilling to share their classrooms, to give up some control over their classes” (p. 341). Hardesty indicated that Thomas studied faculty attitudes toward BI at a large state university, with evidence to support Farber’s assertion. She concluded, “In general, most . . . faculty still seem to feel little responsibility for assuring that their students develop library skills, traditional or electronic” (Hardesty, 1995, p. 341).

According to Phipps (1968), a typical college freshman may get lost in the maze of subject headings, cross references, or involved corporate entries at the card catalog, and the student was usually wandering into a wilderness of books and reference librarians were usually too glad to give assistance. During the 60s, reference librarians explained the use of encyclopedia indexes and demonstrated the use of periodical indexes and abstracts. Phipps conducted a study on library instruction, known as bibliographic instruction (BI) during the summer of 1965. She sent a brief questionnaire to 200 American universities and colleges. Eighty-one percent indicated that some form of library instruction was given. The three-point evaluation scale on the questionnaire was 1) ineffective; 2) of some value; and 3) of great value. Most of the respondents circled, “of some value” in rating each type of instruction (Phipps, 1968, p. 411).

According to Phipps (1968) historical data for a background study was presented in concentrated form in a 1952 thesis by Mary Case Marquis. Two earlier theses, by Evelyn Steele Little and Mable Harris also provided good material. A summary of the Marquis thesis showed that the prevalent methods of library instruction were in existence and had not changed over the years, including:

> 1) The tour of the library during orientation week; 2) A series of lectures or lessons, varying from one to eight, sometimes without the tour, usually given on "borrowed time" from the English department; and 3) Separate course in the curriculum, with or without credit, usually a one-hour, one-semester course. (Phipps, 1968, p. 412)

Phipps (1968) gave at least 12 reasons for lack of success in library instruction during the 1950s, according to the Marquis thesis. The most acceptable solution was the one-hour, one-semester course, required of all freshmen. The respondents to the questionnaire also rated the library tour the least effective, if used alone (Phipps, 1968, p. 413). Most believed a tour must also be included. Methods of instruction included:

> 1) library tour, 2) the orientation lecture, 3) individual instruction, 4) library instruction as a separate course, 5) library instruction in freshman English, in College English, 6) audiovisual aids in library instruction, 7) programed instruction and teaching machines in library instruction, and 8) tests, more specifically a test by Feagley, "A Library Orientation Test for College Freshmen." (Phipps, 1968, pp. 414-423)

The following question was asked on the, "Library Instruction: A Column of Opinion" page of the Journal of Academic Librarianship, in September, 1976, "Do you feel that bibliographic instruction should be an integral and permanent component of an academic library's total service program?" (Boisse, 1976, p 188) Academic libraries traditionally conducted orientation tours and offered reference assistance to their users. Since 1970, however, more comprehensive instruction activities were initiated in hundreds of college and university libraries. Conferences on library instruction

multiplied; more position descriptions included orientation instruction duties, and over-all interest continued to expand. Project Library Orientation and Exchange (LOEX ), the national clearinghouse for academic library instruction program information and materials, reported a membership of 520, with an additional 400 libraries developing or implementing BI (Boisse, 1976, p. 188). According to Boisse (1976), a well-planned and well-executed program of bibliographic instruction will produce several valuable results, including an increase in the success ratio of library (pp. 188-189).

In examining library use instruction over the past 30 years, it was easy to to those factors that changed; all, or certainly almost all, the changes related to computer technology. Thirty years ago, those in bibliographic instruction were concerned with teaching only a few tools such as the Library of Congress subject heading volumes, a few specialized encyclopedias, some Wilson indexes, other disciplinary indexes or abstracting services, and the use of printed bibliographies. Some introduced students to the Library of Congress classification or reminded them of Dewey's mnemonic devices. Those who worked in libraries that were government documents depositories may have explained the SuDocs classification (Farber, 1995, para. 3).

One look at early BI handouts reveals their simplicity, that same simplicity would seem humorous to younger bibliographic instruction librarians. At the time of Farber's (1995) writing, there were not only many specialized reference works in print, but students had to be shown the idiosyncracies of our individual systems' OPACs and introduced to the proliferation of electronic databases available on standalone CD-ROMs or through the OPACs. Librarians also coped with the Internet and which types of

information, bibliographic, numeric, and other, were increasingly available (Farber, 1995, p. 431).

According to Farber (1995), in the late 1960s, the BI program at Earlham had achieved a widespread reputation: librarians were working with faculty members in almost all disciplines, reaching a substantial proportion of students, and staff excitement and enthusiasm about program successes were obvious. There was frustration at not working with more faculty members (Farber, 1995).

According to Farber (1995), faculty resistance to BI changed. It was a different generation of faculty, - more open, democratic, and less defensive. And, because library technology changed things so much since many of these faculty were in graduate school, they knew librarians could find information they could not (Farber, 1995).

According to Farber (1995), bibliographic instruction (BI) meant that many younger teaching faculty had some familiarity with it, perhaps when they were students or they came to an already existing BI program. Because librarians were the ones to show their students how to gain access to those sources and to demonstrate what they provided, faculty members were much more willing to accept librarians as teaching colleagues to consult and work with (Farber, 1995, p. 432).

According to Perkins (1996) the BI was going to come into its own, with more responsibility given to the end users. Their use of the newly available information technologies depended heavily on the expertise they gained on BI (Perkins, 1996, p. 213).

According to Herrington (1998), in the area of library instruction, the changes brought about by technology appeared to be more superficial than substantive. Inherent

to any model or paradigm are underlying beliefs and principles. For a model to truly change, these basic principles must be examined, revised, or even discarded. Many colleges and universities featured Web-based Virtual Libraries or Digital Libraries, but these were mainly electronic sources. Some even had computer-assisted library instruction. However, not much had changed, except the format. Instead of a lecture format, library instruction was computer delivered. Instead of printed directions, the directions were provided electronically on help screens. These were not examples of a substantive change. The main difference was that a variety of formats and electronic tools were being used. A new model of library instruction motivated by technological advances in the library had not emerged because the underlying beliefs remained the same (Herrington). Also, Herrington believed the terms BI, library instruction, and user education would be used interchangeably. There was a history of controversy over the definition of user education, but traditionally library instruction referred to introductory tours, classroom instruction focusing on library resources, computer-assisted instruction, audiovisual or audio instruction, signage, and library publications. User education may include information literacy, which also had numerous definitions and resultant ambiguity. The existing model of library instruction assumed that the library user was not self-sufficient and that the library was too complex. The library system, as well as the library user, was deficient. The purpose of Herrington's article was to suggest a new model of library instruction. This model proposed new beliefs and assumptions about the role of library instruction in an emerging electronic library (Herrington).

According to Sanborn (2005), academic librarians had a long history of collaboration with faculty to produce course-specific library instruction. As early as the

1930s “Librarians and subject faculty had to collaborate to improve student’s research abilities.” A Library Instruction (LI) session built to support an individual class offered all students information literacy within an immediately relevant context (Sanborn, 2005, p. 478). According to Elmborg (2006), more opportunities and responsibilities were given to librarians to instruct their patrons in the use of Web 2.0 tools and to learn how to do authoritative research. Information literacy began appearing on conference agendas and statistics from the Association of College and Research Libraries (ACRL) meetings, and librarians found growing interest. Major changes in the demand for academic library services moved away from reference to library instruction, and librarians continued to have faculty status and participated in curriculum revisions and instructional initiatives (Elmborg, 2006, p. 192).

Academic libraries had the biggest impact in this type of instruction. More recent higher education students learn differently than the generations before them. These students often relied on the knowledge of their peers over authority figures, they preferred to receive information in small chunks, and they searched quickly for their information (Godwin, 2009, p. 266). This generation grew up with Google and there was no expectation that searching for information in the library should be a different experience. Librarians could help students improve their Information Literacy skills by using tools with which the students were most comfortable. “Library 2.0 librarians seek to be where their users are, whether that is Facebook or a VLE” (Godwin, 2009, p. 271). Rather than imposing traditional academic standards of authority when it comes to research, Web 2.0 librarians could help their patrons understand how to use a Web 2.0 tool as a starting point and how to move their search from there into a library database.

The most important responsibility of the Web 2.0 librarian may not have been to teach Information Literacy, but rather to build upon and refine the skills that students already had (Humrickhouse, 2011, p. 6).

According to Hrycaj (2006) in 2000, the ACRL created, approved, and published, "Information Literacy Competency Standards for Higher Education." The results of the study should become an aid to librarians who were beginning to teach library skills classes and were looking for some ideas for developing their own syllabi. The standards were created in an attempt to define and clarify the skills that made up the overall ability for effective use of information; something that every well-educated person should reach for (Hrycaj, 2006, p. 525).

According to Hrycaj (2006), the standards were phrased in terms of what the "information literate student" is able to do. There were actually five standards, which included performance indicators and outcomes. The standards are as follows:

> Standard One: The information literate student determines the nature and extent of the information needed. Standard Two: The information literate student accesses needed information effectively and efficiently. Standard Three: The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system. Standard Four: The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose. Standard Five: The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally. (Hrycaj, 2006, p. 526)

To view the additional information regarding the standards, performance indicators, and outcomes, access the ACRL (Association of College and Research Libraries, 1997-2012).

Metcalf (2007) believed a nationwide requirement for all college students to take a standardized library research course upon entering college would acquaint freshmen with valuable resources. The course could be tailored to various undergraduate majors. By the time students reached graduate school, they would be able to use computer-based tools to conduct more efficient graduate research (Metcalf, 2007, p. 29). Metcalf also believed that access to a computer at home and training in computer-based research for the have-nots of the computer world was critical for college success.

According to Avery (2007), many universities were including courses such as; *Writing with Video,* which was a course first offered at the University of Illinois at Urbana-Champaign in 2005. The course addressed the increase of media in our culture and the increase in student participation in the creation of media. This course offered the fulfillment of the university's Advanced Composition requirement. The course also answered a question regarding the exploration of video as a metaphoric medium and librarians could introduce media literacy in library instruction and they had the unique position to open dialogues across campus about the importance of media literacy in academia (Avery, 2007, p. 77).

When it came to IL, Kim and Sin (2007), surveyed undergraduate students and examined three different characteristics connected to their source selection behavior: 1) Frequency of source use, 2) Criteria used for source selection, and 3) Perceived characteristics of sources. For academic librarians, IL instructors, and educators, the

selection and use of information sources by college students had also become a key issue (Kim & Sin, 2007, p. 55). With the new generation of computer-literate students and the vast amount of information available in both print and electronic formats, the necessity to develop the ability to use information resources in the library became paramount. Consequently, academic libraries assumed a far greater role in assisting students to locate and evaluate information critically by teaching information literacy. Indeed, the search for information involved critical thinking. Due to the importance of analytical and systematic thinking skills in using libraries, critical thinking has been of interest to both information literacy instructors and library and information science (LIS) researchers and students will continually need assistance from the librarians (Kwon, 2008, p. 117).

**Summary**

The purpose of this project is to analyze the differences in media usage in the higher education academic library setting for the years 1975 through 2012 as they relate to major educational issues identified by Farber (1999). A comparison of Farber's (1999) discussion of issues for each decade (70s, 80s, and 90s) to the existing issues in the current era (2000-2012) will provide a framework for discussion of the changing roles of library media specialists and the media they make available to academic library constituents. This study will replicate Farber's examination of library issues for the years 1975-1999, with respect to library media usage, for the current decades represented by the years 2000-2012.

# Chapter Five: Results

## Farber's Views Compared to 21st Century Academic Librarians

### Introduction

Farber (1999) discussed many key topics of interest in the cornerstone article, "College Libraries and the Teaching/Learning Process: A 25-year Reflection". Most of the items he focused on were important to libraries and librarians when the article was published. Yet, the researcher found many similarities and differences in 21st century academic library issues, when compared to Farber's (1999) views. The issues discussed in this chapter are the matters which Farber found most important in 1999 as he looked back to 1975, the top issues academic librarians found to be important in 2000-2009, and the top trends in academic libraries in 2010, 2011, and 2012.

The researcher also discussed issues which represent activities and philosophies that have almost totally disappeared, which were discussed by Farber (1999), issues present today which have changed immensely since Farber's time, and the issues which have almost totally disappeared in the 21st century, which Farber (1999) discussed his initial article.

Farber's (1999) expertise in librarianship was both broad and in-depth. Within the scope of this research the topics he expressed as most prominent in his 1999 article describing the preceding quarter of a century have been discussed. A list of the eight most prominent topics found to be important by Farber in 1999 is included in Table 7.

Table 7.

*The Top Eight Issues Farber Found Most Important in 1999.*

| |
|---|
| 1. Bibliographic Instruction |
| 2. The use of computers in libraries |
| 3. Faculty culture and attitudes |
| 4. Technological advances |
| 5. OCLC |
| 6. Electronic information |
| 7. Changes in the academic library |
| 8. Card catalog |

*Note:* Information compiled from Farber, 1999.

**Similarities in Farber's Top Issues Compared to 21st Century Issues**

Table 8 lists the top eight issues found in academic libraries during the first decade of the 21st century. Those 21st century authors include prominent figures, such as Bejune (2007), Bailin and Grafstein (2005), and Eby (2007). Similar trends continuing from the top issues according to Farber' (1999) report for the years 1975 – 1999 include: 1) technological advances, 2) electronic information, and 3) changes in library services driven by changes in technology, in the form of 4) electronic books, 5) electronic current serials subscriptions, 6) email web reference services, and 7) increased use of ebooks.

Table 8.

*The Top Eight Issues Academic Librarians Found Most Important 2000 – 2009.*

1. Library expenditures
2. Electronic books
3. Electronic current serials subscriptions
4. Staffing
5. Decline in circulation statistics
6. Increase in InterLibrary Loan services
7. E-mail web reference services
8. Increase in e-books

*Note:* Information compiled from ACRL, 2009.

Table 9.

*2010 Top Trends in Academic Libraries.*

1. Increased academic library collection.
2. Budget challenges continue.
3. Demands for accountability and assessment increase.
4. Digitization of unique library collections.
5. Explosive growth of mobile devices and applications drive new services.
6. Increased collaboration expands the role of librarian. Development of scholarly communication and intellectual property services
7. Technology continues to change services and required skills
8. Physical space is repurposed and virtual space expands

*Note:* Information compiled from Oakleaf, 2010.

**Differences in Farber's Top Issues Compared to 21st Century Issues**

Tables 9, 10, and 11 list the top eight issues found in academic libraries during each of the years 2010, 2011, and 2012 in the 21st century. Similar trends continuing from the top issues according to Farber's (1999) report for the years 1975 – 1999 include: 1) digitization of library collections, 2) increased use of mobile devices, 3) continued technology changes requiring different skill sets of librarians, and 4) expansion of virtual space. However, more differences in the trends in comparison to the top issues according to Farber's (1999) report for the years 1975 – 1999 were more visible during these years, and include: 1) concern about library budget, 2) concern over staffing as related to library budget, and 3) an emphasis on accountability for library involvement with faculty, staff, and students for the first decade of the 21st century. Differences continued to be visible in 2011 and 2012 in the categories: 4) accountability in the form of student enrollments, 5) library influence on student academic achievement, 6) influence on faculty research productivity, 7) mobile environments, 8) digital preservation of materials, and 9) influence on scholarly communications.

Though not visible items on Tables 9 through 11, the motivation for change within the academic library setting throughout 1975 to 2012 was the rapid change in technology and the growing ease of use of information, whether accessed at the library, from a public place, or from a patron's own home. Also, the guidance of OCLC in the changes and processes put in place concerning technology, software, and the academic library has been strong and consistent.

Table 10.

*2011 Top Trends in Academic Libraries.*

1. Define outcomes and measure the degree to which they are attained.
2. Develop systems to collect data on individual library user behavior, while maintaining privacy.
3. Record and increase library impact on student enrollment.
4. Link libraries to improved student retention and graduation rates.
5. Track library influences on increased student achievement.
6. Track and increase library contributions to faculty research productivity.
7. Continue to investigate library impact on faculty grant proposals and funding, a means of generating institutional income.
8. Demonstrate and improve library support of faculty teaching.

*Note:* Information compiled from ACRL, 2011.

Table 11.

*2012 Top Trends in Academic Libraries.*

1. Communicating value of academic libraries.
2. Data curation.
3. Digital preservation.
4. Information technology.
5. Mobile environments.
6. Patron driven e-book acquisition.
7. Scholarly communication.
8. Staffing.

*Note:* Information compiled from ACRL, 2012.

**Issues Discussed by Farber which Diminished in the 21st Century**

In the article, "College Libraries and the Teaching/Learning Process: A 25-Year Reflection," Farber (1999) focused on a large range of topics. Topics addressed the use of microfilm/microfiche, the role of the Ohio College Library Center (OCLC) in library changes, the educational responsibility to contribute to bibliographic instruction (BI) and Information Literacy (IL), the knowledge the college librarian could offer to the academic environment in a teaching role, faculty and key administrators attitudes towards the library, the role of computers in libraries and how they affect the functionality of the field, and a few predictions in the field of library science for the future.

**Microfilm/Microfiche**. Farber (1999) believed microfilm was considered "the cutting edge of technology" in the 1970s. At the time of this writing, microfilm is rarely used. If a librarian comes across microfilm, it usually takes the form of a government document item, or perhaps an item which has not yet been filmed or digitized. An item, such as a periodical or an obscure newspaper may also be found in the form of the microfilm/microfiche format today. Furthermore, documents regarding genealogical records archival records, items which may only be established in a library, or items located in a museum may be found in the same format. Even hospitals have moved to recording information on CD-ROM's or flash drives, previously using a sheet of microfiche. Also, most periodicals published in the 1930s or earlier with initial publication dates 1930s through 1960s are usually only available in an abstract format, rather than the full-text HTML or PDF format. Periodicals were previously taken apart and scanned by hand one page at a time, during the early 70s (Farber, 1999).

However, most libraries still have a microfilm/microfiche reader in the building, since most of these machines are equipped to read every available format. Professional organizations, which may include governmental organizations and publishers, are making an effort to go back and scan or digitize their records, which in turn will make them much more available to others in a timely manner. The process of digitizing items in the 21st century had improved since the process first began. The process improved so much that most people began scanning their personal items at home and saving them into their personal computer files. Companies exist, at the time of this writing, that are willing to do the scanning of a collection for each individual library. This process is usually called outsourcing. Scanning is time consuming and most libraries do not have the staff who can dedicate time to a large scanning project. Most scanners allow the option to just click a button to transfer information into a PDF format. ProQuest was the company that, at the time of this writing, continued to be the leader in microfilm production, especially since its purchase of University Microfilms.

**Card catalogs**. Another issue Farber (1999) discussed in his initial article which has almost totally disappeared from the library is the card catalog. The card catalog, at this writing, known as an OPAC (Online Public Access Catalog), had been replaced with clusters of computers and printers, according to Farber (1999). At the time of this writing, smaller, sometimes rural libraries continue to maintain a card catalog. Even though OCLC was the producer of close to a trillion cataloged records, which in turn could easily produce an electronic card for a card catalog, smaller libraries continue to produce cards by hand and purchase few from OCLC, to add to their card catalogs.

Table 12.

*Issues Discussed by Farber Which Carry Into the 21st Century: 2000 - 2012*

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**Microfilm**

- Types of microfilm available for use;
- Microforms used increasingly in libraries
- Reasons for considering the use of microform;
- Impact of microfilm on historical preservation
- Microfilm used mostly to preserve newspapers
- To preserve private collections

**OCLC**

- Production of cards for card catalogs reduced due to the replacement of card catalogs with local library systems
- Implementation of WorldCat.org and WorldCat local
- Shared with its members a new global strategy designed to extend the OCLC cooperative and provide services around the world
- OCLC completed the $3.8 million holding symbol expansion project and began assigning five-character symbols to new institutions joining the cooperative
- OCLC acquired NetLibrary

**Card Catalogs**

General characteristics of the Online Catalog;

- Bibliographic information is stored in a computer in machine readable form
- The data is accessed on-line by terminals but are also available in various hatch-produced forms, such as a printed list, COM, or cards
- Information is accessible by a variety of “keys” primarily author, title, author-title, subject, call number, LC card number, record number, International Standard Book Number (ISBN), etc.
- Access keys may be approached algorithmically and in various combinations (i.e. Boolean logic)
- The search is conducted inter-actively (in real-time) so that the user can respond to the data displayed in refining the search

**Computers in Libraries**

- E-rate program has provided a significant level of technology support to libraries, allowing many libraries and library systems to acquire technological equipment and services that would otherwise be too expensive.
- Academic libraries introduced workstations to public use in order to enable access to electronic resources

- Libraries moved from card catalogs to OPACS, from printed indexes to CD-ROM, and from CD-ROM's to web-based databases that can be searched remotely
- Libraries have responded to patron demand for remote access
- Reference once referred to interaction between a librarian at a reference desk or on the telephone = chat, e-mail, and texting

**Bibliographic Instruction**

- Computer assisted bibliographic instruction
- Bibliographic instruction (BI), Library Instruction (LI), and user education will be used interchangeably
- Academic libraries should collaborate with faculty to produce course-related library instruction
- ACRL created, approved and published, "Information Library Competency Standards for Higher Education"
- Information Literacy (IL) – Frequency of source use, criteria used for source selection, and perceived characteristics of sources

## Present Today, Yet Changed Immensely

Farber's 1999 article discussed library services and their developments as he perceived them in the late 20th century. This research compared and contrasted his view of librarianship with the 21st century view. A list of topics supported by Farber (1999) in the 20th century that also carried over into the 21st century is provided on Table 12.

**Reference services.** Reference services have also changed the outward role of the academic librarian. At one time, the reference librarian was expected to interact with patrons directly at the reference desk and over the phone. They spent their time weeding through the books in the reference collection to find the pertinent answers to the question patrons would ask. At the time of this writing, they are not only answering reference questions using live chat programs in real time, e-mailing replies via e-mail or smartphones, but they are finding that they may even need to tweet a reference response. Reference librarians along with those stationed at the circulation desk, must keep up with

the times, the technological advances taking place in the world, and at this time, of social media. This means librarians are expected to maintain a blog, a well-produced website which is easy to navigate, a Facebook page, twitter account, and to stay on top of technology in the 21st century. Also, librarians need to be smart enough to hire the best people for the right jobs. Not only should a person be tech savvy, but they must also possess excellent customer service skills.

**Ohio College Library Center (OCLC).** OCLC has changed a great deal since its inception. It was once a small operation located in Dublin, Ohio, which began in 1967. At the time of this writing, it is still a nonprofit, membership, computer library service and research organization, which is dedicated to reducing library costs and giving access to libraries' catalogs around the world. The Ohio College Library Center was renamed the Online Computer Library Center, Inc. in 1981 (OCLC, Inc., 2013). According to its website, OCLC is a nonprofit, membership, computer library service and research organization dedicated to the public purposes of furthering access to the world's information and reducing information costs. More than 72,000 libraries in 170 countries and territories around the world have used OCLC services to locate, acquire, catalog, lend and preserve library materials (OCLC, Inc., 2013).

OCLC is also the producer of WorldCat®. WorldCat is a product used by many librarians to assist with cataloging. It began operation on August 26, 1971.

> Since then, two generations of librarians have helped to build the World Cat online union catalog, entering records into the database keystroke by keystroke. Ohio College Library Center (OCLC) cataloging and resource-sharing services are embedded in the workflows of many libraries. In many parts of the library

> community, OCLC is taken for granted, as if it were a utility that, instead of providing electricity or water, delivers bibliographic information 24/7. (Jordan, 2009, p. 727)

The story of the effects of the OCLC Interlibrary Loan Service on libraries, librarians, and library users was told in essays published to celebrate the 20th anniversary of its service in 1999: *What the OCLC Interlibrary Loan Service Means to Me* (Crowe, 2009). The Vice President of Research, Lorcan Dempsey, reported to the president and directed the OCLC Research division. The division's formal mission statement read, "The mission of OCLC Research is to expand knowledge that advances OCLC's public purposes of furthering access to the world's information and reducing library costs" (OCLC, Inc., 2013, p. 1).

OCLC Research's work served two primary audiences: 1) the OCLC membership and the global library community and 2) the RLG Partnership, a group of libraries, archives, and museums supporting research and scholarship (Michalko, 2009). The Vice President of RLG Programs, Michalko (2009) reported to the Vice President of Research and managed work designed to respond to the needs of the RLG Partnership. The two vice presidents served as part of OCLC's Senior Leadership Team and jointly developed a work agenda that was responsive to the needs of the community. The division was composed of nearly 50 staff, including research scientists, program officers, software engineers, architects, a user interface designer, a project manager, and administrative staff, all who worked in teams in support of the active work agenda (Elkington, 2009).

OCLC Research played a role in advancing the library agenda and in collaborating with libraries, archives, and museums to seek to improve their

constituencies (Elkington, 2009). OCLC is likely to remain the world's largest library cooperative, from an organization serving those in a single state (Ohio), to other states in the United States and eventually into most countries in the world. OCLC regional service provider in Missouri is Missouri Library Network Corporation (MLNC ). In January of 2012, MLNC considered a merger with the Amigos Library Services, located in Dallas, TX. The merger was finalized on May 10, 2012, both organizations served as regional service providers, in their respectful states.

**Use of computers**. Use of computers in academic libraries has changed drastically. At one time, computers were just used to process punched cards in the technical services department to catalog records in the process of shelving materials received. Punched-card technology first appeared in libraries in the 1930s in the United States and was taken up by libraries in the United Kingdom after the Second World War (Black, 2007).

According to Woods (2007), the first library system to require access to a computer went live on October 11, 1966. Its use was divided into two stages. Stage I was completed manually, requiring borrowers to fill out a form, and the information was punched into 80-column cards for data processing. The transaction cards, which were created for each borrower, contained book accession numbers, a Library of Congress six-character class mark, a brief author with title, and a punched-in book number on cards for returned items. Once all of the cards were prepared, they were taken to the computer department, processed and then returned with printer output, which included eight columns of data. Extra cards to be inserted in the return books were included, and cards for the new books were made individually during the cataloging process. The cards for

the new books used the data for Stage II, also known as, “automatic input”. Books and reader cards would be combined into a data collection unit (Woods, 2007, p. 277).

Due to the increase in technology, librarians continued to be surprised by the constant changes taking place in the field. According to Kohl (2004), 1980 was the beginning of the digital revolution, which caused major transformations in libraries. Wilfrid Lancaster became well known for his book, “*The Impact of a Paperless Society on the Research Library of the Future”*. His book introduced discussions regarding the possibility of a “paperless society”. Librarians and others believed it was appropriate during its time, because of the recent changes that had taken place and the electronic advances of computers and their displays, also, some believed that monitors would eventually replace paper (Kohl, 2004).

In addition, Kohl (2004) mentioned a previous prediction, that television would replace radio, because people would rather see and hear a program, instead of just hearing it, however, audio books became popular in libraries, due to the many technological advances. Nothing actually changed from the two previously mentioned predictions, according to Kohl, computers actual caused an increase in the printing of paper, from the production of books and individuals printed more, since most of the information found was located on more than one screen, it took more than one screen to display the requested information. Information gathered from the Association of American Publishers indicated

> book sales to higher education between 1987 and 2002 rose from US$1,549,500,000 to US $3,900,000,000. That the sales figures are not all profit and inflationary increases is shown by that subset of the academic community

> consisting of major research libraries (Kohl, 2004). Association of Research Libraries figures show that the average number of books purchased annually by an ARL library rose from 35,675to 42,013 in the same 1987-2002 time period. In fact, in 2002, ARL libraries alone reported purchasing almost four and a half million monographs. We live not so much in a post-Gutenberg society, as in a Gutenberg society on digital steroids. (as cited in Kohl, 2004, p. 177)

**The Association of College and Research Libraries (ACRL).** ACRL is an organization which was originally founded in 1936. It became a division of the American Library Association (ALA) on May 31, 1940. From the beginning, the American Library Association was a predominantly public library organization. But, the areas of common interest between public and academic libraries were extensive, and for over a decade ALA conferences did not hold separate meetings for the two types of librarians. Finally, in 1889, a group of 13 college librarians caucused at the Annual Conference in St. Louis, Missouri and recommended that a college library section be formed (ACRL, 1997-2012).

According to its website, as of July 2009, it is a national organization of academic and research libraries and librarians. ACRL continues to represent librarians who work in all types of academic libraries, such as junior and community colleges, universities, comprehensive and specialized libraries, and all professional staffs who are a part of such organizations. As of July 2009, there were 12,830 members (19% of ALA's membership): 1,959 personal members, 835 organizational members, and 39 corporate members (ACRL, 1997-2012).

Approximately 40% of the personal members work in research/doctoral granting institutions, 23% in comprehensive institutions, 15% in 4-year colleges, 11% in 2-year/technical institutions, 2% in independent research libraries, 2% in graduate schools of library and information science, and 7% in other types of organizations. ACRL activities are guided by the core values, vision, and goals in the Strategic Plan. The core purpose of ACRL is to lead academic and research librarians and libraries in advancing learning and scholarship. ACRL advances its work by serving as a channel of communication among academic librarians, faculty, students, administrators, other information professionals, higher education organizations, federal, state, and local governments, and the larger society. It is the leading professional organization of choice for promoting, supporting, and advancing the values of academic libraries to the higher education community. ACRL and, indeed, the American Library Association itself, were founded to establish regular channels for communication among librarians. Today ACRL is a dynamic, inclusive organization that has grown from its early origins of college and reference librarians to a large association encompassing all types of positions in all types of academic and research libraries. ACRL members hold a variety of positions and responsibilities in the areas of management, public and information services, technical services, online services, library automation and networks, information literacy, collection development, rare books and special collections, non-print media, and distributed education. (ACRL, 1997-2012, para. 1)

In 1952, ACRL established its first local chapter in Philadelphia and currently it has 42 chapters, two in Canadian provinces.

**Language in the Advertisements for Reference Librarian Positions**

The changing role of the librarian throughout the timeline of this study is evident in the advertisements for academic librarian positions in professional literature. The authors, Lynch and Smith (2001) investigated 220 job advertisements, which appeared in *College & Research Libraries News* between 1973 and 1998. According to their article, by 1998 all academic library jobs included computer technology, bibliographic instruction was most important in reference services, oral and written communication was a new job necessity, and a master's degree from an ALA accredited organization was still crucial (Lynch & Smith, 2001). Though a necessity, and

> although the ALA-accredited degree remained very important in the technical and public services jobs (required by 93% of the jobs advertised), it was requested in only 76.3 percent of the electronic services jobs. Thus, the ALA-accredited degree appeared to be less important for new hires. (Lynch & Smith, 2001, p. 408)

Lynch and Smith (2001), continued to take a look at other research and found a content analysis of 1,133 technical and public services' positions advertised in *American Libraries*, *C&RL News*, and *Library Journal* by Reser and Schuneman in 1988. They found that technical services jobs required more computer skills, greater foreign-language requirements, and previous work experiences. Public services' jobs required more advanced degrees (Lynch & Smith, 2001, p. 408).

Next, Lynch and Smith (2001) reviewed a study by Beile and Adams (1996), which updated the Reser-Schuneman investigation. Beile and Adams reviewed 900 job announcements which appeared in the issues of *American Libraries*, *Chronicle of Higher Education*, *C&RL News*, and *Library Journal*. Beile and Adams compared jobs in public services, technical services, and, the new category of electronic services, and found the computer skills required in technical services jobs and public services were very similar. However, electronic service job announcements were more detailed in the computer requirements (Lynch & Smith, 2001).

Lynch and Smith (2001) found there was an increase in classifying jobs created by the developments in library automation, so they reviewed a study by Xu. Xu reviewed job ads which appeared in American Libraries between 1971 and 1990, and he identified the similarities and difference in the jobs of catalog librarian and reference libraries working in academic libraries.

> After analyzing 574 jobs stratified into four periods representing technological change in libraries (1971-1975, 1976-1980, 1981-1985, and 1986-1990), he found increasing needs for computer skills in both groups. However, differences remained in the major job responsibilities and in the knowledge and skills needed (Lynch & Smith, 2001, p. 408).

Next, Lynch and Smith (2001) looked at a different methodology, in which Buttlar and Garcha surveyed 271 catalogers to determine the change they identified in their work activities and roles between 1987 and 1997 (Lynch & Smith, 2001, p. 409). They found that more than 90% of the respondents jobs remained the same, except their roles had expanded to include managerial responsibilities, training others, and the

addition of electronic materials; database development and maintenance. A small number of the catalogers were also busy with reference desk work, bibliographic instruction and collection development, again, all due to job-sharing (Lynch & Smith, 2001, p. 409).

**The Librarian's Instructional Role beyond Bibliographic Instruction**

Most colleges in the 21st century have now created courses such as, "The First Year Experience" (FYE), to assist students into making a smooth transition for students from high school into their freshman year of college (University of Carolina, 2013). In this researcher's experience, the college library thus creates special library sessions in the fall to assist with the processes. One approach is to have a 45-minute session with freshmen, which is very similar to the bibliographic instruction experience, but it varies, due to the FYE session. It is not as detailed, usually covers the catalog(s), research skills, the difference between peer-reviewed, scholarly, juried periodicals verses popular magazines, and a few tips about citing sources. Also, at times, there may be a tour of the actual library to help freshman learn to maneuver their way around the much larger academic library. Some students may be familiar with their old high-school library or local public library that uses the Dewey decimal system. Most academic libraries are using the Library of Congress (LC) classification code to catalog books, unless it is a medical, a law library or a library that covers a specific genre.

**Bibliographic Instruction (BI)**

BI's continued to change and evolve. Librarians realized that certain skills were needed to do research in the various online databases and resources at the academic level.

Librarians in academic libraries help professors develop information-literate students. Librarians nurture information literacy by

> facilitating the acquisition of literacy skills. They help patrons learn how to effectively find, use, and evaluate information sources (sources within the physical library and electronic information outside it). Library instruction in support of information literacy may occur in a classroom, on a tour of the library, or in a microcomputer lab, and may be presented through demonstrations, hands-on learning, lectures, computer programs, audiovisual devices, or small groups. (Herro, 2000, p. 555)

Herro (2000) believed the back-to-basics movement in library instruction promoted the importance of using the physical library tools. Also, Herro believed a library instruction program should emphasize critical thinking, which will develop intellectual skills in independent learners who can retrieve, evaluate, and manage all information, not just the standard reference sources.

Herro (2000) also found that Doyle and Martorana recommended facilitating the critical thinking process, instead of teaching the use of individual tools. Patrons could learn a number of things, such as how to access periodical articles from indexes, how to access book titles from catalogs and bibliographies, and learning critical thinking skills. Herro believed that library instruction assisted library patrons in critically evaluating information sources and it promoted the use of critical thinking.

**Issues Not Discussed in Farber's 1999 Cornerstone Article**

In the 1990s, the key topics discussed in libraries, as related to this research, that Farber (1999) did not discuss were the following: electronic books, e-books in academia, Knowledge Management (KM), distance learning, and virtual libraries.

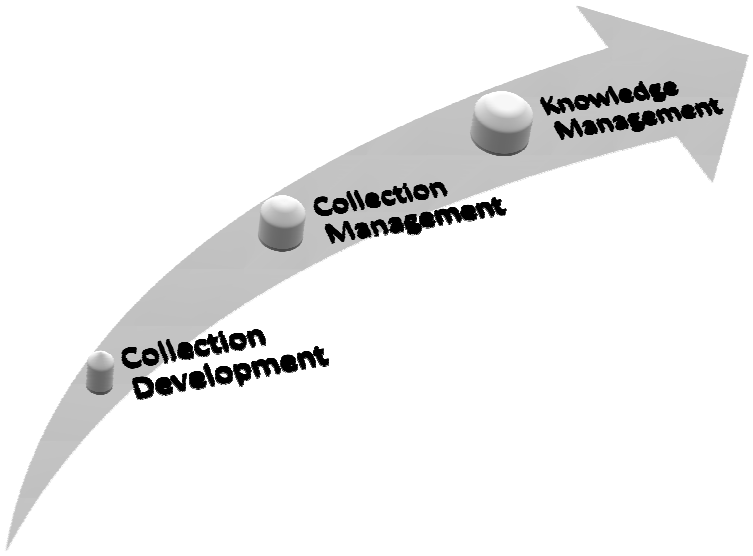
**Electronic books and e-books in academia**. Electronic books, also known as an e-book, digital book, or e-edition, is an item Farber (1999) did not discuss. The e-book is basically formed through use of text, images, and graphs generated by computer. E-books were gaining in popularity and significance among libraries, and many higher educational institutions around the world provided e-book collections to their campus libraries and adopted e-books as learning materials. The University of Auckland was one of the universities that integrated e-books into teaching and learning. The total spending on the e-books increased from 3% of the total collections budget in 2004 to 8.5% of the total collections budget in 2007, and over 300,000 e-books were accessible via the library catalogue in 2008. The University of Phoenix, an online learning institution, also shifted almost completely to the use of e-books (Chong, Lim, & Ling, 2009, para. 2).

**Knowledge Management (KM).** KM is another topic Farber (1999) did not discuss in the cornerstone article. KM was introduced in the 1990s, in mostly business and corporate libraries. Jantz (2001) examined important issues of KM within academic libraries and discussed how reference librarians can become more effective as information intermediaries.

According to Wen (2005), KM can assist academic libraries to provide the right amount of information to the right clientele at the right time with the right expense of

financial and human resource. Academic libraries used KM in reference to public services and digital libraries.

KM utilizes "the evolutionary path," referring to movement from collection development to collection management, and then to KM (Branin, 2003). See Figure 3.




*Note:* Information compiled from Branin, 2003.

*Figure 3*.The Evolutionary Path

Some consider KM to the new document delivery and knowledge management tools in a digital library. Also, KM can help academic libraries operate much more efficiently with reduced financial and/or human resources. KM consists of two components: human factor and technology. Academic libraries must manage knowledge systematically.

**Distance learning challenges and Virtual Universities**. Distance learning was not discussed by Farber (1999) in his 20th century writings. According to Behm (2002), the American Library Association (ALA) realized in 1931, that distance-learning students were at a disadvantage, because they did not have access to library resources. The

Association for College Research Libraries (ACRL), created the first guidelines for distance education in 1967, and a second revision was approved in 1990. In 1998, ACRL and ALA approved the third revised ACRL guidelines for distance learning library services, according to Behm (2002, p. 9).

> Library resources and services in institutions of higher education must meet the needs of all their faculty, students, and academic support staff, wherever these individuals are located, whether on a main campus, or off campus, in distance education or extended campus programs, or in the absence of a campus at all; in courses taken for credit or non-credit; in continuing education programs; in courses attended in person or by means of electronic transmissions; or any other means of distance education. (Behm, 2002, p. 9)

Even though guidelines had been developed by ACRL and ALA, Behm (2002) found that most library services will not be adequate. There should be a philosophical and economic commitment to distance learning and off campus students. If there is such a commitment, then librarians need to decide the best way to provide services to those off campus.

Behm (2002) reviewed four basic models for distance learning. They were: 1) onsite collections and library resources at the remote centers; 2) interlibrary loan, resource sharing, and use of unaffiliated libraries; 3) delivery of materials from the parent institution to the student; and 4) use of technologies to access electronic information sources remotely (See Table 13). A fifth model was contracting services from another library. In general, the models are not mutually exclusive and features of all four models exist in tandem (Behm, 2002, p. 10).

Table 13.

*Four Basic Models for Distance Learning for Academic Libraries*

| |
|---|
| Model I. Onsite collections and library resources at remote sites |
| Model II. Interlibrary loan, resource sharing, and students using unaffiliated libraries |
| Model III. Delivery of items from the parent institution to the student. |
| Model IV. Use of technologies to access electronic information to access electronic information sources remotely. |
| Model V. Contracting services from another library |

*Note:* Information compiled from Behm, 2002.

**Summary**

The top five issues which Farber (1999) found most important, by the researcher, in his Cornerstone Article are listed in Table 7. Also, the researcher narrowed the top trends identified by the American College of Research Libraries for the years 2000 – 2012. The researcher also reviewed issues and activities discussed by Farber which have almost totally disappeared at the time of this writing, issues present today, yet changed immensely, and issues Farber never discussed.

# Chapter Six: Discussion and Reflection

## Conclusions and Recommendations

The purpose of this study was to analyze media use in the higher education academic library setting for the years 1975 through 2012 as it related to major educational issues identified by Farber (1999). A comparison of Farber's (1999) discussion of issues for each decade in the 20th century (70s, 80s, and 90s) to the existing issues in the current era, the 21st century (2000-2012) provided a framework for discussion of the changing roles of library media specialists and the media they make available to academic library constituents. The researcher summarized major issues discussed by Farber (1999) in the article, "College Libraries and the Teaching/Learning Process: A 25-Year Reflection", and then continued summarizing authors' views of the changes in academic librarianship through the first decade of the 21st century. This was followed by a document analysis which consisted of a compare and contrast of aspects of changing issues related to this study of academic libraries. The research questions are listed below:

## Research Questions

**Research Question # 1**. What are the similarities and differences between the academic issues discussed by Farber (1999) in each decade of his review of the years 1975 to 1999 and those same identified issues from 2000 to 2012?

**Research Question # 2**. What are the changes in the types and uses of library media in the higher education academic setting that have taken place for each decade included in the years 1975-1999, as compared to library media use in the years 2000-2012?

**Research Question # 3**. What are the changes in roles and responsibilities of higher education library media specialists that have taken place for each decade included in the years 1975-1999, as compared to roles and responsibilities in the years 2000-2012?

**Research Question # 4**. What are the future implications for library media specialists and library program directors resulting from the analysis of theories, issues, academic library positions, and academic library media offerings for the years represented in this study?

As a result of this document analysis the researcher summarized major issues in the field of academic librarianship in Figure 4. The figure illustrates the major changes in each decade throughout the timeline included within this study. Listed topics illustrate connections between past, present, and future trends in academic librarianship.

The researcher found most major issues were similar across library type. Some of the issues had common characteristics in the specialized libraries, such as corporate, medical, law and public libraries.

During the 70s, academic libraries were beginning to connect to OCLC, adapting integrated library systems, networking CD-ROM's, reviewing Z39.50 and continuing involvement in serials cataloging. But, the academic library evidenced most changes in the 1980s as most libraries, due to the advent of electronic journals, the internet, the advancement of online systems, such as online databases, and experienced a need to negotiate licensing agreements, and a greater need to increase knowledge in searching for peer-reviewed or scholarly items in online databases.

The academic library adopted e-books in the 1990s and experienced an increase in resource sharing. Multimedia databases and search engines gained popularity and the

PDF and HTML format were introduced and became widely known to researchers. Search engines, such as Alta Vista and Google were increasingly popular and librarians were quick to make their libraries a part of the green movement. Student use of libraries not directly related to the institution of enrollment in coursework created those referred to as victim libraries. For example, a student using the local public library to research for a course, rather than the academic library, is treating the public library as a victim library. Victim libraries were an occurrence, due to distance learning issues. From 2000 to 2010 staff development was a key issue and online collection development came into play. Librarians recognized a need to measure hard copy purchases against electronic purchases. Copyright was a concern, and home versus on campus access was of importance. Web 2.0, RSS feeds, and social media were changing the field of library science. In 2010, and continuing into 2013, the academic library introduced mobile web developments, databases, wireless technology, and experienced an increase in distance learning, while online information literacy increased, eReserves became a reality, and more community partnerships were formed.

**Discussion of Conclusions**

**Research Question # 1**. What are the similarities and differences between the academic issues discussed by Farber (1999) in each decade of his review of the years 1975 to 1999 and those same identified issues from 2000 to 2012?

As discussed in detail in chapter five, there were several similarities and differences identified in comparison of Farber's (1999) view of academic librarianship and that of 21st century librarians.

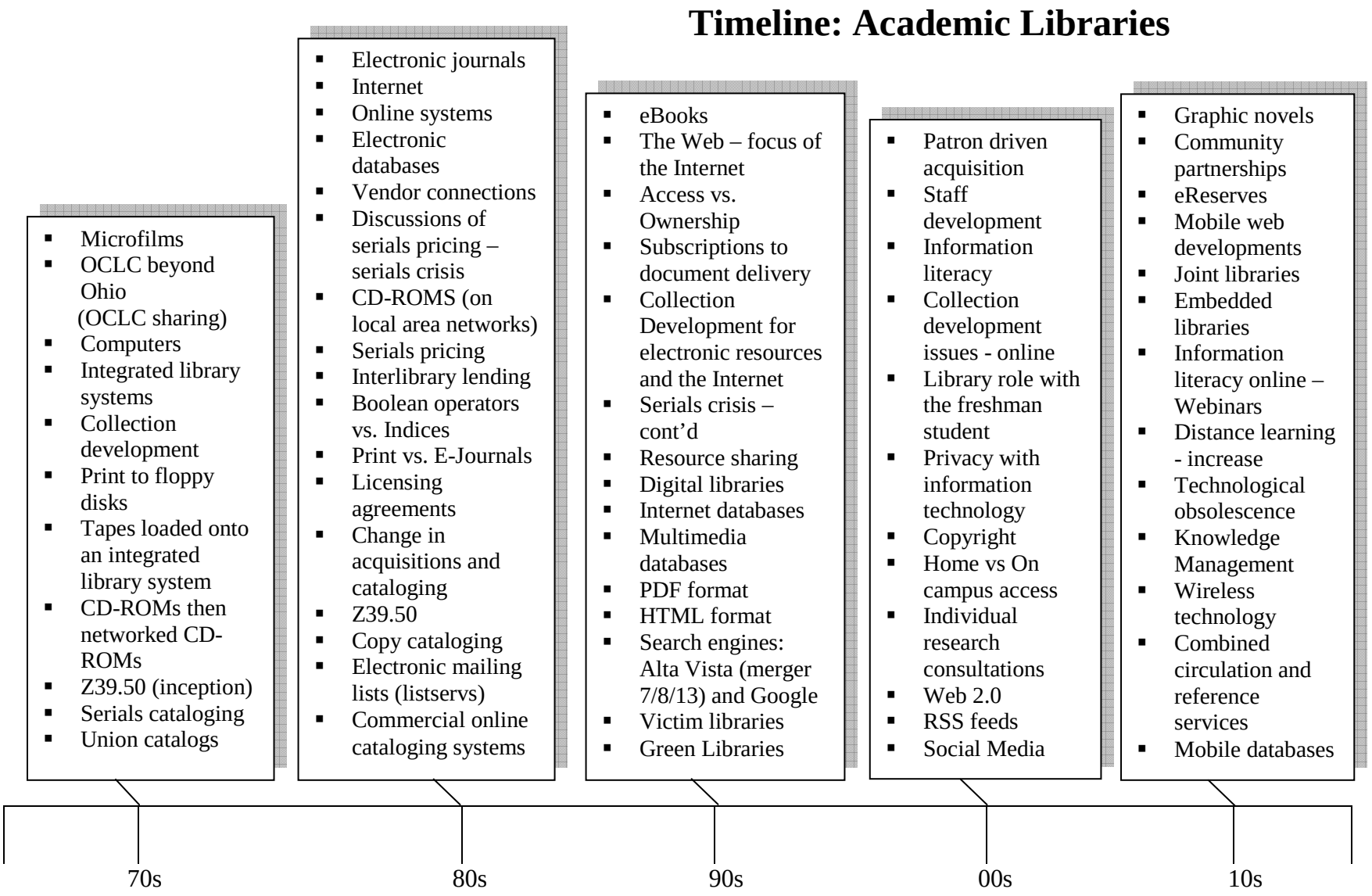

Timeline: Academic Libraries
Microfilms
OCLC beyond Ohio (OCLC sharing)
Computers
Integrated library systems
Collection development
Print to floppy disks
Tapes loaded onto an integrated library system
CD-ROMs then networked CD-ROMs
Z39.50 (inception)
Serials cataloging
Union catalogs
Electronic journals
Internet
Online systems
Electronic databases
Vendor connections
Discussions of serials pricing – serials crisis
CD-ROMS (on local area networks)
Serials pricing
Interlibrary lending
Boolean operators vs. Indices
Print vs. E-Journals
Licensing agreements
Change in acquisitions and cataloging
Z39.50
Copy cataloging
Electronic mailing lists (listservs)
Commercial online cataloging systems
eBooks
The Web – focus of the Internet
Access vs. Ownership
Subscriptions to document delivery
Collection Development for electronic resources and the Internet
Serials crisis – cont'd
Resource sharing
Digital libraries
Internet databases
Multimedia databases
PDF format
HTML format
Search engines: Alta Vista (merger 7/8/13) and Google
Victim libraries
Green Libraries
Patron driven acquisition
Staff development
Information literacy
Collection development issues - online
Library role with the freshman student
Privacy with information technology
Copyright
Home vs On campus access
Individual research consultations
Web 2.0
RSS feeds
Social Media
Graphic novels
Community partnerships
eReserves
Mobile web developments
Joint libraries
Embedded libraries
Information literacy online – Webinars
Distance learning - increase
Technological obsolescence
Knowledge Management
Wireless technology
Combined circulation and reference services
Mobile databases
70s
80s
90s
00s
10s

*Figure 4.*

A brief synopsis of those similarities and differences is included here. The similarities in the key issues Farber (1999) discussed as compared to 21st century topics discussed by 21st century authors were: 1) evolvement of technological advances, 2) use of electronic information which changed the field of librarianship dramatically, 3) the advent of electronic books (e-books), 4) electronic serials subscriptions, 5) e-mail web reference services, 6) increase in use of e-books, 7) digitization of unique library collections, 8) an explosive growth of mobile devices and applications, 9) technology's contribution to change in services and required skills, and 10) virtual space expansions.

Differences in the comparison of the library issues in the two centuries included: 1) library expenditures, 2) staffing, 3) continued budget challenges in various areas, 3) impact on student enrollment, 4) increased student achievement, 5) impact on faculty research productivity, 6) digital preservation, and 6) scholarly communication.

**Research Question # 2**. What are the changes in the types and uses of library media in the higher education academic setting that have taken place for each decade included in the years 1975-1999, as compared to library media use in the years 2000-2012?

The changes in the types and uses of library media in the higher education academic setting that took place in 1975-1999 are evident in the use of microfilm. Even though it is not used often, it is still important to have a microfilm/microfiche reader available to read such material in a library. OCLC was a key player in academic libraries and continues to grow as an important entity, at the time of this writing. Computers continue to help librarians improve in their daily tasks and help to improve in the dissemination of library materials, as well as help students continue to conduct research

in academic libraries. Due to the rapid increase of technology in the 21st century and the emergence of acquired companies, such as the purchase of University Microfilms (UMI) by ProQuest and the purchase of NetLibrary by EBSCO (e-book collection), librarians must be aware of the changes, which continue to develop in the field of librarianship.

Bibliographic instruction (BI) and information literacy will continue to be important to the reference librarian in an academic institution. Because of technological changes and the continued need to teach students how to use varied resources, BI will continue to evolve. Freshmen must learn how to transition from their high school libraries to an academic library, which they will find has more to offer and use to do their research than the libraries in the secondary setting. Learning how to select the best source per genre is a learning experience in itself.

**Research Question # 3.** What are the changes in roles and responsibilities of higher education library media specialists that have taken place for each decade included in the years 1975-1999, as compared to roles and responsibilities in the years 2000-2012?

Table 14 examines the changing roles and responsibilities of the reference librarian, according to Farber (1999). Farber believed in the 70s, the librarian was most affected by the use of microfilm. Librarians saw an increase in using computers in their daily work and increased their role in teaching on campus. In the 80s, Farber (1999) believed librarians began to see the importance of teaching on campus and began to create tailored bibliographic instruction sessions to aid in information literacy. In the 1990s, librarians began to see the card catalog disappear and an increase in the use of electronic information. Computers were allowing librarians to do more with more efficiency, bibliographic instruction continued to evolve, the number of electronic

sources of information continued to increase, and advertisements for those requesting a reference librarian position were identifying a need to be knowledgeable of electronic resources.

Table 14.

*Timeline for Changes in Roles and Responsibilities of Reference Librarians.*

| **Years** | **Changes in Roles and Responsibilities of Reference Librarians** | **# of Years** |
|---|---|---|
| 1975-79 | Use of Microfilm<br>OCLC moves beyond the state of Ohio<br>Increasing use of computers in daily activities<br>Increasing instructional role on campus, | 4 years |
| 1980-89 | Learned the importance of teaching on campus,<br>Tailoring bibliographic instruction programs/information literacy. | 9 years |
| 1990-99 | Disappearance of the card catalog<br>Increase in the use of electronic information<br>Major technological advances<br>Computers allowing librarians to do more, and more efficiently, Computers changed about every aspect of librarianship, with an exception – archival information<br>Bibliographic instruction<br>Impact of electronic sources of information<br>Changes in the advertisements of jobs for reference librarians. | 9 years |
| 2000-11 | User instruction,<br>An increasing role in the teaching and learning process for incoming freshman and others. | 11 years |
| | **Total** | **33 years** |

From 2000-2011, Farber (1999) also assumed user instruction would be a key issue and an increasing role in the teaching and learning process was inevitable for the librarian. Table 14 also reviews the number of years Farber's (1999) discussed topics spanned in the timeline covered by this study.

**Research Question # 4**. What are the future implications for library media specialists and library program directors resulting from the analysis of theories, issues,

academic library positions, and academic library media offerings for the years represented in this study?

The future implications for library media specialists and library program directors resulting from the analysis of theories, issues, academic library positions, and academic library media offerings for the years represented in this study support a continued increase in the need to educate incoming students, a growing relationship between the Dean or Director of the library and subject librarians with faculty and upper management, a need to stay current with what is available electronically to the academic community, and a well-organized and monitored budget,

**Uses of Electronic Information**

There are many uses for electronic information in libraries in the 21st century. The following are subjects addressed and researched regarding academic libraries that affect current and future library operations: 1) E-governance, 2) Library link and information placement on a universities webpage, , 3) Library digitization programs, 4) Effects of online social media, 5) Virtual reference, 6) Use of Wikipedia and other free collaboratively edited encyclopedias for research purposes, 7) Electronic journal usage vs. hard copy usage, 8) Citation of items and use of exporting records services, 9) Awareness of article and subject alerts, 10) Effects of electronic information on collection development, 11) Use of statistics availability from electronic sources, 12) Ease and speed of electronic information vs. paper, 13) Library 2.0, 14) Metasearching, federated searching, and integrated searching, 15) Blackboard, 16) eReserves, 17) Mobile web initiatives, 18) Charger stations located throughout the library, 19) Online database usage and non-English speaking students, 20) Digital rights management and use

restrictions in libraries, 21) Electronic textbooks, 22) Negotiating online database fees with vendors and producers of products, and 23) Communicating via a LISTSERV from one library to another.

**The Future of Academic Libraries**

Libraries must continue to introduce new technologies, in order for patrons to access virtual or digital items verses printed books and printed research journals. There has been a trend towards digital collections and social networking services, according to Jankowsak and Marcum (2010). The major concern is the combination of traditional, printed resources with hybrid, which is a mixture of print and digital, and the new Library 2.0 social networking services. Librarians found networking services and digital formats can be costly and require technical, financial, and human support, as well as additional ink and paper for printouts. Another concern for academic libraries is a need to create a blended model of print, digital resources and support for social networking services, which in turn has caused a need for "developing and preserving print and digital collections, supplying and supporting rapidly changing technological and networking infrastructure, providing free services to the public, maintaining growing costs of library buildings and lowering libraries' 'ecological footprint" (Jankowska & Marcum, 2010, p. 165).

Libraries must work to become 'green libraries' A green library is one whose staff takes an interest in reducing their environmental impact, thus creating a building with an environment based upon the Leadership in Energy and Environmental Design (LEED) standards to become sustainable and green. Some of the first steps most libraries make are to: 1) Celebrate Earth Day, 2) Recycle, 3) Review noise pollution in the library,

4) Serve as an educational resource to others on campus, 5) Model green journaling, 6) Show films from the Public Broadcasting Station(PBS), such as, “Affluenza” or “Escape from Affluenza”, 7) Filter direct sunlight, natural day lighting, solar panels, for improved energy efficiency, 8) Use bamboo wood flooring, 9) Use environmentally friendly cleaning products, 10) Install electric car charging stations,11) Use reusable tote bags when patrons check out multiple items, 12) Use reusable water bottles it the library café, and 13) Create a stop near mass transit. The green library movement has existed since the early 1990s.

Academic libraries must continue to look at sustainability, continue to be a central focus of the academic environment. Librarians must create their own sustainability indicators or adopt indicators already in place in other departments at the university. Librarians must look at how the library operates and look at future projects continually. Librarians must continue to be responsible and choose the correct vendors and publishers, and manage budgets to purchase the best and right databases for programs offered at the university and show concern socially, economically, and environmentally.

**The Future of the Five Major Issues of Focus in This Study**

Five major issues discussed in this study continue to evolve and remain a major influence in the academic library setting. They are: the use of microfilm/microfiche, the oversight of the Ohio College Library Center (OCLC), card catalog format, computer use in the library, and bibliographic instruction. The microfilm/microfiche in libraries in the 21st century remains similar today, as compared to its beginnings in the 20th century. Items published by the government, special items which may be part of the archives, and special collections can be found in this format. OCLC continues to evolve. It can be

found in additional countries yearly and continues to offer some of its original cataloging services. Cards will continue to be available to librarians who wish to maintain a card catalog. However, card catalogs are nonexistent, except in the small rural libraries and the OPAC, also known as the electronic catalog continues to replace most card catalogs in the 21st century. Computers in libraries continue to change in the 21st century, due to technological advances. Librarians continue to depend on them to do everyday tasks and to run the necessary databases and other items, such as virtual reference and other items, which are available electronically. Bibliographic instruction is still a necessity and will continue to be taught according to genre and evolves due to changes in curriculum at individual universities and colleges. Also, BI may be modified to reach the incoming freshman, the adult learner, who mostly exists in a universities accelerated program, and the virtual libraries who will eventually adopt a process to improve teaching students how to use the available resources correctly, online.

**The Role of Librarians in Assisting Student Research**

With the advent of the Internet and the World Wide Web, librarians' skills became more crucial for students. Librarians spend time going to school and attending various training sessions to improve their research skills, and they cannot expect students to be able to do research at their same level. A certain level of information skills will be needed by all individuals for society to remain viable. However, with the development of Web-based resources and the seeming lack of organization and filtering of those resources, librarians will provide the necessary services (Behm, 2002). The services may be in the form of a bibliographic instruction session or an individual research consultation.

## The Physical Academic Library of the Future

**Learning spaces**. Libraries must create learning spaces. According to the Association of Research Libraries (ARL), a learning space is defined as possibly using one or all of the following: 1) Surveys and comments, 2) Student and faculty advisory groups, 3) Lunch invitations, 4) Survey tours, 5) Affinity focus groups, 6) Structured conversations, 7) Videotaped interviews, 8) Design charettes, 9) Campus and outside experts, 10) Sandboxing/experiments, 11) Learning commons oversight council, and 12) Report cards and Post-occupancy assessment (ARL, 2008). The intended target group for the listed items was undergraduate students.

**Collection development.** Library collections will continue to change. Collection development will be crucial in relation to hard copy; most of the budget will primarily be spent on electronic or digital items, which are available to students. Weeding and other tasks which effect the general collection, reference collection and special collections will still remain eminent.

**Library professionals**. Library professionals will need to continue to train and evolve, motivated by the available electronic activities in libraries. They must become well trained with electronic resources, stay abreast of social media concerns, well-educated and aware of issues which will evolve into the 21st century.

**Academic libraries.** There are many things new in academic libraries, from electronic books, to the placement of coffee shops in the actual library. This researcher believes, with the onset of technology in the 21st century, it has become imperative for librarians to stay afloat of the changes taking place in technology. Librarians must be willing to participate in mounting changes in the academic library. Having spent almost

30 years working in libraries, academic, corporate, public, and back to academia, this researcher believes that technology is definitely important in the growth of the academic library and other libraries, as a whole.

**Value to university**. While researching the literature for this dissertation, the most important apparent activity the 21st century in the academic library setting is proving the value of the library to the university president, board, and others who will make the major decisions for the academic library.

**Data curation.** Data curation will prove to be useful, due to the necessary collaboration between university libraries and other schools within a university, or collaborations with other historical organizations, to create reports, make databases, or make other information available, and to maintain and keep all of the historical or unique information accessible electronically to all.

**Digital preservation.** Digital preservation is also a continued concern. The process of having an excellent plan in place to digitize collections is imperative. Libraries will need to establish a way to compete in a digital environment. Online courses, young adults and older adults interested in a career change due to the influx of the job market, accelerated programs, and other issues will still affect the academic library into the 21st century. Information technology and mobile devices will also continue to change the face of the academic library, and libraries will be expected to add to the technological advances presented to them.

**Scholarly communication.** According to Park and Shim (2011), in academia, there is a saying—‘‘Publish or perish.’’ They believe it is important for a person working at a research university to participate in scholarly publishing because it plays an

important role in promotion, tenure, scholarly recognition, and certification of research quality. They also believe if an author claims intellectual priority of an idea, it produces intellectual heritage and allows the researcher to be claimed by other researchers and provides scholarly ideas and results for future applications and processes (Park & Shim, 2011). Park and Shim listed some libraries, such as Columbia University Library, Cornell University Library, and Duke University Library, which have implemented a process of including author, copyright advising, editing, and digitization.

> In 2008, 64 percent of Association of Research Libraries member libraries had implemented or planned to launch scholarly publishing services. In September 2010, the Institute of Museum and Library Services awarded a library-publishing-service grant to three research university libraries. (Park & Shim, 2011, p.77)

The library publishing services (LPS) reviewed by Park and Shim (2011) were created to help scholars, authors, and editors provide expertise, timely notification, and advice on scholarly publishing in a changing environment. Some university librarians provide consultations regarding intellectual property rights by working with the publishers to take advantage of digitized, printed documents easily add to networked environments. Studies are continuing regarding library publishing services, but very few studies are in place regarding LPS and scholarly communications (Park & Shim, 2011).

**Convenience for the patron in the selection of the materials**. Librarians must work at providing bibliographic instruction and the tools necessary to keep college students in the academic library environment where the provided resources are appropriate for their assigned learning experiences. Students must know there is a major

difference between available resources in a public, academic, medical, law, corporate and academic institutional library.

**Patron-Driven Acquisition (PDA).** Patron-driven acquisition (PDA), also known as demand-driven acquisition, patron-initiated purchasing, or books on demand, is an attempt to give students a more prominent role. In most PDA programs, the titles selected by patrons are purchased in print or digital format without further intermediation. These programs allow patrons, rather than librarians, to determine which titles are added to the collection. PDA programs can fall short when it comes to supporting the educational mission of the university. They cause immediate delivery of information versus the librarian going through the collection development process to choose items which will support the long-term needs of the university or college (Walters, 2012).

At the time of this writing, the researcher was currently an employed professional in the academic library. The following were items being offered to patrons, and some items may be available in the near future: 1) Loaning laptops, 2) eBooks, 3) Texting the receipt of requested items, 4) Virtual reference, and 5) Informational workshops. For future consideration, issues are: 1) 24-hour reference services, 2) Wireless printing, 3) Printing from smart phones, 4) Library collaborations, 5) Loaning bikes, 6) Loaning textbooks, and 7) Retrieving books from the general stacks and placing them on the hold shelf.

**Distance learning and equity of services**. According to Behm (2002), ACRL guidelines indicate that distance-learning students should have services similar to the on

campus students. Usually, all students pay the same price for classes and materials as needed. On campus and off campus students must be treated the same (2002).

> At Michigan State University, it might be said that distance-learning students get better library service. There is an 800 number for them to call, copies of articles are made and mailed at no cost to the student, books are mailed out to the student, and searches are done for them. However, campus students paying the same tuition rate must come to the library building and make their own copies, check out their own books, and do their own research. On-campus students must do their own library research, make their own copies, and check out books themselves and return them. Off-campus students do not need to learn how to use a library if they do not have the skills already, nor will they develop information seeking skills that will be needed to continue their lifelong learning. It is hard to say which group of students is more disadvantaged. (Behm, 2002, p. 13)

**Libraries will need to keep pace with the demands of the students.** Behm (2002) believed it was difficult to provide services to distance learning students due to shrinking budgets for books, periodicals, and electronic resources. He asked the question, is it the library's responsibility to come up with the resources to provide the service or should the parent institution be responsible?

**Victim libraries.** In the early 1990's, most of the students who were taking classes online were expected to find their resources to complete their research papers. This presented a problem for local libraries, who had limited resources to meet the patrons' needs from universities and colleges, thus the public libraries were experiencing additional demands on their available resources from the distance learners. "Parent

institutions are more aware of the issues of library services for distance-learning students now than when distance education first started to expand" (Behm, 2002, p. 14).

Universities and colleges may want to partner with the local library, through an informal or formal agreement and provide services to those students. If there is a large group of students in a particular area, then the institution could work out an agreement with more than one public library in the area. Behm (2002) believed most students probably had borrowing privileges with their local library, but they needed to see what the libraries would be willing to provide. The best option would be to create an agreement with a local college or university, but that would probably not be feasible. There are issues which exist, such as the fact that a student's tuition pays for the databases and setting up of additional accounts for the distance learning students.

Dugan (1997) believed there were two important issues when dealing with distance learning students for information and information instruction. Dugan stated that traditional universities usually used their resources to provide services to their students, so that they did not have to go to their local public libraries, yet some online institutions did not have libraries, so there was no way to provide library services. Again, the problem was that most of the libraries were not open to the non-school patrons.

All libraries have licensing or copyright agreements for the electronic resources they either subscribe to or own. Generally, those agreements preclude the use of the materials by non-institutional members. Simply being a member of the community was not sufficient to be able to use the collection (Dugan, 1997).

Both victim and provider libraries should have written policies to describe their missions, to outline what services they provide to their core constituents, and for victim libraries, to explain to what extent services will be provided to students of other programs.

According to Dugan (1997), there were many ways to deal with the distance learning situation. He suggested the following: 1) Assign a person the responsibility of planning, coordinating, and evaluating library services off-campus; 2) Develop an appropriate collection of library materials for reserves and reference; 3) Provide trained library staff to assist students and faculty; 4) Provide active bibliographic/research instruction on how to gain access to information; 5) Develop a research manual for use by students; 6) Conduct and maintain an aggressive program of outreach to the faculty; 7) Participate in library consortia; 8) Make available statewide or regional borrowing cards; 9) Make arrangements with to provide resources to students, such as guest library cards; and 10) Prepare and disseminate information sheets containing brief descriptions of area resources and cooperating libraries (Dugan, 1997, p. 316).

Suggestions for electronic access from off-campus or on-campus include: l) Search databases from computer at the off-campus site or through a link to the provider library; 2) Access to online catalogs and interlibrary loan mechanisms using e-mail; and 3) Access to the Internet. From the provider library to the off-site campus or to the student: 1) Mail, telephone, and e-mail reference assistance, 2) Interlibrary loan of books and photocopies via UPS, FedEx, or telefacsimile, 3) Voice mail messaging, 4) Toll-free telephone service, 5) Send fiche copies to students to view on off-site machines, and 6) Fee-based database searching (Dugan, 1997, p. 316).

**Recommendations for the Future Regarding Libraries**

The academic library will continue to be a necessity in academia. Students, faculty, and staff will continue to research, and having the necessary tools, such as academic periodicals, books, online databases, newspapers, and audio will prove to be an imperative. Librarians must continue to stay abreast of their field. There are multiple ways to stay current including, but not limited to, reading research literature, networking, attending annual and mid-conference conferences, online training, webinars, and maintaining memberships in professional organizations, as a whole.

**Recommendations for Future Studies**

In the future, libraries which are a part of universities will have to redefine their roles. The field of education is moving to adult learners and life-long learners. The Internet and the World Wide Web has transformed the way librarians will teach the bibliographic sessions, team learning, and collaborative learning. Group learning will be the major focus, and online learning will be an excellent way to merge different styles of learning (Behm, 2002).

**Students**

Behm (2002) stated that libraries, and the universities where they are located, will have to redefine their roles, due to the demands of life-long and adult learners. The Internet, and the World Wide Web have transformed the distance learning and on campus learning. Behm believed collaborative learning, team learning, and group learning continued to be the focus of the educational experience and online can be a great place to blend all of the various ways to learn in the future. The distance learners, who are usually adult learners, will learn differently from the younger learners, and their goals

and aspirations are usually clearer. They are usually able to prioritize their lives, take an active role in their learning, and expect to have resources available for their use (Behm, 2002).

This researcher has set up personal instruction and Individual Research Consultations for students enrolled in online universities on occasion and believes there is a need for bibliographic instruction sessions for those students, as well. One thing this researcher was impressed with was the resources available. The students had wonderful resources available, but they lacked the necessary skills for successful research in spite of the abundance of sources. Skills such as knowing how to search using the basic Boolean operators, choosing the best database to use per topic, and understanding their results, once found are necessary.

**Researcher's Opinion/Perception**

This researcher believes Farber (1999) was ahead of his time in the field of academic librarianship, while conducting bibliographic instruction sessions at Earlham College. He knew the importance of teaching students, faculty, and staff how to access and use the abundance of available resources.

A quote by Farber (1999) sums up his perspective:

> There is a maxim in that field of study that goes like this: the first stage of a major technological advance permits us to do what we did before, but better or faster, or both; the second stage permits us to use the advance to do things we had not been able to do before; in the third stage it changes the way we work, or live, or even how we think. (p. 174)

The additional topics discussed and reviewed in this study, from the 1970's into the 21st century, were key issues related to the field of academic librarianship.

This researcher has enjoyed reading and reviewing the literature and discovering what is important in academic libraries for the 21st century. A review of the trends in academic libraries is an interesting topic to the researcher and indicates an ever-increasing need to stay abreast of changes and developments in the field of librarianship.

Topics discussed in this study focused on academic libraries and librarianship, but there was some overlapping of issues discussed common to corporate, public, and other types of libraries. Figure 4 lists those items which were the similarities and issues overlapping across the decades. Chapter One was a review of the history of libraries and an introduction of some of the key academic library issues per decade, according to Farber (1999). Chapter Two covered the methodology and procedures of this study, which included the rationale for reviewing the literature for the key topics mentioned by Farber (1999), as well as the similarity of topics throughout the decades listed, including the 21st century. The differences in the changes in those key topics were discussed, and the items Farber (1999) chose not to discuss were also listed. Chapter Three was a review of the cornerstone article, which was completely examined and analyzed by the researcher. Chapter Four was the researcher's review of the more recent literature and identified the key scholarly and peer-reviewed articles pertaining to each individual topic within the study. The chapter also expounded on the topics initially presented by Farber (1999) and additional topics identified by the researcher. Chapter Five included the results of this analysis, which is an overview of the similarities, differences, items totally disappeared since Farber's time, and items which are present in the 21st century, yet

changed immensely since his time. Chapter Six, the final chapter of this study, listed the findings of the key issues discussed by Farber (1999) and the eight topics Farber found most important in his 1999 article. It also covered the key academic library issues per decade.

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## Vitae

Candance Virgil has worked in the field of library science for many years. She worked in an academic library during her undergraduate years, a corporate library for 14 years, the public sector (public libraries) for three years, and has been employed at Lindenwood University (academic library) for 10 years, at the time of this writing.

While Candance was employed at the corporate library, she earned a Document Delivery Specialists award. She was an emergency squad member, which meant she had to participate in fire extinguisher training, first aid classes, CPR, gas mask training, and blood pathogens training (large chemical company). She also served as a team member in a poster session, representing document delivery processes and patent translations. Candance served on a copyright team to establish copyright specifications for the large corporate library in conjunction with the Copyright Clearance Center (CCC), which included a connection with the Canada Institute for Scientific and Technical Information (CISTI) and she participated in an extensive diversity training session in Cincinnati, Ohio, at Pope and Associates.

Candance earned the Affirmative Action award, while a member of the Special Libraries Association (SLA). She continued to be a team player in the organization as a whole, while volunteering at the East St. Louis Public Library, in East St. Louis, Illinois for two years. Candance was hired as a reference librarian at Lindenwood University's Butler Library and as assistant professor in the School of Business and Entrepreneurship (SBE) in 1993 and is currently the Assistant Dean of University Library Services (2007 - present), at the main campus in St. Charles, Missouri.