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ACADEMIC LIBRARIANS' PRACTICES AND PERCEPTIONS ON WEB-BASED
INSTRUCTION FOR ACADEMIC LIBRARIAN PATRONS AS ADULT LEARNERS

by

Deborah Michelle Taylor

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Education

Major: Instruction & Curriculum Leadership

The University of Memphis

August 2016

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Dedication

To my Mother, and you are loved!

Acknowledgements

I give God, the glory, honor, and praise for allowing me to have the grit and endurance to finish strong. I want to thank my husband, Randy, your love, support, encouragement, prayers, and unwavering patience gave me strength to keep moving forward. I would like to thank Reuben, my little dog, who unwearingly waited at my feet and encouraged me to take breaks when I stayed a little too long at the computer. I would like to also thank my professors at the University of Memphis for sharing their skills and insight throughout my courses.

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Abstract

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Academic Librarians' Practices and Perceptions on Web-Based Instruction for Academic
Library Patrons as Adult Learners. Major Professor: Lee E. Allen, EdD.

Academic librarians are encouraged to provide library services, resources, and instruction to all patrons, including the adult learner. Statistics reported that worldwide, adults are a growing student population in colleges and universities; however, the adult learner as an academic library patron is often neglected. Academic libraries can establish value to its stakeholders and support the information needs of adult learners through an active commitment to the process of web-based information literacy instruction that includes outcomes assessments.

The purpose of this study was to examine academic librarians' practices and perceptions on web-based instruction for academic library patrons as adult learners. Three research questions guide this mixed-method study. The first research question focused on forms of web-based instruction. The second research question examined the Association of Colleges and Research Libraries (ACRL) *Information Literacy Competency Standards for Higher Education*. The third question explored the use of outcomes assessments in web-based instruction. Quantitative data were collected through use of a survey distributed to the ALA's Information Literacy Instruction Electronic Discussion List (ILI-L). The qualitative method gathered academic librarians' practices and perceptions through semi-structured interviews. Six themes emerged from the semi-structured interviews: 1) web-based instruction practices, 2) rationale for use, 3) instructional methods and strategies, 4) information literacy competency areas, 5) information literacy competency standards, and 6) formative and summative assessments.

The findings, survey results, and emerging themes suggested implications for practices and further research on outcomes assessments in web-based instruction. There is also a significant need for more web-based instruction designed specifically for the adult learner. These suggestions concern all academic librarians involved in the distribution and development of web-based instruction. Additionally, the interpretations and recommendations for future research were presented.

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Chapter 1

Introduction

Academic libraries are the epicenter for progressive adult education, where the “learner takes an active role in learning” and the librarian is the facilitator to helping students access information (Cooke, 2010; Gold, 2005). As educators, academic librarians engage in three fundamental roles: access, training, and information dissemination. More so, academic libraries have surpassed the label of print warehouses and have shifted to ubiquitous research, teaching, and learning spaces. Literature acknowledges academic libraries as having a rich background with traditional roots in the provision of information literacy instruction.

The normalization of academic librarians as instructors is distinctly tied to the librarian’s commitment to develop and prepare lifelong learners who are information literate. According to the American Library Association (1989) the information literate individual is a person who has “learned how to learn” (para. 3). The role of academic libraries instructional influence is lesser known than its responsibility of providing books and resources. However, academic libraries have been key participants in providing instruction. Zai III (2015) states, “While academic libraries have always served the academic mission of colleges and universities, and academic librarians have had a long and varied history of providing instruction” (p. 4).

The illustration of the librarian as instructor is not uncommon (Davis, 2007; Kemp, 2006; Zai III, 2015). Information literacy “has been taught both synchronously and asynchronously, face-to-face and electronically” (Zai III, 2015, p. 5). More recently, the Web has rapidly changed the method of how academic librarians teach and learn

(Tobin & Kesselman, 2000). Academic libraries in the 21st Century face a myriad of challenges and opportunities to establish value to its stakeholders (e.g., administration, patrons, accreditation agencies, etc.) through the use of outcomes assessments in web-based instruction. Literature supports the assertion that web-based instruction and outcomes assessments are a growing trend in academic libraries (Kumbhar, 2014). Technology and the World Wide Web allow academic librarians to provide innovative, cost-effective solutions to teaching library patrons through web-based instruction.

Numerous studies use the terms adult and nontraditional learners interchangeably when not all nontraditional students are adults, but most adults are nontraditional. While age once identified nontraditional learners, many are adults are distinguished as 25 years and older, while traditional students are learners identified as being between the ages of 18 and 23 years old. Adult learners are differentiated from traditional students by his or her characteristics. According to the National Center for Education Statistics (NCES) report submitted by Choy (2002) adult learners possessed one or more of the following:

- Delayed enrollment and does not enter postsecondary education right after high school.
- Enrolled part-time.
- Works full-time (35 hours or more per week) while enrolled.
- Financially independent.
- Have dependents other than a spouse (usually children, but sometimes others).
- A single parent, not married, married, or separated with dependents.
- May have completed high school with a GED or other high school completion certificate if there is no high school diploma. (p. 2)

Cooke (2010) advocated for more andragogic librarians. She categorized adult learners into three groups: re-entry, graduate, or distance. Re-entry learners are adult undergraduate students who enter college for the first time. Graduate learners are adult students with a bachelor's degree who return to attain a graduate masters or doctoral degree. Distance learners are students who pursue postsecondary education through distance or online courses. Additional terms for distance student include: off-campus, remote, or online learners (Degreve, Fritts, & Stock-Kupperman, 2007; Maiaouthong, Tuamsuk, & Tachamanee, 2012). Technology and the Web are beneficial instruments for off-campus learning and teaching (Draper & Turnage, 2007; Olson & Wisher, 2002).

Technology, the Web, and digital information have transformed the way learning is distributed to traditional and adult learners in higher education institutions. As library instruction transitions from the face-to-face, synchronous approach to an expanded off-campus, asynchronous method academic librarians are encouraged to cultivate library services, instruction, and support to accommodate all adult learners. More so, the viability of academic libraries lies in its ability to exhibit value to its stakeholders through effective information literacy instruction reinforced by the inclusion of outcomes assessments.

Research showed that increasingly academic libraries faced mounting pressures from accreditation agencies and internal administration to justify its value through the use of learning outcomes (Barclay, 1993; Lindauer, 1998; Starkey, 2010). Many academic libraries have yet to establish its value. Consequently, while assessment and evaluation appear synonymously, each term carries a different meaning, which should be addressed

appropriately (Buck, 2007; Jacobson, 2003). The distinction between assessment and evaluation are discussed later.

This study examined academic librarians' practices and perceptions on web-based instruction for academic librarian patrons as adult learners. Web-based instruction, adult learning theory, information literacy competency standards, and the results assessment are explored.

Information Literacy Development

The Association of College and Research Libraries (2000) defined information literacy as "a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (p. 2). Information literacy is a core requirement for 21st Century learners. Learners who can think critically, apply decision-making skills, and find, assess, synthesize, and apply knowledge are information literate. Academic libraries are key to the provision of information literacy development for academic library patrons.

Information Literacy Competency Standards

Information literacy competency standards represent a set of benchmarks used by academic libraries to support the learning outcomes of students. On January 18, 2000, the Association of College and Research Libraries (ACRL) Board of Directors approved the *Information Literacy Competency Standards*. The standards were designed to:

Focus upon the needs of students in higher education at all levels. The standards also list a range of outcomes for assessing student progress toward information literacy. These outcomes serve as guidelines for faculty, librarians, and others in

developing local methods for measuring student learning in the context of an institution's unique mission. (p. 6)

The guidelines consist of five standards and 22 performance indicators.

Table 1 is a modified version that compares learner proficiencies to the information literacy competency standards (Appendix A). The benchmarks form the core standards required in academic libraries when providing information literacy instruction.

On January 11, 2016, the Association of College and Research Library's *Information Literacy Competency Standards* adopted the *Framework for Information Literacy for Higher Education* to replace the current standards. The "*Framework* grows out of a belief that information literacy as an educational reform movement will realize its potential only through a richer, more complex set of core ideas" (ACRL, 2000, para. 1). The *Framework* at the time of this report is a work in progress; therefore, this study does not explore the *Framework* but focused on the *Information Literacy Competency Standards for Higher Education*.

Table 1

*Learner Proficiencies**

Competency Standards:	Learner:
1. Determine the extent of information needed.	<p>1.1 Determines the nature and extent of the information needed.</p> <p>1.2 Identifies a variety of types and formats of potential sources for information.</p>
2. Access the needed information effectively and efficiently.	<p>2.1 Accesses need information effectively and efficiently.</p> <p>2.2 Constructs and implements effectively designed search strategies.</p> <p>2.3 Retrieves information online or in person using a variety of methods.</p>
3. Evaluate information and its sources critically; Incorporate selected information into one's knowledge base.	<p>3.1 Summarizes the main ideas to be extracted from the information gathered.</p> <p>3.2 Articulates and applies initial criteria for evaluating both the information and its sources.</p> <p>3.2 Synthesizes main ideas to construct new concepts.</p> <p>3.4 Compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.</p> <p>3.5 Determines whether the new knowledge has an impact on the individual's value systems and takes steps to reconcile differences.</p>
4. Use information effectively to accomplish a specific purpose.	<p>4.1 Applies new and prior information to the planning and creation of a particular product or performance.</p> <p>4.2 Revises the development process for the product or performance.</p>
5. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.	<p>5.1 Understands many of the ethical legal and socio-economic issues surrounding information and information technology.</p> <p>5.2 Follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.</p>

*Modified from ACRL's *Information Literacy Competency Standards for Higher Education*, 2000

Web-Based Instruction in Academic Libraries

With the advent of the Internet in the 1990s, web-based instruction was embraced as a creative way to teach information literacy skills. Web-based instruction is sometimes used interchangeably with the terms web-based training, instructional design, e-learning, or online education (Olson & Wisher, 2002). Web-based instruction is distributed through the Internet to browser-equipped computers. Web-based instruction is accepted as a beneficial way to reach off-campus learners or who are unable to obtain face-to-face on-campus library instruction. Olson and Wisher (2002) discussed the tremendous potential attached to providing greater access to institutional resources through the use of web-based instruction. However, in spite of having access to web-based instruction literature indicated that academic libraries often overlook or neglect adult learners (Cooke, 2010; Foster & Helbling, 2015). More so, academic libraries tend to disregard the use of outcomes assessments in web-based instruction (Barclay, 1993).

As active co-participants in the institution's mission, academic librarians are vital to the empowerment of the adult learner's ability to make informed decisions, creatively problem solve and responsibly engage in higher order thinking (Cooke, 2010; Partnership for 21st Century Skills, 2009). Adult learners often are familiar with web-based instruction such as online tutorials, self-paced instruction, podcasts, videos, online chats, etc. (Howland & Moore, 2002). Studies on adults disclosed that a primary concern for adult learners is library anxiety (Harrell, 2008; Jiao & Onwuegbuzie, 1999; Keenan, 1989; Mellon, 1986). This concern was supported in research on andragogic learners. Adult learners often experience library anxiety at greater levels than traditional students (Cooke, 2010; Keenan, 1989; Mellon, 1986).

Constance A. Mellon coined the term “library anxiety” in 1986. Jiao, Onwuebuzie, and Lichtenstein (1996) defined “library anxiety” as the uneasiness experienced by students, “an unpleasant feeling or emotional disposition faced in a library setting that has cognitive, affective, physiological, and behavioral ramifications” (p. 152). Onwuebuzie and Jiao (2000), believed library anxiety promoted academic procrastination, which is a significant contributor to adverse behaviors in academic performance. Solomon and Rothblum (1984) defined procrastination as “the act of needlessly delaying tasks to the point of experiencing subjective discomfort, in an all-too-familiar problem” (p. 503). Solomon and Rothblum (1984) as shown in Figure 1 argued that some of the reasons for procrastination included, “evaluation anxiety, difficulty in making decisions, rebellion against control, lack of assertion, fear of the consequences of success, perceived aversiveness of the task, and overly perfectionistic standards about competency” (p. 503).

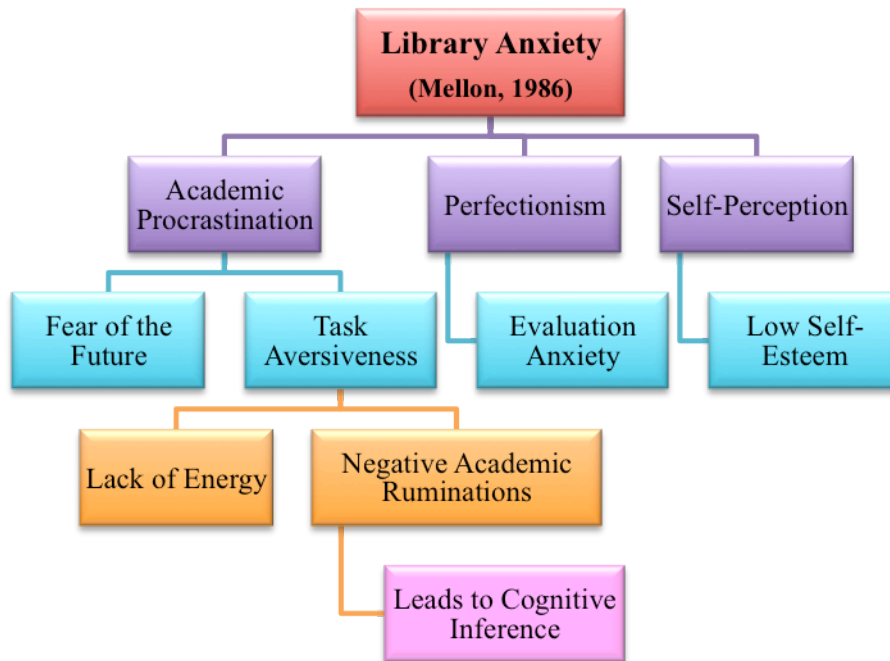


Figure 1. Effects of Library Anxiety (Onwuebuzie & Jiao, 2000, p. 46)

Learners who felt overwhelmed and intimidated by the library is what Mellon (1986) described as “library anxiety.” Library anxiety produced “the feeling that students should already know how to use the library for research” (Mellon, 1986, p. 163). Academic librarians can help ease library anxiety experienced by adult learners through the proficient use of web-based instruction. Cooke (2010) states, “Librarians are key, yet underutilized resource, who can ease the anxiety of these learners and give them tools that will facilitate their coursework” (p. 209).

Adult Learners in Academic Libraries

Numerous researchers have studied information literacy instruction, library science, and adult education (Currie, 2000; Foster & Helbling, 2015; Gold, 2005; Knowles, 1976; Salony, 1995). A plethora of literature exists on these topics; however, despite all of our knowledge in these areas there remains a gap in the literature on adult learners in academic libraries. Moreover, research implies a connection with the concept

of information literacy as being critical or higher order thinking skills through adult learners being independent, self-motivated, and a self-directed lifelong learner. As adult students increasingly return to colleges and universities, academic libraries must look for ways to provide library services and support to accommodate this growing student population. Lange, Canuel, and Fitzgibbons (2011) concludes,

Librarians adapt instruction and communication strategies for students with varying levels of language, library, and technology skills; teach outside usual “business hours”; teach online; integrate information literacy outcomes in course curricula; tailor communication to students and instructors; and continually develop entirely new workshops based upon the content specific to continuing education programmes. (p. 1)

Studies support the use of web-based instruction. Academic librarians must become co-creators with faculty and adult students and become actively involved in the use of outcome assessments to improve information literacy skills generated in the form of web-based standards.

Statement of the Problem

Academic librarians are encouraged to provide library services, resources, and instruction to all patrons, including adult learners. Worldwide, adult students are a growing student population in colleges and universities (Choy, 2002; Cooke, 2010; Veal, 2000; Francis, 2012; Compton, Cox, & Laanan, 2006); however, adult learners are often neglected in academic libraries. Academic libraries can establish value and support the information needs of adult learners through an active commitment to the process of information literacy instruction and use of outcomes assessment to lessen library anxiety

and aid with the retention rates of adult learners. While literature is replete with how to design web-based instruction for adults, the perception of faculty and students regarding web-based instruction, the andragogic learning theory, little if any research exists on academic librarians' perceptions of outcomes assessment to improve web-based instruction.

Academic librarians are in a unique position to develop effective web-based instruction to reach this distinctly underserved population. Additionally, web-based instruction serves as a useful resource for adult learners who often face greater responsibilities and less schedule flexibility than traditional students (Warner, 2003; Wyman, 1988). Digital information and technology can level the playing field by providing ubiquitous access for adults in postsecondary academic libraries.

The switch from analog to digital is not merely a matter of learning how to use a computer. This is the error many educators make—they assume that once adult learners have computing skills, they will know what to do in a research environment. What these educators fail to understand is that the digital world requires a whole new way of thinking. (Blake, 2008, p. 49)

Adult learners, when left to their own devices, can quickly become intimidated and overwhelmed with the vast amount of digital information made available through the library. Research revealed that most academic librarians lack adequate understanding of the adult learner's needs while deficiencies in the adult's ability to acquire research and technological expertise could hinder academic pursuits (Brennan 1999; Holmes 2000; Quinn 2000). Adult learners need academic librarians and academic librarians need adult patrons.

There are mounting pressures from administration and accreditation agencies for outcomes assessments. (Barclay, 1993; Buck, 2003; Gratch-Lindauer, 1998; McCulley, 2009) Outcomes assessments can be used to validate the library's value. Additionally, the integration of andragogical instructional models is growing concern in academic libraries.

While research in the areas of information literacy and academic librarian perceptions exists, research on outcomes assessments in web-based instruction is limited. There are numerous dissertations on the topic of information literacy and student perceptions, but only a few dissertations were written from the perceptions of academic librarians and web-based instruction (Miko, 1996; Starkey, 2010). Even less research exists on the application of andragogic learning theories in web-based instruction.

Theoretical Foundation – Adult Learning Theory

Adult Learning Theory is the foundation for adult teaching and learning. Andragogy serves as a model for teaching adult learners. Research argues against using andragogy as the only learning theory. Studies indicated that there is not one theory applicable to all adult education environments (Frey & Alman, 2003; Knowles, 2005). Andragogy was viewed as a good practice and not a theory; even Knowles (2005) personally agreed that andragogy was a “model of assumptions about learning” (p. 64). For the purpose of this study, the andragogic model was used.

Andragogy is not a new term. Andragogy was discovered in German literature in the 1880s. Malcolm Knowles (1970) is credited with the popularization of andragogy in the United States. Knowles is described as the father of andragogy. Andragogy is a set of assumptions that focuses on the instruction or teaching of adults versus the educational

development of children, also known as pedagogy (Currie, 2000; Knowles, 2014; Smith, 2002). Knowles brought greater awareness and clarity to the distinction between the instruction of adults and teaching children.

The Andragogic Learning Theory is linked to three movements in educational psychology: behaviorism, which focuses on the learner's external behavior, cognitivism, which seeks ways to build on learners' previous knowledge, and constructivism, which endorses student-centered learner. From the three educational psychology movements, other theories besides andragogy arose: self-directed learning, transformational learning, and experimental learning.

Andragogy is constructed from six assumptions about adult learners: 1) the need to know, 2) self-directed and responsible, 3) the role of experience, 4) readiness to learn, 5) orientation to learning, and 6) motivation (Ingram, 2000; Knowles, 2005; Merriam & Caffarella, 1999). "Many librarians, who deal primarily with traditional aged college students, may not be aware of the principles of andragogy and, therefore, their instructional endeavors may not meet the needs of adult learners" (Cooke, 2010, p. 210). Unlike traditional students, andragogic learners require distinct learning models from instruction presented traditionally on-campus. Academic libraries can assist adult learners by creating innovative web-based instruction, which facilitate the development and activation of critical thinking through information literacy and lifelong learning.

Purpose of the Study

Academic librarians are key players in the delivery of web-based instruction and the promotion of lifelong learning. The exploration of existing practices and opinions from the academic librarians' perspective can bring clarity on use of outcomes

assessments in web-based instruction and its potential outreach to adult learners. The purpose of this study examined academic librarians' practices and perceptions on web-based instruction for academic library patrons as adult learners.

Research Questions

The primary research questions that guide this study are:

1. What are the forms of web-based instruction provided for academic library patrons?
2. What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?
3. What outcomes assessments are provided in web-based instruction for academic library patrons?

Importance of the Study

While there is a plethora of literature on the need for information literacy instruction, library science, and adult education (Cooke, 2010; Hine, Meek, & Miller, 1989), there remained a void in literature on the practices and perceptions of academic librarians' use of web-based instruction. This study sought to establish a baseline for web-based instruction in postsecondary academic libraries, while adding to the literature and dialogue on web-based information instruction for academic librarian patrons as adult learners. This study also sought to provide greater insight on academic librarians' views and practices on web-based instruction.

Organization of the Study

Chapter 1 introduced the study. Chapter 2 presents a review of the literature review. The review discusses literature related to web-based instruction and 21st Century

skills, information literacy in higher education, information literacy delivery methods, andragogic learning theories, adult learners in academic libraries, information literacy, and outcomes assessment, and the researchers experience with web-based instruction. Chapter 3 assesses the methodology used, the importance of the study, instrumentation, delimitations and limitations, data collection methods, and data analysis. Chapter 4 examines the study findings and data analysis, and Chapter 5 discusses the significant findings, conclusions, and recommendations for future research.

Definition of Terms

Academic Librarian: An individual who holds a master's degree in the field of information or library science and who is employed in a postsecondary library of higher education.

Accreditation Agencies: "The goal of accreditation is to ensure that institutions of higher education meet acceptable levels of quality" (U.S. Department of Education, para. 1).

Andragogy: "The art and science of helping adults learn, in contrast to pedagogy as the art and science of teaching children" (Knowles, 1980, p. 43).

Emerging Technologies: "A radically novel and relatively fast growing technology characterized by a certain degree of coherence persisting over time and with the potential to exert a considerable impact on the social-economic domain(s) which is observed in terms of the composition of actors, institutions, and patterns on interactions among those, along with the associated knowledge production processes. Its most prominent impact, however, lies in the future and so in the emergence phase is still somewhat uncertain and ambiguous" (Rotolo, Hicks, & Martin, 2015, p. 1830)

Adult Learner: Students who have at least one of the following seven characteristics: Delays enrollment (does not enter postsecondary education in the same calendar year that he or she finished high school), attends part time for at least part of the academic year, works full time (35 hours or more per week) while enrolled, financially independent for purposes of determining eligibility for financial aid, has dependents other than a spouse (usually children, but sometimes others), a single parent (either not married or married but separated and has dependents), does not have a high school diploma (completed high school with a GED or other high school completion certificate or did not finish high school) (Choy, 2002).

Information Literacy: "A set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, 1989).

Library Anxiety: The negative beliefs or feelings when using, or thinks about using the library's resources or services. The effects of library anxiety include thoughts or feelings of hopelessness, frustration, and/or lack of competency (Jiao, Onwuebuzie, & Lichtenstein, 1996).

Outcomes Assessments: A method used to determine if an instructional session, intervention, or plan is effective.

Postsecondary Education: Education continued after completing high school.

Traditional Learners: Traditional learners are students who enter postsecondary institutions right after high school. Often identified as students between the ages of 18-23 years who attend full-time classes on campus.

Web-Based Instruction: Prior to the integration of technology library instruction was recognized as bibliographic instruction. More recently, bibliographic instruction is best identified as teaching that is distributed over the Internet to a browser-equipped learner. Web-based instruction is interchangeably defined as web-based training, instructional design, e-learning, and online learning.

Chapter 2

Review of Literature

With the advent of technology and the Web, academic libraries expanded its library services to clients with Internet connection and portable electronic devices. As adult learners return to postsecondary institutions at an increasing rate, web-based instruction is capable of reaching the academic library's most neglected patrons – the adult (Cooke, 2010). Academic libraries are required to align with the mission of its higher educational institution. Academic libraries are encouraged to provide educational opportunities to all constituents in traditional and off-campus formats. As mounting pressures from its stakeholders occur, academic libraries are pressed to integrate the use of outcome assessments to improve its web-based instructional services, justify its value, and reach patrons that access the library through the Internet.

This review of literature responds to the use of outcomes assessments in web-based instruction. The review of related literature begins with a historical overview of bibliographic instruction, which incorporates web-based instruction, information literacy, adult learners in academic libraries, andragogic learning theories, and outcomes assessments. An analysis of related literature in Library Literature and Information Science Full Text, Proquest Dissertations and Theses Global, and ERIC databases using the terms *web-based instruction*, *bibliographic instruction*, *e-learning*, *online learning*, *web-based instruction*, *academic libraries*, *adult learning theories*, *assessment*, *evaluation of instruction*, *information literacy*, and *adult learners* were conducted. Additionally, Google Scholar and Google Books were also searched.

Background

Few would argue against the rich history of library instruction and the essential role of academic librarians in classroom teaching (Cooke, 2010; Salony, 1995). In the United States, research shows the provision of bibliographic instruction goes as far back as the 1880s (Salony, 1995; Worrell, 2005). According to Lorenzen (2001), “Many of the librarians in the late 19th Century were also professors. They taught in their areas of specialty on a regular basis” (p. 8). Historically, library collections were small, and the need to build a separate location was not required.

Some studies in library literature referred to the term bibliographic instruction. Bibliographic instruction carries the same meaning as user education, library instruction, orientation, and information literacy. More recently, with the integration of the Internet as a teaching tool, web-based instruction distinguished between face-to-face instruction and training performed over the Internet. Salony (1995) describes library bibliographic instruction as:

The systematic nature of the effort to teach something—a set of principles or search strategies relating to the library, its collections or services—using predetermined methods in order to accomplish a predefined set of objectives. (p. 32)

While bibliographic and library instruction are applied interchangeably, in general, the term refers to information literacy instruction. Information literacy was conducted to show patrons how to access, find, and use library services and resources. The historical nature of academic librarians has always carried some connotation of instruction.

Before the Internet, library instruction was conducted face-to-face inside a physical space called the library. Bibliographic instruction covered library related activities that focused on the access and use of print materials, the card catalog, and other formats like the microfiche. As a part of the academic librarian's role, librarians were required to create, evaluate, and improve instructional sessions (Salony, 1995). Cooke (2010) states,

Among the long standing goals of bibliographic instruction are: 1) that students develop the art of discrimination to be able to judge the value of books to develop critical judgment, 2) that students become independent learners and learn how to teach themselves, and 3) that students continue to read and study and become lifelong learners. (p. 215)

Academic libraries in the United States were not exclusively the first or unique in the provision of library instruction. According to Lorenzen (2001), "German library literature records various examples of library instruction for the 17th to 19th Centuries" (p. 8). After the Civil War bibliographic instruction became requirement due to the surge in veterans expending their GI Bill to enroll in colleges (Salony, 1995). However, it was not until after the Civil War that bibliographic instruction flourished (Lorenzen, 2001; Salony, 1995). In the 1960s and 1970s, a renewed interest in library instruction in the United States was sparked and library literature in the area of instruction increased (Lorenzen, 2001; Salony, 1995).

Library instruction initially focused on the use and access to print resources and resources not available electronically (Cooke, 2010; Salony, 1995). The traditional method for library instruction was performed on-campus where patrons had to physically

visit the libraries to access the collection (Jenson, 2004). Instruction occurred where the teacher and learner met in a face-to-face environment. The incorporation of technology in teaching helped expand the method of instructional outreach to library patrons.

Academic libraries were forced to shift library instruction from brick-and-mortar sessions to teaching online. Learners with an Internet browser could access the library's electronic resources, services, and web-based instruction. The definition of bibliographic instruction remains somewhat ambiguous. This study uses web-based instruction to identify library training conducted over the Internet.

Academic librarians have a significant role in providing library instruction to academic library patrons (Breivik, 1987; Cooke, 2010; Gayton, 2008; Ladall-Thomas, 2012). Patron access to instruction, services, information, and instruction is what makes libraries the epicenter of every institution. Without question, academic libraries are vital to institutions of higher education and even more with the incorporation the Internet. Academic libraries support its institutional mission to achieve positive student learning outcomes.

Web-Based Instruction in Academic Libraries

Numerous studies exist on the history of adult learning in libraries (Lorenzen, 2001; Salony, 1995), but a relatively small amount of literature focused on web-based instruction in academic libraries. Khan (1997) defines web-based instruction as “a hypermedia-based instructional program, which utilizes the attributes and resources of the World Wide Web to create a meaningful, learning environment where learning is fostered and supported” (p. 6). Individuals with an Internet browser can gain ubiquitous access to library resources without the assistance of a librarian. According to ChanLin

and Chang (2002), web-based instruction provides academic library patrons with new methods of learning in a way that is capable of reaching learners anywhere, anytime. Tobin and Kesselman (1999) describes web-based instruction as “an innovative approach to distance learning in which computer-based training is transformed by the technologies and methodologies of the World Wide Web (WWW), the Internet, and Intranets. It allows self-directed, self-paced instruction in any topic” (p. 3). Without question, the Web has altered the way academic libraries teach, gain knowledge of new technologies, and how it distributes information, services, and resources to its patrons (Tobin and Kesselman, 1999). Web-based instruction is not a random assortment of information placed on web pages. Web-based instruction has distinct interactive characteristics capable of serving as an ideal instructional tool (Tobin & Kesselman, 1999). Literature is replete with the support of active learning as a way to deliver web-based instruction (Cook, 2005; Dewald, 1999; Khan, 1997; Tobin & Kesselman, 1999). Web-based instruction in academic libraries can enable adult learners to become actively engaged in the learning process without ever physically visiting a library.

While many academic libraries offer academic library patrons a hybrid combination of traditional and online instruction programs, studies support the benefits connected to reaching large numbers of students with the web-based instruction format. Khan (1997) believed web-based instruction to be an “innovative approach to delivering instruction to a remote audience, using the Web as a medium” (p. 5). Web-based instruction supports a ubiquitous, convenient, and flexible method of information delivery, which attracts adult learners.

Academic libraries as the epicenter or “the heart of the university” (Beivik, 1987, p. 44), has a disconnection between academic libraries and adult learners. Research revealed that librarians often lack an adequate understanding of the adult learner’s information needs, while deficiencies in the adult learner’s ability to acquire research and technological expertise could hinder academic pursuits (Brennan 1999; Holmes 2000; Quinn 2000). Lebowitz, 1997 states, “In order to remain economically viable in the period of changing student demographics, it is becoming increasingly more necessary for academic institutions to extend their educational offerings beyond the boundaries of their campuses” (p. 303). Academic librarians must reach beyond their comfort zones to develop innovative information literacy instruction that includes academic library patrons as adult learners.

Academic libraries are responsible for offering library instruction to all patrons, including adult learners who are increasingly attending postsecondary institutions (ACRL, 2000; Ladall-Thomas, 2012). The library's mission is the institution’s mission and the institution’s mission focuses on successful student learning outcomes. Academic libraries are contributors to the development of lifelong learners. Green (2010) states, “Furthermore, librarians and the LIS community maintain that, if information literacy is to be acquired properly librarians should be involved in teaching the skills” (p. 313). Breivik (1987) agrees with the academic librarian’s ability to “guide students through the typology of knowledge” (p. 46). Academic librarians are key partners in the institution’s educational process.

Academic libraries can employ innovative methods to reach adults who may not frequent the campus in the same manner as traditional students or who may pursue

postsecondary education at a distance. Technology and the Web provide opportunities for academic libraries to deliver self-paced web-based instruction for students who need off campus access to library resources (Heery, 1996; Ladall-Thomas, 2012). The asynchronous nature of online learning is well suited for adults who are more autonomous and self-directed than traditional students (Jacob, 2001; Ladall-Thomas, 2012). Academic libraries can flourish while adding value if they remain abreast of technological changes that support patrons who may or may not be technologically savvy. Cheng (2000) supports the integration of training and professional development for academic librarians that experience rapidly changing landscapes due to emerging technologies.

Emerging Technologies in Academic Libraries

With the demise of the card catalog and the influence of technology, academic library instruction was restructured to introduce the online catalog (Lorenzen, 2001). The surge of electronic resources impacted the way libraries distributed its information, services, and instruction. Subsequently, emerging technologies in academic libraries continues to reform web-based instruction. Rotolo, Hicks, et al (2015) defines emerging technologies as:

A radically novel and relatively fast growing technology characterized by a certain degree of coherence persisting over time and with the potential to exert a considerable impact on the social-economic domain(s) which is observed in terms of the composition of actors, institutions, and patterns on interactions among those, along with the associated knowledge production processes. (p. 1830)

Rapid changes triggered by emerging technologies have the potential to deliver a significant impact in society and in academic libraries. Emerging technologies alters the way academic libraries and patrons interaction. Emerging technologies forces the library to demonstrate its value to stakeholders. Zurkowski (1990) states, “Information services help people learn and must change as their users change to continue to offer value in the marketplace” (p.77). Lorenzen (2001) says, “The advent of the Internet and the World Wide Web has required librarians to take the lead in teaching what the Internet and Web are useful for and what they are not” (p. 12). Emerging technologies such as mobile devices, interactive apps, games, quizzes, audio, and video interactions (Cassidy, et al., 2014) provide portability and greater interactivity capable of serving as an essential tool for reaching academic library patrons anytime, anywhere.

Variations in the traditional role of academic librarians have been redefined to reflect changes in higher education (Starkey, 2010). Many academic librarians view their current roles as one that has shifted from having a strong service orientation to being actively engaged in web-based instruction. In spite of serving as instructors academic librarians are not recognized on the same level as teaching faculty nor has information literacy instruction viewed as a part of the core curricula.

While various libraries (e.g., public, school, etc.) continue to provide information literacy in a traditional, face-to-face method this study examined information literacy from the academic library perspective. The term web-based instruction was examined.

Web-Based Instruction and 21st Century Skills

Libraries and other organizations are active participants in the initiative to prepare 21st Century learners (American Library Association, 1989; Partnership for 21st Century

Skills, 2009; Race to the Top, 2009). Information literacy is a core competency skill required for learners in the 21st Century. Information literacy supports the concept of lifelong learning. An individual who is a lifelong learner is a person who continues to pursue education after high school. The American Library Association (1989) identifies the lifelong learner as one who can pinpoint information needed for the task or decision at hand. Employers also acknowledge lifelong learning as an important skill for the workplace. Academic libraries have been active contributors to continuing education and the provision of information literacy instruction. Jenson (2004) states, “In fact, students can be taught effective research skills, despite the complexity of the electronic indexes and databases now used to do such work” (p. 108). Web-based instruction in the 21st Century can enhance the academic library’s ability to promote and support lifelong learning in institutions of higher education.

Information Literacy and Higher Education

The mission of higher education is interconnected to the advancement of lifelong learning. The American Library Association’s (ALA), Association of College and Research Libraries (ACRL) division, in particular, was created to promote two primary areas: the acquisition of information literacy skills and the provision of information literacy instruction. The Association of College and Research Libraries (2000) states, ...by ensuring that individuals have the intellectual abilities of reasoning and critical thinking, and by helping them construct a framework for learning how to learn, colleges and universities provide the foundation for continued growth throughout their careers, as well as in their roles as informed citizens and members of communities. (p. 4)

Academic libraries are accustomed to providing library services to traditional learners; however, they required to offer equivalent methods of information literacy instruction to those who are not traditionally on campus or who are studying at a distance (ACRL, 2000). The shifting nature of academic library collections and the diversity of its academic library patrons demand innovative methods of instruction. In many instances, this is achieved through some form of web-based instruction.

Information literacy instruction is an essential part of the services offered in academic libraries. More specifically information literacy instruction is designed to equip and prepare independent lifelong learners (ACRL, 2000; Jacobs, 2001; Samson, 2000). The proficiency criteria in library instruction should attempt to mirror ACRL's information literacy competency standards. Effective information literacy instruction supports the learner's the ability to become information literate. Samson (2000) states, "If the goal of the university is to develop lifelong learners, information literacy is clearly the critical link to the future" (p. 337). Arguably, information literacy is not a new concept in libraries as it first appeared in the 19th century as library instruction (Vole, et al., 2013).

Information literacy is a term initially presented by Paul Zurkowski (Addison & Meyers, 2013; Zurkowski, 1974). Zurkowski viewed libraries as a critical player in the information marketplace, and he believed that information literacy extends beyond the ability to "read and write." The individual who is information literate is described as one who can find, evaluate, and use information effectively (American Library Association, 1989; Partnership for 21st Century Skills, 2009; Samson, 2000; Zurkowski, 1974). Zurkowski (1990) goes on to state,

Information competency involves more than computer literacy. It involves not only how to access information, wherever it is stored and how; it requires an awareness of what information is available, how it is organized, how it is intended to be used, and how it can contribute to wealth-generating efforts in specific situations. This is a cerebral activity that requires education and training. (p. 79)

Addison and Meyers (2013) states, “Libraries recognize the significance of information literacy as something that is vitally important, even if not always a well-defined theory in library and information science” (para. 1). Information literacy is one of the premier aspects of competency skills connected with academic libraries.

According to Blake (2010),

Information literacy is about understanding information and how it works. It is about introducing students to the forms of information available to them, and then helping them determine what sort of information they need for any specific context, how to find it, how to evaluate it, and how to use it effectively and ethically. (p. 130)

Zurkowski cautioned against the information industry where information was no longer a profitably commodity, but instead was given away free of charge. For Zurkowski, “simply giving information away causes deterioration of its value and, in the end, results in a degeneration of quality” (Badke, 2010, p. 49). Zurkowski (1974) states,

The user is willing to pay for services, which enhance his control. Not everyone perceives this as a measure of the value of information. Many who are conscious of the need for information still feel that information, like air, is a free good. (p. 6)

For Zurkowski, “information activities are funded as a value of society and the value placed on information is in direct proportion to the control it provides him over what he is [one’s present state] and what he can become [one’s future state]” (p. 6). Information has a transformative value capable of reinventing the individual’s state of being in a manner that prepares a person to become a lifelong learner.

The American Library Association and Partnership for 21st Century skills are actively involved in the initiative to prepare lifelong learners. Notably, for decades libraries have consistently participated in the transmission of information literacy. Academic libraries have been key forerunners in the instructional effort to advance information literacy skills. The American Library Association (2000) *Information Literacy Competency Standards for Higher Education* and a framework based on Bloom’s *Taxonomy* (Bloom, 1956) intertwine the concept of information literacy to produce proficient researchers (Williams, 2012). Bloom’s Taxonomy of Educational Objectives (Figure 2) are integrated into the competency outcomes for information literacy competency standards. Higher order thinking or critical thinking is an essential requirement to accomplishing information literacy skills. The implementation of competency standards requires institutions to “recognize that different levels of thinking skills associated with various learning outcomes – and therefore different instruments or methods are essential to assess those outcomes” (ACRL, 2000, p. 6).

The American Library Association (2000) “strongly suggested that assessment methods appropriate to the thinking skills associated with each outcome be identified as an integral part of the institution’s implementation plan” (p. 6). Information literacy

requires effective critical thinking skills. The outcomes that illustrate “higher order” thinking skills are:

“Lower Order” thinking skill:

Outcome 2.2.a. Identifies keywords, synonyms, and related terms for the information needed.

“Higher Order” thinking skill:

Outcome 3.3.b. Extends initial synthesis, when possible, to a higher level of abstraction to construct new hypotheses that may require additional information (ACRL, 2000, p. 7)

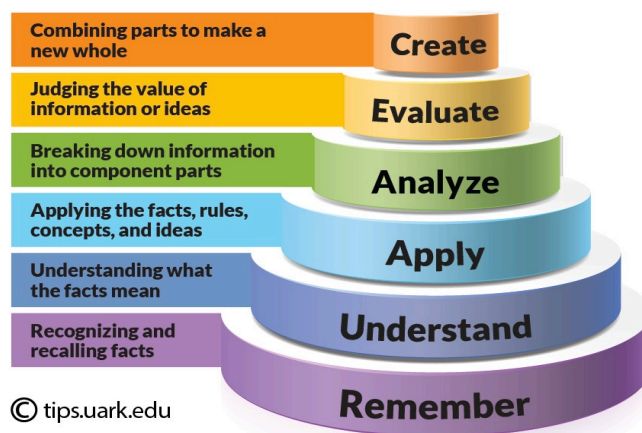


Figure 2. Bloom’s Taxonomy (<http://tips.uark.edu/using-blooms-taxonomy/>)

Information literacy instruction allows academic libraries to become active contributors in the development of critical thinking skills (Dewald, 1999). Critical thinking incorporates the learner’s ability to become a part of the learning process rather than engage in the passive activity of prepackaged *material* of information (ChanLin & Chang, 2002; Dewald, 1999). Critical thinking enables students to become self-directed learners able to exercise greater understanding and intelligent choices. Critical thinking and problem solving are imperative to lifelong learning and to the information literacy process.

The Partnership for 21st Century Skills (2009) defines critical thinking and problem solving as:

- Exercising sound reasoning in understanding.
- Making complex choices and decisions.
- Understanding the interconnections among systems.
- Identifying and asking significant questions that clarify various points of view and lead to better solutions.
- Framing, analyzing and synthesizing information in order to solve problems and answer questions. (p. 4)

Information literacy is a core activity that revolves around critical thinking and problem solving. Critical or “higher order” thinking is an essential part of the information literacy process, which is vital to producing lifelong learners.

Table 2 presents the concept of information literacy as identified by ALA (2000), the Partnership for the 21st Century Skills (2009), and Bloom’s *Taxonomy* (1956). In 2000, ACRL expanded its definition of information literacy to include the learner’s need for information and whether the learner can effectively apply and incorporate “selected information into one’s knowledge base” (p. 3). The American Library Association believes it is the learner’s need that drives the learner on a quest for information while the Partnership for 21st Century Skills concentrates on the learner’s ability to become information literate. Owusu-Ansah (2004) states, “Furthermore, information literacy appears to be an educational goal that educators can neither ignore nor openly refuse a need to achieve” (p. 4). Information literacy for the adult learner is an area that cannot be overlooked.

Table 2

Definitions of Information Literacy with Bloom's Taxonomy

American Library Association	Partnership for 21 st Century Skills
Determine the extent of information needed. (<i>Analyze</i>)	Effective and efficient access to information. (<i>Understand, Apply</i>)
Access the needed information effectively and efficiently. (<i>Understand, Apply</i>)	Critical and competent evaluation of information. (<i>Analyze, Evaluate</i>)
Evaluate information and its sources critically. (<i>Evaluate, Analyze</i>)	Accurate and creative use of information for the issue or problem at hand. (<i>Understand, Apply</i>)
Incorporate selected information into one's knowledge base. (<i>Apply</i>)	Possession of a fundamental understanding of ethical/legal issues regarding access and use of information. (<i>Understand</i>)
Use information effectively to accomplish a specific purpose. (<i>Apply, Create</i>)	
Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally. (<i>Understand, Apply</i>)	

Information Literacy Instruction

A fundamental goal in information literacy is the access, retrieval, analysis, and use of information (ACRL, 2000). Owusu-Ansah (2004) recognizes, information literacy as:

...more than a framework of knowledge and a set of skills, it is an attitude that reflects an interest in seeking solutions to information problems, recognition of the importance of acquiring information skills, information confidence rather than information anxiety, and a sense of satisfaction that comes from research competence. (p. 16)

The distribution of library instruction occurs in various ways: “formal class settings, small group sessions, one-on-one encounters, written guides and brochures, audiovisual presentations, and computer-assisted instruction (CAI)” or self-paced instruction using an Internet browser (Salony, 1995, p. 31). Regardless of how instruction is transmitted the overarching goal is to deliver effective information literacy instruction.

Adult Learning Theory - Andragogy

Library literature presents an established consensus on methods for offering adults viable library instruction (Cannady, King, & Blendinger, 2012; Gold, 2005). Even institutions of higher education and academic libraries recognize the need to offer instructional services and resources suitable to accommodating the increase of adult learners returning to colleges and universities (Guerrero, 2000; Hammond, 1994; Wyman, 1988). Current literature is replete with references from research in adult learning theories conducted thirty or forty plus years ago; the most common citations originates from the undertakings presented by Knowles in the 1970s and 1980s on the adult (andragogy) learning theory (Cooke, 2010; Gold, 2005; Knowles, 1970). Gold (2005) states, “Andragogical learning theory is embraced as a guiding force behind effective library instruction for adult learners” (p. 469). Andragogic learning embeds a theory or set of assumptions that the self-directed and highly motivated nature of adult learners. Most notable is the success attained by librarians who have developed instruction programs and written extensively on Knowles assumptions (Gold, 2005).

The andragogic learning theory has roots in three educational psychology movements, which have influenced both pedagogy and andragogy: behaviorism,

cognitivism, and constructionism. Behaviorism is a learning theory that centers on the learner's external behavior and is often used for the acquisition of simple learning (Skinner, 1966). In the early twentieth century, behaviorism led to the growth of programmed instruction by B. F. Skinner (1966). Skinner studied negative and positive reinforcement, with immediate feedback to the learner as a way to modify the learner's behavior.

Cognitivism is used for more complex learning. Cognitivism focuses on the learner's internal reasoning process, before any behavior is noticeable (Dewald, 2003). In cognitivism, the learner actively processes information through assimilation of new information into existing understanding. Cognitivism seeks ways to build on previous knowledge (e.g. analogies, metaphors, outlines, concept mapping, and advanced organizers) (Dewald, 2003, p. 103).

Constructivism promotes student-centered learning. While cognitivism emphasizes the internal processes of the learner's mind, constructivism views learning as the construction of one's own understanding of knowledge (Dewald, 2003). In other words, constructivism sees the learner not merely acquiring knowledge but creating it.

Pedagogy is defined as "the art of teaching" and is primarily associated with the teaching of children or adolescents (Cannady et al., 2012; Cooke, 2010; Ingram, 2000; Knowles, 1970; Smith, 2010). Andragogy, on the other hand, delves into characteristics associated with adult learning and is directly connected with the practice of teaching adults (Knowles, 1970; Merriam, 2001; Naito, 1996). According to Dewald (2003), three educational psychology movements found purpose in their power to "build on, react to, and/or overlap each other (p. 49). The movements were: behaviorism, cognitivism, and

constructivism. These three educational psychology movements continue to influence the education field and the instruction of adults.

Andragogy

Andragogy, as with many of the terms described in this study, is not a new concept. As early as 1833 it was used in Germany “and has been used extensively during the last decade in Yugoslavia, France, and Holland. It is also worth noting that in 1927, Martha Anderson and Eduard Lindeman use the term“ (Cooke, 2010, p. 31). Malcolm Knowles recognized andragogy as a “framework to provide university educators with a wealth of knowledge pertinent to meeting the motivation needs of the adult learner” (Cannady et al., 2012, p. 157). Gold (2005) identified five themes from literature, which encompass library instruction for adult learners:

1. Adult learners have unique social, physical, and cognitive characteristics that impact have an impact on learning;
2. A variety of barriers should be recognized and removed when creating library instruction for adults;
3. Traditional library instruction models are ineffective for the adult learner;
4. Andragogical learning theory should be used when creating library instruction and services for adult learners; and
5. Multiple andragogical based models and strategies have been successfully used to provide adult centered library instruction (p. 468).

Gold (2005) and Knowles (1970) recognized the unique instructional needs of adult learners and addresses the efforts made in literature to accommodate the andragogical student. More so, literature supports the distinction between the learning

styles of adults and those of children (Hays, 2014). The application of a cookie cutter approaches to instruction “has a direct impact on the response to instruction” (Hays, 2014, p. 3). And while some argue that andragogy is a theory not exclusive to adults (Cooke, 2010) but another way of instructing students (Hays, 2014), many continue to support andragogy as an adult learning theory (Cooke, 2010; Feuer, 1988; Ghaphery, 2000; Gold, 2005; Ingram, 2000). Feuer (1988) acknowledges, “andragogy is an honest attempt to focus on the learner” (p. 39). Andragogy, in spite of its opposition, has brought awareness to how adults learn.

Knowles was the first in the western world to bring clarity to the vague definition of andragogy. Knowles also was able to characterize adult learners from the instruction of children by looking at the “unique characteristics of adult learners and related prescriptions for practice” (Feur & Geber, 1988, p. 32). Table 3 presents distinctions between pedagogy and andragogy.

Table 3

Pedagogy vs. Andragogy

Pedagogy - <i>“teaching of children or adolescents”</i>	Andragogy - <i>“teaching of adults”</i>
Learner depends on instructor to learn	Learner is self-directed. Both should learn together.
Teacher-centered – instructor is responsible for content design, determines coverage and transmission methods (e.g., lecture, readings, etc.)	Learner-centered – instructor and student should decide on learning activities.
Little or limited experience, therefore, knowledge is transmitted through lectures, readings, presentations, etc.	A vast amount of experience, therefore, knowledge integrates learning elements through experiments, discussions, case studies, and simulations.
Learning organized by subject matter	Learning is organized by tasks to be performed or problem-solving assignments.
A prescribed age determines when the student is ready to learn	Learners are ready to learn when there is a need to know something and when ready to apply learning to one’s life.
Influenced by external motivations (e.g., punishment, grades, or pressure from parents and teachers).	Influenced by internal motivations (e.g., self-confidence, better quality of life, or curiosity).

In 1970, Knowles made four assumptions of andragogy, later his assumptions were expanded to six adult learner characteristics: 1) need to know, adults want to know what’s in it for them and why they need to know; 2) self-directed, maturity brings with it independence and the self-concept of being self-directed; 3) an increasing reservoir of knowledge for learning and for others, adults bring a wealth of experience into new learning; 4) readiness to learn, adults learn when there is a need to learn something; 5) orientation to learn adults view education as a process of developing increased

competence to achieve their full potential in life; 6) motivation to learn, adults are internally motivated rather than externally motivated.

While some argue that andragogy was not a theory but a set of principles, assumptions, and practices, andragogy continues to serve as an andragogical model of assumptions (Knowles, 1980).

Adult Learners in Academic Libraries

The information age, emerging technologies, and the global shift to accommodate changing demographic populations in postsecondary institutions requires academic libraries to rethink how library instruction, services, and resources are distributed to its patrons (Ladner, Beagle, Steele, & Steele, 2004; Lorenzen, 2001). In a number of academic libraries, adult learners are often overlooked and neglected (Cooke, 2010; Lange, Canuel, & Fitzgibbons, 2011; Hine, Meek, & Miller, 1989; Miko, 1996). Academic libraries have opted to focus on the traditional library patron without giving much thought to adult learners who may access library services at a distance.

Traditional learners are defined as students who enter college immediately after receiving a high school degree. The traditional learner is typically between the ages of 18-23 years old. The adult learner was once defined by age; however, to categorize adult students in a concrete numerical manner can lead to numerous inaccuracies (Cooke, 2010; NCES, n.d.). A more accurate definition of the adult learner is determined by their length of time between high school and returning to college and their responsibilities as an adult (e.g., family responsibilities, full-time employment, and life experiences) (Compton, Cox, & Lannan, 2006; Cooke, 2010; Gickowski, 1990; Heery, 1996; Hine, Meek, & Miller, 1989). Studies indicated that many students believe they know more

library instruction (e.g., finding information and conducting research) than what is demonstrated when actually evaluated (Matthews, 2007). This is especially true for the adult learner. This validates the need for information literacy instruction. Effective information literacy can enhance the information skills of adult learners and academic libraries are the best resource for providing this service.

Distance learning provides unique opportunities for adult learners to attend institutions of higher education. However, many adult learners who return to college later often face numerous physical, mental, and psychological barriers (Blake, 2010; Cooke, 2010). Many of those obstacles can result in library anxiety. Kumbhar (2014) believes “the emerging technique of learning analytics will help libraries in knowing well-doing as well as the struggling students” (p. 481). Learning analytics can come in the form of outcomes assessments in web-based instruction. Outcomes assessments can help “the professional competencies of librarians to document and communicate the value of their academic libraries primarily in relation to their institution’s goals for student learning and success” (p. 481). Likewise, outcomes assessments can help academic librarian patrons strengthen areas of deficiency and become effective learners.

Information Literacy Outcomes Assessments and Evaluation

I think there’s an increasing awareness that the role of evaluation is not to prove, but to improve.

-Amy Owen (1987, p. 23)

The terms “assessment” and “evaluation” have comparable meanings that are often used interchangeably. However, assessment and evaluation have distinct meanings. According to Reeves (2000), “Assessment is defined as the activity of measuring student learning and other human characteristics such as aptitude and motivation whereas

evaluation is focused on judging the effectiveness and worth of educational programs and products. In short, we assess people and evaluate things” (p. 24). Assessments are designed to analyze student outcomes, which can be used to improve web-based instruction and strengthen student learning.

Increasingly, academic libraries are challenged by its stakeholders (e.g., patrons, university administration, accreditation agencies, and the wider community) to demonstrate its value. Accredited institutions are expected to establish bibliographic programs and implement mechanisms that demonstrate its effectiveness (Bober, Poulin, & Vilen, 1995). Moreover, while it appears academic libraries are accountable only to themselves; the overarching validation of its value is intertwined in the contexts of higher education institutions. Oakleaf and VanSchoy (2010) reported:

Parents and students expect higher education to enhance students’ collegiate experience, as well as propel their career placement and earning potential. Not only do stakeholders count on higher education institutions to achieve these goals, they also require them to demonstrate evidence that they have achieved them. The same is true for academic libraries; they too can provide evidence of their value. Community college, college, and university librarians no longer can rely on their stakeholders’ belief in their importance. Rather, they must demonstrate their value (p. 4).

While many academic libraries often equate value through the size of its collections, resources, and number of instructional sessions conducted, greater initiative is required especially in its outreach of web-based instruction to adult learners. Adult

learners are foundational to distance learning and distance learning is not going away.

Academic libraries that refuse to move with the trends will find its very survival at stake.

Outcomes Assessments

Outcomes assessments in web-based instruction centers on teaching effective information literacy with end results that demonstrate effective student outcomes. It was not until the early 1970s that a shift in the provision of library instruction occurred (Merz & Mark, 2002). Most literature focuses on user satisfaction and not on instructional student outcomes. Merz and Mark (2002) stated, “Little was written about assessing student outcomes in the area of information literacy until the 1990s” (p. 1). Learning assessments unveil what students learned (Barclay, 1993).

Educational assessment models are divided in two categories: 1) curriculum-based assessments, where learning retention on the quality of the curriculum is presented and 2) outcomes-based assessments, where assessments are made on what the learner should know and can actually do after completing the study requirements. Relatively few academic libraries use assessments in web-based instruction; however, when it is used outcomes-based is the appropriate model.

Evaluation

A plethora of research exists on evaluation in library instruction; however, very little is written to demonstrate its application (Barclay, 1993; Hardesty, Lovich, & Mannon, 1982; Kidney, 2001; Matthews, 2007). Library instruction and student learning outcomes are futile without the integration of measurement. Evaluation gauges the success or failure of instruction. Effective evaluation allows for a critical examination of

the current processes in place and improves future practices. Childers and House (1993) states:

Evaluation is the assessment of goodness. It consists of comparing the organization's current performance against some standard or set of expectations.

Evaluation has two parts: the collection of information . . . about the organization's performance; and the comparison of this information to some set of criteria. The collection of information is not itself evaluation: a critical component of evaluation is the exercise of judgment in which criteria are applied to the organization's reality (p. 9).

Evaluation addresses "the quality, cost, or effectiveness of a service or program" (Matthews, 2007, p. 3). Evaluation examines the existing state of the library "what is" with its futuristic potential "what should (could) be" (Matthews, 2007; Rothstein, 1964). The ultimate goal of evaluation is to provide ongoing improvement until the comparative standards are attained.

In order to remain viable and relevant on campus a number of higher education institutions aim to demonstrate their effectiveness by the services provided (Barclay, 1993; Oakleaf, 2006). Academic libraries must also "demonstrate their contributions to the mission of the institution by becoming involved in assessment, the process of understanding and improving student learning. This is particularly true in the area of information literacy instruction" (Kotter, 1999, p. 539). The viability between higher education institutions and academic libraries are mandatory requirements for effective services.

Barclay (1993) mentioned four methods that can be used to evaluate the effectiveness of instruction: 1) anecdote, which is used by librarians daily to assess by observation the effectiveness of instruction; 2) surveys, to collect information on what the learner finds of value or use; 3) testing, which is connected to outcomes-based assessment where what students learn “produces hard evaluative data” (p. 196); and, 4) evidence of use, which requires learner cooperation in the form of student research logs and bibliographies. For the purpose of this study the term assessment is defined under the term outcomes-based assessments.

Summary of the Review of Literature

Academic libraries have a rich and extensive history in the provision of bibliographic instruction and more recently, the integration of web-based instruction. The academic librarian, as instructor, is vital to the mission of higher education institution’s goal. Academic librarians are key resources in the development of independent, lifelong learners and in the support of 21st Century core competencies. In 1974, Paul Zurkowski was the first to use the term, information literacy. Library instruction, information literacy, and bibliographic instruction are often used interchangeably in literature.

Malcolm Knowles (1970) is credited with the popularization of andragogy in the United States. Andragogy is described as a set of assumptions that focuses on the instruction or teaching of adults versus the educational development of children, also known as pedagogy. As emerging technologies and the Web influence academic libraries, studies support the use of web-based instruction as an instrumental tool for reaching learners who are unable to attend library instruction on-campus. Moreover, as mounting

pressures from administration and accreditation agencies increase, outcomes assessments in web-based instruction are vital.

Chapter 3

Methodology

The purpose of this study was to examine academic librarians' practices and perceptions on web-based instruction for academic library patrons as adult learners. Increasingly, academic librarians are pressured by its stakeholders (e.g., administration and accreditation agencies) to demonstrate its value. Without question, as more adult learners pursue postsecondary degrees, academic libraries are faced with challenges and opportunities to implement instructional activities that meet the information needs of adult students. This chapter presents the research methodology, statement of the problem, research questions, importance of the study, assumptions, delimitations and limitations, population, instrumentations, data collection, and analyses. Three research questions guide the data collected:

1. What are the forms of web-based instruction provided for academic library patrons?
2. What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?
3. What outcomes assessments are used in web-based instruction to improve information literacy skills for academic library patrons?

Research Design

This study used a mixed method explanatory sequential design. Mixed-method designs examine quantitative and qualitative methods for the purpose of gaining a more well rounded understanding of the data presented. Creswell and Clark (2011) defines mixed-method as research that,

Include at least one quantitative method (designed to collect numbers) and one qualitative method (designed to collect words), where neither type of method is inherently linked to any particular inquiry paradigm. (p. 2)

The explanatory sequential design consists of a two-phase approach in which quantitative data were collected using a descriptive survey design and qualitative information was gathered by semi-structured interview questions. Creswell (2014) states, “The overall intent of this design is to have the qualitative data help explain in more detail the initial quantitative results” (p. 224). The procedure for a mixed method design with an explanatory sequential methodology involved survey data collection, data analysis of the results, and follow up with qualitative interviews to help clarify the survey responses (Creswell, 2014).

Surveys are recognized as the best method for collecting the opinions or perceptions of a sample population. Creswell (2014) describes a survey design as “a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population” (p.155). The quantitative aspect of the survey generalizes inferences of a sample from a population (Babbie, 1990; Creswell, 2013; Fowler, 2009) and provides “defined and determinable reliability only through the survey research process” Rea and Parker (2014, p. 5). Internet surveys are cost effective, convenient, and literature is replete with research on the use of Internet surveys and online distribution (Nesbary, 2000; Sue & Ritter, 2012). Semi-structured interview collect the views of participants in their own environment. Interviews also give participants the ability to express their views in their own voice.

Assumptions

Academic libraries support the mission of its parent higher education institution through the provision of access, distribution, and information literacy instruction that equips library patrons for the purpose of advancement, wellbeing, and service to society (Wen, 2005). Academic libraries are recognized as the epicenter of institutional scholarly research, digital and print information, and library resources and services. In spite of an increase of the andragogic population in postsecondary institutions research indicates that most academic libraries often neglect the information needs of adult learners (Cooke, 2010; Miko, 1996). Outcomes assessments are an underutilized method, which can help establish viability while improving information literacy skills.

Academic libraries are in a unique position to offer outcomes assessments in web-based instruction. Mole et al. (2013) states, “Web-based instruction has become an ideal solution for IL [information literacy]” (p. 183). Web-based instruction is capable of reaching adult students wherever they are and can be modified to incorporate andragogic features that encourage and promote independent, self-directed learning where learning is active and student centered (Mole et al., 2013). Academic libraries can become supporters for lifelong learning and instructional models that emphasizes the adult learner’s unique characteristics.

Limitations and Delimitations

Potential limitations of this study include: 1) insufficient survey responses, 2) potential technical problems from the participant’s network, 3) survey responses from non-academic librarians, 4) semi-structured interviews that do not reflect authenticity from the academic librarian, and 5) incomplete or partial submitted surveys.

The delimitations of this study include: 1) participant responses is restricted to academic librarians in postsecondary institutions, 2) responses exclude non-academic librarians employed outside of postsecondary institutions, and 3) digital or electronically transmitted web-based instruction that does not incorporate other format types (e.g., print materials, CDs, DVDs, etc.).

Researchers' Use of Web-Based Instruction

In June 2015, a needs survey was created and distributed to approximately 167 adult and commuter students enrolled in a Mid-South postsecondary institution. The needs survey supported the rationale for a self-paced five module instructional intervention for adult learners (Appendix D). The self-directed tutorial incorporated both formative and summative assessments.

Felt and expressed needs were addressed in the survey. Felt needs are defined as “an individual’s desire to improve either his or her performance or that of the target audience” (Morrison, Ross, Kalman, & Kemp, 2013, p. 32). Many adult students attend college while working and raising a family as a way to improve his or her performance or to seek career advancement. The fulfillment of a need is often the first goal of academic libraries that develop instructional interventions.

Expressed need is a felt need activated (Morrison et al., 2013). It is believed that students with a felt need will also pursue opportunities to gain knowledge in this area; thereby turning an expressed need into a felt need. The expressed need is the second step learners take once a need is felt.

After completing the need survey a report was written followed by the creation of a self-paced intervention. The intervention was developed using Word Press and

consisted of five modules, a pre- and post-test, and a learner evaluation. The pre-test and post-test was integrated to include built-in quizzes that evaluated student learning outcomes. The outcomes assessments also provided the researcher with insight on how to improve the effectiveness of the instructional intervention.

Population and Sample

This study examined academic librarian practices and perceptions on outcomes assessments in web-based instruction for academic library patrons as adult learners. The population for this survey consisted of academic librarians at postsecondary colleges and universities with roles that include instructional responsibilities. The survey was distributed to ALA's Information Literacy Instruction Electronic Discussion List (ILI-I), which at the time of this writing has over 6,000 subscribers. The creation of ILI-L was developed to "sustain the thriving exchange on instruction and information literacy for communication among librarians from a variety of settings and backgrounds" (Driscoll & Petrowski, 2002, para. 1). Approximately 3,700 academic libraries exist in the United States (ALA, 2015). Academic librarians with instructional roles are estimated at much less than the total number of academic libraries in the United States. The semi-structured interviews consisted of four purposefully selected academic librarians to help clarify survey results.

Protection of Human Subjects

In agreement with the guidelines of the University of Memphis' Institutional Review Board (IRB), an approval application was submitted and approved (Appendix H). Survey and interview respondents were informed of the confidentiality of their identities and the future use of the study for educational and presentation purposes.

Participants

Academic librarian participants were primarily female who did not carry academic rank. Over 40% of the participant held between zero to five years of service as an academic librarian and over 60% of the respondents served between zero to five years in current position. The criteria for participation included: must be an academic librarian, employed in a two or four year college or universities, role included but may not be limited to instructional responsibilities. The study results were based on 112 survey responses and four semi-structured interviews. Table 4 presents the characteristics of individual respondents.

Table 4

Characteristics of Individual Respondents (N = 112)

Respondent Characteristics	<i>F</i>	%
Gender		
Male	19	17.0
Female	93	83.0
Academic Rank		
Assistant Professor	21	18.8
Associate Professor	14	12.5
Full Professor	4	3.6
Other	73	65.2
Years of Service as Academic Librarian		
0-5 years	50	44.6
6-10 years	27	24.1
11-15 years	16	14.3
16+ years	19	17.0
Years in Current Position		
0-5 years	73	65.2
6-10 years	23	20.5
11-15 years	7	6.3
16+ years	9	8.0

Table 5 presents the characteristics of the interview participants. The profiles of the interview participants include: employed at a university, two-year, or four-year institutions and has instructional responsibilities. Interview participants and their institutions were given pseudonyms to protect their identity.

Table 5

Description of Interview Participants

Name	Gender	Institution	Sector	Position
Nathan	Male	Marigold University	University	E-Learning Librarian
Sally	Female	Antioch University	University	Associate Dean/Instruction Librarian
Amy	Female	Swan Health University	4-year	Reference/Instruction Librarian
Lisa	Female	Graceland State College	2-year	Librarian Instructor

Nathan was an E-Learning Librarian. He enjoyed trying new technology resources that were free. During the interview he used a video conferencing tool called, Mobi. Nathan is employed at Marigold University, a state institution. He has served two years in his current role. Sally is employed at Antioch University, a small, private university. Her role includes multiple responsibilities as Associate Dean/Instruction Librarian. She has served 10 years as associate dean and seven years as instruction librarian. Amy is the reference/instruction librarian at Swan Health University, a four-years health sciences college. Amy served approximately two and a half years in her current position. Lisa is the librarian instruction at Graceland State College, a two-year community college. She has served six months in her current position.

Data Collection

This study gathered data through use of a “rigorous quantitative sampling in the first phase and purposeful sampling in the second, qualitative phase “ (Creswell, 2014, p. 224). A one-time survey was distributed to examine academic librarians’ practices and perceptions on web-based instruction for academic library patrons as adult learners. The interview protocol was developed from the survey questions and its results.

Two data collection instruments were used to examine the research questions: surveys and interviews. Table 6 presents the data sources and their alignment with research questions and data collection methods. The interview protocol provided greater flexibility in allowing participants to clarify or expand on questions that appeared vague.

Table 6

Research Questions and Data Sources

Research Questions	Source
RQ1. What are the forms of web-based instruction provided for academic library patrons?	Survey, Interview
RQ2. What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?	Survey, Interview
RQ3. What outcomes assessments are provided in web-based instruction for academic library patrons?	Survey, Interview

Interviews

Interviews are identified as a significant approach to collecting data in qualitative research. The semi-structured interview protocol (Appendix D) was developed from the survey and its results. Four participants from diverse academic libraries were purposefully selected to participate. Creswell (2014) defines purposeful sampling as a method that safeguards data from participants. Academic librarians who are purposefully selected are likely to provide the most relevant and valuable information about the research questions. According to Creswell, a small participant numbers provide an in-depth view and are recognized as a standard in qualitative research. The following approach was used to recruit participants:

- Reviewed online academic library membership directories for potential email addresses
- A Google search using the term “information literacy libguides.”
- Sent introductory emails explaining the study, its purpose, a proposed interview schedule and an invitation to participate.

The work-related responsibilities of many academic librarians continue to change. Academic librarians often perform various tasks outside of their primary hiring role and, in addition to shifting work duties academic librarian job titles continue to evolve. The library world as a whole has become a moving target. This study sought to target academic librarians with the following criterion:

- Employed in a postsecondary two or four college or a university institution.
- Possess the profession’s terminal degree or its equivalency.
- Work-related activities are primarily instructional.
- Work-related activities include developing web-based instruction for academic librarian patrons.

Interview participants who met the criteria were sent an email describing the purpose of the study, interview dates to select from, and a request for a 30-minute interview. A second email was sent if a response was not received within a few days. Academic librarians who agreed to participate were emailed a consent form to review and sign prior to the interview (Appendix B). Some academic librarians readily agreed to participate and later reneged or their role as instructional librarians changed and they no longer met criteria to proceed with the interview. Interviews were completed by using one of the following: Mobi, a video system, Google chat, or telephone.

Instrumentation

This study used two instruments to collect data: 1) a cross-sectional survey and, 2) a purposeful sampled interview protocol. The cross-sectional survey is when “data [is] collected at one point in time” (Creswell, 2014, p. 157). The survey was created using Qualtrics, which is a web-based online software. Qualtrics allows individuals to create, send and receive surveys, generate reports, and graphs for large amounts of data, track data, and export data to SPSS, Word, or Excel. Qualtrics also generates an anonymous link, which removes names and email addresses to protect the confidentiality of academic librarian respondents.

Purposeful sampling is the intentional selection (or recruitment) of participants (Creswell & Clark, 2011). Electronic distribution of surveys is recognized as a cost-effective approach to data collection. Electronic distribution provides fast distribution and return to and from respondents. Additionally, purposeful semi-structured interviews allow academic librarians to discuss library practices and perceptions in their own words. During the course of the interview, the interviewer was able to seek clarification when needed.

Survey Preparation. The survey instrument was modified and designed with permission (Appendix D) using the *Survey on Assessment in College Library Instruction Programs*, a resource prepared by Mark and Merz (2002). The original survey contained thirty questions separated into eight sections. The sections allowed for open-ended comments and were outlined as follows:

1. General Data
2. Library Instruction: Type and Scope
3. Library Instruction: Content Covered
4. Assessment of Information Literacy: Type and Scope
5. Assessment of Student Information Literacy: Content
6. The ACRL Standards and Library Instruction
7. Assessment of Library Instruction Personnel
8. Concluding Comments from Respondents

The survey conducted by Mark and Merz (2002) concentrated on synchronous, face-to face print instruction and services. The survey captured a number of practices typically performed during traditional library orientations and instruction. The survey covered a few areas in web-based, digital, or electronic instruction.

The modified survey eliminated irrelevant items that were not connected to the research questions or web-based instruction. The revised survey was restructured to contain a larger number of closed-ended questions and a few items for “other.” After the revisions were made the survey (Appendix C) the survey was modified and divided in five sections comprised of nineteen questions:

- Section I: Demographic Data (Questions 2-9) – gathered demographic information such as gender, academic rank, years of service, and year of service in current position.

- Section II: Web-Based Instruction: Type and Scope (Questions 11-14) - collected data on the forms of web-based instruction, formal web-based instruction, institutional requirements for web-based instruction, and the amount of academic “provided” or “not provided.”
- Section III: Web-Based Instruction: Information Literacy Competency Areas (Question 15) – gathered information on twenty-one literacy competency areas in web-based instruction using a four-point Likert (“Not at All” – “To Some Extent” – “To a Moderate Extent” – “To a Great Extent”).
- Section IV: Incorporation of Information Literacy Competency Standards (Questions 16- 17) – collected data based on ACRL’s five broad competency standards “addressed” and “assessed.”
- Section V: Outcomes Assessment in Web-Based Instruction (Question 18) – gathered data on the forms of outcomes assessments used in web-based instruction.

The survey modifications eliminated any redundancy, removed traditional synchronous instruction queries (e.g., CDs, DVDs, print materials, etc.), and inserted data relevant to the research questions and web-based instruction. Table 7 presents the methodology between the research and survey questions as it pertains to ACRL’s *Information Literacy Competency Standards for Higher Education* (Appendix A).

Table 7

Survey and Research Questions Methodology

Questions	Survey Item	Connects to
Do your responsibilities at your institution include formal library instruction?	1	Yes/No branching filters respondents who do not meet the instructional criteria
Demographic Information	2-9	Demographic data
RQ1. <i>What are the forms of web-based instruction provided for academic library patrons?</i>	10-14	Web-based instruction practices used to provide information literacy instruction. ACRL information literacy competency standards for library instruction. Competency standards addressed in information literacy instruction.
RQ2. What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?	15-17	Amount of hours for web-based instruction reviewed. (ACRL Standards 2-4)
RQ3. <i>What outcomes assessments are provided in web-based instruction for academic library patrons?</i>	18	Assessment of student and web-based instruction outcomes. (ACRL Standards 1-5)
Additional comments?	19	Open-ended responses

Interview Protocol Preparation. The interview protocol (Appendix D) was developed to help to expand on or clarify survey results. The interviews allowed academic librarians to voice in their own word their practices and perceptions on web-based instruction. Table 8 through Table 11 presents the alignment between the research questions and interview protocol:

Table 8

Demographic and Introductory Questions for Interview Protocol

Demographic and Introductory Questions
How long have you been involved in the development of web-based instruction?
What is your current position?
How long have you been in this position?
Who is your target/primary audience?
What are your learning objectives?

Table 9

Research Question 1 and Interview Protocol Alignment

Research Questions	Interview Questions
RQ1. <i>What are the forms of web-based instruction provided for academic library patrons?</i>	What are the forms of web-based instruction provided at your institution?
	Why were these forms selected?

Table 10

Research Question 2 and Interview Protocol Alignment

Research Questions	Interview Questions
RQ2. <i>What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?</i>	<ol style="list-style-type: none"> 1. What are the information literacy areas addressed in web-based instruction? 2. Does ACRL's <i>Information Literacy Competency Standards for Higher Education</i> serve as a foundation when developing standard areas? If not, why? 3. Can you elaborate on what you expect the learner to gain at the end of a web-based instruction session? 4. Do you rely on a particular learning theory?

Table 11

Research Question 3 and Interview Protocol Alignment

Research Questions	Interview Questions
RQ3. <i>What outcomes assessment is used in web-based instruction for academic library patrons?</i>	<ol style="list-style-type: none"> 1. What outcomes assessment do you use in web-based instruction to improve information literacy skills? 2. What type of feedback, if any, do you obtain from patrons in academic libraries when seeking outcomes assessments in web-based instruction? 3. How important is web-based instruction and what role do you see it playing in the future of academic libraries? 4. Do you have any additional comments you would like to add?

Data Collection Procedures

Data collection analysis was documented in a research journal. The data collected reflected the research process and highlighted key elements in the process. The research journal was also used to help focus on tasks, interview schedules, timelines, and to provide a decision-making justification during the study. An electronically administered survey and semi-structured interviews were used for data collection in this study. This is a sample excerpt from the research journal:

April 6, 2016: *Today I posted an invitation to participate on the ILI-L electronic list. The invitation included the survey's purpose, IRB requirements, and an anonymous link to the survey. By mid-week the survey only received 12 contacts and continued participation looked stagnant.*

April 13, 2016: *I posted a friendly reminder to the list. At the end of the day, respondents increased with a total of 59 academic librarian contacts responded. Phew! There is hope!*

April 18, 2016: *A final friendly reminder was posted encouraging participants to respond by April 20, 2016. At the survey close respondent increased to over 190 contacts. I'm looking forward to data analysis!*

May 4, 2016: *Today I emailed completed transcripts to each of the four participants. One participant conducted the interview by chat. I do not anticipate any corrections from the chat participant but one never knows.*

Respondents were recruited by an email posted to the Information Literacy Instruction Electronic Discussion List (ILI-L). The invitation to participate (Appendix B) contained the informed consent, purpose of the study, instructions on how to proceed, and

the questionnaire link. Two follow-up email messages were posted to ILI-L requesting participation. The survey remained open on April 6, 2016 and remained open for a 3 week period. Participants were informed that the survey would take approximately 15 min to complete. The first question filtered those who did not provide formal library instruction. Respondents who selected “No” were taken to the end of the survey, which thanked the respondent for their participation. Respondents who selected “Yes” were allowed to continue with the survey.

Semi-structured interview participants were selected using online membership directories and library websites. Approximately 25 emails were selected and distributed in three batches. The first batch of five emails received responses from three respondents. One interview participant agreed and later reneged and one academic librarian found a new position that did not meet the criteria for this study. Only one academic librarian met the interview requirements and agreed to participate. The second batch of five emails received responses from two respondents. One did not believe they met the qualifications. A second participant came from this batch. The final batch of five emails received an interview response from two academic librarians.

After the first group of survey results arrived the interview protocol the interview protocol was enhanced to include: additional clarification on the target audience, learning theories, student learning outcomes, and information on academic librarian perspectives regarding the future of web-based instruction. After each interview the handwritten notes were immediately transcribed for analysis and coding.

The research procedure timeline (Table 12) followed a three-phase process. The timeline was created as a guide for project completion. Three phases highlighted the timeline.

Table 12

Timeframe for Research Procedures

Procedures	Month					
	1	2	3	4	5	6
Finalize all correspondence						
Secure IRB permissions						
Secure survey permissions						
Survey collection and analysis						
Transcription, tables, and graphs of data collected						
SPSS data calculations						
Final compilations, review, and write results						

Data Analysis

Data was analyzed using the explanatory sequential approach where the quantitative and qualitative results were analyzed separately (Creswell, 2014). The qualitative interviews were constructed from the outcomes of the quantitative data. Data analyses for the quantitative measures were conducted through descriptive statistical analysis to examine the associations in frequency distributions. The SPSS statistical software was used to enter data extracted from the survey.

After each interview, handwritten notes were transcribed, and a detailed analysis of all transcripts was conducted. Each transcript was read through twice for clarity, key points were highlighted, summarized and coded. Figure 3 shows an excerpt of the transcript coding process.

Interviewee
(Answer)

It depends on the class, and they're graduated. The first objective is simply to get the students to USE the library resources and (not just Google). We're currently working on an "information literacy framework" (with faculty, so our objectives are rough drafts) right now. So, they're not academically wordy. The next objective is working on (information literacy)- getting students to identify an information need, understand the appropriate type of resources to fulfill that need, and formulate an effective search. Basically - what do I need to know, and why? And how do I get it? Then ... what do I do with it?

Customized objectives

→ use library resources

→ IL framework with faculty

→ Information literacy for

dent use and faculty collaboration and IL framework comprehension

Figure 3. Interview Excerpt of Transcript Coding Process

Figure 3 summarized key points and transcribed. The themes were color-coded and placed in an Excel spreadsheet. The participants were organized vertically in the spreadsheet and classified by research questions and themes. The spreadsheet presents a summarized pattern of comments generated from each interview participant. Figure 4 presents the alignment of research questions and themes developed from the interview analysis. The key points and categories gathered from the interview transcripts shaped the list of themes. Six themes emerged from the transcripts: web-based instruction practices, rationale for use, instructional strategies, information literacy competency areas, information competency standards, and formative and summative assessment.

Transcript Coding.xlsx				
<div> <div>HomeLayoutTablesChartsSmartArtFormulasDataReview</div> <div> <div> <div>Page Setup</div> <div> OrientationSizeMarginsBreaksBackgroundHeader & Footer </div> </div> <div> <div>View</div> <div> NormalPage Layout </div> </div> <div> <div>GridlinesRuler</div> <div> HeadingsBreaks </div> </div> <div> <div>PreviewRepeat Titles</div> <div> GridlinesHeadings </div> </div> <div>Print</div> <div>Fit To</div> </div> </div>				
11				
	A	B	C	D
1	T1: NATHAN	T2: AMY	T3: SALLY	T4: LISA
2	Marigold University	Swan Health University	Antioch University	Graceland State
3	AUDIENCE			
4	Undergraduates	Graduate students	Undergraduates	Undergraduates - freshmen and sophomores
5	Librarians	Primarily adult learners	Online distance learners	High school students
6	Faculty	Targeting traditional students		
7				
8	Learning Objectives			
9	Independent learning	Depends on class	Introduce to resources	We don't have any currently; plan on working on this summer
10	Knowledge transfer	Get students to use the library; not just Google	Citation; learning how to cite	
11	Awareness	Information literacy framework with faculty that is not academically wordy	I do not have specific learning objectives; instructor driven	
12	Know how to use	Information literacy - getting students to identify an information need		
13	Know when to seek help; material is ungraded where the goal is not to do well or seek high scores			
14	RQ 1: What forms of web-based instruction does your institution provide for academic library patrons?			
15	THEME 1: WEB-BASED PRACTICES			
16	Self-paced	Asynchronous web instruction (videos, modules)	Libguides	Libguides
17	You-Tube	Online courses	Videos for static items that describe library catalog and interlibrary loan	Embedded librarianship program
18	Local website videos	Supplemental for on-campus courses	Blackboard Q & A through Blackboard collaborate	Web videos
19	Tutorials	Periodically live workshop		Library chat service
20	Learning activities (e.g., scavenger hunt)			
21				
22	THEME 2: RATIONALE FOR USE			
23	Faculty requests	Information and awareness	Instructor requests	Unsure
24	Information and awareness	Faculty	Static items & questions	Libguides are incredibly popular for academic libraries and is easiest to use

Figure 4. Excerpt of Color-Coded Interviews for Research Questions and Themes

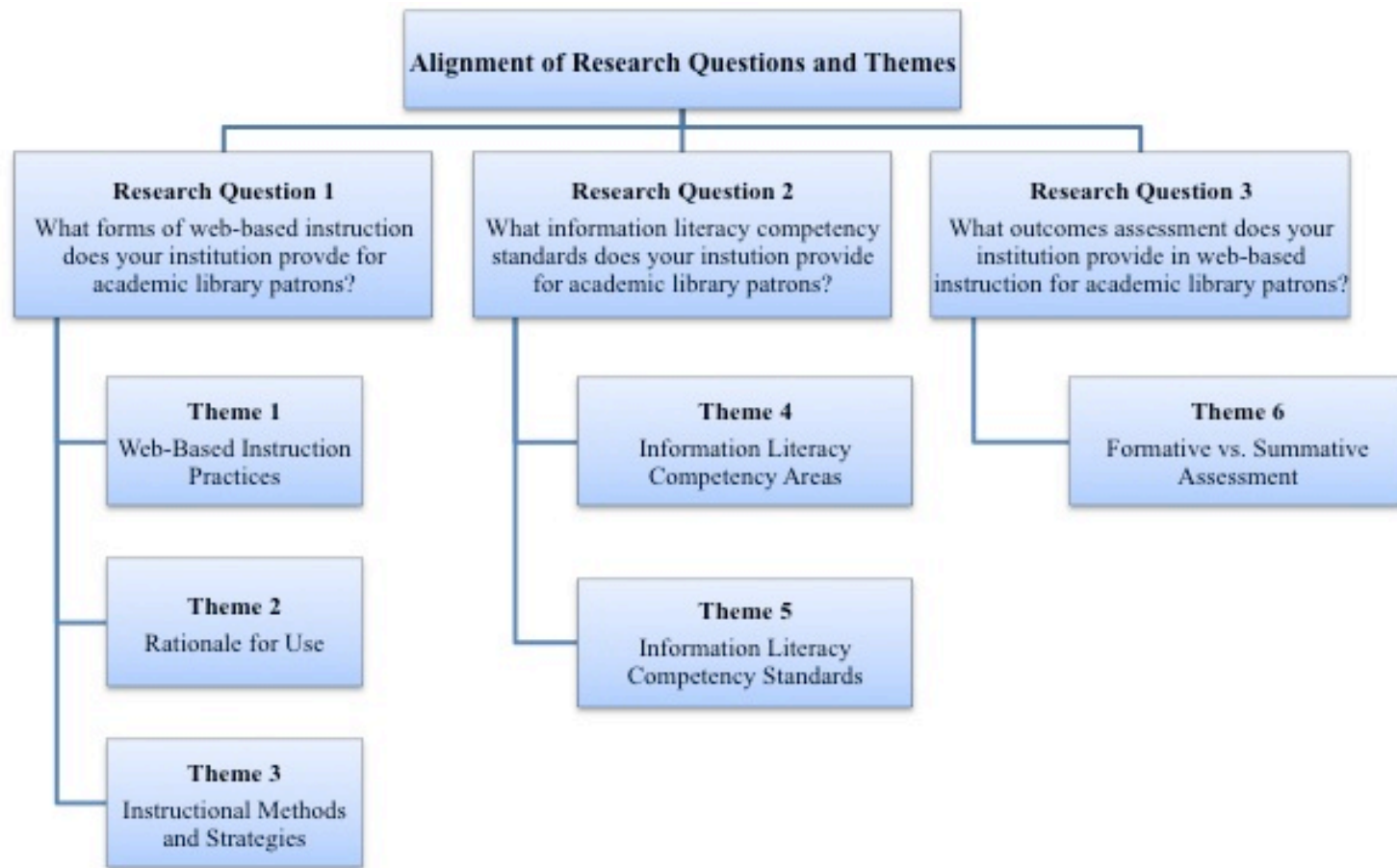


Figure 5. Alignment of Research Questions and Themes

Validity

According to Creswell (2014) “validity is one of the strengths of qualitative research and is based on determining whether the findings are accurate from the stand point of the researcher, the participant, or the readers of an account” (p. 201). Validity is a method for establishing trustworthiness. Several steps were taken to ensure credibility in the research. Semi-structured interviews contained written notes where the researcher sought clarity when the participant’s responses were unclear. Transcripts were converted to an electronic format and reviewed several times for understanding. During data collection and analysis, a research journal helped guide the process and member checking validated the qualitative results. According to Creswell (2014) member checking helps “determine the accuracy of the qualitative findings through taking the final report or specific descriptions or themes back to participants and determining whether these participants feel that they are accurate” (p. 201). Member checking gives participants the opportunity to comment on the transcript findings. After all transcripts were finalized emails were sent to selected participants for correction or greater clarification. The following is an email excerpt:

Please read over the typed transcripts from our interview and let me know by May 6th regarding any revisions or clarification you may find. If everything is acceptable there is no need to respond. If you have corrections or need to add clarification please let me know by or before the date indicated. Thanks and have a great day.

Table 13 presents the three phases of the procedural process. The phases kept the procedural process on target. The three phases were as follows:

Table 13

Procedures

<p style="text-align: center;">Phase I</p> <ul style="list-style-type: none">• Finalize all correspondence (e.g., survey questionnaire, introductory emails, etc.)• Secure IRB approvals• Secure permissions for survey modification• Modify survey• Create survey using Qualtrics software• Secure posting information for survey• Develop email lists from online directories and library websites for interviews• Create interview protocol
<p style="text-align: center;">Phase II</p> <ul style="list-style-type: none">• Post introduction email with survey link to ILI discussion list• Collect survey data extracted from Qualtrics• Analyze survey data• Enter data into SPSS for descriptive statistical tables• Send first of three email batches to interview participants• Conduct semi-structured interviews• Review and transcribe interviews• Email interview participants for member checking of transcripts• Develop survey codes and categories• Conduct member checks as needed• Interpret and write results
<p style="text-align: center;">Phase III</p> <ul style="list-style-type: none">• Review and proof data in tables and graphs• Finalize coding and categories for semi-structured interviews• Write final results and recommendations

Summary of the Methodology

This chapter described the research methodology, research questions, population and sample, research design, assumptions, limitations and delimitations, data collection, data analysis, and validity. The participants consisted of surveying 112 academic librarians employed in postsecondary institutions whose responsibilities include instruction.

Data collection used two instruments. A revised survey was developed from Mark and Merz (2002), *Survey on Assessment in College Library Instruction Programs*. The survey was modified from the original thirty-item questionnaire to nineteen survey questions. Additionally, four semi-structured interviews strengthened the survey's validity. Credibility was performed through use of a research journal and member checking.

The analysis of quantitative data consisted of reviewing descriptive statistics and frequency distributions. Participant responses to open-ended questions were examined for codes and category development. Six themes emerged from the interview transcripts.

Chapter 4

Report of Findings

This chapter will present summarized findings from survey results and semi-structured interviews. The survey structure was guided by three research questions. Six themes emerged from the semi-structured interviews. The purpose of this study was to examine academic librarians' practices and perceptions on web-based instruction for academic library patrons as adult learners. Survey respondents were subscribers from the Information Literacy Instruction Electronic Discussion List (ILI-L). Data were presented in four sections: demographics, relevant information to data collection (response rate, frequency, descriptive statistics, etc.), analysis of quantitative and qualitative methods, and responses to open-ended questions.

A purposeful selection of semi-structured interviews was conducted with four academic librarian respondents. The participants were recruited from membership directories and academic library websites. Findings revealed the practices and opinions of instructional academic librarians employed at postsecondary institutions. Academic librarians typically hold the profession's terminal degree, which is a Master of Library or Information Science or its equivalency. Three research questions were used to guide the survey responses. Table 14 presents the alignment of research questions and semi-structured interview themes.

Table 14

Alignment of Research Questions and Themes

Research Questions	Semi-Structured Interview Themes
RQ1. What are the forms of web based instruction provided for academic library patrons?	1. Web-Based Instruction Practices
RQ2. What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?	2. Rationale for Use
RQ3. What outcomes assessments are provided in web based instruction for academic library patrons?	3. Instructional Methods and Strategies
	4. Application of Information Literacy Competency Areas and Standards
	5. Application of ACRL's Performance Indicators
	6. Formative and Summative Assessments

The study findings used a descriptive statistical approach. The research questions that guide this study were categorized as follows: forms of web-based instruction, information literacy competency areas and standards, and outcomes assessment in web-based instruction. The research questions also guide the survey and semi-structured interviews. Six themes emerged from the semi-structured interviews.

Survey Data Collection

The survey data findings collected in this study occurred between April 6, 2016, and April 20, 2016. To recruit survey participants, an introductory email was posted to the ILI-L electronic discussion list on April 6, 2016, with a unique, one-time anonymous survey link (Appendix G). Two follow up emails were distributed on April 13, 2016 and April 18, 2016, to remind respondents of a request to participate. After the survey closed on the afternoon of April 20, 2016; no additional data was collected.

The survey initially generated 193 contacts. The contacts represented potential respondents who clicked the link but may not have completed the survey. The first survey question was designed to filter respondents who did not have instructional responsibilities. When "No" was selected respondents were sent to the end of the survey

where they were thanked for their response. Four respondents selected no and were redirected to the end of the survey. The number of contacts concluded with 193 but after data analysis the responses dropped from 92 to 65 completed surveys. The finding results for this survey used a base of 112 respondents. The completed surveys were exported to SPSS and Excel for further analysis. Qualtrics was also used to generate reports for the statistical *mean*. Responses to the survey's open-ended questions and semi-structured interview transcripts were also analyzed, coded, categorized, and presented in narrative script and graphs as needed.

Demographic Information

Demographic characteristics in survey questions two through nine collected data on respondents' characteristics. The demographics provided a picture of academic librarians in instructional roles and their respective institutions. The demographic data collected included: gender, job title, institution name, academic rank, number of years as an academic librarian, number of years in current position, institution sector, and institution sector type. For reporting purposes, open-ended questions were coded by categories. Question 4 requested the institution's name. The purpose was to ensure that information was not scheduled by one institution with multiple librarians. As a result, question four was omitted from the study's analysis. Data from open-ended questions were entered in SPSS to determine distribution frequency counts for narratives and graphs.

Table 15 presents the characteristics of respondents' institutions. The characteristics included the institutional sector and type. Table 15 also provided information on the number of web-based instruction hours *offered* or *required* at the

respondents' institutions. The instruction hours gave insight on the amount of web-based instruction provided.

Table 15

Characteristics of Respondents' Institutions and Instructional Hours (N = 112)

Institutional Characteristics	<i>F</i>	<i>%</i>
Higher Education Institutional Sector		
Public	53	47.3
Private	38	33.9
State	19	17.0
Corporate/Special	2	1.8
Higher Education Institutional Type		
University	64	57.1
Two-Year College	24	21.4
Four-Year College	24	21.4
Number of Web-Based Instructional Hours Required		
0-1 hour	6	5.4
2-4 hours	3	2.7
No hours are required	103	92.0
Number of Web-Based Instructional Hours Offered		
0-1 hour	18	16.1
2-4 hours	10	8.9
4+ hours	7	6.3
No hours are offered	77	68.8

As shown in Table 15, the characteristics of academic librarians' institutions, the majority of the respondents were employed in public institution sectors and 34% were working in private institution sectors. Approximately 57% of the respondents were employed in universities. When respondents were asked about the number of web-based instruction hours *required*, over 90% of the respondents indicated that no hours were

required. When respondents were asked about the number of web-based instruction hours *offered* approximately 68% indicated that no hours were offered. Figures 6 and Figure 7 presents a visual representation of the respondents' institutional sectors.

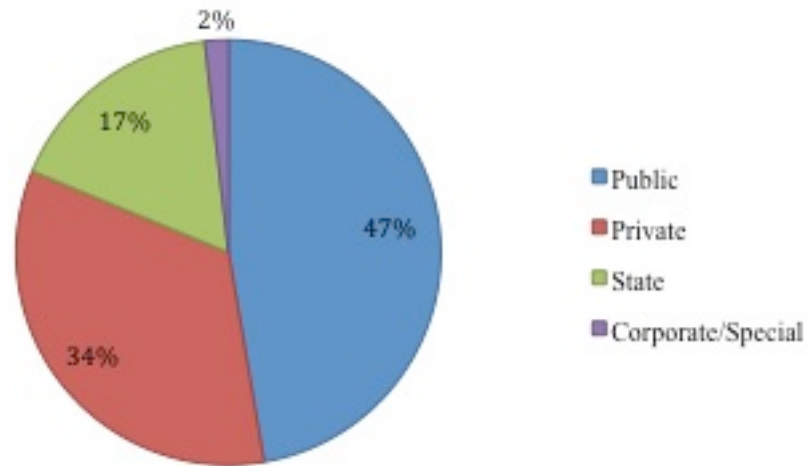


Figure 6. Academic Librarians' Institutional Sectors

Academic librarian respondents' were primarily employed in public and state institutional sectors. Roughly two percent were employed in corporate/special institutional sectors. Approximately 17% of the respondents were employed in state institutional sectors.

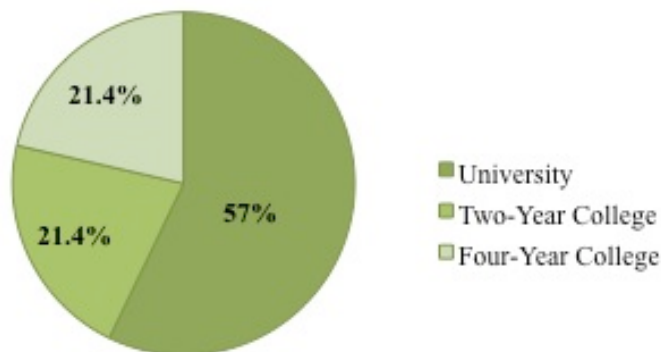


Figure 7. Academic Librarians' Institutional Types

Over half of the academic librarian respondents were from university institutional types. Academic librarian respondents from two and four year colleges made up the remaining institutional types. The respondents were equally divided, with 21.4% of the respondents from each college institutional type.

Research Question 1: Forms of Web-Based Instruction

This section examined findings pertaining to the forms of web-based instruction practices in academic libraries. Data findings were extracted from the survey and semi-structured interviews. Three themes emerged from the semi-structured interview findings connected research question one: *What are the forms of web-based instruction provided for academic library patrons?* The three themes were: 1) web-based instruction practices, 2) rationale for use, and 3) instructional methods and strategies.

The subpopulation of this study focused on the adult learner. Interview participants helped provide clarity in survey results that related to adults. Studies indicate a growing number of adults in postsecondary institutions and the neglect of this demographic population in academic libraries (Choy, 2002; Cooke, 2010; Foster & Helbling, 2015). Findings explored the validity of this concern. Interview participants were asked: *who is your target audience?* The respondents replied as follows:

Nathan: *Undergraduate students and librarians... Faculty...*

...I don't think there are any traditional students any more. Even the students who are on campus I no longer think of as traditional. We have a big population of distance students. On campus students behave very much like distance students. They don't even come to the library. They don't behave like traditional, four-year campus students so the line between each is blurring...

Amy: *We're a nursing and allied health college, so my audience is very focused, online instruction seems to be strongest with graduate students. We're strongly adult learners but are now targeting traditional students, so the balance is changing. But the online population is mostly adult learners.*

Sally: *Undergraduate institution so there is on campus undergraduates; however, I work with the health sciences so I am getting more and more involved with online distance education.*

Lisa: *Undergraduates – freshmen and sophomores - dual enrollment courses that teaches to high school students.*

The interview participants were also asked: *what are your learning objectives?*

This question helped gain understanding on ACRL's Information Literacy Competency areas (Appendix A). The following excerpts expressed their views:

Nathan: *What do I want students to take away? Knowledge transfer, we have these services and at the end will they: 1) be aware of these services 2) know how to use them and 3) know to come back to ask about them or ask for help about them. They are not taking part in graded courses or to learn in order to do well and score highly but to use it whenever they need it and to look for help when they need it.*

Amy: *It depends on the class, and they're graduated. The first objective is simply to get the students to USE the library resources and not just Google. We're currently working on an "information literacy framework" with faculty, so our objectives are rough drafts right now. So, they're not academically wordy. The next objective is working on information literacy...*

Sally: *A lot of our instruction is to introduce resources to them, citation, learning how to cite, I don't have specific learning objectives more when an instructor has a goal they want us to cover and they need to know how.*

Lisa: *We don't currently. It is something I planned on working on this summer. So hopefully that will be upcoming we talked about it in our face-to-face instruction and hoped to make that move toward having learning outcomes in our web-based instruction as well.*

Web-Based Instruction Practices. Table 16 presents the forms of web-based practices offered at respondent institutions. Academic librarian respondents selected from forms of web-based instruction and indicated if the form was *provided* or *not provided*. The respondent base number used was 112.

Table 16

Forms of Web-Based Instruction Offered at the Respondents' Institution (N = 112)

Forms of Web-Based Instruction	Provided	Not Provided
E-learning courses	65.2% (73)	34.8% (39)
Online tutorials	83.0% (93)	17.0% (19)
Podcasts	10.7% (12)	89.3% (100)
Self-directed web-based tutorials	70.5% (79)	29.5% (33)
Videos (e.g., YouTube, Screen-o-cast, Vimeo)	87.5% (98)	12.5% (14)
Webinars	25.9% (29)	74.1% (83)
Online chats	74.1% (83)	25.9% (29)
Other	18.8% (21)	81.3% (91)

Table 16 reflects various types of web-based instruction offered. Academic librarians indicated 65.2% provided e-learning courses. Subsequently, 83% provided online tutorials, while approximately 10% offered podcasts. Almost three-fourths or 70% offered self-directed web-based tutorials, while 87.5% provided videos (e.g., YouTube). Approximately 25.9% provided webinars, while 74% specified online chats. Only 18.8% listed other as a form of web-based instruction offered.

Interview participants used self-directed tutorials, videos, and online chats as the forms of web-based instruction practices offered. The forms mentioned by the interview participant agreed with the survey results. The interview participant responded as follows:

Nathan: *We are beginning to use self-paced, there are easier tools available than in the past, YouTube, local website videos, tutorials, and some learning activities. We are just starting web-based instruction.*

Amy: *Currently my web instruction tends to be asynchronous (videos, modules) for the online courses and supplemental for on-campus courses. I'll periodically host a live workshop, but those have had low attendance.*

Sally: *Libguides, videos that briefly describe the library catalog and our interlibrary loan system, things that are static that everyone would need.*

Lisa: *We rely on libguides and have the embedded librarianship program in some online classes in D2L the online course software. I just started to incorporate some web video instruction. That's a new initiative as well. Also we have a library chat service through library help.*

Table 17 summarizes the responses to *which formal web-based instruction components were offered*. The survey question explored web-based practices not identified in the original survey presented by Mark and Merz (2002). The formal web-based instruction components include training areas added as a result of the technology in academic libraries (e.g., embedded librarian sessions).

Table 17

Formal Web-Based Instruction Offered at the Respondent's Institution (N = 112)

Web-Based Instructional Components Offered	Provided	Not Provided
Embedded library instruction session less than a full class period in duration	67.0% (75)	33.0% (37)
Multiple embedded librarian sessions (e.g., 2-3 class sessions), but not a credit course	48.2% (54)	51.8% (58)
Self-directed web-based tutorial	65.2% (73)	34.8% (39)
Online non-credit course	10.7% (12)	89.3% (100)
Online credit course	24.1% (27)	75.9% (85)

When asked about the *forms of web-based instruction offered*, 67% of the respondents indicated embedded library instruction session was provided. Roughly, 48% of the respondents offered multiple embedded librarian sessions, while 65.2% of the respondents offered self-directed web-based tutorials. Only 10.7% of the respondents provided online non-credit courses, while 24.1% of the respondents offered online credit courses.

Table 18 presents *forms of web-based instruction required at the respondents' institution*. This questioned examined mandatory verses voluntary web-based instruction. Formal web-based instruction pertains to training that is recognized as institutionally significant.

Table 18

Forms of Web-Based Instruction Required at the Respondent's Institution (N = 112)

Web-Based Instructional Components Required	Provided	Not Provided
Embedded library instruction session less than a full class period in duration	8.0% (9)	92.0% (103)
Multiple embedded librarian sessions (e.g., 2-3 class sessions), but not a credit course	4.5% (5)	95.5% (107)
Self-directed web-based tutorial	8.0% (9)	92.0% (103)
Online non-credit course	1.8% (2)	98.2% (110)
Online credit course	2.7% (3)	97.3% (109)

When asked, *what forms of web-based instruction were required at the respondents' institution*, 8% of the respondents indicated embedded library instruction session were provided and only 4.5% of the respondents indicated that multiple embedded librarian sessions was provided. Only 8% of the respondents stated self-directed web-based tutorials provided, while 1.8% provided online non-credit courses. Approximately 2.7% of the respondents provided online credit courses.

Rationale for Use. The interviews provided an opportunity to clarify the rational for using a particular form of web-based instruction. The rationale for use can reveal the

motive behind the development of particular web-based instruction. When asked *how and why the forms were selected* interview participants comments were as follows:

Nathan: *Some instructors want to see the grades, the librarians definitely see it if they are using grades but one thing we cannot do at this point and do well is work with instructors to feed grades into activities into their grade book.*

Lisa: *Since I'm new I'm not 100% sure of the history but I know libguides are incredibly popular now for academic libraries and I think that was the easiest for us. It's an out of the box type program. We have a very small staff so it's a lot less work on the back end for us to put this content up. And kind of like the embedded librarianship program I'm not sure of the history a lot of it has to do with the [REDACTED] so we are required to have embedded librarians available for any online students taking classes through the [REDACTED] so I believe that our own embedded librarianship program evolved out of that [REDACTED] program.*

Academic librarians with instructional responsibilities actively contributed to information literacy and the development of web-based instruction. Notably, the rationale of use remained unclear among the participants engaged in its creation. As a result of this ambiguity, interview participants focused on instructional methods and strategies more than a rationale for use.

Instructional Methods and Strategies. When asked, *do you rely on a particular learning theory?* Interview participants referred to instructional approaches like “scaffolding,” “backwards design,” “Bloom’s Taxonomy” and “flipped.” The interview participants indicated that learning theories were not relied on. Instead the participants referred to instructional models. Instructional models help learners develop thinking skills while learning. Learning theories helps students process and recall information. The interview participants expressed the following regarding instructional models and strategies:

Nathan: *I look at models than a particular theory. These models come out of theories. One I am using is formulate assessment, for example, I try to incorporate scaffolding and provide assessment along the way so they know what to learn and unlearn and it is based on backwards design.*

Amy: *I've made in-roads doing a hybrid, multi-hit instruction for some sections on campus. I'll visit them for an introduction and demonstration through the databases, and then I have an assignment/quiz for them online to give them some hands on experience that we can measure, and also check in throughout the semester on their projects,*

Sally: *I don't know if I have labeled it as such. I don't know if I can tell you any learning theory. I know things that I use like Bloom's taxonomy but those are tools.*

Lisa: *We have not we have tried to implement some of the trendy the flipped classroom we try to incorporate that as much as possible but leaning on a particular theory we really haven't and I think that's because we really are a small staff and we wear a lot of different hats I'm the only one who's main function is teaching but all three professional librarians teach as well but they have other responsibilities like web resources, cataloging, and technical services so time is a vast issue that we have a lot of opportunities in research and learning theories and applying it to our work as much as I would like to.*

Research Question 2: Information Literacy Competency Areas and Standards

Information literacy competency in web-based instruction was examined to determine the areas academic librarians considered worth teaching. Two themes were generated from research question 2: *What information literacy competency areas and standards are provided in web-based instruction for academic library patrons.* The two emerging themes were: Information Literacy Competency Areas and Information Literacy Competency Standards.

Information Literacy Competency Areas. The Association of College and Research Libraries (2000) defines information literacy as “a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (p. 2). Additionally, information literacy is acknowledged as a 21st century core competency skill. Information literacy

competency involves more than computer literacy (Zurkowski, 1990). Information literacy competency requires critical thinking and problem solving. Information literacy competency was assigned as benchmarks for academic libraries to use to measure learning outcomes.

Survey respondents were asked to identify their extent of use based on twenty-one information literacy competency standard areas. The competency areas focused on web-based instruction and exclude any face-to-face instruction. The survey presented four categories: *Not at All*, *To Some Extent*, *To a Moderate Extent*, or *To a Great Extent*. The categories were collapsed into two sections “Not at All/To Some Extent” and “To a Moderate Extent/To a Great Extent.” Table 19 summarizes the *Extent to which Web-Based Instruction Addresses Information Literacy Competency Areas*.

Table 19

Extent to which Web-Based Instruction Addresses Information Literacy Competency Areas (N = 112)

Information Literacy Standards Areas Addressed	Not At All or To Some Extent	To Moderate or To a Great Extent	M
Survey Items*	n (%)	n (%)	
Use of/searching in: online databases, e-journals, or e-books	18 (19.6%)	74 (80.4%)	3.22
Selecting: Appropriate tools (e.g., databases)	19 (20.7%)	73 (79.3%)	3.13
Selecting: Terms and keywords	23 (25.0%)	69 (75.0%)	2.99
Research process	31 (33.7%)	61 (66.3%)	2.95
Selecting: Appropriate resources (e.g., format)	32 (34.8%)	60 (65.2%)	2.88
Distinction between scholarly and popular sources	31 (33.7%)	61 (66.3%)	2.87
Library services (e.g., reserves) and location	41 (44.6%)	51 (55.4%)	2.78
Use of/searching in: online library catalog	33 (35.9%)	59 (64.1%)	2.76
Citations: Accurately citing/using standard style guides (e.g., APA)	38 (41.3%)	54 (58.7%)	2.67
Web site evaluation	40 (43.5%)	52 (56.5%)	2.64
Use of/searching in: other online reference or research tools	38 (41.3%)	54 (58.7%)	2.63
Boolean Operators	44 (47.8%)	48 (52.2%)	2.54
Citations: Reading/deciphering bibliographic information	45 (48.9%)	47 (51.1%)	2.49
Knowledge of library and research terminology	50 (54.3%)	42 (45.7%)	2.48
Ethical implications of information (e.g., plagiarism)	46 (50.0%)	46 (50.0%)	2.47
Primary and secondary sources	48 (52.2%)	44 (47.8%)	2.40
Keyword vs. Subject headings	52 (56.5%)	40 (43.5%)	2.38
Use of/searching in: Web (e.g., Google Scholar)	50 (54.3%)	42 (45.7%)	2.37
Nature and process of scholarly publication	59 (64.1%)	33 (35.9%)	2.22
Truncation, wildcard, proximity	58 (63.0%)	34 (37.0%)	2.20
Economic implications of information (e.g., plagiarism)	57 (62.0%)	35 (38.0%)	2.18

*Sorted highest to lowest M

As shown in Table 19, Survey question 15 (Appendix C) presented twenty-one web-based information literacy competency areas. Academic respondents were asked to select from four categories: “Not at All,” “To Some Extent,” “To a Moderate Extent,” and “To a Great Extent.” For the purpose of this study the categories were collapsed into two sections “Not at All or To Some Extent” and “To a Moderate Extent or To a Great Extent.”

When asked *To What Extent Web-Based Instruction Addresses Information Literacy Competency* approximately 80% of the respondents indicated “To a Moderate or To a Great Extent” they addressed the *use of/searching in online databases, e-journals, or e-books*, which yielded a 3.22, *mean* score. When *Selecting: Appropriate tools (e.g., databases)*, 79.3% of the respondents indicated “To a Moderate or To a Great Extent.” This ranked second highest information literacy competency addressed, which yielded a 3.13 *mean* score. One third of the academic librarian respondents addressed *Selecting: Terms and keyword* “To a Moderate or To a Great Extent,” which generated a *mean* score of 2.99. When addressing the *Research process* 66.3% of the respondents, which produced a *mean score of 2.95* covered this topic “To a Moderate or To a Great Extent.” Approximately 55% of the academic librarian respondents, which yielded a 2.78 *mean*, indicated addressing *Library services (e.g. reserves) and location* “To a Moderate or To a Great Extent” compared to 64% of the respondents that addressed the *use of/searching in the online catalog*, which yielded a 2.76 *mean* score. Academic librarian respondents indicated addressing “To a Moderate or To a Great Extent” the *Use of/searching in: Web (e.g., Google Scholar)*, which produced a *mean* score of 2.37. Approximately 38% of the respondents, which generated a *mean* score of 2.18, indicated addressing *Economic*

implications of information e.g., plagiarism). The second theme that emerged focused on the information literacy competency standards.

Information Literacy Competency Standards. The ACRL (2000) identified five information literacy competency areas for Higher Education. Information literacy competency “provides a framework for assessing the information literate individual” (p. 5). The competency standards for information literacy were active at the time of this study. As mentioned, in February 2016, a broad six-clustered Framework was implemented. This study eliminated any discussion on the new Framework for three reasons: the new framework relatively new and is yet a work in progress, the new frameworks are not fully implemented in most academic librarians, and the current five broad competency standard areas are still applicable. As the transition to the new frameworks take place interview respondents had the following comments:

Nathan: *We are looking at ACRL’s Frameworks, which is a broad framework. We use the frameworks to educate ourselves to see how we are framing some of the things we are use to educate the student students. Bloom’s taxonomy always comes into the mix. I also look at scaffolding, backward design, get information out to use, and critically use to work on assignments.*

The idea is to drive everything toward or at least keeping in mind the standards these are the overall broad standards we want students to take away besides the content for that course. It happens at the very basic level when students come into the library for a course but for a general orientation. The idea is to make sure they understand the value of the library, the value of the tools, how to evaluate and ethically use, including citing and plagiarism. Important to learning how to use information can you take something and use it, if you change something is it plagiarism? Students go through that kind of training but usually it is in the framework of a library orientation or coursework.

Amy: *We do, though we're adapting them with a healthcare flavor to focus both faculty and students. Library instruction only started here when I was hired, so it's been baby steps. My biggest challenge is trying to incorporate the standards without turning people off, because instructors think of it as "library orientation" and ask for me to give a 10-minute spiel and expect the students to learn from that.*

Sally: *I don't think it begins that way but it ends up that way. I don't pick them up to start with.*

Lisa: *I'm not sure what the background was I'm sure they used those guidelines in some way, now with this new framework coming out from the ACRL which is a lot more theoretical, which a lot of academic librarians including myself have had trouble wrangling with it and how to teach it in the classroom. But its been a big discussion with academic librarians especially at the four year research institutions about how to implement this new framework taking the place of information literacy standards. So I don't think it's been a direct influence on our standards area but I definitely view them as guidelines. I came in they were going from information literacy standards to this new framework.*

Academic libraries have historical roots in the support of lifelong learning by providing its patrons with information literacy competency skills. The foundation of its resources and services were built on delivering instructional services to diverse academic library patrons. The Association of College and Research Libraries contributed to the library's goals of lifelong learning through the establishment of a set of information literacy standards.

Interview participants discussed their views on the application of ACRL's information literacy standards in web-based instruction. Information literacy standards were designed to serve as benchmarks for academic libraries to use to gauge the success of a student's learning outcome. Interview participants stated the following:

Amy: *Getting students to identify an information need, understand the appropriate type of resources to fulfill that need, and formulate an effective search. Basically - what do I need to know and why? And how do I get it? Then ... what do I do with it?*

Sally: *I address ethical standards and access of resources through identification of tools. Right now I'm looking at the master's essentials and objectives in nursing for accreditation. I don't think it begins that way but it ends up that way. I don't pick them up to start with.*

Lisa: *Orientation – how do you use the website, where do you find things on the website – where do you go for help – a real basic intro. We also talk about generic searching skills – how to search the Internet but also how to search the specific library*

databases so the searching skills and database tools is how we have grouped those together. Evaluating sources both web sources and those within library databases, citations and Noodlebib, which is the citation management system that we subscribe to here at [REDACTED]. And most of this is at the request of faculty members we teach Noodlebib quite a bit at faculty's request. We try to teach Noodlebib as a tool and how to cite correctly so we have tried to emphasize more about why we cite things and evaluating sources as you cite them it's kind of like a two-handed process. And Noodlebib is kind of like this cool thing we show them at the end.

Table 20 presents survey responses regarding the *Extent to which Web-Based Instruction Addresses Five Information Literacy Competency Standards*. Notably, ACRL's information literacy competency standards serve as benchmarks to addressing information literacy competency skills.

Table 20

*Extent to which Web-Based Instruction Addresses Five Information Literacy Standards
(N = 112)*

Standards Addressed During Web-Based Information Literacy Instruction	Addressed	Not Addressed	Not Included in Web-Based Instruction
Learner determines the nature and extent of the information needed.	58.5% (38)	12.3% (8)	29.2% (19)
Learner accesses needed information effectively and efficiently.	78.5% (51)	10.8% (7)	10.8% (7)
Learner evaluates information and its sources critically; learner incorporates selected information into his or her knowledge base and value system.	70.8% (46)	12.3% (8)	16.9% (11)
Learner individually or as a member of a group, uses information effectively to accomplish a specific purpose.	58.5% (38)	12.3% (8)	29.2% (19)
Learner understand that information literacy is an ongoing process and an important component of lifelong learning and recognizes the need to keep current regarding new developments in his or her field.	49.2% (32)	16.9% (11)	33.8% (22)

Over 55% of the respondents addressed that the learner determines the nature and extend of the information needed. Subsequently 78% of the respondents addressed learner's ability to access need information effectively and effectively. Approximately three-fourths of the respondents addressed the learner's ability to evaluate information and its sources critically. Fifty-eight percent of the respondents addressed the learner's ability to individually or a member of a group uses information effectively to accomplish a specific purpose. Almost half of the respondents indicated that they addressed the

learner's ability to understand that information literacy is an ongoing process and an important component of lifelong learning.

Table 21 summarizes academic librarian responses on the *Extent to which Web-Based Instruction Formally Assesses Five Information Literacy Standards*. Table 21 examined which of the five broad information literacy standards were assessed. The assessment process gives clarity on which information literacy standards academic librarians viewed as valuable enough to evaluation in web-based instruction.

Table 21

Extent to which Web-Based Instruction Formally Assesses Five Information Literacy Standards (N = 112)

Standards Formally Assessed During Web-Based Information Literacy Instruction	Assessed	Not Assessed	Not Included in Web-Based Instruction
Learner determines the nature and extent of the information needed.	41.5% (27)	35.4% (23)	23.1% (15)
Learner accesses needed information effectively and efficiently.	50.8% (33)	32.3% (21)	16.9% (11)
Learner evaluates information and its sources critically; learner incorporates selected information into his or her knowledge base and value system.	50.8% (33)	29.2% (19)	20.0% (13)
Learner individually or as a member of a group, uses information effectively to accomplish a specific purpose.	38.5% (25)	35.4% (23)	26.2% (17)
Learner understand that information literacy is an ongoing process and an important component of lifelong learning and recognizes the need to keep current regarding new developments in his or her field.	30.8% (20)	36.9% (24)	32.3% (21)

Approximately 41% assessed the learner's ability to determine nature and extent of the information needed and half or 50.8% indicated that they assessed the learners need information effectively and efficiently. Equally, 50.8% assessed if the learner evaluated information and its sources critically. Approximately 38% assessed if the learner individually or as a member of a group, used information effectively to accomplish a specific purpose. One third or approximately 30% assessed if the learner understood that information literacy is an ongoing process and an important component of lifelong learning. Lifelong learning and critical thinking skills are key aspects in

information literacy instruction. This section examined ACRL's five broad areas of assessment in information literacy as an important aspect of measuring student learning.

Research Question 3: Outcomes Assessments in Web-Based Instruction

Outcomes assessment is a growing reality in academic libraries. More so, effective outcomes assessment can help academic libraries establish value, strengthen student-learning outcomes, and improve web-based instruction. Interview participants were asked to express their use of outcomes assessment in web-based instruction. One theme was categorized from the semi-structured interview findings connected research question three: *What outcomes assessments are provided in web based instruction to improve information literacy skills for academic library patrons?*

Table 22 presents forms of outcomes assessments in web-based instruction. Respondents were asked to indicate if the outcomes assessment mentioned was *provided* or *not provided*. The table presents a summary of outcome assessments.

Table 22

Forms of Outcomes Assessments in Web-Based Instruction (N = 112)

Approaches to Formal Outcomes Assessment Employed	Provided	Not Provided
Multiple choice/short answer, quiz, or exam	72.3% (47)	27.7% (18)
Essay quiz or exam	26.2% (17)	73.8% (48)
Included in course professor's quiz/exam	40.0% (26)	60.0% (39)
Record of research process (e.g., research log, reflective writing on process, etc.)	33.8% (22)	66.2% (43)
Assessment of bibliography used in paper	41.5% (27)	58.5% (38)
Assessment of complete paper and bibliography	26.2% (17)	73.8% (48)
Assignments other than papers	44.6% (29)	55.4% (36)
Attitudinal assessment: as part of general survey of library users' attitudes	35.4% (23)	64.6% (42)
Attitudinal assessment: separate survey pertaining to web-based instruction	27.7% (18)	72.3% (47)
Other	15.4% (10)	84.6% (55)

Roughly, three-fourths of the respondents indicated that they provided *multiple choice/short answer, quiz, or exam*. Approximately 26% of the respondents indicated that they provided *essay quiz or exam* assessments. Academic librarian respondents indicated 40% provided *course professor's quiz/exam* as a form of outcomes assessments. One-third of the respondents incorporated a *record of the research process*. Roughly, 41% of the respondents provided *assessment of bibliography used in paper*. Approximately, 26% of the respondents provided *assessment of complete paper as a form of outcomes assessment*. When asked if *assignments other than papers were used*, approximately 44% of the respondents indicated that they provided this form of assessment. Roughly 35% of the respondents provided *attitudinal assessment: as part of general survey of library users' attitudes*, while 27.7% of the respondents provided *attitudinal assessment: separate survey pertaining to web-based instruction* as a form of outcomes assessment. Around 15% of the respondents indicated that they provided *other* forms of outcomes assessments. One theme emerged for research question 3 on *formative and summative assessment*.

Formative and Summative Assessment. Outcomes assessment can include formative and summative assessments. Formative assessments monitors student learning and provides ongoing feedback to the learner. Summative assessments; however, are performed to assess student learning at the end of a particular instructional session. Summative assessments often use benchmarks to compare the student's learning outcomes. The following responses expressed their views on formative and summative assessments:

Nathan: *Quizzes, we don't have direct access to student grading but we want students to come back and learn how to do research. We want students to come in and be researchers. Most models have pre- and post-test and it helps us assess the modules but on the larger scale it is to make researchers out of students. How do you measure? It might be able to measure if we are able to track every student that come in the library and see how they do. A grander way is to do institutional assessments.*

Aside from pre- and post- test, we don't do individual things for the module assessment. But for a library session students do a pre- and post-test along with a one-minute evaluation about the session.

Amy: *I created a survey, but the response rate has been so low, it's pretty much unusable. I hope to change that, maybe with bribery (fill it out for a chance to win a gift card or something). But I'm working with faculty for a better measurement. So, we would like to do a citation analysis. We would review assignment descriptions and compare the students' sources used to see if library instruction is having an effect.*

In two classes, I use an "open book" quiz as a follow up and guide to lead and nudge students through the search process. It's only in a quiz format so they have a stake in it and we have an easy way to measure whether they are meeting the outcomes or not. I would like to do this with more classes. Parts of the quiz are open answer, so I can review and provide feedback for the student, and it forces them to actually think and do rather than take a guess on a multi-answer question. We've been doing this for four semesters and the instructor says she can see a difference.

Sally: *I don't do assessments but that is something I think we will need to consider. Freshmen we see in person we have quizzes in Blackboard that cover the workshop. So we do outcomes assessment that way but not with online instruction.*

Lisa: *Until recently we have not done very much I know in the embedded librarianship program a three question survey on student evaluations at the end of the semester. Three very basic questions like: did you use this service, was it helpful, really basic questions. We have now subscribed to this new service called LibWizard you can do tutorials, quizzes, and surveys embedded all in libguides. So we are really hoping that now that we have that we can do more of outcomes based assessment we could have a specific LibGuides for a class and a professor could have them read this libguides and there is a quiz embedded inside the libguides and the results could be sent to the professor or one of the librarians. So we're hoping this new outcomes assessment could help us especially in our web-based tools. We're hoping this tool can also help us in the physical classroom as well.*

Findings of Open-Ended Questions

The responses to open-ended questions were downloaded in SPSS for frequency distributions, coding, and category assignment. The classifications and response to other forms of academic rank, question four are reflected in Figure 8. A total of 33 respondents indicated “other.”

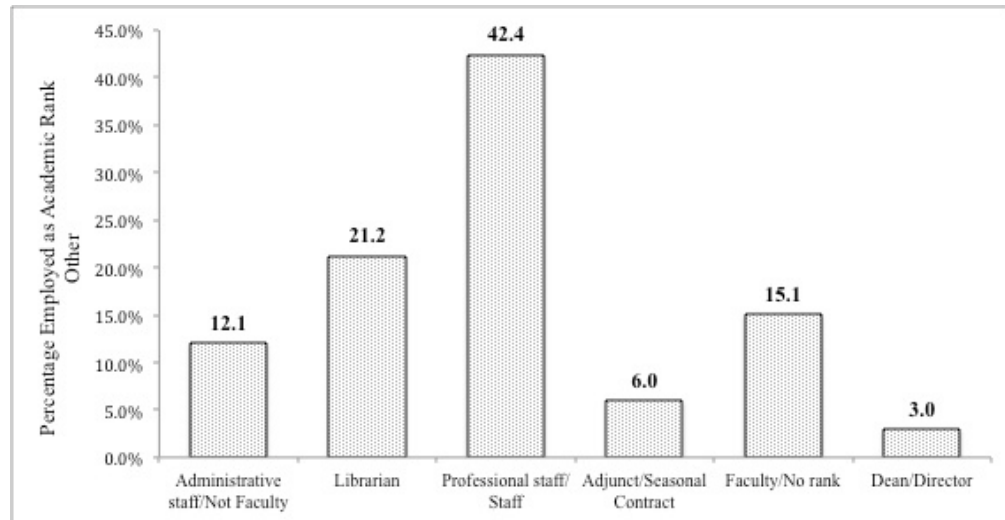


Figure 8. Percentage Employed as Academic Rank “Other”

Approximately 42% of the respondents were employed as professional staff/staff. Twenty-one percent of the respondents were employed as a librarian, while three percent were employed as a dean/director. Roughly, 15% of the respondents were employed as faculty with no rank.

Figure 9 presents data from survey question nine, forms of web-based instruction. The finding presents coded categories for responses listed as *other*.

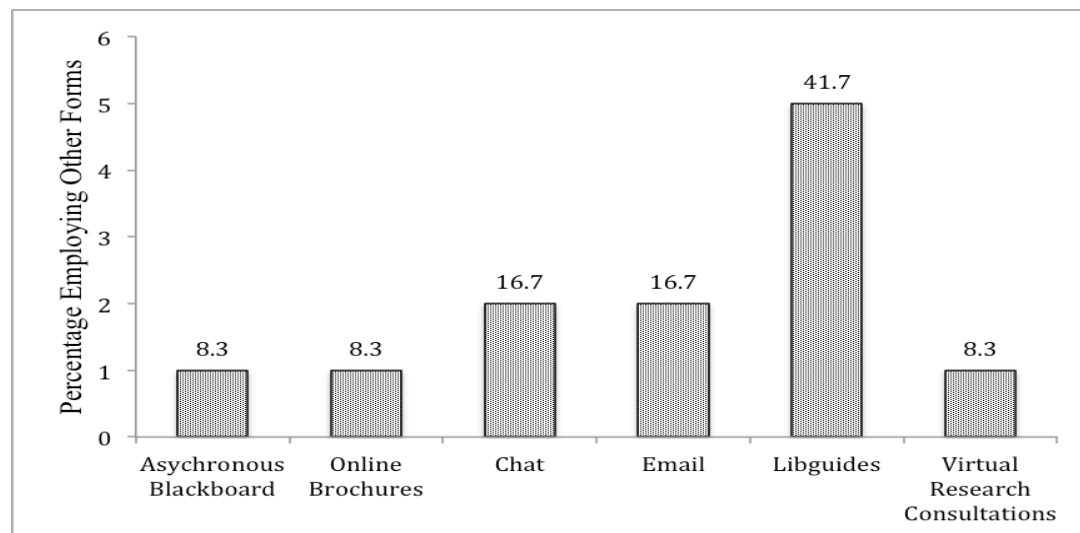


Figure 9. Other Forms of Outcome Assessments

Approximately 41.7% of the respondents indicated using libguides as a form of web-based instruction. Roughly eight percent of the respondents listed asynchronous Blackboard, online brochures, and virtual research consultations. *Additional comments* indicated a need to fully utilize web-based instruction and uncertainty regarding outcome assessment and the use of formative assessment. A total of 12 respondents indicated “other” forms of web-based instruction.

Summary of Findings

The purpose of this study was to examine academic librarians’ practices and perceptions on web-based instruction for academic library patrons as adult learners. The findings presented in this chapter addressed three specific research questions, which were further classified into six themes. The first research question examined forms of web-based instruction. Three themes emerged: web-based instruction practices, rationale for use, and instructional methods and strategies. Based on the findings, over 80% academic

librarians offered online tutorials or videos as a form of web-based instruction.

Approximately, three-fourths provided self-directed and online chats, while only 10.7% offered podcasts as a form of web-based instruction.

The second research question explored information literacy competency skills. Two themes surfaced: application of information literacy competency skills and the application information literacy performance indicators. Approximately 48% addressed the use of/searching in: online databases, e-journals, or e-books *To a Great Extent*, while only 10.9% addressed primary and secondary sources *To a Great Extent*.

The third research question sought to determine if outcomes assessment were used in web-based instruction. One theme emerged: formative vs. summative assessment. Findings indicated that three-fourths of the academic librarian respondents used multiple choice/short answer, quiz, or exam as a form of assessment, while 26.2% provided essay quiz or exam and assessment of complete paper and bibliography as a method of assessment. Findings indicated a greater need for the use of outcomes assessment in web-based instruction.

This chapter organized data findings and themes from the three research questions and six themes that steered this study. The next chapter will present a discussion of these findings and recommendations for further research generated from the study results.

Chapter 5

Summary, Conclusions, and Recommendations

The purpose of this study was to examine academic librarians' practices and perceptions on web-based instruction for academic library patrons as adult learners.

Three research questions guide the organization of this study:

1. What are the forms of web-based instruction provided for academic library patrons?
2. What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?
3. What outcomes assessments are provided in web based instruction for academic library patrons?

This chapter is separated into six sections: statement of the problem, purpose and significance, analysis of findings, conclusions, recommendations, and recommendations for future research. Demographic data is presented for the respondents' academic rank, years of service as an academic librarian, years of service in current position, and the type of institution employed. The analysis section summarized quantitative data from the survey, qualitative information from the six emergent themes categorized from the semi-structured interviews, and the researchers' interpretation of the analysis presented in chapter 4.

Statement of the Problem

Statistics show an increase in adult learners returning to postsecondary institutions. This presents new challenges and opportunities for academic librarians who are encouraged to provide resources, services, and instruction for all library patrons. The

future survival of academic libraries will depend on its ability to establish value and produce library services, resources, information literacy, and outcomes assessments in the form of web-based instruction (Mole et al., 2013).

Academic librarians are active co-participants in the institution's mission to provide information literacy instruction. According to Cooke (2010) and the Partnership for 21st Century Skills (2009) information literacy is fundamental to the empowerment of the adult learner's ability to make informed decisions, creatively problem-solve, and responsibly engage in higher order thinking. The co-participant engages with the learner in their achievement to become lifelong learners that are information literate. The co-participant also supports the institution's academic mission to ensure effective student learning outcomes.

Purpose and Significance

The purpose of this study was to examine academic librarians' practices and perceptions on web-based instruction for academic library patrons as adult learners. The study examined data collected, which provided clarity from academic librarian opinions regarding outcomes assessments in web-based instruction. Chapter 4 reported quantitative demographic and descriptive data qualitative semi-structured interview analysis. The emergent themes from interview transcripts were coded and categorized based on the academic librarian's own words and perspectives.

The significance of this study has the potential for data results and analysis to serve as a baseline for academic librarian practices on the application of outcomes assessment in web-based instruction for the adult learner. The results should increase awareness of andragogic learning theories, stimulate financial support at the system level,

promote professional development, and offer several recommendations for the integration of outcomes assessments in web-based instruction.

Worldwide adult learners are attending postsecondary institutions at increasing rates (Choy, 2002; Compton et al, 2006; Cooke, 2010; Francis, 2012; Veal, 2000). Subsequently, studies revealed the need for outcomes assessment that align with campus-wide assessments are vital in academic libraries (Barclay, 1993; Buck, 2003; Gratch-Lindauer, 1998; McCulley, 2009). Without question, academic librarians must embrace and pursue methods to incorporate web-based instruction for adult learners.

Analysis of Findings

The demographic information collected included: gender, academic rank, years of service as an academic librarian, years of service as an academic librarian in current position, institutional type, and institutional sector. The academic librarians identified in this study were those who have instructional responsibilities or who are responsible for distributing web-based instruction. Academic librarians who did not meet the criteria were excluded from this study.

Survey results showed that 83% of the academic librarian respondents were female with terminal degrees in their profession. Many were employed in public university sectors and over 60% of the respondents did not hold a title with academic rank. Survey results also indicated that approximately 40% of the respondents had less than six years of service as an academic librarian, while 65% indicated that they served as academic librarians in their current position for less than six years.

Semi-structured interviews implied the importance of faculty in academic libraries. Faculty can actively engage in the adult learners need to seek an academic

librarian. Faculty can also influence the forms of web-based instruction developed by academic librarians. Amy stated how her academic library plans to bring faculty into becoming actively engaged with the library. She states, “We're currently working on an ‘information literacy framework’ with faculty, so our objectives are rough drafts right now. So, they're not academically wordy. The next objective is working on information literacy,”

Most notably, Khan (1997) explored the topic of web-based instruction. However, almost 20 years later this report indicated that many academic libraries are in the initial stages of integrating this form of web-based instruction as an effective learning tool for academic library patrons. Data implied some resistance and even stronger opposition toward the provision of selected forms of web-based instruction.

Survey data and semi-structured interviews revealed an opposition against the use of certain forms of web-based instruction. The resistance to offering adequate web-based instruction validates literature research on the neglect of adult learners in academic libraries (Cooke, 2010; Foster & Helbling, 2015). More so, the lack of web-based instruction contributes to the libraries inability to establish value through use of outcomes assessments and insufficient web-based instruction reduces the libraries ability to reach the adult learner.

Six themes emerged from the three research question that guide this study: 1) web-based instruction practices, 2) rationale for use, 3) instructional methods and strategies, 4) information literacy competency areas, 5) information literacy competency standards, and 6) formative and summative assessments. The next sections will review the three research questions that guide this study in conjunction with the findings from

the quantitative survey results and the six emergent themes categorized in the qualitative semi-structured interviews.

Research Question 1

What are the forms of web-based instruction provided for academic library patrons?

Survey data revealed the top four forms of web-based instruction provided were: videos (87.5%), online tutorials (83%), online chats (74.1%), and self-directed web-based tutorials (70.5%). A slight difference of four percent existed between videos and online tutorials. Online tutorials (i.e., libguides) provide academic librarians with an easy-to-use template for implementing web-based instruction. Finding showed a 17.5% variance between videos and self-directed web-based tutorials. Academic librarians are more likely to provide videos as a form of web-based instruction over self-directed tutorials.

Additionally, academic librarians offered over 65% web-based instruction in the form of embedded library instruction and self-directed web-based instruction. Data showed that academic librarian respondents were most likely to provide videos, self-paced, or human infused (e.g., online chats) as a form of web-based instruction. Embedded librarian sessions were required but were not well received as a form of web-based instruction.

When respondents were asked, *what forms of web-based instruction were offered* approximately, 67% of the respondent *offered* embedded library instruction, while roughly 48% of the respondents *offered* multiple embedded librarian sessions. Academic librarians were more likely to provide a single session of embedded librarian sessions than multiple sessions. Embedded librarian sessions are 20% less likely to offered as a

form of web-based instruction compared to 87% of the academic librarian respondents who provided videos (e.g., YouTube, Screen-O-Cast, Vimeo) as a form of web-based instruction.

Roughly, 92% of the respondents showed that no hours were *required* and 68% of the respondents stated that no hours were *offered*. As a result, very little web-based instruction was provided. Most notable when selected forms of web-based instruction were required (i.e., embedded librarian sessions, multiple librarian sessions, self-directed web-based instruction, online non-credit courses, and online credit courses) over 90% and in some cases 98% did not provide these forms of web-based instruction. Survey respondents indicated a strong resistance to selected forms of web-based instruction.

Three themes emerged from research question one: web-based instruction practices, rationale for use, and instructional methods and strategies. The themes emerged from interview transcripts. Notably, when an interview protocol question did not reflect the interview participants practices the semi-structured interview allowed the respondent to elaborate on the practices that were used at their institution. Alignment of research question 1 with themes is presented in Figure 10.

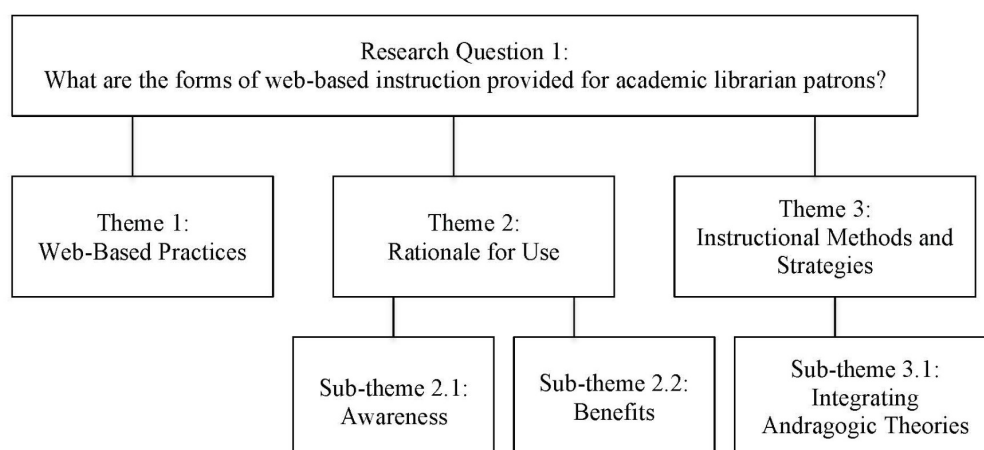


Figure 10. Alignment of Research Question One with Themes

Web-Based Instruction Practices. The first theme investigated *web-based instruction practices* in academic libraries. The goal of this theme was to discover whether academic libraries implemented web-based instruction and, if so, in what form were they offered to academic library patrons. Interview participants supported the findings, which demonstrated a twenty-year gap in the initiation of web-based instruction. Interview participants were in the early stages of offering web-based instruction. For example, Nathan stated, “We are just starting web-based instruction.” Lisa said, “I just started to incorporate some web video instruction.” Without question, a primary goal for many academic libraries is to rapidly start the process of integrating web-based instruction. In spite, of being decades behind the initial start of offering this form of web-based instruction academic libraries can use past lessons to build more effective forms of web-based instruction for its library patrons.

Interview respondents were asked to bring clarity to their library’s target audience. A number of the respondents indicated targeting undergraduate students with expanding services to distance learners. In some cases the opposite was indicated. For

example, Amy stated, “We’re strongly adult learners but are now targeting traditional students, so the balance is changing.” Nathan identified his audience as more of a blended student. The blended student is the learner who has the characteristics of a traditional student with responsibilities of an adult learner. Nathan said, “I don’t think there are any traditional students any more. Even students who are on campus I no longer think as traditional.” The findings suggested a sense of uncertainty and a need to monitor the changing characteristics of its academic library patrons. When left unmonitored, the lack of awareness and ambiguity that surrounds the shifting nature of academic library patron can have an adverse affect on the web-based instruction distributed. For example, Amy has a strong adult audience but her primarily focus has shifted to serving millennials or traditional learners. Respondents who integrate web-based instruction targeted to an audience outside of their assigned academic library patrons can be devastating to adult learners. Academic librarians who are aware of their target audience are more likely to provide adequate forms of web-based instruction to meet their patron’s information needs.

A form of web-based instruction that emerged from the interviews was the interactive, multi-dimensional approaches to offering information literacy instruction. Social media tools such as Facebook Live, Periscope, Google+ hangouts, and YouTube Connect can offer academic librarians real-time interaction with academic library patrons and serve as the ultimate form of adult learning. The Internet is capable of offering academic librarians with easy-to-use tools that are cost effective for any library budget.

Interview respondents validated the forms of web-based instruction revealed by the survey results. In chapter 4 interview respondents identified videos, online materials

(e.g., libguides), self-paced instruction. Web-based instruction, with the exception of online chats, email, or virtual consultations, provides academic library patrons with instructional resources that support self-directed learning. Amy emphasized the importance of offering informative, short videos, especially to millennials. She stated,

I've been relying on information coming out regarding how millennials learn (I can't think of the name): they won't watch videos more than three minutes long, they don't like "busywork" (it needs to be clear why they're doing something), and they want it fast. For example, I don't do an introduction to videos anymore. The stats show students either scrolling past it or clicking off within the first 30 seconds even though we have older students; our instructional designers say they also want as little "messaging around" as possible.

Interview participants' responses confirmed survey results on the resistance toward embedded librarian sessions. Lisa's academic library patrons consisted of two-year college students and some high school students. Lisa stated,

We have been analyzing our embedded librarianship program over the last few semesters to see how effective it is because we really haven't been getting a lot of interaction with students. So we're looking at it to see if it is effective and if we want to continue with the on campus embedded library program. We haven't seen a lot of benefit from it so it's been an ongoing discussion.

Respondents were less likely to engage in the delivery of instructional services (e.g., embedded librarian sessions) believed not to be beneficial to the information needs of its patrons. Findings implied resistance to any web-based instruction, which required a large portion of the librarian's time without the advantages of achieving a specific goal. Respondents are also more likely to provide visual forms of web-based instruction (e.g., videos) over self-paced and does not require the physical presence of a librarian after its completion.

Rationale for Use. The second emergent theme was the *rationale for use* of a particular form of web-based instruction. Interview respondents were unable to provide an adequate rationale for use. Some respondents avoided the question or did not know why a particular form was selected. A number of interview respondents implied their rationale for use was driven by faculty requests. Academic librarians who are aware of their rationale for use can better serve their academic librarian patron.

Another factor for using a particular form of web-based instruction was the librarian's need to provide alternatives to face-to-face instruction. As electronic formats take center stage and has become the preferred format, face-to-face instruction has declined. Additionally, interview participants indicated that faculty was necessary to the academic library's ability to support the information needs of its academic library patrons. Nathan stated,

Faculty are the conduit, while the students are our primary clients so in a way they are our primary clients too because we are working to help get their student teaching needs meet or to get information to their students so very often we work with them so their students come into the library.

Without question, academic librarians need faculty to work collaboratively with them. As co-authors and facilitators in the implementation of web-based instruction faculty can support academic librarians in their quest to provide effective instruction to its academic library patrons. Faculty, much like the academic library patrons served, are primary clients in the rationale for use of web-based instruction.

The benefit of understanding the rationale for the use of a form of web-based instruction is fundamental in the alignment of addressing student learning outcomes. Hays (2014) discussed the issue of a "cookie cutter" approach to adult instruction. Notably, this argument was supported by the respondents who were uncertain of the

rationale of use for a particular form of web-based instruction. Academic libraries equipped with a better understanding of its patrons are more likely to avoid implementing a “one-size fits all” instructional approach and integrate a targeted method that is capable of supporting the information needs of its academic library patrons.

Instructional Methods and Strategies. The third emerging theme focused on *instructional methods and strategies*. Interview respondents indicated instructional methods and strategies rather than a particular learning theory. Learning theories, unlike instructional models are similar to Blooms Taxonomy. Learning theories are designed to help the learner process, understand, and recall information.

Chapter 2 of this study reviewed literature, which supports the application of the andragogic learning theory. Cooke (2010) and Gold (2005) found value in the application of andragogic learning theories. Literature revealed the neglect of using andragogic theories when developing instruction for adult learners (Cooke, 2010; Foster & Helbling, 2015). Cooke (2010) goes even further to encourage academic librarians to become andragogic.

Findings from interview participants revealed the use of instructional methods and strategies rather than a particular learning theory such as andragogy even when academic library patrons were “strongly adults.” For example, Sally stated, “I don’t know if I have labeled it as such. I don’t know if I can tell you any learning theory. I know things that I use like Bloom’s taxonomy but those are tools.” Nathan said, “I look at models than a particular theory. These models come out of theories.”

When interview respondents discussed learning theories in instructional method terms such as: *backwards design, flipped classroom, scalloping, and Bloom’s Taxonomy*

were mentioned. Interview respondents indicated a disregard for learning theories, which could be a potential reason for the lack of andragogic learning theories and the neglect of adult learners in academic libraries (Cooke, 2010).

Research Question 2

What information literacy competency areas and standards are addressed in web-based instruction for academic library patrons?

The Association for College and Research Libraries' *Information Literacy Competency Standards for Higher Education* developed a Framework that classified information literacy into five broad information literacy standard areas and twenty-two performance indicators (Appendix A). The benchmarks guide academic libraries in their focus to provide information literacy competency standards. As mentioned, during the course of this research the standards were rescinded on June 25, 2016; however, the new Framework is not fully established in most libraries and will not be examined in this study.

Academic librarians have the freedom to determine the most appropriate competency areas for their library patrons. Survey respondents selected areas recognized as important information literacy competency areas. Survey question 15 (Appendix C) presented twenty-one web-based information literacy competency areas. Survey respondents were asked to select from four categories: "Not at All," "To Some Extent," "To a Moderate Extent," and "To a Great Extent." For the purpose of this study the finding categories were collapsed into two sections "Not at All/To Some Extent" and "To a Moderate Extent/To a Great Extent."

Findings indicated that approximately 80% of the respondents addressed the *use of/ searching in online databases, e-journals, or e-books*, which yielded a 3.22, *mean* score compared to 64% of the respondents that addressed the *use of searching in the online catalog*, which yielded a 2.76 *mean* score. The findings disclosed a shift in how information literacy competency areas are addressed in most academic libraries. Survey respondents show a move from traditional instructional sessions that involved the *use of/ searching in the online catalog* to focus on *using/ searching in online electronic resources*. While academic library patrons find electronic resources are relatively easy to secure and download, a number of primary historically rooted resources remain unavailable in electronic format. Academic libraries that provide web-based instruction on the *use of/ searching in the online catalog* are more likely to provide a well-rounded instructional approach to the academic library patron's ability to access diverse forms of information.

Survey respondents indicated that 41.3% provided instruction on *selecting: appropriate tools (e.g., databases)*, while 37% of the respondents addressed the *research process*. A four percent difference existed between the selection of tools and the research process, which indicated almost no difference between the two competency areas. Survey findings indicated that more academic librarians provided *competency instruction on the research process* than *citations: accurately citing/using standard style guides (e.g., APA)* and *website evaluation*. Findings placed greater emphasis on the *research process* than on the accurate application of citations and evaluation of electronic resources. Findings implied that academic librarians can establish greater value to its

stakeholders by increasing web-based instruction in areas with less emphasis such as the application of citation and electronic resource evaluation.

The findings also indicated that academic librarians placed less emphasis on *primary and secondary sources* and more on *information competency in library services (e.g., reserves) and location*. Studies showed a shifting landscape of academic libraries and a move from providing services only to traditional learners. A number of traditional learners are digitally savvy and less likely to visit a library without the influence of their instructors. As a result, there is less of a need for *information competency in library services (e.g., reserves) and location*. The findings also suggested a greater need for library information when academic papers and projects are assigned and less *need for information* outside of class obligations.

Survey results examined five broad information literacy standards. The results included a comparative investigation of the information literacy standards academic librarian's *addressed* and the information literacy standards *assessed*. Findings indicated that academic librarians were more likely to address certain information literacy competency areas over others. Approximately, 78% of the respondents *addressed* the *learner's ability to access information effectively*, while only 50.8% of the academic librarian *assessed* the same area. The survey results indicated a 28% decrease in respondents that assessed the *learner's ability to access information effectively*. Data results on library assessment validate literature regarding the exclusion of assessments (Barclay, 1993). Two emergent themes were linked to research question 2: information literacy competency areas and information literacy competency standards.

Information Literacy Competency Areas. The fourth emergent theme was the *information literacy competency areas*. Notably, while academic librarians are given flexibility to select among a number of competency areas a lack of consistency in the alignment between what is selected and ACRL's suggested competency standards. Interview respondents supported data presented from the survey results existed. The interview participants addressed seven information competency areas: 1) Research process, 2) Library services (e.g., reserves) and location, 3) Citations: Accurately citing/using standard style guides (e.g., APA), 4) Selecting: Appropriate tools (e.g., databases), 5) Use of/searching in: online databases, e-journals, or e-books, 6) Use of/searching in: Web (e.g., Google Scholar), and 7) Web site evaluation. The interview responses to information literacy competency areas were as follows:

Nathan: *We want students to come back and learn how to do research. We want students to come in and be researchers. Most models have pre- and post-test and it helps us assess the modules but on the larger scale it is to make researchers out of students.*

Amy: *The first objective is simply to get the students to USE the library resources and not just Google. The next objective is working on information literacy - getting students to identify an information need, understand the appropriate type of resources to fulfill that need, and formulate an effective search. Basically - what do I need to know and why? And how do I get it? Then ... what do I do with it?*

Sally: *A lot of our instruction is to introduce resources to them, citation, learning how to cite, I don't have specific learning objectives more when an instructor has a goal they want us to cover and they need to know how.*

Lisa: *Typical have about five skills or topics we focus on. The first is just a general library orientation – how do you use the website, where do you find things on the website – where do you go for help – a real basic intro. We also talk about generic searching skills – how to search the Internet but also how to search the specific library databases so the searching skills and database tools is how we have grouped those together. Evaluating sources both web sources and those within library databases, citations and noodlebib, which is the citation management system that we subscribe to here at [REDACTED]. And most of this is at the request of faculty members we teach noodlebib quite a bit at faculty's request. We try to teach noodlebib as a tool and how to cite*

correctly so we have tried to emphasize more about why we cite things and evaluating sources as you cite them it's kind of like a two-handed process. And noodlebib is kind of like this cool thing we show them at the end.

Information Literacy Competency Standards. The fifth theme that emerged focused on the competency standards *addressed* and *assessed*. A challenge emerged from this theme, which demonstrated a greater need for academic libraries to increase their use of assessments. The findings indicated a conflict when information literacy competency standards were *addressed* compared to the same areas *assessed*. Respondents confirmed literature regarding the lack of assessment. The respondents relied on easy-to-use quizzes or course evaluations. Nathan indicated the need for grading in assessments. He stated, "Grades are encouraging and even if not graded knowing that others will see it is important." He believed grades helped motivate learners to take assessments, which, in turn, inspires academic libraries to assess information literacy areas.

This study was conducted at the cusp of a Framework introduced in February 2016. As mentioned, this study does not incorporate the latest frameworks because 1) it's quite new and 2) the information standards has a rich 16 years history of data that supports the effectiveness of its use. However, as academic librarians are becoming acclimated to the Framework a notable language shift was prevalent during the semi-structured interviews. For example, when asked about the use of information literacy standards Nathan said, "We are looking at ACRL's Frameworks, which is a broad framework. We use the frameworks to educate ourselves to see how we are framing some of the things we are use to educate the student students."

Lisa said,

I'm not sure what the background was I'm sure they used those guidelines in some way, now with this new framework coming out from the ACRL which is a lot more theoretical, which a lot of academic librarians including myself have had trouble wrangling with it and how to teach it in the classroom. But its been a big discussion with academic librarians especially at the four year research institutions about how to implement this new framework taking the place of information literacy standards.

The interview respondents indicated a growing but unclear understanding of ACRL's Framework. The findings also indicated a need to grasp how best to incorporate the broadness of this Framework in web-based information instruction. The Framework at the time of this study is underway but not discussed.

Research Question 3

What outcomes assessments are used in web based instruction for academic library patrons?

Academic librarians were 72.3% more likely to use multiple choice/short answer, quiz as a form of outcomes assessment in web-based instruction. Approximately 44% of the respondents employed assignments other than papers and 41.5% of the respondents used assessment of bibliography used in paper. The findings demonstrated a significant drop of almost 30% when analyzing papers and bibliographies. Subsequently, academic librarians were less likely to integrate outcomes assessment that required analysis of the research process and more likely to use forms of assessments that were quick and easy to apply. At best, academic libraries integrated basic and easy to add methods of outcomes assessment rather than research related activities that included analyzing academic papers or bibliographies. *Formative and summative assessments* were the sixth and final theme that emerged from the semi-structured interviews.

Formative and Summative Assessment. Interview participants discussed their use of *formative and summative assessments* in web-based instruction. Academic libraries can express value to its stakeholders through the enhancement student-learning outcomes that implement the use of outcomes assessments in web-based instruction. Interview respondents validated literature concerning the omission of outcomes assessments in web-based instruction. Findings revealed that academic librarians concentrated more on evaluation course than on student learning outcomes. Nathan implemented quizzes. Sally and Lisa did not use any form of outcomes assessments but indicated applying them in the future. Their responses are as follows:

Sally: *I don't do assessments but that is something I think we will need to consider. Freshmen we see in person we have quizzes in Blackboard that cover the workshop. So we do outcomes assessment that way but not with online instruction.*

Lisa: *Until recently we have not done very much I know in the embedded librarianship program a three question survey on student evaluations at the end of the semester. Three very basic questions like: did you use this service, was it helpful, really basic questions. We have now subscribed to this new service called LibWizard you can do tutorials, quizzes, and surveys embedded all in libguides. So we are really hoping that now that we have that we can do more of outcomes based assessment we could have a specific LibGuides for a class and a professor could have them read this libguides and there is a quiz embedded inside the libguides and the results could be sent to the professor or one of the librarians. So we're hoping this new outcomes assessment could help us especially in our web-based tools. We're hoping this tool can also help us in the physical classroom as well.*

Conclusions

This research presented several important conclusions based on the researcher's analyses and interpretation of the data. Academic libraries have a unique opportunity to support adult learners, establish value, and strengthen student learning through the use of outcomes assessments in web-based instruction. Studies revealed that web-based

instruction will continue to flourish and academic libraries must become a part of this growing trend in order to remain vital. The findings in this study brought clarity to academic librarians' practices and perceptions on web-based instruction for academic library patrons as adults. Without question, web-based instruction is an active part of today's society; it is not going away but will only increase. Several of the academic librarians expressed their thoughts on the future of web-based instruction. They responded as follows:

Sally: *"I think it's essential. WBI is not going away it's growing if we don't become a part of the wbi we lose patrons they don't know the resources available to them they will just tend to use the web. There are good resources on the web however there are proprietor resources that we provide that they can get access to."*

Lisa: *"It's incredibly important as we see so many of our students are truly online students and the only interaction may they have with a librarian or the library in general is online and more of our resources are online they really have to be web based because many of our resources are web based and that's how our students are accessing that and so I think this is going to become even more important and prevalent discussion as we go forth with more web based education in general just for everybody because I think that it's not even a trend any more it's a reality and it just going to keep becoming more prevalent. So I think it's going to be hugely important for us to think about and it's definitely not going away anytime soon."*

Subsequently, academic librarians must remain abreast, prepared, and adequately trained to support the implementation of outcomes assessment in web-based instruction for adult learners. Moreover, stakeholders (i.e., administration) must become active investors in the process. The co-creation of web-based instruction requires stakeholders to support and supply academic libraries with the resources, tools, and training needed to align with the institution's mission for successful student learning outcomes. The need to provide greater support of and web-based instruction for adult learners in academic libraries and to present increased value through use of outcomes assessment was validated by literature and data collection. This research attempts to bring greater

awareness and advocacy for the application of andragogic learning theories in web-based instruction. Additionally, increased use of outcomes assessments that bring value in web-based instruction for adult learners is sought.

Without question, academic are required to offer web-based instruction but many fail to fulfill such obligations. This presents a disservice to learners in need of web-based instruction and services. Additionally, academic libraries that are not required to provide web-based instruction should also actively pursue opportunities to increase their development of web-based instruction for academic library patrons.

The data and materials provided in this study are foundational resources designed to encourage continued discussions that will lead to the formation of active, goal-oriented committees who are invested in the successful implementation of outcomes assessments in web-based instruction for adult learners. Additionally, financial support is needed at the system level to fund this committee and any professional development desired from academic librarians interested in leading projects to implement outcomes assessment, instructional methods and strategies, or andragogic learning theories in web-based instruction for adults.

Recommendations

Without question, web-based instruction is a vital resource for adult learners in need of “after hour” instruction and services. The changing nature of academic library patrons presents new challenges and opportunities for academic librarians. Academic librarians who are aware of the forms of web-based instruction required by their target audience are more likely to be effective in presenting and developing adequate web-based

instruction. The benefit of being aware of the rationale of use for web-based instruction is the first step to reaching academic library patrons as adult learners.

Outcomes assessments in web-based instruction will increase in the future.

Outcomes assessments are an essential practice for academic librarians that seek to enhance its library value while supporting their institution's mission to improve student-learning outcomes. Web-based instruction is not going away; therefore, it is imperative for academic librarians to expand web-based instruction for adult learners. Notably, administrative stakeholders, as advocates to the institution's mission should seek ways to assist academic librarian with processes that include web-based instruction in academic libraries.

Findings suggested a must for more web-based instruction for adult learners and a greater need for the embedding of outcomes assessments in web-based instruction. To address this concern, recommendations for financial support at the system level, and professional development geared to aid academic librarians in andragogic techniques are suggested. Recommendations for asynchronous instruction would also include web-based seminars, conferences, and workshops designed to provide academic librarians with professional development skills needed to stay abreast of emerging technologies, shifting academic patrons, and rapidly changing technologies.

The literature and study findings support the demand for outcomes assessments in web-based instruction. Without question, academic librarians are decades behind in the integration of web-based instruction. A number of respondents indicated that they have limited or no outcomes assessments in web-based instruction. Others are in the initial stages of integrating web-based instruction and outcomes assessments in web-based

instruction. This concern could be addressed with a database of web-based outcomes assessments. The outcomes assessment could range from beginner to more advanced integrations. Additionally, the findings and literature demonstrated an uncertainty regarding how to locate outcomes assessments that are successful but not time consuming to implement.

The findings unveiled a number of academic librarians who are entering the field of library instruction. A number of academic librarians had less than six years of service as an academic librarian and under six years as an academic librarian in their current position. The need to preserve and retain information literacy practices and incorporate outcomes assessments, while staying abreast of changes presented by ACRL's *Framework* is essential to the library's continued survival. Notably, the changing landscape of academic libraries and its patrons include more than technology it also involves standardizing instructional activities that are applicable and understandable to all academic librarians. These objectives will requires the approval of a best-practice checklist or at minimum a sample set of instructional templates with built-in outcomes assessments that are modifiable and easy to use.

Recommendations for Future Research

The purpose of this study was to examine academic librarians' practices and perceptions on web-based instruction for academic library patrons as adult learners. This mixed-method study is not intended to provide any comprehensive results or conclusions but to offer a transferable approach for the equivalently classified institution.

Researchers interested in future research on web-based instruction may want to consider the following six recommendations:

The first recommendation would be to conduct a similar study designed to explore faculty perceptions.

The second recommendation would be to perform a comparable study that focuses on professional development, which supports the application of andragogic learning theories in web-based instruction.

The third recommendation would be to conduct a study fashioned to investigate the adaptation of increased web-based instruction that includes real-time, interactive instruction formats (e.g., Facebook Live, Periscope, YouTube Connect, etc.).

The fourth recommendation would be to implement a study designed to explore the concept of blended (traditional and nontraditional) learner and any realities presented.

The fifth recommendation would be to conduct a study to examine effective and easy methods to integrate outcomes assessment in web-based instruction for adult learners.

Finally, it would be worthwhile to implement a similar study that addresses the recently approved *Framework for Information Literacy for Higher Education*.

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Appendix A

Information Literacy Competency Standards for Higher Education (ACRL, 2000)

Standard One

The information literate student determines the nature and extent of the information needed.

Performance Indicators:

1. The information literate student defines and articulates the need for information.

Outcomes Include:

- a. Confers with instructors and participates in class discussions, peer workgroups, and electronic discussions to identify a research topic, or other information need
 - b. Develops a thesis statement and formulates questions based on the information need
 - c. Explores general information sources to increase familiarity with the topic
 - d. Defines or modifies the information need to achieve a manageable focus
 - e. Identifies key concepts and terms that describe the information need
 - f. Recognizes that existing information can be combined with original thought, experimentation, and/or analysis to produce new information
2. The information literate student identifies a variety of types and formats of potential sources for information.

Outcomes Include:

- a. Knows how information is formally and informally produced, organized, and disseminated
 - b. Recognizes that knowledge can be organized into disciplines that influence the way information is accessed
 - c. Identifies the value and differences of potential resources in a variety of formats (e.g., multimedia, database, website, data set, audio/visual, book)
 - d. Identifies the purpose and audience of potential resources (e.g., popular vs. scholarly, current vs. historical)
 - e. Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline
 - f. Realizes that information may need to be constructed with raw data from primary sources
3. The information literate student considers the costs and benefits of acquiring the needed information.

Outcomes Include:

- a. Determines the availability of needed information and makes decisions on broadening the information seeking process beyond local resources (e.g., interlibrary loan; using resources at other locations; obtaining images, videos, text, or sound)
 - b. Considers the feasibility of acquiring a new language or skill (e.g., foreign or discipline-based) in order to gather needed information and to understand its context
 - c. Defines a realistic overall plan and timeline to acquire the needed information
4. The information literate student reevaluates the nature and extent of the information need.

Outcomes Include:

- a. Reviews the initial information need to clarify, revise, or refine the question
- b. Describes criteria used to make information decisions and choices

Standard Two

The information literate student accesses needed information effectively and efficiently.

Performance Indicators:

1. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

Outcomes Include:

- a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork)
 - b. Investigates benefits and applicability of various investigative methods
 - c. Investigates the scope, content, and organization of information retrieval systems
 - d. Selects efficient and effective approaches for accessing the information needed from the investigative method or information retrieval system
2. The information literate student constructs and implements effectively-designed search strategies.

Outcomes Include:

- a. Develops a research plan appropriate to the investigative method
- b. Identifies keywords, synonyms and related terms for the information needed
- c. Selects controlled vocabulary specific to the discipline or information retrieval source

- d. Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, and proximity for search engines; internal organizers such as indexes for books)
 - e. Implements the search strategy in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters
 - f. Implements the search using investigative protocols appropriate to the discipline
3. The information literate student retrieves information online or in person using a variety of methods.

Outcomes Include:

- a. Uses various search systems to retrieve information in a variety of formats
- b. Uses various classification schemes and other systems (e.g., call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration
- c. Uses specialized online or in person services available at the institution to retrieve information needed (e.g., interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners)
- d. Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information

4. The information literate student refines the search strategy if necessary.

Outcomes Include:

- a. Assesses the quantity, quality, and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be utilized
 - b. Identifies gaps in the information retrieved and determines if the search strategy should be revised
 - c. Repeats the search using the revised strategy as necessary
5. The information literate student extracts, records, and manages the information and its sources.

Outcomes Include:

- a. Selects among various technologies the most appropriate one for the task of extracting the needed information (e.g., copy/paste software functions, photocopier, scanner, audio/visual equipment, or exploratory instruments)
- b. Creates a system for organizing the information
- c. Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a wide range of resources
- d. Records all pertinent citation information for future reference
- e. Uses various technologies to manage the information selected and organized

Standard Three

The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

Performance Indicators:

1. The information literate student summarizes the main ideas to be extracted from the information gathered.

Outcomes Include:

- a. Reads the text and selects main ideas
 - b. Restates textual concepts in his/her own words and selects data accurately
 - c. Identifies verbatim material that can be then appropriately quoted
2. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

Outcomes Include:

- a. Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias

- b. Analyzes the structure and logic of supporting arguments or methods
 - c. Recognizes prejudice, deception, or manipulation
 - d. Recognizes the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information
3. The information literate student synthesizes main ideas to construct new concepts.

Outcomes Include:

- a. Recognizes interrelationships among concepts and combines them into potentially useful primary statements with supporting evidence
 - b. Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information
 - c. Utilizes computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena
4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

Outcomes Include:

- a. Determines whether information satisfies the research or other information need
- b. Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
- c. Draws conclusions based upon information gathered
- d. Tests theories with discipline-appropriate techniques (e.g., simulators, experiments)
- e. Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
- f. Integrates new information with previous information or knowledge
- g. Selects information that provides evidence for the topic

5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

Outcomes Include:

- a. Investigates differing viewpoints encountered in the literature
 - b. Determines whether to incorporate or reject viewpoints encountered
6. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

Outcomes Include:

- a. Participates in classroom and other discussions
 - b. Participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., email, bulletin boards, chat rooms)
 - c. Seeks expert opinion through a variety of mechanisms (e.g., interviews, email, listservs)
7. The information literate student determines whether the initial query should be revised.

Outcomes Include:

- a. Determines if original information need has been satisfied or if additional information is needed
- b. Reviews search strategy and incorporates additional concepts as necessary
- c. Reviews information retrieval sources used and expands to include others as needed

Standard Four

The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Performance Indicators:

1. The information literate student applies new and prior information to the planning and creation of a particular product or performance.
2. *Outcomes Include:*
 - a. Organizes the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, storyboards)
 - b. Articulates knowledge and skills transferred from prior experiences to planning and creating the product or performance

- c. Integrates the new and prior information, including quotations and paraphrasings, in a manner that supports the purposes of the product or performance
 - d. Manipulates digital text, images, and data, as needed, transferring them from their original locations and formats to a new context
- 3. The information literate student revises the development process for the product or performance.

Outcomes Include:

- a. Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process
 - b. Reflects on past successes, failures, and alternative strategies
- 4. The information literate student communicates the product or performance effectively to others.

Outcomes Include:

- a. Chooses a communication medium and format that best supports the purposes of the product or performance and the intended audience
 - b. Uses a range of information technology applications in creating the product or performance
 - c. Incorporates principles of design and communication
 - d. Communicates clearly and with a style that supports the purposes of the intended audience

Standard Five

The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Performance Indicators:

- 1. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

Outcomes Include:

- a. Identifies and discusses issues related to privacy and security in both the print and electronic environments
 - b. Identifies and discusses issues related to free vs. fee-based access to information
 - c. Identifies and discusses issues related to censorship and freedom of speech
 - d. Demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material

2. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

Outcomes Include:

- a. Participates in electronic discussions following accepted practices (e.g. "Netiquette")
 - b. Uses approved passwords and other forms of ID for access to information resources
 - c. Complies with institutional policies on access to information resources
 - d. Preserves the integrity of information resources, equipment, systems and facilities
 - e. Legally obtains, stores, and disseminates text, data, images, or sounds
 - f. Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as his/her own
 - g. Demonstrates an understanding of institutional policies related to human subjects research
3. The information literate student acknowledges the use of information sources in communicating the product or performance.

Outcomes Include:

- a. Selects an appropriate documentation style and uses it consistently to cite sources
- b. Posts permission granted notices, as needed, for copyrighted material

Appendix B

Consent to Participate in a Research Study

Study Title: Academic Librarians' Practices and Perceptions of Outcomes Assessment in Web-Based Instruction for Adult Learners

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about outcome assessments to improve web-based instruction. You are being invited to take part in this research study because of your experience and/or expertise as an instructional librarian. If you volunteer to take part in this study, you will be one of about three people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Deborah M. Taylor of University of Memphis department of ICL. Lee Allen, EdD, is guiding her in this research. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

By doing this study, we hope to learn the forms of web-based instruction used at your library, information literacy content areas implemented, and your use of outcomes assessment.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted with the lead investigator by phone, Google Hangouts, or Skype. The total amount of time you will be asked to volunteer for this study is 45 minutes.

WHAT WILL YOU BE ASKED TO DO?

You will be given a series of questions pertaining to outcomes assessment and web-based instruction.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

You will not get any personal benefit from taking part in this study.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will not receive any rewards or payment for taking part in the study.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

All data, any institutional information, and personal names will be kept in a password-protected computer and deleted after SPSS entries. Surveys will be collected using a password-protected computer that stores data collected from an anonymous Qualtrics link. All efforts, within the limits allowed by law will be made to keep personal information private. The information made from handwritten notes will be coded with a pseudonym for names and institutions and deleted after written analysis is complete.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

We will keep private all research records that identify you to the extent allowed by law by storing information or notes that pertain to this study in a password-protected computer. All data will be deleted and/or destroyed once transcripts are converted to anonymous data. If conducting this study by survey Qualtrics provides an anonymous link where no identifying information such as name or email address is collected. However, there are some circumstances in which we may have to show your information to other people. In such cases, the individual will only be able to access data that is stored in a password-protected computer or web-based data collection system.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Deborah M. Taylor at [REDACTED] or her faculty advisor, Dr. Lee Allen, at [REDACTED] or allenlee@memphis.edu. If you have any questions about your rights as a volunteer in this research, contact the Institutional Review Board staff at the University of Memphis at [REDACTED]. We will give you a signed copy of this consent form to take with you.

What happens to my privacy if I am interviewed?

You will be given a pseudonym to protect your privacy. All efforts, within the limits allowed by law will be made to keep your personal information private. The information made from handwritten notes will be coded and deleted after written analysis is complete.

Signature of person agreeing to take part in the study

Date

Printed name of person agreeing to take part in the study

Name of [authorized] person obtaining informed consent

Date

Appendix C

Survey of Outcomes Assessments in Web-Based Instruction

I have read the survey description and understand the researcher will retain returned surveys. I understand that my identity will be kept confidential. This survey is designed to identify your perceptions as an academic librarian regarding your current web-based instruction practices and the use of outcome assessments for academic library patrons.

Please take this 15-minute survey to share your candid opinions.

1. Do your responsibilities at your institution include formal library instruction?

- ☐ Yes
☐ No

Section I: Demographic Information

This section obtains participant demographics

2. Gender

- ☐ Male
☐ Female

3. What is your job title? _____

4. What is the name of your institution? _____

5. Choose which best identifies your academic rank? (Please check one)

- ☐ Assistant Professor
☐ Associate Professor
☐ Full Professor
☐ Other

6. How many years have you served as an academic librarian? (Please check one)

- ☐ 0-5 years
☐ 6-10 years
☐ 11-15 years
☐ 16+ years

7. How many years have you been in your current position? (Please check one)

- ☐ 0-5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 16+ years

8. Which best defines your current higher education institution? (Please check one)

- ☐ Public
- ☐ Private
- ☐ State
- ☐ Corporate/Special

9. What type of higher education institution are you currently employed? (Please check one)

- ☐ University
- ☐ Two-Year College
- ☐ Four-Year College

Section II: Web-Based Instruction (Type and Scope)

This section obtains a general, overall view of web-based instruction provided at your institution, the forms of web-based instruction provided, and the academic credit.

10. What forms of web-based instruction does your institution provide? (Please select all that apply)

	Provided	Not Provided
E-learning courses	<input type="checkbox"/>	<input type="checkbox"/>
Online tutorials	<input type="checkbox"/>	<input type="checkbox"/>
Podcasts	<input type="checkbox"/>	<input type="checkbox"/>
Self-directed web-based tutorials	<input type="checkbox"/>	<input type="checkbox"/>
Videos (e.g., YouTube, Screen-o-cast, Vimeo)	<input type="checkbox"/>	<input type="checkbox"/>
Webinars	<input type="checkbox"/>	<input type="checkbox"/>
Online chats	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>

11. Which of the following *formal* web-based instruction components does your institution *offer*? (Please select all that apply)

	Provided	Not Provided
Embedded library instruction session less than a full class period in duration	<input type="checkbox"/>	<input type="checkbox"/>
Multiple embedded librarian sessions (e.g., 2-3 class sessions), but not a credit course	<input type="checkbox"/>	<input type="checkbox"/>
Self-directed web-based tutorial	<input type="checkbox"/>	<input type="checkbox"/>
Online non-credit course	<input type="checkbox"/>	<input type="checkbox"/>
Online credit course	<input type="checkbox"/>	<input type="checkbox"/>

12. Which of the following formal web-based instruction components is an *institutional requirement*? (Please select all that apply)

	Provided	Not Provided
Embedded library instruction session less than a full class period in duration	<input type="checkbox"/>	<input type="checkbox"/>
Multiple embedded librarian sessions (e.g., 2-3 class sessions), but not a credit course	<input type="checkbox"/>	<input type="checkbox"/>
Self-directed web-based tutorial	<input type="checkbox"/>	<input type="checkbox"/>
Online non-credit course	<input type="checkbox"/>	<input type="checkbox"/>
Online credit course	<input type="checkbox"/>	<input type="checkbox"/>

13. If credit-bearing web-based instruction is required by your institution, how many hours? (Please choose one)

- ☐ 0-1 hour
- ☐ 2-4 hours
- ☐ 4+ hours
- ☐ No hours are required

14. If credit-bearing web-based instruction is offered but not required by your institution, how many hours? (Please choose one)

- ☐ 0-1 hour
- ☐ 2-4 hours
- ☐ 4+ hours
- ☐ No hours are offered

Section III: Web-Based Instruction (Information Literacy Competency Areas)

This section obtains information to determine what information literacy competency areas are most commonly taught in web-based instruction.

15. When providing web-based instruction, to what extent are the following information literacy competency areas addressed?

	Not at All	To a Some Extent	To a Moderate Extent	To a Great Extent
Research process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowledge of library and research terminology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Library services (e.g., reserves) and location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Citations: Reading/deciphering bibliographic information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Citations: Accurately citing/using standard style guides (e.g., APA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selecting: Appropriate tools (e.g., databases)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selecting: Appropriate resources (e.g., format)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selecting: Terms and keywords	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinction between scholarly and popular sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Primary and secondary sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boolean Operators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keyword vs. Subject headings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Truncation, wildcard, proximity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of/searching in: online library catalog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of/searching in: online databases, e-journals, or e-books	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of/searching in: other online reference or research tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of/searching in: Web (e.g., Google Scholar)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Web site evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Economic implications of information (e.g., plagiarism)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ethical implications of information (e.g., plagiarism)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nature and process of scholarly publication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section IV: Incorporation of ACRL Competency Standards for Higher Education

The Association of College and Research Library's (ACRL) Competency Standards for Higher Education (2000) provides "a framework for assessing the information literate individual." This section obtains information necessary in determining the extent to which libraries incorporate the five broad information literacy standards in the context of their library instruction and assign student competency.

16. Which of the five broad standards does your institution address during web-based information literacy instruction? (Please select all that apply)

	Addressed	Not Addressed	Not Included in Web-Based Instruction
Learner determines the nature and extent of the information needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner accesses needed information effectively and efficiently.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner evaluates information and its sources critically; learner incorporates selected information into his or her knowledge base and value system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner individually or as a member of a group, uses information effectively to accomplish a specific purpose.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner understand that information literacy is an ongoing process and an important component of lifelong learning and recognizes the need to keep current regarding new developments in his or her field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. Which of the five broad standards does your institution formally assess during web-based information literacy instruction? (Please select all that apply)

	Addressed	Not Addressed	Not Included in Web-Based Instruction
Learner determines the nature and extent of the information needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner accesses needed information effectively and efficiently.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner evaluates information and its sources critically; learner incorporates selected information into his or her knowledge base and value system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner individually or as a member of a group, uses information effectively to accomplish a specific purpose.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learner understand that information literacy is an ongoing process and an important component of lifelong learning and recognizes the need to keep current regarding new developments in his or her field.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section V: Outcomes Assessments in Web-Based Instruction

18. What approaches to formal outcomes assessment does your institution engage in when providing web-based instruction? (Please select all that apply)

	Provided	Not Provided
Multiple choice/short answer, quiz, or exam	<input type="checkbox"/>	<input type="checkbox"/>
Essay quiz or exam	<input type="checkbox"/>	<input type="checkbox"/>
Included in course professor's quiz/exam	<input type="checkbox"/>	<input type="checkbox"/>
Record of research process (e.g., research log, reflective writing on process, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Assessment of bibliography used in paper	<input type="checkbox"/>	<input type="checkbox"/>
Assessment of complete paper and bibliography	<input type="checkbox"/>	<input type="checkbox"/>
Assignments other than papers	<input type="checkbox"/>	<input type="checkbox"/>
Attitudinal assessment: as part of general survey of library users' attitudes	<input type="checkbox"/>	<input type="checkbox"/>
Attitudinal assessment: separate survey pertaining to web-based instruction	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>

19. Additional Comments: _____

Appendix D

Interview Protocol/Introductory Email Script

Thank you for agreeing to participate in this study. The interview will take approximately 30 minutes to complete. The purpose of this study is to gain your insight on your institutions practices and perceptions on outcomes assessment in web-based instruction. This interview will attempt to address three main research topics: the forms of web-based instruction at your institution, information literacy competency areas/information literacy competency standards, and the use of outcomes assessments in web-based instruction. To maintain accuracy I plan to take lots of notes. Your identification will be confidential, please provide your candid responses. Do you have any questions before we start? [Allow time for the participant to ask any questions or address any concerns].

For the purpose of describing the sample I will begin with some demographic questions:

1. How long have you been involved in the development of web-based instruction?
2. What is your current position?
3. How long have you been in this position?

Introductory Questions

6. Who is your target audience for web-based instruction?
7. What learning objectives do you attempt to cover?

Research Question 1

1. What are the forms of web-based instruction provided at your institution?
2. How and why were these forms selected?

3. Do you track the number of patrons who use web-based instruction? Please explain why and how the data are used.

Research Question 2

1. What information literacy skills are addressed in web-based instruction?
2. Does the ACRL's *Information Literacy Competency Standards for Higher Education* serve as a foundation when developing standard areas? If not, why?
3. Can you elaborate on what you expect the learner to gain at the end of a web-based instruction session?
4. Do you rely on a particular learning theory?
 - a. Why did you choose to use it?
 - b. If no, why?

Research Question 3

1. What outcomes assessments do you use in web-based instruction?
2. What type of feedback, if any, do you obtain from patrons in academic libraries when seeking outcomes assessments in web-based instruction?
3. Do you have any additional comments you would like to add?

Appendix E
Permission to Use

From: **Merz, Lawrie** <lmerz@messiah.edu>
Date: Tue, Nov 17, 2015 at 11:54 AM
Subject: RE: Permission to use and modify survey
To: "Deborah M Taylor (dmtylor3)" <dmtylor3@memphis.edu>, "Mark, Beth" <bmark@messiah.edu>
Cc: "Merz, Lawrie" <lmerz@messiah.edu>

Dear Ms. Taylor—

Thank you for your email. Beth Mark and I have conferred and are happy to give you permission to use our survey, with acknowledgement. Thank you for your courtesy in asking!

For a long time, I held out hope that I could work on a follow-up article, contacting the same set of libraries 5 years later to survey what progress had been made in using the ACRL standards in instruction, or whether they had been abandoned or modified, etc. Now, with the revamped standards, I don't know that that would be possible or relevant.

Anyway, best to you in your research!

Lawrie

Lawrie H. Merz

Librarian/Public Services Coordinator

Liaison Librarian to Modern Languages, Music, Theatre and Visual Arts

Murray Library
Messiah College
One College Avenue Suite 3002
Mechanicsburg, PA 17055-6805
717-796-1800 x3880
lmerz@messiah.edu

From: Deborah M Taylor (dmtylor3) [mailto:dmtylor3@memphis.edu]
Sent: Sunday, November 15, 2015 3:23 PM
To: Merz, Lawrie; Mark, Beth
Subject: Permission to use and modify survey

Dear Ms. Lawrie Merz and Ms. Beth Merk

My name is Deborah Taylor. I am an EdD graduate student at The University of Memphis in Memphis, Tennessee. I am writing to request permission to use and develop a modified version for my dissertation of your survey published in "Clip Note #32, Assessment in College Library Instruction Programs." My dissertation will acknowledge you as the creators of the original survey. I am seeking to examine existing web-based instruction and the methods used to evaluate and improve information literacy for nontraditional students. With a few modifications, especially the area of web-based assessment, the survey you have already developed aligns my objectives.

Thank you in advance for your consideration.

Sincerely,

Deborah Taylor
EdD Graduate Student

Appendix F

Instructional Intervention Documentation with Needs Analysis and Formative Evaluation Digital Information Literacy in Database Searching (<http://strategies4idt.com>)

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APPENDIX G

Email Distribution List

Introduction Letter

You are invited to participate in a doctoral research study on academic librarians' practices and perceptions on outcome assessments in web-based instruction for the adult learner.

Confidentiality:

Under no circumstance will your name or institution in the course of this study identify you.

Use of Results:

This research study is to be submitted in partial fulfillment of the requirements for the degree of Doctor of Education in Instructional Design and Technology at the University of Memphis, Memphis, Tennessee. The results of this study will be published as a dissertation. In addition, the information may be used for scholastic purposes in professional presentation(s) and/or educational publication(s). Your completion of this questionnaire is acknowledgement of you informed consent [Insert Link]

APPENDIX H

Institutional Review Board Approval

IRB Approval 4146

1 message

Institutional Review Board <irb@memphis.edu>

Fri, Jun 10, 2016 at 12:07 PM

To: "Deborah M Taylor (dmtylor3)" <dmtylor3@memphis.edu>, "Lee Edward Allen (allenlee)" <allenlee@memphis.edu>

Hello,

The University of Memphis Institutional Review Board, FWA00006815, has reviewed and approved your submission in accordance with all applicable statuses and regulations as well as ethical principles.

PI NAME: Deborah Taylor
CO-PI:

PROJECT TITLE: Academic Librarians Practices and Perceptions on Outcomes Assessment for the Adult Learner

FACULTY ADVISOR NAME (if applicable): Lee Allen

IRB ID: #4146
APPROVAL DATE: 6/10/2016
EXPIRATION DATE: 6/10/2017
LEVEL OF REVIEW: Expedited

Please Note: Modifications do not extend the expiration of the original approval

Approval of this project is given with the following obligations:

1. If this IRB approval has an expiration date, an approved renewal must be in effect to continue the project prior to that date. If approval is not obtained, the human consent form(s) and recruiting material(s) are no longer valid and any research activities involving human subjects must stop.
2. When the project is finished or terminated, a completion form must be completed and sent to the board.
3. No change may be made in the approved protocol without prior board approval, whether the approved protocol was reviewed at the Exempt, Expedited or Full Board level.
4. Exempt approval are considered to have no expiration date and no further review is necessary unless the protocol needs modification.

Approval of this project is given with the following special obligations:

Thank you,

James P. Whelan, Ph.D.

Institutional Review Board Chair

The University of Memphis.

Note: Review outcomes will be communicated to the email address on file. This email should be considered an official communication from the UM IRB.