CRITICAL INFORMATION LITERACY IN PRACTICE:
AN INTERPRETIVE SYNTHESIS

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DEDICATION

This work is dedicated with love to my father, Dick Allsopp, who wouldn't let me quit.

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ABSTRACT

CRITICAL INFORMATION LITERACY IN PRACTICE: AN INTERPRETIVE

REVIEW

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More than two decades of debate since the Association of College and Research

Libraries (ACRL) adopted the term information literacy have been marked by ongoing

criticism of its associated definitions and standards. Some scholars and practitioners

have argued for a critical information literacy, which applies the precepts of critical

pedagogy to information literacy instruction. Though intriguing, this body of literature is

theoretical and largely-negative and so is not readably accessible to the practitioner.

The purpose of this study was to review and synthesize the literature of critical

information literacy` through a critical interpretive practitioner lens in order to uncover

pedagogy and instructional content to inform my own teaching practice and that of other

individual teaching librarians who wish to take a critical approach to information literacy

with undergraduate students.

The study is a critical interpretive synthesis (Dixon-Woods, et al., 2006), a review

methodology designed to be configurative, use an emerging theoretical framework to

thematically synthesize ideas, include methodologically-diverse literature, and

incorporate an authorial voice. An underlying premise of this study is that there is value

in practitioner review of the research to improve practice in the tradition of action research or the Scholarship of Teaching and Learning (SoTL).

Almost all of the studies critiqued or criticized traditional approaches to information literacy. Advocates agreed that traditional information literacy overly-focused on tools and skills. Traditional information literacy also presented an overly-simplistic model of the research process that is out of synch with the reality that research is a non-sequential, iterative, and messy process. Most called the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education and other definitions of information literacy to account for over-emphasis on tools-and-skills-based approaches. Some also held accountable the design and focus of traditional research paper assignments. Various voices from the literature negatively described traditional approaches to information literacy as technical, mechanical, behavioral, strategic, and skills-based; while positively describing critical information literacy as critical, problem-posing, multi-dimensional, creative, intellectual, process-based, and in support of student agency.

In terms of pedagogy, critical information literacy scholars and practitioners called upon teaching librarians to embrace new roles for themselves and their students. They were advised to give up their own authority and expertise in the classroom; build upon students' existing knowledge about information; place the student at the center of instruction, and use their own peripheral role as an opportunity to help students transition into academia.

The literature revealed some practical advice about how to design instruction that is meaningful to students by incorporating problem-or-question based instruction; using

research topics and examples that are meaningful to students' personal lives; promoting

student interaction; letting go of the classroom agenda in order to create space for student

interaction; and using accessible language in instruction.

       In terms of content, the literature recommended that teaching librarians teach

explicitly about *all* types of information; avoid imposing value judgments on types of

information sources; teach about information in terms of its purposes and uses; teach

information as dialog; and do not limit sources – instead make use of sources students are

familiar with as a bridge from their personal lives into academia.

CHAPTER ONE: INTRODUCTION

For the past 18 years, I've been responsible for information literacy instruction in a variety of educational settings including P-12, community college, and for the past six years at a library serving a regional, comprehensive university. My situation is similar to most teaching librarians in the United States. Although, sometimes I teach graduate students, or present multiple information literacy sessions to the same class in the same semester, the typical venue for my instruction is a single 50-75 minute session for students enrolled in an undergraduate course (known by librarians as a one-shot). As a guest instructor, my time with students is limited, and I have little control over the research assignments my instruction is designed to support. Due to the paucity of time for information literacy instruction I strive to employ the best possible pedagogical practices in order to help students navigate the complex, increasingly-pervasive, phenomenon that is information in the digital age.

Despite my best efforts, students resisted looking beyond the surface of the information they are required to use for research projects; only a few students become passionate about research; and, based on comments from a wide range of teaching faculty in multiple disciplines, the resulting research papers and projects typically failed to synthesize information to the degree that course instructors and librarians desire. Indeed, two ongoing, large-scale information literacy research projects that examine undergraduate student research behavior paint a picture of students who are reluctant to engage deeply with information, spend little time on research, and procrastinate engaging

with research projects (Ethnographic Research, 2012; Project Information Literacy, 2012).

A few years ago, I radically changed my teaching style. I was weary of presenting the very best sources and search strategies for students to use for a given assignment, only time and time again to observe them typing poorly-constructed searches into Google five minutes later. I realized that my approach of modeling information expertise and expecting the students to mimic it was at odds with my desire to empower them to find, evaluate, and use information to solve research problems. By simply offering students the *right* tools and techniques to conduct research, I was denying them the opportunity to build upon their prior knowledge to gain new understanding. I began to experiment with ceding control in the classroom by adopting a less prescriptive, more inductive approach. The results have astounded me. When I give students control, and begin with their experiences, they are much more willing to dialogue with me about information contexts and uses. Together we critically examine their information strategies and the resulting sources. We all learn from each other, and I find that when the students are allowed to have a voice in the process, they are much more willing to listen.

Eventually, I discovered a body of library literature dedicated to the concept of critical information literacy, a teaching perspective that does not focus on student "acquisition of skills," but rather encourages a critical and discursive approach to information (Simmons, 2005, p. 299). Just as I had found in my own classes, critical information literacy is not about teaching the *right* way to do things, an approach that is bound to be off-putting to young adult. Instead, critical information literacy encourages

students "to think of research not as a task of collecting information, but instead as a task of constructing meaning" (p. 299).

I was thrilled to find emerging theory and pedagogy that supported my newfound approach in the classroom. And yet, as is the case with many themes of educational research, the literature failed to present a holistic view that was readably accessible to the practitioner. While my own experience informed me that a critical approach to information literacy instruction can improve the practice of teaching librarians, it was important that I and other teaching librarians better understand the processes and rationales of critical information literacy as described in the literature for it to be useful in the classroom. In particular, I was inspired by Jacobs' (2008) challenge:

> What I am suggesting is that the dialogues we have surrounding information
> literacy instruction strive to find a balance in the daily and the visionary, the local
> and the global, the practices and the theories, the ideal and the possible (p. 258).

This dissertation research synthesizes the literature of critical information literacy through a critical interpretive practitioner lens in order to inform teaching practice. It is situated between my lived experience as a teaching librarian and my scholarly endeavors. Most importantly, it seeks to have a practical and positive impact on other practitioners and subsequently, the students, faculty, and institutions they serve.

Nature and Significance of the Problem

The concept of information literacy has come under much scrutiny in the literature, which has proliferated over time with increased interest since the mid-1990s and the advent of the digital age (Pinto, Cordon, & Diaz, 2010). The articles that define, redefine, or appraise the concept critically are too numerous to count, but frequently cited

voices in the conversation include Bruce (1999), Elmborg (2006), Lloyd (2006), Marcum (2002), Owusu-Ansah (2004, 2005), Shapiro and Hughes (1996), Simmons (2005), and Webber and Johnson (2000).

Most teaching librarians in the United States are guided by the information literacy standards produced by divisions of the American Library Association (ALA), namely ACRL and the American Association of School Librarians (AASL). For teaching librarians the standards present a mathematical challenge. The five standards outlined in the Information Literacy Competency Standards for Higher Education encompass twenty-two performance indicators, and 86 outcomes (ACRL, 2000) while the AASL (2007) standards encompass 83 outcomes. Since most practitioners are still confined to one-shot library instruction sessions, with credit-bearing information literacy courses being the exception rather than the rule (Davis, Lundstrom, & Martin, 2011), the numbers alone present a formidable barrier to an individual practitioner who aims to teach to the standards.

Standards, or really the use of any sort of taxonomy or codex system (list of what an information literate person needs to know), have been subject to much criticism, especially in response to the shift from a print to digital paradigm of information. The early conversations in the literature about the print to digital paradigm shift are among the most interesting. Hubbard (1995) appears to be one of the first to criticize, with his statement:

If what we have taught in the Industrial Book Age is the organization and

structure of codex knowledge and all we teach about The Net is communications

software, data manipulation, and liberal attitudes, the Information Age may be

more threat than promise for our pedagogy if not our profession (p. 441).

Luke and Kapitzke (1999) took up the cry with criticism of a still-pervasively

popular taxonomic, linear information literacy model called The Big Six (Eisenberg &

Burkowitz, 1990). Luke and Kapitzke perceived that hierarchies of skills are at odds with

the use of the internet to acquire information, a process they describe as "nonlinear,

recursive" and "simultaneous" (p. 478). Webber and Johnston (2000) also comment on

the "limitations of the list approach":

> While this approach seems to put the individual at the centre of the process, in
>
> fact the result has been increasing numbers of ever more detailed lists. . . reducing
>
> a complex set of skills and knowledge to small, discrete units. The assumption
>
> seems to be that the skills have been mastered for good once each unit can be
>
> labelled as completed. This fragments the field of knowledge and reflects a
>
> *surface learning* approach (with a short-term focus on the task in hand) rather
>
> than a *deep learning* [emphases from original] one (in which the students are
>
> encouraged to reflect on and contextualise what they are learning, in a manner
>
> that enables them to use the knowledge or skill outside the task in hand) (p. 384).

Teaching librarians with moderate to heavy teaching loads are likely to be

unsympathetic to the debaters. Our concern is less with what information literacy means,

than pedagogical practices and curricular content that help students become information

literate. Owusu-Ansah (2005) called for an end to the debates in his article, *Debating*

Definitions Information Literacy: Enough is Enough! He stated, "Defining information

literacy continues to remain a distraction in the efforts of many librarians as they strive to

determine what needs to be done by the library in information literacy education" (p. 367). This perspective is shared by Jacobs and Berg (2011). Arguing that information literacy is "full of possibilities to explore rather than problems to be solved" (p. 383), Jacobs and Berg revisited a range of international documents that seek to define information literacy and concluded:

> Information literacy practitioners struggle to find ways to connect the larger goals with their daily information literacy work. The gap between the large, over-reaching goals and ideals of information literacy and the realities of daily practice within our libraries, classrooms, and workplaces can, at times, seem like a chasm. . . . How can we take what is powerful and inspiring about the proclamations and create workable plans for our libraries, our information literacy programs, and our students? (p. 385-386).

While the volume of information literacy literature is testament to its importance to education in the 21st century, the debate and discussion over what is meant by information literacy and constant calls for reconceptualization can be confusing to the practitioner (Elmborg, 2006; Jacobs & Berg, 2011; Johnston & Webber, 2003; Owusu-Ansah, 2005; Webber & Johnston, 2000). The frustrating reality is that the discussions have had little effect on practice and that many teaching librarians continue to teach in a style more reflective of the bibliographic instruction training model than information literacy (Seamans, 2012). From the perspectives of a teaching librarian and scholar, I believe the literature about critical information literacy can inform (rather than confuse) practitioners, and encourage them to "focus less on information transfer and more on developing critical consciousness in students" so that they "learn to take control of their

lives and their own learning to become active agents, asking and answering questions that

matter to them and to the world around them" (Elmborg, 2006, pp. 192-193). Critical

consciousness is a tenet of critical pedagogy that "that allows people to question and

explore the character of their society with a view to acting as subjects in creating a more

democratic culture" (Freire, Paulo, 1921-1997, 2004).

Definitions

Critical information literacy – Information literacy that focuses "less on information

transfer and more on developing critical consciousness in students" so that they "learn to

take control of their lives and their own learning to become active agents, asking and

answering questions that matter to them and to the world around them" (Elmborg, 2006,

pp. 192-193).

Critical Pedagogy – "Educational practices that allow people to acquire, analyze, and

produce both social and self-knowledge" (McLaren & Crawford, 2010).

Information literacy – Is defined by ACRL (2000) 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).

Interpretive review – Is defined by the *Sage Encyclopedia of Social Science Research*

Methods as a qualitative approach with "an emphasis on the interpretive role of the

reviewer in making sense of the findings of different studies to construct a holistic picture

of the field, a picture that may well reflect the particular interests and sensibilities of the

reviewer" (Hammersley, 2004, para. 6).

Practitioner – The term practitioner is used interchangeably with the term teaching

librarian.

Reflexivity – Reflexivity is used throughout this document to clarify my perspective as a practitioner who has a non-neutral relationship with the literature being reviewed. The *Sage Encyclopedia of Social Science Research Methods* defines reflexivity as, "Qualitative researchers' engagement of continuous examination and explanation of how they have influenced a research project" (para 1). . . . "Researchers are required to ask questions of their methodological decision making and are encouraged to think about epistemological decisions regarding the research and its findings" (Dowling, 2008, para 3).

Conceptual Framework

This interpretive synthesis of the literature of critical information literacy was reflexively interpreted through my dual lenses of teaching librarian and scholar. It is a practitioner inquiry grounded in the justifications and philosophies of action research and the scholarship of teaching and learning (SoTL) (Cochran-Smith & Donnell, 2006). As a practitioner and researcher my intent was to reveal pedagogy and curriculum to improve my own teaching practice and that of other teaching librarians. While lack of access to the curriculum handicaps individual teaching librarians' influence to some extent, we still have a great deal of control over what and how we teach (Hollister & Coe, 2003; Phelps, Senior, & Diller, 2011). The lack of time and access is in fact a challenge to teaching librarians to use the very best pedagogy and present the most effective content possible.

Methodologically-inclusive reviews conducted by and/or for the practitioner to inform practice have much potential because they are driven by practitioner-based concerns, are purposive to address those concerns, and are conducted in such a way that they are likely to provide the synthesized detail that practitioners need in order to apply

knowledge to practice (Gough, 2009; Hammersley, 2002) The methodologies and

findings of studies may have very different meanings to practitioners than to scientists,

scholars, or policymakers (Cochran-Smith & Lytle, 2009; Groundwater-Smith &

Mockler, 2008; Schön, 1995). A review of the literature by and/or for the practitioner is

intended to solve very different problems than such a review conducted for other

audiences (See Figure 1).

     Oddly, despite the attention paid to evidence-based practice in education, the

importance of practitioner review of the research has received little attention in the

education literature (Kahn, Wareham, Young, Willis, & Pilkington, 2012). This is

puzzling given practitioner reviews and syntheses' prominence as methodologies in the

field of nursing, which is similarly concerned with evidence-based practice (Polit &

Tatano-Beck, 2008; Rebar, Gersch, Macnee, & McCabe, 2011). Recent research in

education demonstrates that a practitioner review of the literature can lead to improved

integration of research into practice (Kahn, et al., 2012; Professional user reviews, 2012).

Further, the purposes and processes of systematic literature review and practitioner

inquiry are similar. Both recommend that research be conducted collaboratively in

teams, and both strive toward public dissemination of results to influence policy and

practice (Cochran-Smith & Donnell, 2006; Gough, Oliver, & Thomas, 2012). As

Groundwater-Smith and Mockler (2008) put it:

     What counts as professional knowledge is a much more interesting and complex

     matter than in times gone by, when it was seen that it was the role of academia

     and dedicated Government agencies to develop such knowledge and communicate

it to the cognate profession. . . . knowledge creation is not exclusively a matter for scientists and academics working in institutions. " (p. 81).

Figure 1: Conceptual Framework
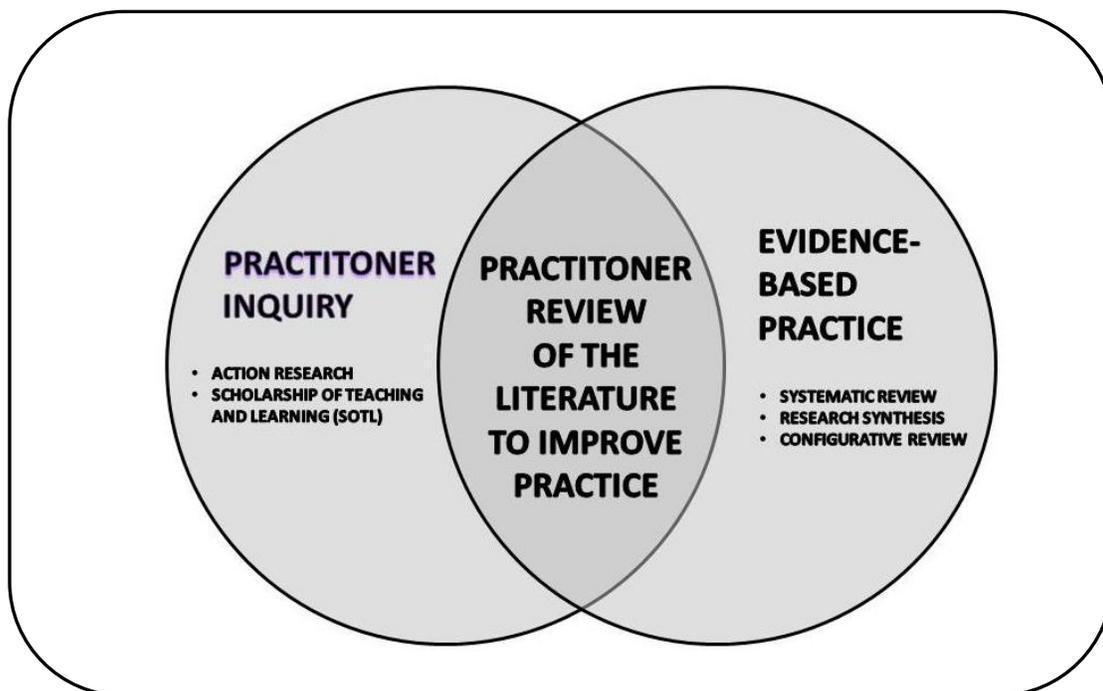
Figure 1: Methodologically-inclusive reviews conducted by and/or for the practitioner to inform practice have much potential because they are driven by practitioner-based concerns, are purposive to address those concerns, and are conducted in such a way that they are likely to provide the synthesized detail that practitioners need in order to apply knowledge to practice.

New voices are calling for and conducting many types of literature review and research syntheses of methodologically-diverse reports in order to complement the customary quantitative meta-analysis of individual research studies (for examples, Dixon-Woods, et al., 2006; Gough, et al., 2012; Morse, 2006; Pawson, Greenhalgh, Harvey, &

Walshe, 2005; Suri & Clark, 2009). This is due in part to the surge in qualitative and other methodologically-diverse research and also to emerging critical, participatory, and interpretive perspectives among scholars, referred to by Lather as "paradigm proliferation" (2006, p. 35). Suri and Clarke (2009) note that critical and participatory perspectives "are common in educational research" (p. 402). Among others, Pawson, et al., (2005) question whether the exclusion of large numbers of studies on the basis of research methodology can result in a credible review that is free from bias and argue for more methodologically-inclusive reviews (also see Hammersley, 2001).

In academia the purpose of literature reviews is ordinarily understood to be to provide background for a study or to aggregate or summarize knowledge (Sandelowski & Barroso, 2007). There are, however many ways of approaching a literature review or synthesis that may vary depending on the purpose of the review. Cooper (1988) proposed that reviews can be positioned according to the focus and goals of the review, the perspective of the reviewer (epistemology), the coverage of the review, and its organization, and intended audience. So, in terms of Cooper's taxonomy, critical interpretive synthesis from a practitioner perspective would have a focus of "practices or applications," a goal of "identification of central issues," coverage that is "central or pivotal," organization that is "conceptual," and an audience of "practitioners" (p. 109).

Barnett-Page and Thomas (2009, p. 5), and Gough, et al., (2012, p. 41) describe "overarching approaches to the activity of reviewing research literature" (p. 40), which are dependent on the reviewer's epistemological viewpoint:

- Subjective idealism: there is no shared reality that is independent of multiple alternative human constructions

- Objective idealism: there is a world of collectively shared understandings

- Critical realism: our knowledge of reality is mediated by our perceptions and beliefs

- Scientific realism: it is possible for knowledge to approximate closely an external reality

- Naïve realism: reality exists independent of human constructions and can be known directly.

The epistemologies of objective and critical realisms are appropriate to this review, because I wish to explore the collective understanding of practitioners, through my own practitioner lens.

The most common form of review, meta-analysis, is aggregative and conducted from a scientific realism or naïve realism approach. Newer forms of review are configurative, and are positioned to purposely "arrange (configure) the findings from primary studies to answer the review question(s)" (Gough, et al., 2012, p. 51). While traditional meta-analyses are effective to evaluate interventions to discover "what works" (p. 41), Pawson, et al., (2005) suggest that other forms of research synthesis can be aimed at discerning "what works, for whom, in what circumstances, in what respects, and how" (p. 21).

Gough, et al. (2012) offered examples and define several "overarching approaches to reviewing" (p. 41): realist synthesis; critical interpretive synthesis; and, meta-narrative review. Of these, critical interpretive synthesis was most appropriate for this practitioner inquiry, because is deliberately configurative to answer research questions, methodologically-designed to synthesize "a multidisciplinary and multi-method evidence

base" (p. 43), and emphasizes that the "voice of the author is explicit and reflexively accounted for" (Dixon-Woods, 2008, para 20). From perspective of a critical researcher, "validity is called into question, its assumptions interrogated and challenged, and the researchers need to be reflexive and disclose what they bring to a narrative" (Creswell & Miller, p. 126). Practitioner researchers, in particular, must be transparent about ethics and values, because as Groundwater-Smith & Mockler (2008) maintain "ethical issues form the primary criteria for quality in practitioner research" (p. 114).

As will be further described in Chapter 3, critical interpretive synthesis draws upon ethnographic and grounded theory approaches in order to generate theory, which in this case is more akin to "practice theory" often discussed in the nursing literature (Practice theory, 2009). Barnett-Page and Thomas (2009) concisely describe the characteristics of critical interpretive synthesis:

It involves an iterative approach to refining the research question and searching and selecting from the literature (using theoretical sampling) and defining and applying codes and categories. It also has a particular approach to appraising quality, using relevance – i.e. likely contribution to theory development – rather than methodological characteristics as a means of determining the *quality* [emphasis from original] of individual papers (p. 4).

The published research which supports critical information literacy is diverse, and so this approach to review seemed most appropriate in order to maximize use of the literature to inform practice. The capacity of critical interpretive synthesis to allow an "emerging theoretical framework" also seemed appropriate to a body of literature that is not yet grounded in theory (Dixon-Woods et al., 2006). Most importantly, a

configurative review, such as that employed here, firmly entrenches the issues of the practitioner as the driving force of the review. Citing Eakin and Mykhalovskiy (2003), Dixon-Woods, et al. (2006), suggest that the research questions of a study should "serve as a compass rather than an anchor" (p. 3) – a perspective which inspires this conceptual framework

Purpose and Research Questions

Despite the herald of a critical approach to information literacy and the contributions of practitioners to the literature, a clear interpretation of critical information literacy practice for the teaching librarian has yet to emerge. The literature about information literacy has proliferated exponentially (Pinto, Cordon, & Diaz, 2010), but scholars and professional associations have failed to communicate effective, pedagogical guidance in a manner that is useful to practicing teaching librarians (Elmborg, 2006; Jacobs, 2011; Johnston &Webber, 2003; Owusu-Ansah, 2005; Webber & Johnston, 2000).

The purpose of this study was to review and synthesize the literature of critical information literacy through a critical interpretive practitioner lens in order to inform my own teaching practice and that of other individual teaching librarians who wish to take a critical approach to information literacy with undergraduate students. A goal was to use the literature to discern pedagogy and content that can be used to improve information literacy instruction by actively engaging students. Two research questions framed this study:

1. What pedagogies should individual teaching librarians who wish to promote critical information literacy employ?

2. What content should individual teaching librarians who wish to promote critical

   information literacy teach?

CHAPTER TWO: LITERATURE REVIEW

This chapter provides a thematic review of the literature of teaching librarianship, and critical information literacy, in order to provide context for and substantiate the research problem under investigation. While the literature is integrated throughout this dissertation, this chapter specifically provides background about teaching librarianship and critical information literacy in order to frame the study.

Teaching Librarianship

The range and complexity of library work has changed markedly in recent decades, largely due to the changing nature of libraries' chief commodity: information (Myburgh, 2003; Walter, 2008). The demand for librarians to teach information literacy skills has grown, as technology has upended the traditional ways faculty and students find and use information (Albrecht, & Barron, 2002; Clyde, 2005; Kennan, Cole, Willard, & Wilson, 2006; Walter, 2008). It is widely recognized that students must have information skills to survive and thrive in the 21st Century; yet, few library education programs prepare librarians to teach (Albrecht & Brecht, 2002; Ishimura, & Bartlett, 2009; Julien, 2005; Westbrock & Fabian, 2010).

Albrecht and Baron (2002) summarized more than three decades of literature that examined the issue of librarian preparation to teach and the expanding teaching role of librarians. They confirmed that the professional issues remain. Their research further confirmed that few schools of library and information science courses require training in instruction as part of their programs, except when preparing school library media specialists (a finding which is in agreement with Ishimura, & Bartlett, 2009 and Julien,

2005). Albrecht and Baron's analysis of more than 1,000 academic librarian job advertisements established that 50 percent require instructional duties. Further, their data showed that practicing teaching librarians spend an average of 50 percent of their time on library instruction and related activities.

Walter (2005) surveyed public services librarians from a random sample of 13 research libraries to better understand how academic librarians "with little or no background in pedagogy, instructional design, or assessment of student learning" can become effective teachers (p. 363). He found that while respondents prefer to learn from other practitioners, reading the professional literature was the most frequently-experienced instructional improvement activity.

Critical Information Literacy

The term information literacy was developed in response to the advent of the information age in the latter part of the 20th century (Livingstone, Van Couvering, & Thumim, 2008). In the United States, the term was introduced to librarianship via ACRL's Presidential Committee on Information Literacy, which stated in its final report:

> Ultimately, information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand (ALA, 1989).

The new concept of information literacy was intended to transform and expand the role of librarians in creating information literate citizens; and was distinguished from the earlier instructional role of the librarian, which was known as bibliographic instruction. There

are a number of features that differentiate information literacy from bibliographic

instruction (Ward, 1997, as cited in Seamans, 2012, p. 231). Bibliographic instruction is

a library endeavor delivered by the librarian in a lecture format with a focus on library

materials; whereas, information literacy results from a collaboration between the librarian

and course instructor, is integrated into the course, features instruction linked to course

assignments and utilizes active learning techniques (See Table 1).

Table 1

How is Information Literacy Different than Bibliographic Instruction?

Bibliographic Instruction	Information Literacy
One-shot instruction	Integrated into curriculum
Focuses on learning to use library resources	Focuses on information management
Often not linked to classroom assignments	Integral to course assignments
Session often focuses on passive learning	Active learning
May lack clearly defined goals and objectives	Goals and objectives carefully linked to the course
Librarian lectures, demonstrates	Librarian and faculty facilitate learning
Librarian provides instruction asked for	Librarian and faculty design and implement together.

Note. Used with permission of the author (Ward, 1997, as cited in Seamans, 2012, p.

231).

More simply, Reichel (1990) explained that the shift from bibliographic

instruction to information literacy meant "librarians are aligning themselves with the

literacy movement" (p. 46). She conceptualized the differences between the two concepts:

> At first glance, the controversy over the choice between the terms bibliographic instruction or information literacy seems like an argument comparing apples and oranges. Information literacy is an attempt to instill a condition, that is *literacy* [emphasis from original] into an individual. It has a product – an information literate individual. Bibliographic instruction, on the other hand, is a methodology, some would argue a discipline, which enables skills and concepts to be learned (p. 46).

Although lagging behind other academic disciplines, the call for a shift from bibliographic instruction to information literacy reflected understandings from cognitive psychology that emerged in the 1980s and 1990s. The incorporation of active learning was supported by the conception of "learning as knowledge construction, in which learners actively build organized and meaningful representations in their minds" (Mayer, 2005, para 11).

Unfortunately, after more than two decades, the transformation from bibliographic instruction to information literacy has largely failed (Seamans, 2012). Elmborg (2004) observed:

> Information Literacy has been an important movement in academic libraries for at least the past decade. Still, no consensus has emerged about how to define information literacy or how broadly or narrowly to apply literacy theory to the work of librarians. In fact, the historical definitions of librarianship have tended to work against the integration of literacy theory into the daily practices of

librarianship. These definitions have emphasized protecting the library as warehouse of externalized knowledge and the librarian as mediator between that knowledge and the students and faculty who need to use it in the educational process. The end result has been that information literacy's power to transform libraries has been neutralized and contained (p. 5).

The term critical information literacy emerged just a few years after ACRL introduced the term information literacy (Luke & Kapitke, 1998; Todd 1998). While the concept of applying literacy theory to information literacy instruction has been bandied about the literature for some time, it gained traction in 2006 with Elmborg's highly-cited, seminal article, "Critical Information Literacy: Implications for Instructional Practice." Arguing that academic librarians "increasingly see themselves as educators" (p. 192), Elmborg expounded upon Paulo Freire's "banking concept" of education, which rejects the concept of knowledge as a commodity that can be deposited into student brains by teachers to be withdrawn at will for future use. Elmborg stated:

> Perhaps not accidentally, Friere equates the common library functions of receiving, filing, collecting, and cataloging with the banking concept. In doing so he poses important challenges to librarians. What is the role of the library in the Freirian vision of critical literacy? Is the library a passive information bank where students and faculty make knowledge deposits and withdrawals, or is it a place where students actively engage existing knowledge and shape it to their own current and future uses? And what is the librarian's role as educator in the process? (p. 193).

It's important to note that there were several influential articles addressing the relationship between critical literacy and information literacy published in the years before Elmborg's provocative challenge to the profession; however, his appears to have garnered the most attention, according to Google Scholar metrics (cited 145 times). Using the same measure, other earlier influential articles that applied critical theory to information literacy include: Pawley's 2003 problematization of information literacy (cited 84 times); Kapitzke's 2003 "poststructuralist critique" of information literacy (p. 6) (cited 74 times); Simmons' 2005 application of genre theory to information literacy (cited 71 times), Andersen's 2006 view of information literacy as "sociopolitical" (p. 213) (cited 52 times), Swanson's 2004b case study of critical information literacy implementation (cited 42 times), and several others that are more obscure (Burton, 1995; Doherty & Ketchner, 2005; Hubbard, 1995; Pawley, 1998; and Todd, 1998).

Of special interest to this study is the body of literature that calls for information literacy to embrace the broader elements of literacy theory, which call for literacy education to be transformative and emancipatory, and which are increasingly perceived by the scholarly community as being essential to any form of literacy acquisition (Elmborg, 2006). An initial review of the literature of critical information literacy uncovered more than 60 articles and book chapters published since 2006 with a clear progression from abstract theory toward increasing practicality for teaching librarians. All of this suggested that at the outset of this study there was a sufficient body of literature about critical information literacy instruction with the potential to inform practice if synthesized, interpreted, and disseminated for teaching librarians.

CHAPTER THREE: METHODOLOGY

This section provides an overview of the study's methodology. After a brief description of the study, it details the research design, sample, sampling procedures, and data analysis. The chapter concludes with a discussion of trustworthiness.

Research Design

This study was inspired by an authentic problem encountered with my practice of teaching librarianship, which was how to critically engage undergraduate students with the vast amounts of information available to them. As always when approaching a practice problem, I immediately turned to the literature to explore approaches to information literacy instruction. I found the literature of critical information literacy to be inspirational and that it resonated with my own experiences as a teaching librarian.

The literature is a rich and underutilized resource for the improvement of practice (Hammersley, 2002). The value of synthesizing the literature is well-recognized in education, with a familiar example being the prestigious journal, *Review of Research in Education*. It has also become a tenet of evidence-based practice to rely on systematic review of the literature in recent decades. It was my original intent to conduct a traditional systematic review of empirical studies; however, I was frustrated in that attempt because a strict inclusion and exclusion of studies based on research methodology would have excluded many studies of value to answer the research questions. Thus began an exploration of methodologically-inclusive review methods which led to the positioning of this review as a critical interpretive synthesis (Dixon-Woods, et al., 2006). The methodology was carefully selected in order to make the most

of the literature on hand, as well as to accommodate my perspective as a practitioner through an "authorial voice" (p. 10).

Qualitative inquiry is an appropriate vehicle for research synthesis that is intended to derive meaning from the literature, since the unit of analysis for qualitative approaches is text, and the library literature is a rich source of textual data. In this case, qualitative methodology as practitioner inquiry was particularly appropriate, since the bulk of the library literature is authored by practicing librarians (Cronin & Meho, 2008; Wiberley, Hurd, & Weller, 2006). Critical interpretive synthesis methodology is crafted to allow the synthesis of a large body of methodologically-diverse literature (such as that of critical information literacy) and provides for an "authorial voice," (Dixon-Woods, et al. (2006, p. 10). Such a voice is useful to the practitioner who wants to critically and reflexively interpret the literature; and, allows for an emerging theoretical framework, which is appropriate to a relatively new body of research.

Gough, et al. (2012) compared review research methodology and primary research methodology, and concluded, "The idea that different research questions may be answered best by different methods and by different types of data also applies to reviews" (p. 7). They and many others argue that a "systematic question-driven approach to reviews can apply equally to research questions of process or of meaning that are addressed by more qualitative primary research and by review methods that reflect those qualitative research approaches" (2012, p. 7). For more detailed discussions of a range of qualitative approaches to research syntheses and their purposes, see Barnett-Page and Thomas (2009); Finlayson and Dixon (2008); Priest and Woods (2002); Schreiber, Crooks and Stern (1997); and Thorne, Jensen, Kearney, Noblit, and Sandelowski (2004).

The Sample

Booth's (2011) qualitative synthesis found that the evidence base in the literature of librarianship is a barrier to evidence-based library and information practice due to its "diffuse nature," "high proportion of descriptive studies," and the lack of empirical studies (p. 4). By adopting the methodologically-inclusive approach of critical interpretive review, these perceived disadvantages became advantages, since the literature of critical information literacy includes substantial descriptions of practice, which are largely written by practitioners, and provide the rich data necessary to describe a complex practice situation. Thus, in order to capture the most complete information from the literature available to teaching librarians, studies were included that met the American Educational Research Association's broad definition of social science research, which includes "reports of education research," and which specifies reports to include "reviews of research; theoretical, conceptual, or methodological essays; [and] critiques of research traditions and practices" (Standards, 2006, p. 33).

Appendix A offers details of the studies in the final sample, which was comprised of 42 studies, and Table 2 presents the characteristics of the studies. Most of the studies were peer-reviewed journal articles (N=28), some were book chapters (N=13), and one was a doctoral dissertation. In terms of the type of research, the majority (N=17) were theoretical essays. The authors of these studies stated their intent to explore theory as it related to information literacy. Another substantial portion of the studies (N=15) could loosely be termed single case studies – they were mostly descriptions of practice in a particular information literacy setting. Some studies were argumentative essays (N=8) in that the authors clearly argued for a particular stance with regard to information literacy.

One study was a literature review and one was a true qualitative empirical study with a critical action research framework.

The studies used a wide and oft-confusing range of epistemologies, which helps explain why this particular body of literature to date has not been readily accessible to practitioners. Many of them cited more than one epistemology. The majority of them clearly used a critical pedagogy framework (N=25). Some borrowed from frameworks traditionally used in compositional studies (N=11) and the subset of compositional studies that addresses genre theory (N=3). Others used a postmodernist framework, which is larger paradigm behind critical pedagogy (N=9), or specifically cited critical theory (N=3). A few addressed problem-based or problem-posing techniques with regard to information literacy (N=3). The rest employed a wide range of frameworks; examples include aestheticism, contact zone theory, and feminist theory.

Some of the theoretical and argumentative essays did not reference which groups of students might be targeted by the critical approaches they were exploring or arguing for. Of the studies that did reference groups of students, most targeted a college student population (N=27). Some did not specify the level of student (N=8); some specified lower level undergraduate students (N=4), first year students (N=6), or community college students (N=4). A few targeted upper level undergraduate students (N=3). One was in a K-12 setting of unspecified grade level, one was in a secondary setting, and one specified adult learners.

Table 2

Characteristics of the Sample

Type	Methodology	Epistemology	Population
Peer Reviewed Journal Article (N=28)	Theoretical Essays (N=17)	Critical Pedagogy (N=25)	College Students (N=27)
Book Chapter (N=13)	Case Studies (N=15)	Compositional Studies (N=11)	Lower-Level (N=4)
Doctoral Dissertation (N=1)	Argumentative Essays (N=8)	Genre Theory (N=3)	Upper-Level (N=3)
	Literature Review (N=1)	Postmodernism (N=9)	First Year (N=6)
	Qualitative (N=1)	Critical Theory (N=3)	Community College (N=4)
		Problem-based learning (N=3)	K-12 (N=1)
			Unspecified (N=8)

Sampling Procedures

Critical interpretive synthesis (Dixon Woods, et al., 2006) borrows from the

qualitative traditions of ethnography and grounded theory to use purposive, theoretical

sampling to select research reports based on their potential to contribute to the

"development of concepts and theory" related to the research problem under investigation

(p. 3). It is not the goal of critical interpretive synthesis to be exhaustive, or to simply

summarize what is known, but rather to critically interpret the literature in order to better

understand the phenomenon. This study incorporated an emergent design so sampling

"involved a constant dialectic process conducted concurrently with theory generation" (p.

4) until saturation was reached, meaning that no new data relevant to the research questions emerged from subsequent searches (Theoretical saturation, 2004). Studies were selected on the basis of their "relevance and theoretical contribution" to the practice of critical information literacy instruction (Gough, et al., 2012, p. 44), using the weight of evidence framework (Gough, 2009), which sets a standard for study inclusion based on "fit for purpose for answering the review question" (p. 9).

The extensive search for studies using Bates' (1989) berrypicking strategies took many months of repetitive searching and the same studies were encountered, scanned, and considered for inclusion multiple times. Unlike the "classic model of information retrieval," which is a holdover from the print era, Bates' (1989) "berrypicking, evolving search model" (p. 407) acknowledges the iterative nature of secondary research in the digital age, and encompasses a range of search techniques to supplement database searching that emphasize making use of the knowledge gained as the search progresses. See Figure 2 (Adapted from Bates, 1989, p. 408) and Figure 3 (p. 411). The following strategies were used to uncover additional studies for the sampling frame.

- Footnote chasing/backward chaining – As studies were found "footnotes found in books and articles of interest" were tracked (Bates, 1989, p. 412). I read the reference lists of studies and looked up articles that appeared to be relevant to the reference questions.
- Citation searching/forward chaining) – Articles which cited found articles were also tracked. This was accomplished using Google Scholar's "cited by" feature.
- Journal runs and hand searching – I identified and manually searched individual journals that were central to the line of inquiry. The tables of contents of eight

journals were read spanning from 2000 (or when the journals began publishing)

through spring 2013. These journals were identified because they contained three

or more relevant articles from the initial sampling frame. They were:

Behavioral and Social Sciences Librarian

College and Undergraduate Libraries

Journal of Academic Librarianship

Journal of Documentation

Library Philosophy and Practice

Library Quarterly

Reference and User Services Quarterly

Reference Services Review

- Area scanning – I browsed physical collections for nearby materials on similar
  topics. This was not particularly helpful, as there were only a few books
  published that contained chapters related to the study and those were mostly
  uncovered via other search methods.

- Author searching – I identified authors who wrote about the area of interest and
  sought additional research by that author that might have relevance to the subject
  under investigation. This was accomplished using Google Scholar author pages
  and library databases.

Figure 2: The Classic Information Model
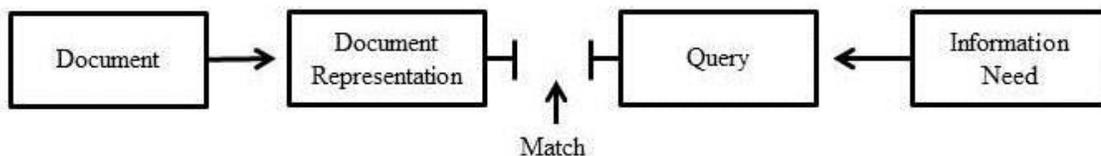
Figure 2. The classic information retrieval model is linear, and conceptualizes single

questions based on a "one time conception of the problem" (p. 409). Used with

permission from the author and the publisher.

Figure 3: A Berrypicking Evolving Search Model
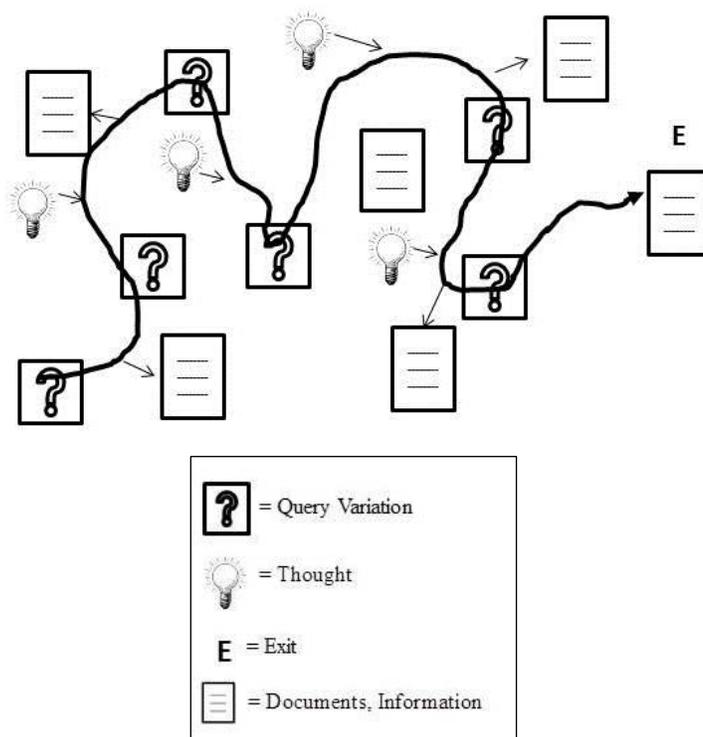
Figure 3. A Berrypicking/evolving search is iterative and the search is reconceptualized

with each new piece of information. It is representative of "real life searches" (Bates,

1989, p. 411). Used with permission of the author and the publisher.

Google Scholar proved to be an excellent tool for many of these techniques, since it is fairly comprehensive for the social sciences (Kousha & Thelwall, 2007), provided links to subsequent references to works, ranked the most influential articles high in the result lists, and linked directly to institutional library holdings. Scholar searches were supplemented with other databases, including worldwide library holdings via WorldCat, the local library catalog, and databases specific to education and librarianship, such as the Education Resources Information Center (ERIC) and Library, EBSCO's Education Source, and Information Science Abstracts (LISA).

Studies that held promise for answering the research questions were stored in a commercial bibliographic management system that also functioned as a searchable database and permitted me to make notes on each study. An initial pool of 128 studies was identified as the sampling frame.

Through a careful process of reading and rereading the studies, they were further screened and included or excluded in the sample. There were multiple reasons why a study might be excluded, but the most common and most important was whether or not the study offered advice that was relevant to the practice of individual teaching librarians who wish to promote critical information literacy in undergraduate research. So, for example, while a study about information literacy for a highly specialized upper-level course, or a for-credit information literacy stand-alone course might have been included in the initial sample frame, after careful scrutiny it might have been excluded if it did not provide information of use to the practitioners targeted by this study. Similarly, a study about information literacy at the high school level might have included even though the setting was not an undergraduate library if it had practical advice to offer. Other studies

were excluded because upon further inspection they did not really address critical

approaches in the information literacy classroom. So, for example Hamelink (1976) was

the first writer to use the term "critical information literacy" but she wrote about

journalism, not librarianship. Or, Dunaway's (2011) article, "Web 2.0 and Critical

Information Literacy" looked promising initially, but closer inspection revealed it was

really about critical thinking, not critical pedagogy.

The careful reading and rereading of studies and the application of inclusion and

exclusion criteria took place throughout the data collection and analysis stages and

ultimately resulted in a pool of 42 studies that were included in the synthesis, and which

were "clearly concerned" with issues of practice (Dixon-Woods, et al., 2006, p. 3). See

Appendix A for the details of the studies that were included in the review.

Data Collection and Analysis

To begin the data collection and analysis processes, I carefully reread each study

and created a table that listed the author, type of study, target population of the study,

why it was of interest, and how it might contribute to the research questions. Next, I read

each study again, this time extracting direct quotations from the authors. These

quotations were extracted when they provided rich description that could inform

practitioners. As I selected and captured the quotations I began to organize them by

broad theme, and as the study progressed, I constantly organized and reorganized these

quotations so that a thematic conversation began to emerge that closely followed the

literature and conceptually captured the main practice ideas that the studies contained. It

should be noted that many of the studies were not explicitly about teaching practice.

Many were much more theoretical, but if they contained relevant information about

teaching practice, that information was extracted when it took the form of a tangible and useable quotation, unique to that author (meaning they weren't quoting someone else).

The process for developing themes and synthesizing the studies emulated the process used by Dixon-Woods, et al. (2005):

> Synthesis should begin with a detailed inspection of the papers, treating them as analogous to transcripts in primary qualitative research. Tentative theoretical constructs, or categories, that help to explain the phenomena being described in the literature should be developed. The theoretical structures that begin to emerge should be constantly compared against the evidence in the papers, and the credibility of the evidence and its underlying assumptions should be critically assessed. The categories and the relationships between them should gradually become better specified into the integrated set of constructs that forms the synthesising argument (p. 275).

Critical interpretive synthesis builds upon Noblit and Hare's (1988) lines of argument synthesis. Dixon-Woods, et al. (2005) suggested, "that the output of an LOA [lines of argument] synthesis is a *synthesising argument*. This synthesising argument integrates evidence from across the studies in the review into a coherent theoretical framework comprising a network of constructs and the relationships between them.

Suri (2014) described the process of constructing "a collective account of evidence across individual research reports" (p. 129). He explained, "Interpretive techniques in a synthesis involve consciously constructing understandings by connecting subjective insights gained from individual studies" (p. 135). In the case of this study, in accord with critical interpretive synthesis methodology, thematic analysis was used "to

identify key themes emerging from the literature" (p. 136). Also in keeping with critical

interpretive synthesis, I avoided coding and counting themes, in favor of selecting quotes

and organizing themes on the basis of the their "explanatory power" (p. 136).

Trustworthiness

Suri (2014) offered multiple examples of how to evaluate the rigor of syntheses in

his recent handbook, *Towards Methodologically Inclusive Research Syntheses*.

Published after I conceived my conceptual framework, his guide confirmed the

methodological approaches I had gleaned from previous literature about conducting a

configurative review of methodologically-diverse literature for purposes of practice. He

stated:

There is no universal framework by which the results of all quality syntheses may

be evaluated. However the process by which the synthesis was conducted can be

evaluated with respect to its methodological coherence and consistency of its

alignment with its overarching epistemological orientation (p. 148).

This synthesis attempted to provide a rich level of detail regarding

methodological decisions made and to support those decisions with the literature of

research synthesis in order to enhance its credibility for practitioners. It is also well-

aligned with the "overarching epistemological orientation" of critical information

literacy, and associated ideas of knowledge creation and agency. The methodology

employed was indeed a form of critical information literacy itself, as the literature was

used to uncover new ideas of probable use to practitioners who want to use a critical

approach in the information literacy classroom.

Suri (2014) further stated, "In general, understandings constructed in a synthesis may be

evaluated by the extent to which they are useful and insightful to the intended audience."

Interpretive review makes no claims to be reproducible or generalizable – measures of

reliability that are often used in the evaluation of other types of meta-analyses. Instead,

one can assess the "applicability" or "transferability" of an interpretive synthesis such as

this one (p. 148).

Suri explained:

Applicability or *transferability* [emphases from original] may be described as the

extent to which connected understandings constructed in the synthesis can be

adapted to similar real-life contexts. Transferability can be enhanced by using

purposeful sampling to maximize the range of information; by selecting reports

from diverse theoretical perspectives, research foci and contexts; and by

providing thick description of the synthesis process as well as the contexts

covered by the original studies (p. 150).

From the context of practice, Schön (1995) refers to this as "actionable theory,"

which is:

Derived from and invented in particular situations of practice, [that] can be

generalized to other situations, not as covering laws but through what I call

reflective transfer [emphasis from original], that is by carrying them over into

new situations where they may be put to work and tested and found to be valid

and interesting, but where they may also be reinvented (p. 31).

This study is not intended to generate a single knowable truth, but rather practical

and useful ideas for teaching librarians who want to *try* a critical approach to information

literacy instruction. It is unlikely that anyone will find here a finished recipe for perfect instructional practice, nor that anyone, even I, would embrace the range of these findings uncritically. Rather they are something to consider, try out, tweak, and try out again – as is all good pedagogy.

Another measure of credibility for interpretive synthesis suggested by Suri (2014) is "prolonged engagement with the research literature to be synthesized" (p. 149). The bibliographic software used to store studies for this synthesis was created August, 13, 2011. For two years and six months I engaged with the literature repeatedly through the multi-stage search process described in the data collection and analysis section above, and then through repeated reading, data extraction, and data analysis.

Suri (2014) stated, "Given the inherent subjectivity involved in an interpretive process, an interpretive synthesis may approach rather than attain external reliability" (p. 150). He suggested that clear description of the "factors which contribute to the uniqueness of their synthesis, such as the synthesist's identity" can help interpretive syntheses "approach" reliability (p. 150). Throughout the synthesis, I have been transparent about my role as a practitioner and researcher in order to render the findings believable and useful to other practitioners.

CHAPTER FOUR: FINDINGS

The purpose of this study is to review and synthesize the literature about critical approaches to teaching information literacy to undergraduate students. Its aim was to discern curriculum and pedagogy that individual teaching librarians can use to improve their teaching practice. Two research questions guided this synthesis:

1. What pedagogies should individual teaching librarians who wish to promote critical information literacy employ?

2. What content should individual teaching librarians who wish to promote critical information literacy teach?

This chapter is organized by themes related to teaching critical information literacy. The methodology used to develop each theme is fully described in the previous chapter. It opens with an over-arching view of the paradigm shift that critical information literacy scholars and practitioners describe. Next each research question is addressed individually. Two themes emerged that addressed research question one, and one theme that addressed research question two. Within each theme, multiple, overlapping subthemes emerged, which are further organized by subsection to flesh out distinct, though related concepts. Each section includes an introduction, followed by the subthemes and direct quotations from the literature that best exemplified the subthemes. The chapter concludes with a summary of the findings and a graphical overview.

Overview: Traditional Information Literacy versus Critical Information Literacy

Almost every study included in the synthesis was premised on criticism of existing approaches to information literacy instruction. A common critique was that

instruction about tools and skills is inadequate to support a research process which is in reality complex and non-sequential. Some writers went so far as to claim that skill-and-tool based approaches were detrimental to students because they do not allow for the development of student ideas and agency. At the core of many of these criticisms was dissatisfaction with the ACRL (2000) Information Literacy Competency Standards for Higher Education. Also, student research assignments that emphasize the final product over the research process were thought to diminish student capacity to engage critically with information and become knowledge creators.

Although these criticisms at face value seem to offer little to the practitioner seeking to apply critical pedagogy to his or her practice, an analysis of the key terms the authors used to negatively describe traditional information literacy, when compared with the key terms they used to positively describe critical information literacy presents a contrast between the two approaches, which is depicted in Figures 4 and 5 on pages 60 and 61. This contrast represents a paradigm shift for traditional teaching librarians.

Information literacy should be about more than learning tools and skills. While most studies mentioned the deficits of a tools-and-skills based approach, a few teaching librarians described their realizations within the context of classroom experiences. In an essay book chapter, Keer (2010) described a "typical *one-shot* [emphasis from original] information literacy instruction session" as:

> a forty-five minute marathon during which the librarian desperately spews forth
> as many of the tenets of *How To Do Research* [emphasis from original] as is
> humanly possible while the class sits in anxious silence, hoping to figure out what
> possible relevance this litany could mean to their particular circumstances. When

the librarian conceives of the information literacy session as a brief opportunity to frantically impart to students a veritable arsenal of techniques, shortcuts, and strategies, the students often feel that they have been plucked from the relative comfort of their regularly scheduled classes and deposited into a world of arcane codes and unfamiliar customs. What results resembles less a vigorous exploration of how to develop sound research skills and more a medieval ordeal that everyone is hoping desperately to survive (pp. 152-153).

After several years of teaching a for-credit information literacy course at a large university, Broidy (2007) reconceptualized her "traditional approach to library instruction" (p. 495). She realized:

The tools-and strategies-intensive way I had structured my courses and presentations actually encouraged students to *commodify* information without stopping to consider the political ramifications *of facts* [emphases from original] on a page or, indeed, how those facts came to be valued. . . . Working in a university that went to great lengths to promote the conscious incorporation of critical thinking skills into every aspect of the curriculum, I was forced to confront the realization that not only was I failing to instill these skills in my students, I may very well have been doing just the opposite. The students left the classroom equipped to search the catalog or find a journal article but no more able to assess the quality of the books and articles they discovered or to think critically about the nature of information than they were when the session started (p. 495).

Kopp and Olson-Kopp (2010), a teaching librarian and a professor of rhetoric and writing contextualized the shortcomings of a skills-and tools-based approach to information literacy:

> In broad terms, library instruction functions within the banking concept of education to the extent it can be described merely as a *transfer of objects that fosters the development of skills in the service of others* [emphasis from original]. This description stands in dialectical opposition to an alternative, problem-posing orientation, which defines library instruction as a dialogic process, a collaborative praxis in the face of an authentic problem (p.56).

Based on their own teaching experiences, Kopp and Olson-Kopp further reflected:

> When learning outcomes are couched primarily in mechanistic and behavioral terms, we should not be surprised if students remain uncritical. Although students may play a visibly active role when they complete a hands-on task such as using truncation in a search, they are for the most part developing technical expertise – learning how to operate machines, as it were, without considering their purposes, functions, or effects on others. Technical skills when they are taught in the absence of the particular human contexts which give them significance may seem hollow or pointless (p. 58).

Research is a non-sequential, iterative, and messy process. Many proponents of critical information literacy felt that traditional conceptions of the research process were flawed and misaligned with both the way new knowledge is actually created and students' real life experiences with research. One teaching librarian stated simply,

"Searching for information is not the simple, rules-driven process that many of us would like. Gathering information is erratic and often messy" (Swanson, 2004b, p. 260).

Another scholar contextualized the problems associated with conceiving the research process as linear and sequential:

The *information process* [emphasis from original] as it is currently understood – define a problem; locate appropriate information; select, organize, and synthesize resources; create and present a solution; evaluate the effectiveness of the task completion – is devoid of any opportunity for students to examine the social context and construction of either the information *problem* or its *solution* [emphases from original]. Neither the constituent assumptions of the problem, its process of formulation, the subsequent solution, nor the information used in solving the problem is contextualized or problematized. This, in turn, precludes the availability of multiple and alternative solutions and naturalizes the information process, making it immune to discursive interrogation and transformation (Kapitzke, 2003, p. 51).

Sinkinson and Lingold (2010) decided to apply critical pedagogy to their instruction after realizing:

In the former seminar model, we *explained* library resources and *demonstrated* [emphases from original] how to navigate them as students followed along at their own computers. We superficially modeled the research process by moving through sample searches that we knew would produce excellent results while highlighting searching strategies and database features. . . . We knew research to be a messy and iterative process that is often frustrating and surprising . . . We

compartmentalized information by seeking isolating specific mechanical

strategies rather than nurturing a conceptual understanding of information systems

(p. 82).

A few teaching librarians described specific problems related to the timing of a

research model that is conceived to be experienced in discrete stages suggesting that

students should be critically engaged earlier in the process. One challenged librarians:

to rethink the chronological configuration of the research process and to

reimagine the nature of reading as an act of discovery and creation. Early

engagement of students in the research process and regarding students as creators

of knowledge from the moment that they begin research are two characteristics of

a reconceptualized IL [information literacy]. Creation is conventionally

conceived as happening only during the third act, the *using* act of a three-act

information literacy drama, which involves a first act of *finding* and a second act

of *evaluating* [emphases from original]" (Patterson, 2009, p. 353).

This teaching librarian further envisioned an "IL [information literacy] pedagogy

that would be more like a glass-blowing class, combining technique, aesthetics, risk,

demonstration, and practice, and less like a workshop on Microsoft Excel" (Patterson,

2009, p. 353).

Several studies emphasized the impact that the internet has had students' research

process. Luke and Kapitzke (1999) writing at the time that the internet was initially

becoming a factor in library instruction argued:

Common uses of the internet tend to be non-linear, recursive, and, taking a leaf

out of McLuhan's book, 'simultaneous'. In this way, problems and tasks

encountered by internet users tend to be defined and redefined in dynamic,

reflexive practices that, quite literally, second guess and critique each decision as

it is being made (p. 478).

Subsequently, they concluded:

As a consequence [of traditional linear information frameworks] students are

being taught to *do* [emphasis from original] a research methodology that, at best,

is out of sync with cultural change and technological capacities and, at worst, lags

behind their relatively unfettered agency at surfing the net selectively and,

perhaps, quite critically and cynically, away from the gaze of the teacher, the

librarian and the assignment (p. 484).

Information literacy standards and definitions over-emphasize tools and

skills. Almost every study debated definitions of information literacy and critiqued the

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

Table 3). The following argument is typical of the discussion in the literature:

Proponents of critical information literacy caution that, although standards such as

the Association of College and Research Libraries's [sic] Information Literacy

Competency Standards can help librarians and other educators outline the

research process, these standards and performance measures may lead to an

excessive focus on teaching skills related to finding, accessing, and evaluating

information at the expense of providing insight into how information is intimately

tied to the social contexts in which it is created and used (Warren & Duckett,

2010, p. 355).

Writing from the perspective of a critical information literacy librarian, Elmborg (2012) concurred:

This librarian will find important things missing from the Standards. The way that research is portrayed in the Standards will seem not so much wrong as one-dimensional and inadequate. The idea that we 'recognize the need for information' will seem mechanical. The idea that we should aim to 'access the needed information effectively and efficiently' will seem contrary to the slow and patient way that knowledge builds in the person (p. 93).

Table 3

ACRL's Information Literacy Standards for Higher Education

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

Note. Adapted from "Information Literacy Standards for Higher Education," ACRL, 2000, Retrieved from http://www.ala.org/acrl/standards/informationliteracycompetency

Some critics perceived that the standards are detrimental to the goals of information literacy. Pankl and Coleman (2010) commented:

Indicators listed under each ACRL Standard do not fully address the individuality and creative functionality of the researcher – they, in effect, bypass the agency of the researcher. Fundamentally these standards favor an instrumental approach. They are predicated upon the idea of using information to achieve purposes, rather than highlighting the purposiveness of the researcher. Thus, they construct research as an accretion of knowledge that can be added to a pre-existing *knowledge base* [emphasis from original] that is divorced from any knowledge creation. Consequently, by promoting (to the letter) the ACRL Standards, the IL [information literacy] instructor is hindering the transformation of her students and inhibiting their impact on the world (p. 8).

A teaching librarian and instructor of record who partnered to integrate information literacy into a first-year writing course concluded:

Our teaching practice undermined the ACRL's (2000) proclamation that information literacy enables learners to 'extend their investigations, become more self-directed, and assume greater control of their own learning.' Because our classes were teacher-centered and demonstration-based, we were in no manner fostering self-direction for the students. We imposed a research formula on the students that inhibited their active engagement with seminar content (Sinkinson & Lingold, 2010, p. 82).

Another commented:

The dual presence of strategic and communicative action in the ACRL definition is not a fatal contradiction, but it does produce some specific challenges for information literacy educators, which manifest themselves in questions of *pedagogy* [emphasis from original]. Each ACRL standard can, in principle, be reduced to technical points which can be taught behaviouristically, as long as the full implications of the word critically in §3 are ignored. . . . This type of teaching is in contradiction with the use of the term "critically". It reduces information literacy to technical, strategic action, instead of appreciating its social scientific nature (Whitworth, 2006, p. 8).

Research paper assignments can be antithetical to information literacy.

Some proponents of critical information literacy found the research paper assignment itself complicit in limiting student agency as it "made the collection of research more like a scavenger hunt than a critical, self-reflective process" (Jacobs & Jacobs, 2009, p. 75). Hubbard (1995) claimed that "librarians figure as unindicted coconspirators in the dubious achievements of the RPA [research paper assignment] as a retailer of undigested facts (p. 447).

One instructor of record for an English Composition course described her realization that she instilled a critical perspective in every aspect of her course except the research paper assignment. Her partnership with a librarian took the common form of a one-hour, one-time workshop:

The students are highly goal-oriented during the one-hour workshop. . . . Students want to learn the quickest way to locate a cache of acceptable research materials that can be inserted into the research paper, meeting or exceeding the exact

number of sources and source types, the exact number of in-text citations, and the

exact number of pages required by the syllabus. This focus on getting and

skimming as opposed to seeking and evaluating is a departure to what we've been

doing all semester. In my classroom the students mostly form a community of

scholars who are ready to be critical readers of everything I assign. Now, [during

library instruction] however, when faced with [the] task of reading the published

word by themselves and writing a formal paper that incorporates it, the students

morph into survival mode and are ready to accept almost unquestioningly

everything they read. . . . The multidimensional experience of research has

collapsed into a shallow, mind-numbing chore (Torrell, 2010, p. 90).

She concluded:

Consider that the research paper process described in my narrative places the

stress on a *top-down* [emphasis from original] teaching of technique both in the

classroom and [library] workshop; it limits the research workshop to a rushed,

single hour of class; it does not include opportunities for the students to receive

guided instruction throughout the research process; it isolates students as opposed

to encouraging peer interaction; it evaluates the students' multi-dimensional

process of research writing using a single, formal paper that determines a large

part of the course grade; it does little to give students the agency to be active

researchers, readers, and responders to sources (pp. 94-95).

Another rhetorician who worked for a university writing center explored the

interconnection between writing and information literacy in a two-part series of articles

arguing for a critical approach to information literacy. He described the effects of a

reductionist approach that traditional research paper assignments take, "Such research papers tend to collapse what should be a rich process of compositional invention and intellectual inquiry into a lock-step sequence that focuses on selecting, narrowing, and outlining a subject" (Norgaard, 2003, p. 127). In the second article, he reflected, "As traditionally taught, the research paper places its focus on format and final product, on sources and citations instead of intellectual process" (Norgaard, 2004, p. 222). He concluded, "Students come to see citation merely as a means to avoid plagiarism, not as a productive means to frame questions, establish currency and credibility, advertise allegiances, and explore disagreements and open questions" (p. 223). Instead he suggested:

> Rather than having us focus on the fruits of our search for information (citations) or on the final written products of that search (the research paper), a process-oriented information literacy would attend more closely to a broad and evolving life of intellectual inquiry (Norgaard, 2004, p. 224).

Summary of criticisms of traditional approaches to information literacy. The skeptical and largely negative nature of the scholarly dialog about critical information literacy could be off-putting and frustrating for the teaching librarian seeking to improve his or her practice by incorporating critical approaches. It seems much more focused on what is wrong than what can be accomplished. To gain a clearer understanding of the difference between traditional and critical approaches to teaching information literacy, it was helpful to contrast positive and negative descriptive key terms from the authors' direct quotations.

I extracted words and phrases from the authors' statements, much as a secondary researcher would identify keywords for an information search – by stripping out all of the words from the quotations except those that were perceived to be important to describing the phenomena under study. For example, Sinkinson and Lingold's (2010) statement is typical of a description of critical information literacy in terms of what was not happening, "Because our classes were teacher-centered and demonstration-based, we were in no manner fostering self-direction for the students." (p. 82). Conceptually this statement describes traditional information literacy as an approach is "demonstration-based" rather than self-directed. These are the key terms behind the concept relayed in the statement. One is a negative description of practice and the other positive. While the additional words in the statement hold the sentence together, they do little to describe the concept being relayed, and so were stripped from the sentence, leaving the phrase "demonstration-based" as a description of traditional practice, and the phrase self-directed as a positive description of practice.

Using a popular, web-based word cloud tool, I created one word cloud from key descriptive words and phrases the authors used to positively describe critical information literacy instruction (often in terms of what was not happening in the traditional information literacy classroom), and another from descriptive words and phrases the authors used to negatively describe traditional instruction. Figure 4 depicts negative descriptions of information literacy and Figure 5, positive descriptions of information literacy. In order to effectively group similar key terms, I used a process called stemming. Stemming converts similar words to the same root or stem (Feinberg, 2013). So, for example, for Figure 4, the word behavioristically was converted to behavioral.

The word cloud software displays words that are mentioned more frequently in the text in a larger font size. I selected the same font and colors and layout for both figures for consistency.

Because there is no well-defined theory of critical information literacy, the comparison of these two word clouds can be useful to a practitioner who wants to understand the differences between traditional and critical information literacy. While not absolute, the word clouds give a sense of varied perceptions of critical information literacy scholars and practitioners who perceive characteristics of traditional information literacy to be technical, mechanical, behavioral, strategic, and skills-based as compared to perceptions of critical information literacy as critical, problem-posing, multi-dimensional, creative, intellectual, process-based, and designed to support student agency.

Figure 4: Negative Descriptions of Traditional Approaches to Teaching Information Literacy

Figure 4. Critical information literacy proponents negatively described technical, mechanical, behavioral, strategic, skills-based traditional approaches to teaching information literacy. Larger words represent words that were used more often than smaller words from the quotations included in the findings for this theme.

Figure 5: Positive Descriptions of Critical Approaches to Teaching Information Literacy

Figure 5. Critical information literacy proponents positively described an approach to information literacy that is critical, problem-posing, multi-dimensional, creative, intellectual, process-based, and promotes student agency.

Research Question 1: Critical Information Literacy Pedagogy

Critical information literacy librarians embrace new roles for themselves and students. Many scholars and practitioners viewed the traditional role of the librarian as information expert to be problematic from multiple perspectives. Voices from the literature suggest teaching librarians relinquish power and give up the role of efficient expert in favor of the role of friendly ally working alongside students to construct knowledge. Librarians are also asked to reject a deficit view of student capacity and view students as active agents in their own knowledge construction. The student should be the center of instruction, rather than the material. Some scholars suggested the

interdisciplinary position of librarians is an asset that can be leveraged to ease students'

entrance into academia, especially those at a disadvantage.

   Give up authority. Multiple scholars and practitioners described the critical

information literacy classroom in terms of a more equal balance of power between

librarians and students. In a published "reflective dialogue done with the intent of

developing a more critically grounded theory of information literacy instruction,"

Doherty and Ketchner (2005) proposed:

> Authentic teaching is an important concept for librarians to be aware of. It
>
> dismisses the concept of banking, of depositing information in the student.
>
> Rather, the student is an active participant in learning; indeed, the student would
>
> be in control of her learning. For librarians working with patrons, this means a
>
> surrendering of authority. To empower someone means to relinquish control, to
>
> pass along a level of trust and responsibility for learning to the learner. We would
>
> argue that this is part of the definition of learner-centered education: teaching and
>
> learning in equal partnership, implying that the teacher and the learner also are in
>
> partnership (p. 8).
>
> Another scholar described the necessary shift in roles in a published essay:
>
> This change re-envisions the persona of the academic librarian from one of rigid
>
> *authority*, handing down information from on high, to a dynamic co-creator,
>
> facilitator, enabler, and guide. In this new understanding, the librarian
>
> orchestrates the process of learning; he or she is instrumental in empowering
>
> students to achieve *agency* [emphases from original] in their education (Yoder,
>
> 2003, p. 384).

Reale (2012) described her teaching philosophy in framing a library instruction session for a sophomore-level literature class:

For me, operationalizing Freire's philosophy and pedagogy in the classroom begins by seeing my students holistically, in other words recognizing that they come with thoughts, feelings, perceptions and many other human attributes that influence not only how they learn, but their capacity to learn. And that I am the guide who will help them along the way as opposed to being the authority who expects them to have the *right* [emphasis from original] answers. This approach empowers students to trust their own thoughts in exploring a topic (p. 85).

One researcher reflected in her dissertation:

To teach critically requires that instructors be self-aware, flexible, non-authoritarian, and open to taking risks and to relinquishing control in the classroom. . . . adopting critical pedagogy involves risk as librarians relinquish the pretense of control to face a pedagogical situation in which their role develops according to the needs and preferences of the students" (Strege, 1996, p. 192).

One team of theorists envisioned "a library where librarians become more critical commentators, mediators and mentors – and perhaps nomadic intellectuals and cultural tourists- rather than traditional archivists and monitors" (Luke & Kapitzke, 1999, p. 476).

Relinquish expertise and efficiency. Some scholars perceived the traditional role of the teaching librarian as efficient expert to be an impediment when teaching from a critical perspective. Peterson (2010) reflected that the role of teaching librarian as expert erects a barrier in the information literacy classroom:

[A] side effect of this lecture-demonstration, cram-it-all-in approach is distance. When I teach this way, I don't have to engage with the students beyond a superficial level. It's all show and tell on my part with no discussion or active reflection with the group. I am the expert at the podium in the front of the classroom and the students are the passive receptacles (p. 71).

In an essay aimed at "re-envisioning" reference services, Martin (2009, p. 1) stated simply, "Librarians must recast themselves without espousing our expertness, without claiming that we know the only correct way to conduct information seeking" (pp. 3-4) and concluded, "Rather than acting as experts to whom all patrons should defer, librarians should serve as helpful guides and fellow explorers" (p. 6).

Patterson (2009) explained that efficiency as a goal undermines students' knowledge construction, "Librarians who view their job as monitors of information and who prize the conventional LIS [library and information science] framework of efficiency and effectiveness are probably the least likely mentors for promoting the idea that knowledge is constructed." Instead he advocated "an approach that authorizes students to create meaning, to construct an argument, to stake claims, and to question others' claims," even with the understanding that such an approach "is often full of inefficiency, doubts, intellectual circling, and confusion" (p. 352).

Ceding the role of efficient expert can be particularly difficult for librarians. In arguing for an approach to information literacy that is more about "problem posing" and less about "problem solving" Jacobs and Berg (2011) challenged librarians to:

Consider how we define ourselves as teachers or educators. As librarians, we have been trained to provide policies that supply answers, offer solutions, and

solve problems: this kind of training works well with banking models of education and problem-solving approaches to information literacy. Problem-posing education, on the other hand, disrupts our notions of our role as *information authorities* [emphasis from original] . . . Through dialogue, the teacher-of-the-students and the students-of-the-teacher cease to exist and a new term emerges: teacher-student with students-teachers. The teacher is no longer merely the one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach (p. 390).

Another theorist stated:

Librarians need to move away from the mediating position and develop strategies to work with people collaboratively, to honor their experiences, and to build bridges from where they are to new literacies. The vehicle for that change is language. In my experience, too many librarians still think their job is to provide correct answers to questions. To be clear, I do not advocate that we abolish correctness as a standard, but rather that we need a human connection with someone, to understand the way they view the world, where their question or problem is coming from (Elmborg, 2010, p. 75).

One librarian offered a practical classroom example of ceding expertise and efficiency, "I avoid *canned* searches that demonstrate the *right* [emphases from original] way to search using perfect examples that demonstrate all the advantages and none of the disadvantages of CD-ROM searching" (Burton, 1995, p. 139).

Mirtz (2010) agreed:

By limiting research models not only to academic or *serious* [emphasis from original] topics, but to topics that have been the subject of serious research and thinking, we model a non-problematic research process that then frustrates students when they try the topics that are important to them. In other words, librarians too often model successful searches, not failed ones (p. 301-302).

Build upon students' knowledge about information. The literature described a new role for students as well: As active participants in their own knowledge construction as opposed to Freire's "empty vessels" waiting to be filled (Smyth, 2010, para. 3). Again, librarians were challenged to shift their traditional views of students. Norgaard (2003), a self-described rhetorician problematized "the deficit model that the term literacy might have us unwittingly adopt" (p. 126). He explained:

Mandates for information literacy presume that students are not information literate, whereas our own experience might suggest that college students have developed fairly complex (if not always effective, appropriate, or productive) ways of accessing and using information. If information literacy is to succeed in ways that we would like, we need to accord more attention to the tacit (if incomplete) knowledge that students already bring with them (p. 126).

In a rare empirical study, Strege (1996) commented in her qualitative dissertation: Based on the dictates of the deficiency model, librarians focus on *dumbing down* [emphasis from original] their curriculum instead of building on the strengths of the students, which I found in this study include skepticism and resilience. . . . Instead of teaching these skills in a reductive manner emphasizing pre-determined mental models, critical pedagogy suggests that librarians recognize that students

know how to think but have not been encouraged to question assumptions and the accuracy of truth claims in writing and in speech (pp. 189-190).

Kapitzke (2003) stated:

A high proportion of activities undertaken in school libraries are based on the assumption that students lack something (that is, information), which only the teacher or librarian can provide. Yet the role of the librarian as *fact provider* [emphasis from original] is becoming obsolete (p. 47).

Swanson (2004b) viewed the deficit approach as a missed opportunity to engage students, "We need to recognize that our students enter our classrooms with their own experiences as users of information. This is a common ground from which we can enter a discussion about using and finding information" (p. 264). In a second study he stated:

A critical pedagogical approach to information literacy would recognize that students enter classrooms with their own experiences as information users. For some students, this may be a simple recognition that CSPAN, CNN, and MTV are different cable channels. Others will have a broader perspective, but in either case, students must be given the opportunity to relate their experiences as information users to their first attempts at college-level research (Swanson, 2004, p. 74).

Jacobs and Berg (2011) further explained the limitations of a deficit approach:

Structuring information literacy instruction around the ACRL standards is rooted in a problematic assumption that students are in a deficit position in terms of information literacy: students lack the skills they need to complete assignments and so librarians provide them with those skills. . . . When we teach information

literacy as a *survival tactic* [emphasis from original] we approach it as if it were a problem that needs solving and, often, a problem with only one solution (p. 387).

Librarians employing critical pedagogy found in contrast to the deficit approach that students had much to contribute to discussions about information:

Our patrons have been searching online for years, so to assume they know nothing about information seeking is offensive and naïve. Giving these patrons detailed instructions that directly contradict what they have been doing for years is not going to help them or our image. Rather, we must encourage and acknowledge the benefits of experimentation with library tools and demonstrate our appreciation for learning from our patrons' approaches to searching. We must also keep in mind that their online searching experience might differ from ours. In the fragmented postmodern world where diversity and contradictions are celebrated, differences do not make either librarians or patrons wrong. Instead, by pointing out the differences between the search strategies of the librarian and patron, the postmodern citizen can celebrate diversity and appreciate the contradictions encountered in the information seeking process (Martin, 2009, p. 5).

Sinkinson and Lingold (2010) described their experiences integrating critical information literacy into a first-year-experience course:

Fighting our urge to deposit knowledge, we are astounded by the quality of student-generated ideas when we allow them to expand in an open-ended, non-judgmental discussion. . . . Despite our initial skepticism, after taking a leap of faith and testing out the student-led activity, we were thrilled to observe students

transforming into eager mini-experts who have a great deal to say about searching with variant tools, investigating an author or source, limiting searches and developing new keywords. Indeed the students began to build methods of critical evaluation arriving at precisely the conclusions we previously had attempted to drive home through our woefully inauthentic methods (p. 87).

Place the student at the center of instruction. A few researchers tackled the complex context in which information literacy instruction occurs, describing multiple influences that impede student-centered instruction. Swanson (2010) stated:

The significant challenge to a fully realized critical information literacy perspective does not lie in convincing librarians, faculty members, administrators, or professional organizations about the benefits of a critical approach, although this is important. It lies with convincing our students by shifting the focus of critical pedagogy toward student belief about knowledge and worldview (p. 266).

Another team of teaching librarians expressed, "The most imperative paradigm shift for library instructors involves placing the individual, the researcher, at the center of the research process rather than demanding that the researcher bend to a static and arbitrary outcome" (Pankl & Coleman, 2010, p. 9).

Doherty (2007) explained:

Information literacy, rather, should be focused on the learner, not on the content . . . but even if content were not the focus of information literacy, there would still be a strong pull in the direction of the teacher, or in this instance the faculty [instructor of record]. Their learning outcomes directs [sic] the library instruction session. Take out the faculty, and milieu still pulls quite strongly, in that the

mode of delivery of information takes precedence. Unfortunately, this leaves the

student at the rear (pp. 3-4).

And speaking from his classroom experience, a teaching librarian described the

practical benefits of a student-centered classroom:

Incorporating the students' own experience into lesson plans has a twofold

benefit. When students can find themselves and their own interests in the material

and concepts, the instruction is more likely to be relevant and engaging to them.

Also it brings the student and instructor onto a more equal footing. It says to the

student: what you know and what you experienced is relevant and important. It

says: I know something, you know something, so let's work together to learn

more. Acknowledging this prior experience is a profound act of respect in the

classroom, and it is a small step toward equipping students with power to further

transform their own educational experience… (Peterson, 2010, p. 73-74).

Promote student agency. Many critical information literacy proponents focused

on the goal of student agency. Students do not simply absorb knowledge; they create

new knowledge and act upon it. As one teaching librarian said:

When students view themselves as agents – as creators of information – no longer

do they see their papers: as compilations of pieces of *Truth* [emphasis from

original] retrieved, evaluated, and used but rather as created works written with

the authority that flows from understanding information's political, social, and

economic dimensions (Patterson, 2009, p. 358).

Another stated, "A critical theory of IL seeks to engage students as active social

subjects charged with interrogating the social world and developing their own capacity

for informed questioning" (Cope, 2010, p. 25). Such an approach engages students intellectually.

Pankl and Coleman (2010) surmised:

When students are taught they are, in fact, knowledge creators, they begin to understand that they are responsible for producing the *evidence* [emphasis from original] that will support their assertions. Thus students will learn that their ideas and their opinions stand not in the shadow of others. Instead students will act as agents of change and discovery. . . . By emphasizing students' individuality, creativity, and agency, teachers can help students interact with external knowledge in a way that presents it not as superseding their understandings but as intersecting and enriching them (p. 10).

In critical information literacy classrooms students are challenged to take an active and discursive role in their interactions with information, "This agency entails both new capacities to juxtapose, to ignore, to elide, to silence and to critique information that doesn't appear to be relevant or valuable or interesting but as well new capacities to produce, change, alter, relocate and transform these messages" (Luke & Kapitzke, 1999, p. 480).

Ease the student transition into the academic community. Some theorists envisioned a pivotal role for the critical information literacy librarian in helping students fulfil their role in academia, or as Hubbard (1995) put it, "break into the disciplinary ivory towers" (p. 446). Elmborg (2006) authored several studies in which he championed the librarian's role in supporting students as they strive to join academic communities:

Students who aspire to membership in academic communities must master both

the external style and the way of thinking to be initiated into a discipline.

Librarianship as a profession should develop strategies for helping students

master these styles and patterns of thinking (p. 196).

In another study Elmborg (2010) explained further:

The codes and discourses of academic communities (the college game or the

academic library game) can be learned if learners are assisted in joining the

communities. The process of exploring how this joining occurs is essential to

understanding a critical approach to information literacy. Critical information

literacy, or critical literacy, aims to bring as many newcomers into the game as

possible by assisting learners in developing understanding of the codes or

language of the academic discourse community. Democratic in impulse, critical

literacy seeks to empower rather than discipline, to raise up rather than rank, and

to include rather than exclude (p. 69).

And yet again in 2012 Elmborg described the role of a "critical information

literacy librarian":

This librarian will recognize that being a literacy worker involves something other

than imparting skills. It involves connecting daily work with students, colleagues,

and institutions to larger ideological questions about who belongs in higher

education and how to make higher education as accessible as possible to

everyone. It involves putting ourselves on the level of students as co-questioners,

co-doubters, even co-dreamers. In short it involves an entire rethinking of the

relationship between librarian and student. . . . To be a critical information

librarian is to recognize that even with all our material success, there are those

who have yet to *make it* [emphasis from original] in a world that is subtly but

powerfully stacked against them. The critical information literacy librarian

chooses not to walk away from the challenge posed by that problem, which seems

to me the central educational and social problem of our time (p. 94).

Some critical information literacy proponents saw distinct advantages to the

librarian's outsider role in terms of being able to help students become scholars.

Simmons (2005) contextualized librarian's positioning within the academy:

Librarians are simultaneously insiders and outsiders of the classroom and of the

academic disciplines in which they specialize, placing them in a unique position

that allows mediation between the non-academic discourse of entering

undergraduates and the specialized discourse of disciplinary faculty. Academic

librarians, by the nature of professional preparation, have an interdisciplinary

perspective – that is, most academic librarians have an undergraduate degree in a

non-library-related discipline (English literature or sociology, for example), the

master of library science degree, and often a second master's degree or doctoral

degree in another academic discipline. This interdisciplinarity provides librarians

an opportunity to see how discourses differ across disciplines, positioning them

uniquely and powerfully to help students recognize and make sense of the

disciplinary differences (p. 304-305).

Offering some practical classroom examples, Keer (2010), another teaching

librarian, capitalized on her outsider role:

Because the information literacy session often literally moves the student out of the classroom and into a new environment with a new teacher, the traditional interaction between teacher/librarian and student already has fault lines in it as soon as the students arrive in the library. Rather than looking at this as an obstacle, the librarian may, in her capacity [as] a secondary authority figure to the professor, be able to encourage more flexibility in the ways her students interact with her and with the material being discussed.

To capitalize on this disruption of the traditional classroom power structure, the librarian could encourage the students to introduce her, as an outsider to their classroom dynamic, to their classmates. She might ask students to introduce each other, as a way of getting them to acknowledge each other's presence in the classroom. She may be able to enter into a dialog with the students about what they are learning, and what they find most useful or problematic about the subject matter, or about the project at hand. The librarian can use her status as a classroom outsider to draw the students into interaction with each other, rather than relying so heavily on [being] the authority figure at the front of the room. This kind of mutual participation in the information literacy curriculum can enrich the experience for all involved (p. 155).

Elmborg (2010) also commented on the librarian's outsider role:

To operate in the literacy metaphor, librarians need to work on the boundaries of their discourse communities, bringing new learners into the community by helping them learn what information they need to function. To do this, librarians need to locate themselves at the boundaries rather than in the centers. . . . The

future of libraries and librarianship cannot be between learners and information in this way, but must be alongside learners, especially those who didn't inherit English school literacy…. (pp. 73-74).

Critical information literacy librarians design instruction that is meaningful to students. Some critical information literacy scholars and practitioners offered some practical advice for designing instruction that is meaningful to students. They suggested instruction that is problem-or-question based in order to frame research as a process of discovery. They also suggested that teaching librarians select research topics that are meaningful to students' personal lives. Critical information literacy librarians should maximize opportunities for student interaction, and in order to do this, they must let go of a strict agenda in the classroom. Finally, teaching librarians seeking to apply critical approaches to information literacy were advised to use accessible language in instruction.

Design instruction that is problem-or-question-based. Kapitzke (2003) first suggested that a critical information literacy approach should guide students to use a series of questions to interrogate information. This model was expanded upon by several critical information literacy librarians including Simmons (2005):

We need to communicate to students – both explicitly through explanation and implicitly through modeling – that research is not about finding information or facts, as most of the ACRL standards suggest, but instead that research is about constructing meaning through active engagement with the ideas and asking questions surrounding the information itself. Over and over, we need to ask questions with our students such as 'Who benefits from having this information published and disseminated?' 'Whose voices are not represented in this research?'

and 'What *counts* [emphasis from original] as knowledge in this discipline?' We need to model at the reference desk, in individual research consultations, and in our instruction sessions that research is a process of discovery and of construction of meaning instead of a process of accumulation of information. Reference work needs to be more about helping students ask questions about information and less about our delivering answers to questions. When we teach students information literacy, we need to shift our orientation from a process of finding and gathering (acts that imply an unambiguous body of information over which one can gain mastery) to a process of discovery and knowledge construction (Simmons, 2005, p. 308).

Many librarians felt that this interrogation of information was a useful manifestation of Freire's "problem-posing" model of instruction for the information literacy classroom (Smyth, 2010, para. 4). For example, Swanson (2010) suggested:

The problem-posing approach suggested by critical information literacy practitioners is enhanced when it is paired with ill-structured problems. I would suggest exercises that seek to expose students' beliefs about knowledge. On any given subject, the following critical questions should be applied.

- How do you know what you know?

- What information do you trust?

- What causes you to disagree with a piece of information?

- What counts as expertise?

- Who can publish on a specific issue?

- Who cannot and why?

- Whose voice is included/excluded?

- What information is trusted by society? (p. 272).

Jacobs and Berg (2011) also suggested a curriculum based around Kapitzke's (2003) questions as expanded by Simmons (2005). They reflected:

In its focus on engaging with questions about information, critical information literacy is an attempt to help students see that information questions are deeply embedded within cultural, social, political, and economic contexts" (p. 389).

Citing student engagement as "the most pressing information literacy *problem* [emphasis from original, they concluded:

Because we view this pressing information literacy problem not as a something *unwelcome, harmful or wrong* that needs to be *overcome* but as a *difficult or demanding question*, [emphases from original] we believe this is a question ripe for problem-posing approaches within our classrooms, our meeting rooms, our campuses, and our professional discussions (p. 390).

Elmborg (2006) suggested that by taking a "problem-posing approach":

Information can then be redefined as the raw material students use to solve these problems and to create their own understandings and identities, rather than as something *out there* to be accessed efficiently, either in the library or in the world. This educational process cannot be conveyed as *content*. It is, rather, a *path* or *journey* [emphases from original] of intellectual growth and understanding (p. 198).

Norgaard (2004) suggested that teaching librarians frame information literacy as "intellectual inquiry":

Conceived of in this fashion, our pedagogies would see information literacy as a means for asking better and better questions and for finding ever more persuasive lines of reasoning, and not just as a way to cite factoids and ready answers (p. 224).

Similarly Cope stated:

A critical theory of IL . . . maintains that the development of students' capacity to pose thoughtful questions (as opposed to clear answers) is as important as their ability to locate, access, organize, evaluate, and apply information in the research process (p. 13).

Pankl and Coleman (2010) agreed, "The IL instructor must demonstrate that research is not a process of answering questions, but rather a process of formulating questions, ideas, and narratives (p. 11).

Some librarians felt that problem-based learning (PBL) was an ideal approach for critical information literacy instruction. PBL "can be simply defined as using problems as the basis for students' learning" (Problem-based learning, 2010, para. 1). After exploring some of the barriers teaching librarians face, such as lack of time and lack of control over the curriculum, Kopp and Olson-Kopp (2010) suggested:

PBL provides an excellent example of how librarians have already overcome some of the limit-situations described above. Students are encouraged to play active roles and to enter into dialogue with their peers during their research process rather than simply retrieve objects or gather sources (p. 63).

Peterson (2010) agreed:

As a methodology for critical pedagogy in library instruction, problem-based learning (PBL) is a natural fit. PBL breaks down the traditional hierarchy of the classroom and shifts the focus from lecture to active learning. It uses open-ended questions to encourage exploration and independent conclusions. PBL assumes that students come to the library classroom with previous experiences and builds on them to develop new skills and knowledge. It is also a tidy way to incorporate multiple skills and sources into the typical one-shot session (p. 72).

Use research topics that are meaningful to students. In order to engage students several proponents of critical information literacy suggested that research topics should have a political or controversial aspect. Others felt that student engagement could be piqued by allowing topics that were more personally meaningful, even when they fall outside the realm of academia. And a few, conversely, hinted that there are flaws in the approach of allowing students to choose any topic and that alternative approaches might be in order.

Asselin, Kymes, and Lam (2007) suggested, "Inquiries should be political and provocative; there is no shortage of real issues for students to research. And the critical and critical information literacies needs to be emphasized so that students know how to uncover and reveal voices rarely heard (p. 15). In advocating a PBL approach, Peterson agreed, "PBL questions should relate to the course content. If the course is interdisciplinary, current events or controversial topics also work well. Good PBL questions are open-ended enough for students to arrive at different conclusions based on their research (p. 74).

Doherty (2007) similarly suggested that student research topics should have a "political aspect" so that:

Even a cursory review of the conversation will reveal an oppressive voice. Critical information literacy will uncover that voice and ask the student where she would find the Other voices [sic]. Thus, websites, oral histories, student interviews, personal stories, home made videos, ceremonial *texts* [emphasis from original] and other resources could enter the dialogue the student is now conducting between herself and society's assumptions (p. 6).

Other scholars and practitioners felt that students should be allowed to choose topics of personal interest to them as a way to bridge their personal and academic worlds:

Too often there is a disconnect between the students' conception of leisure and education. By demonstrating the interconnectedness of the intimate and the academic, IL [information literacy] instructors can engender an intellectual curiosity within their students. Before any lessons about skills or objective facts about the information universe are imparted, students' curiosity must be whetted and they must realize that the act of researching is authentic and representative of their own selves (Pankle & Coleman, 2010, p. 9).

Keer (2010) shared this practical classroom example of how she incorporated students' sometimes-inappropriate topic suggestions into her pedagogy:

For example, [of how to engage with students] when the librarian asks the students what topics they are interested in researching, some students may make suggestions that sound sarcastic, or that are aimed at challenging the librarian's authority. If the librarian takes these comments in a spirit of fun, rather than

reacting defensively, and acknowledges the student's contribution to the

discussion by drawing him further into it, rather than shutting him out, these

throw-away [emphasis from original] comments can enhance the feeling of

community in the classroom….

When my students suggest topics that could be considered inappropriate, such as

celebrity sex scandals, or topics I'm not expert on, such as hip hop culture, I use

the opportunity to acknowledge that I don't know a lot about those topics and to

emphasize that research is for learning about things you don't understand or aren't

familiar with yet. Following through on these topics for demonstration purposes

also reinforces the idea that research skills can be used for things students care

about on a personal level, as well as more task-oriented topics (p. 157).

Mirtz (2010) agreed:

Most libraries provide research guides or fliers on every discipline and academic

major, to guide students in the absence of a human intermediary. But few or none

of the fliers are on topics of interest to students, such as hunting, extreme sports,

or the latest celebrity scandal. These are not scholarly topics but they give

librarians the opportunity in the disintermediated environment that the flier

operates in, to model effective and efficient research processes, including

evaluating sources and asking critical questions about issues. . . . Whenever

students have to eliminate topics of primary interest to them or adapt topics to fit

what they can find literature on (such as switching from the topic of deer baiting

to bovine tuberculosis) instead of pointing students to other professional sources

of information (such as Department of Natural Resources reports on stakeholders'

meetings about deer hunting regulation changes), the library has missed the chance to intermediate with users in a critically supportive way. The search process then fails to engage a citizen in a collective process or in ethical questions that could alter the status quo. The library hasn't encouraged or provided a challenge to disintermediation, but encouraged failure . . . The library has thus, in this situation, failed to help the students negotiate the movement between scholarly, individual, and public spheres, nor to create a conversation among the data created by researchers, the values a student brings from home, and the potential to enact change in the world (pp. 301-302).

A few critical information literacy practitioners disagreed, arguing that students may need more structure and support in choosing a research topic. In her qualitative research study, Strege (1996) analyzed student research journals and concluded:

I also found that students did not find library research interesting or intrinsically valuable even when they selected their own research topic. Selecting topics of personal interest accords with a precept of critical pedagogy which states that the instructor ground all assignments on the students' own interests and experiences. However, this personal interest was insufficient motivation for students to persist in completing the final paper. Every student found just enough materials to satisfy the assignments requirements and perceived collecting the materials and writing about the self-selected research question as a boring, alienating experience…. (pp. 186-187)

She met with more success when she provided more structure for student research:

Even though these students did not consider their self-selected research projects interesting enough to complete, I discovered that they engaged with materials that I selected with their interests in the foreground. Following critical pedagogy precepts, I did not use pre-determined curricula, but developed lesson plans and selected materials only after I became aware of the consciousness and interests of the students . . . developing the curriculum based on the students' situations rather than using pre-determined curriculum helped students make connections between themselves and knowledge (p. 188).

Peterson (2010) agreed. An advocate for PBL as a vehicle to support critical information literacy, she described two classes – one in which she provided topics, and one in which she did not. She found that providing more structure helped the students better engage with the session:

Students should have an annotated list of the sources the librarian wants them to know and use for the assignment. This is especially important for first-year or inexperienced students who would otherwise fall back on the tools they know best, i.e., broad searches in Google, which don't help them learn how to find scholarly journal articles in a particular discipline or when to use subject-specific encyclopedias . . .

Rather than letting students pick any topic, one should provide a short list to choose from based on the course content. Without this structure, students may spend an inordinate amount of time waffling about a topic, rather than focusing on searching for information and evaluating its usefulness. This is especially important with a 50-minute session (pp. 74-75).

Design opportunities for student interaction. Some critical information literacy proponents explicitly discussed the need for student interaction in information literacy sessions. Keer suggested teaching librarians "encourage and facilitate conversations between students as an integral part of the classroom experience" (p. 153). Reale (2012) noted:

> To me liberation in the classroom means removing traditional constraints, such as students having to sit and be lectured to (without the chance for participation) and providing opportunity in the class (each of which should be a learning lab) to ask questions of themselves and *each* other [emphasis from original]. . . . It is through dialogue, relentless questioning, and the de-centralization of authority that a level playing field is created where students are encouraged to express their own thoughts and come to their own conclusions (pp. 85-86).

> Peterson (2010) explained:

> The efficiency of group work is well suited to the time constraints of the one-shot session, but more importantly, groups allow students to share the work amongst several people. A team-based approach encourages students to rely on and learn from each other as they work through the assignment . . . From a critical pedagogy standpoint, small, collaborative groups shift the locus of control in the classroom from the teacher to the students (p. 75).

> Pankl and Coleman (2010) agreed:

> A rhetorical context is established when students are required to produce and articulate their research within a dialogic community. Means by which this

context is established include requiring discussion, presentation, and other forms

of language-driven interaction with the researchers' peers (p. 8).

Elmborg (2010) described the importance of peer interaction:

Having more advanced peers helps us learn more effectively than having very

advanced professors or teachers. Through conversation, we learn to "scaffold"

our ideas as we build or construct these ideas. Learners in libraries collaborate

with other learners to engage the information and research sources they encounter,

scaffolding and learning together (p.70).

Let go of the agenda. Some scholars and practitioners urged teaching librarians

to be flexible in the classroom and to resist the urge to try to cover too much content.

Such an approach was felt to open up space in the classroom for student voices. Reale

(2012) advised:

Do not be afraid to go *off the program* [emphasis from original]; often energy is

created in a class when the agenda is loosened and we respond to what the

students really need rather than what we think they should know. It is much

easier to be adaptable, however, if you are carefully prepared in the first place.

Surprise students by doing something they won't expect. Allow them to take the

lead with idea generation and in-class discussion (p. 86).

Peterson (2010) offered similar advice about attempting PBL as a critical

approach to the design of library instruction:

In a traditional 50-minute library instruction session, PBL or not, one cannot be

overly ambitious, despite the often high expectations of instructors. For the

librarian attempting to incorporate critical pedagogy and PBL into her teaching,

an important first step is letting go of the temptation to cover as much material in a single session as we know students need . . . (p. 74).

Sinkinson and Lineman (2010) explained how they ceded control of the agenda in their re-visioning of the library seminar:

During the activity, the teacher-librarian is available for questions, but we make it a point not to hover. We have found that maintaining a physical distance encourages student leadership. It is important for students to be responsible for their own searches, even if they encounter roadblocks. By approaching the challenges without the aid of a librarian, students problem-solve, teach one another, and become aware of the complexity of research and information systems. This results in a more authentic learning experience (p. 84).

Some librarians described a balance between structure and flexibility in their teaching:

There is an inherent struggle between this sort of teaching method and covering the material in the time allotted. If students are to be involved and grow to be independent learners, then we must work on finding the correct balance for a given context (Swanson, 2004b, p. 267).

Another librarian in partnership with a composition instructor reflected:

Most of the problems we have encountered stem from the looseness of the class' structure, and we are constantly looking for a way to balance what we call structure and discovery. We want students to discover their own topics and their own strategies for doing research. That forces them to take responsibility for their

own learning and the learning of their peers when they share their discoveries

(Isbell & Broaduss, 1995, p. 59)

Peterson (2010) explained, "A well-designed PBL lesson has enough structure for students to stay focused and meet their learning objectives, but is still open-ended enough for students to come to independent conclusions" (p. 74).

Use accessible language in instruction. Several critical information literacy scholars and practitioners cautioned teaching librarians to be careful with the language they use during instruction. Some felt that librarians' depictions of information might be overly-simplistic and misleading for students, while others felt that use of library and academic jargon is off-putting to students. For example, Franks (2010) discussed teaching about the "information cycle":

> We often *describe* the publishing mediums without probing the assumptions about information flows that we make along the way: the very term *information cycle*, in fact suggests to the researcher or student that it is a passive, neutral process, like the *water cycle* or the *cycle of seasons* [emphases from original]. . . . Our initial terminology, and certainly the way we describe the steps of creation and publication of texts, reflects our own preconceptions of the process as something so established and so ingrained in the way we talk about information that it takes on an apolitical, manifest and predetermined quality . . . rather than the value-ridden and strategic acts that the processes actually represent as information is carefully situated at each level of this so-called cycle (p. 47).

Elmborg (2012) suggested:

The key to all practice/praxis is conversation: how we talk to other people;

whether we see people as learners struggling for meaning, respecting that struggle

and helping them scaffold; encouraging them to grow, develop, and challenge the

assumptions they hold as well as their given place in the world (p. 71).

He further cautioned:

Critical information literacy exists in relationships between people and

information rather than as an identifiable thing in its own right. As we begin to

engage the question of critical information literacy, it helps if we are careful with

our language, to make sure we avoid reducing complex processes to overly simple

concepts. The dynamism of critical information literacy needs to be reflected in

our language (p. 77).

Reflecting on his work with community college students, one teaching librarian

commented:

Giving voice means not only giving the students the opportunity to speak, but also

being aware, as an instructor, of one's own speech patterns, word choice, and

attitude toward non-standard English in the classroom . . . The librarian can be

mindful of expressing concepts in ways that do not alienate students, and of

offering practical definitions of library jargon when it must be used (Keer, 2010,

p. 154-155).

Sinkinson and Lingold (2010) found it helpful to observe each other's teaching in

order to keep "teacher-talk" in check:

Through co-observation and post-class discussions, we were able to identify

moments in the seminar when we reverted to a teacher-centered approach. We

became particularly conscious of our desire to expedite student discovery by

asserting authority and making directive comments. We listened for teacher-talk

that shut-down student participation and developed alternate language that

encourages dialog . . . (p. 86).

Research Question 2: Critical Information Literacy Content

Critical information literacy librarians teach about all types of information.

Many scholars and practitioners believed that librarians should spend more time teaching

about information itself, rather than tools and skills. They felt that students needed

explicit instruction about how information is created and organized and that instruction

would provide a useful introduction to academia. Many felt strongly that librarians

should avoid the temptation of imposing value judgments about types of information

sources by privileging peer-reviewed journal articles and other library sources over non-

library sources. Similarly, the temptation to teach about information in terms of format,

rather than type was eschewed (e.g., print v. online). Instead it was suggested that

librarians teach about information in terms of its intended purposes and how students

might make use of it to fill their own needs. Some librarians found it useful to use dialog

as a metaphor for the literature, framing the range of information about a particular topic

as a conversation that the student can be invited to join. A few cautioned that limiting

which sources of information students could use quashes criticality and student agency.

As an alternative they urged fellow librarians to embrace the range of information

available in the digital age, and to use nontraditional sources that the students are familiar

with, like Google and Wikipedia, as a way to engage students in conversations about

information and as a bridge to more traditional academic sources.

Teach about information. A substantial subset of studies about critical information literacy advocated explicit teaching about information, as opposed to skills and tools. The author of several studies that advocated this approach, Swanson (2004b) explained, "Before we train students to use search tools, before we send them to books, periodicals, or Web sites, we need to teach them about information. What is it? How is it created? Where is it stored?" (p. 259).

Simmons (2005) felt that explicit teaching about information is necessary if students are to understand the academic context of their own research:

> Helping students to examine and question the social, economic, and political context for the production and consumption of information is a vital corollary to teaching the skills of information literacy. Additionally, facilitating students' understanding that they can be participants in scholarly conversations encourages them to think of research not as a task of collecting information but instead as a task of constructing meaning (Simmons, 2005, p. 299)

Warren and Duckett (2010) shared a similar perspective, "Search skills must be accompanied by a greater understanding of how scholarly information is created, debated, vetted, stored, and accessed – issues intrinsically tied to scholarly communication" (p. 355). They suggested a curriculum that would center on the following "core variables":

1. Who creates the information and for what audiences;

2. How the information is packaged and distributed;

3. Which technologies and tools are used to discover and access it; and

4. What the economic realities inherent in the preceding factors are (pp. 351-351).

Elmborg (2006) suggested:

Students must learn how information functions in proof or argument, and why that information is accepted while other information is not. Ultimately, students need to produce information that meets the community's standards. Faculty in the various disciplines expects student work to reflect an understanding of their disciplinary styles. Academic conventions reflect beliefs about how research should be done, and how students' work should be measured against these standards. Information literacy, seen in this way, is more than a set of acquired skills. It involves the comprehension of an entire system of thought and the ways that information flows in that system (p. 196).

Avoid imposing value judgments on types of information sources. Many proponents of critical information literacy found fault with teaching librarians for presenting to students an overly-simplistic idea of information as falling into one of two categories: *good* or *bad*, with library sources such as peer-reviewed journal articles unquestionably falling in the former. This approach of privileging library materials was felt to discourage criticality and student agency. Instead, teaching librarians were encouraged to teach students to critically examine the context of each piece of information no matter the source. Librarians were also encouraged to be more accepting of non-library sources that the students might wish to employ in their research. For example, Cope (2010) envisioned critical information literacy instruction as "a move away from the demonstration of technical search processes and simplistic claims that

certain sources are *authoritative* [emphasis from original] because authorizers have decided they are" (p. 25).

Another team of teaching librarians stated:

The rise of free Open Access journals, preprint servers, Google Scholar, and Google Books has rendered ineffective the instructional strategy of teaching students that *library* equals *good information* and *free Web* equals *untrustworthy information* [emphases from original]. As librarians, we know that the situation is much more complex and we have a responsibility to incorporate this murkier landscape into our instruction.

We believe that a realistic consideration of how library subscription based resources and regular search engines function should center not on simplistic and increasingly inaccurate dichotomies . . ." (Warren & Duckett, 2010, pp. 351-352).

In general critical information literacy scholars and practitioners felt that teaching librarians who privileged peer-reviewed resources over other types of resources framed information literacy in an inauthentic manner that was out of synch with the reality of the digital age. Doherty (2007) criticized:

Multi-literacies recognize the values of all forms of literacy as coming from a variety of community definitions. Therefore, applied to the academy, demonstrated literacy can come from virtually any source. In higher education, however, information literacy is still limited to a conservative tradition of peer-reviewed, print-based resources (p. 4).

He offered a case of how a teaching librarian might misstep even when trying to incorporate non-library resources. Using an example from the literature, he described an assignment which required students to use Google:

In one instance a librarian worked with faculty to design an assignment in which the students were asked to use Google. However, they were then asked to evaluate Google in print-based terms, where the latent assumption was that Google was worse than a journal article . . . The students were not asked to evaluate the content of the information they found, or even to evaluate that content from a critical perspective that would have, for example, asked them to consider the different voices Google has presented them with" (p. 4).

In an earlier study Doherty and Ketchner (2005) described an introductory course to the university they team taught as instructors of record:

In this class we were able to redirect our focus based on the control we gave to the students to their concepts of forms of information and all forms of information sources. It may be somewhat heretical to say it, but when we say all forms of information, we do mean all forms, up to and including the usenet, web, blogs, and emerging information resources. The students forced us to ask ourselves some very hard questions, and these began to inform the theory of the empowered intentional learner we had been working from. And these questions began to inform our classroom and library practice. For example: we wondered why librarians should limit students to only library-sponsored resources? Even in our own day-to-day, personal information activities, do we limit ourselves to just *Academic Search Premier*? Or do we also use Google? Librarians, we hope, are

literate information consumers – we know how to effectively get the quality information we need from the many and diverse resources available to us. If our intentional learner is empowered to do the same, why stand in her way? (p. 7)

As an example of how librarians can incorporate a broader range of non-library resources, Jacobs (2010) incorporated the discussion pages associated with topics in Wikipedia into her information literacy instruction in order to help students understand how knowledge is created and debated:

Telling students not to use *Wikipedia* [sic] and to accept our judgments unquestioningly does not model or encourage the kinds of critical thinking we want our students to learn and practice. This is not to say that librarians and professors need to encourage or allow the use of *Wikipedia* [sic]. Rather we need to allow room in our classes and curriculum for critical inquiry into our information sources be they subscription databases, university press monographs, librarian-selected websites or *Wikipedia* [sic] (p. 193).

She concluded:

Whether we like it or not *Wikipedia* [sic] is here to stay . . . many of our students know they will need to negotiate questions related to *Wikipedia* [sic] and other similar resources in their lives outside of school. We are doing them a disservice if we ignore the complexities of *Wikipedia* [sic]. . . . Further, we need to think about the message we sent to students when we banish, forbid, or ignore a resource in our classes that is firmly of their generation in favor of promoting resources of previous generations.

In a similar vein, Sinkinson and Lingold (2010) explained their philosophy with regard to avoiding value judgments about types of information sources with the goal of promoting criticality and class discussion in a first year college experience course,:

We want students to be aware of their information agency and to understand the impact of source selections, but we avoid making value judgments about the sources students select in the activity. Issues of academic authority are often brought up in discussion, and while we encourage these topics, we try to remain neutral. We do not advocate a blind preference for peer-reviewed publications, nor do we dismiss the value of popular sources. We want students to become critically sensitive to issues of legitimacy and power within information systems and environments. Imposing traditional evaluation criteria or norms of authority would contradict our intention to advance students' critical examination of information (p. 86).

Another librarian used the historical example of tablets discovered at ancient libraries as a metaphor for the hindrances of access to information that occur when librarians discount some information resources in favor of others on behalf of the student:

The unspoken effect of the [library] catalog, that of privileging information within it, whether for a Hittite priest or a community college student, must be acknowledged as well. All too often students' first visit as undergraduates to an academic library includes messages about the superiority of peer-reviewed articles, a certain disdain on the part of their professors for encyclopedias, the extremely dubious quality of the free Internet as opposed to the proprietary databases to which the library subscribes, and the absolute unworthiness of

Wikipedia [sic], even, with some professors, as a starting point. The message

given to college students must be similar to that to the priests of Nippur and

Hattusas – here are kept the rituals, here, etched into these tablets, are the sources

of information that you can trust. . . .

This disqualification of certain kinds of information, while detrimental to all

college students, is particularly debilitating to community college students, who

frequently arrive at college underprepared to engage in scholarly discourse but

who often have had all sorts of other powerful information literacy experiences –

as immigrants persistently negotiating a maze of community resources, as

consumers shrewdly maneuvering through complex networks to procure

affordable services and goods, as employees tenaciously seeking work and

evaluating conflicting sources of information to get ahead economically . . . Such

students' success in community college depends partly on learning about IL

[information literacy] in ways that respect the rich knowledge they bring with

them from these experiences (Patterson, 2009, pp. 356-357).

Teach about types of information not formats. In a similar vein, librarians were

encouraged not to teach about information in terms of format, but rather to teach about

types of information. Burkholder (2010) argued that librarians need to spend more time

teaching students to differentiate between types of information. He questioned:

What are *sources* [emphasis from original]? We speak of them quite often,

instructing students how to locate sources, evaluate sources, select sources, and

use sources. We use the term unquestioningly, as if its definition was obvious and

its utility proven. But what exactly are they? As a term, it is a generic

classification that encompasses an impossibly broad range of material;

encompassing countless information types, and formats. There is little indication

of the varying quality and content a student may discover. By meaning so much,

it means very little. The term describes an idealized version of reality and cannot

account for the overwhelming complexity of the information environment; nor

can it possibly illuminate the rhetorical nature of sources (p. 2).

He advocated the use of genre theory to improve students' abilities to differentiate

between types of sources. Genre theory is related to critical theory and is "used to

characterize groups of similar texts that share certain recognizable conventions and that

belong in the same literary tradition" (Türkkan, 2011, para. 1). Burkholder (2010)

reflected:

> For reasons that appear to be born out of convenience and expedience, most
>
> attempts to define sources do so by describing aspects of their physical natures.
>
> Due to our increasingly digital environment, these kinds of definitions are
>
> becoming much more difficult to defend. . . . The larger problem with definitions
>
> that focus on sources as mere objects is that they neglect their significance as
>
> communicative acts (p.2).
>
> Swanson (2007) also cautioned against defining sources by their physical formats:
>
> Librarians need to present them [students] with the information landscape and
>
> give them the ability to make judgments about particular pieces of information
>
> and about appropriate information tools. This model must reflect the ways in
>
> which information is created in society. In order to meet these needs, librarians
>
> and instructors need to present students with a model of the information world

that focuses on the type of information rather than the format (book, Web site, periodical, etc.) (p. 323).

In an earlier study he offered this example:

An article from *Newsweek* may exist in print, it may be on the *Newsweek* Web site, and it may appear in a subscription database . . . it is the same article in all three formats, for all intents and purposes. For a searcher, the concern should be that this is a news article, and the fact that it is news tells us something about the credibility of the information. This information would be different than information found in a scholarly publication, in a professional/trade publication, or on a personal website (Swanson, 2004b, pp. 262-263).

Swanson (2004b) detailed a two-part lesson plan intended to help students differentiate between types of sources:

In these two sessions, students come to see that information formats (books, articles, Web pages, etc.) are less important than the types of information these formats contain. It is the type of information, not the container (format), that determines the credibility and, therefore, relevance to an information need. Even though some types of information are more common in particular formats (i.e., news is most commonly found in articles), it is theoretically possible that all of the types of information could be published in any format (p. 267).

Jacobs and Jacobs, 2009 offered this classroom example of how to help students recognize how their information needs vary according to their information need:

Groups were then asked to select one trend and identify what kinds of information would best suit their needs. When students discussed these needs with the whole

class, it became apparent that, although all groups were addressing the same topic, each trend required specific kinds of information. Some might need statistical data, others might need ethnographic research, others would need to consult the local newspaper, and others needed peer-reviewed articles or scholarly studies (p. 78).

Teach about information in terms of purposes and uses. Some critical information literacy librarians found it effective to teach students about information in terms of its purpose of publication, and in some cases the students' purpose in accessing the information. Anderson (2006), another advocate for using genre theory in information literacy instruction, argued:

Information literacy must be grounded in an understanding of how the documents stored in the information system one uses are produced as a result of some generic communicative activities in society. Documents argue from a variety of perspectives for certain intentions, ideas, conceptions, or theories and produce arguments and knowledge claims on the basis of this and the documents' sociopolitical function in society (p. 225).

Burkholder (2010) agreed:

Traditional definitions cannot fully describe the ideological components of sources. . . . a more dynamic and robust definition of *sources* is needed. Modern genre theory may provide us an answer by bridging the gap between what a form really is and what it is actually designed to do. In this theory, genre is no longer solely about the traditional classes of literary texts or other forms of art. It is about how people use language to accomplish specific tasks (p. 2).

He concluded:

An effective and efficient research strategy is worthless, if students cannot

effectively and efficiently use the sources they located. Organized by content

types and forms, sources are familiar, but ultimately limited in their ability to

represent the variety and complexity of potential purposes students may

encounter. As organized by the social acts they perform, sources are something

much more daunting, but much more promising in their ability to prepare students

for actively living in an information-rich environment (pp. 8-9).

One team of scholars theorized about the pedagogical value of teaching students

about information in terms of its purpose and their own use of that information:

Even if (and frequently when) the best search techniques are not used, finding

information is usually a brief, if oft repeated, event in a student's life. One cannot

expect these events to have a significant impact on the student's attitude. . . .

Evaluating what others have done to information and what one might, in turn, do

with it, comprise less superficial and more integrative tasks that, if repeated, can

contribute to a process of intellectual growth that can have an impact on a

student's attitude and research (Harley, Dreger, & Knoblock, 2001, pp. 27-28).

A few teaching librarians shared techniques for helping students understand that

the same piece of how information is shaped by the purpose of the author or need of the

student. Jacobs and Jacobs (2009) described their collaboration aimed at "transforming

the one-shot library instruction session" in an English 101 course (p. 72):

Thinking about how to teach IL [information literacy] in composition brings

information – not disciplinary concerns – to the forefront, especially because

students are asked to devise and select their own topics. How, for example, could

we talk about what makes for *appropriate* [emphasis from original] research

sources when the most appropriate source for one student's topic will be *Rolling*

Stone and another's might be statistical information from the Government of

Canada's website. We could not say, for example, 'only use peer reviewed

articles or scholarly monographs' since, for many topics like iPods or parkour,

monographs or peer-reviewed articles simply do not exist (p. 76).

They reflected on their pedagogy:

Instead of teaching rules and predetermining what sources of information were

appropriate for their topics, we realized teaching a highly flexible and reflexive

research process would better help students develop critical habits of mind

regarding their topic's specific information requirements (p. 76).

Swanson (2004b) offered this practical example of teaching about research in

terms of the researchers' need in his case study of a two-part information literacy session:

The second librarian-led class session, Defining Relevance and Credibility,

addresses objective one, defining the information need, and objective three,

identifying the value of information in various formats. This session begins with

a general discussion of credibility and relevance led by the librarian. The students

again divide into their groups of four or five and review the same sources that

they saw in the previous session. Each group is given a unique scenario and

asked to determine the credibility and relevance of each source based on the

scenario. The scenarios are as follows:

- You are an OB GYN nurse recently assigned to a new medical team that does not include a genetic counselor. You think such an expert is a needed addition to your team. Which articles would you use to support your argument?

- You are a journalist writing an article on genetic counselors for the South Town (a Chicago newspaper). Which articles would you consult for background information?

- You and a spouse have an appointment with a genetic counselor. Which sources would you consult for information on the genetic counseling profession?

- You and your best friend have a bet about what genetic counselors do. What source would you use to settle the bet?

- Your eighth-grade cousin needs information for a science project on genetic counseling. Which articles would you recommend to your cousin? (Swanson, 2004b, p. 266)

Swanson's activity was clearly designed to help students understand information needs vary according to the researcher's purpose and provides some basis for helping students understand why they might be asked to use different *types* of sources in their academic work than their personal lives.

    Teach information as dialog. Some critical information literacy advocates presented students with the metaphor of information sources as a dialog about the topic at hand. Such a metaphor sets the stage for students to join the conversation. Commenting

on the influence of the digital age on traditional information literacy, Kapitzke (2003) described the shift in how student researchers make use of information:

Within the present context of an information glut, librarians and users spend their time not so much searching but interpreting, filtering, and value-adding by creating relationships among ideas across a range of media. Librarian and cybersearcher cooperate not to locate a particular text to meet a specific need, but to associate or relate texts that become meaningful through specific, task-dependent criteria. Locating discrete bits of information contained in a particular text is no longer the aim of the exercise. Rather, the purpose of their textually mediated contact is to add epistemological value through connecting and cohering seemingly unrelated texts and ideas. The proliferation of chaotic digital information, and the increasing disparity of end-point textual products and knowledges have created a situation where knowledge is located not so much in text as such, but in the coconstruction of situated meanings among learner, teacher, and media center specialist [librarian] (p. 48).

Writing from a genre theory perspective, Anderson (2006) compared the process of doing research to that of writing:

Similar to a writing activity that takes place within a discourse community, this also applies to information seekers. Their activity also takes places within a discourse community with particular historically, socially, and culturally developed conventions. The discourse communities and their conventions make up the frames for the objective search possibilities. In the very concrete situation one might therefore say that the information seeker is placed in a kind of

rhetorical situation, as the information seeking activity must be considered part of a larger communicative activity . . . It is rather likely that what constitutes and motivates the information seeking activity is both a search for and production of argument. The information needed is going to be used in some sort of communicative activity and the determination of the information relevant to this activity is therefore also based on an argument. The information seeker is, we must assume, presented with an audience he is going to confront with the information gathered. Information also has a topic that needs to be shaped in accordance with how it is going to be used (p. 224).

Kopp and Olson-Kopp (2010) agreed:

Inasmuch as research involves the exchange of words by people in particular situations, it is a form of dialogue. Students may be unaware of the dialogic quality of the sources they use, but the researcher, theorists, and practitioners who produce them generally are not. A student may view a source as an absolute authority to which they must passively defer, as the in the banking model of education, or they may view it as an embodied voice in a conversation, one that occupies a position in space and time and thus a political perspective in relation to real problems in the world. Librarians are not in a position to notice the difference between banking and problem-posing kinds of research if they see themselves merely providing materials to students, delivering items from point A to point B (p. 57).

Do not limit sources – make use of sources students are familiar with. Some proponents of critical information literacy frowned upon the practice of limiting the

sources that students can use in their research. Instead, they found that embracing the diversity of sources available to students and using "unconventional texts" spurred student engagement and agency (Accardi, Drabinski, & Kumbier, 2010, p. vi). Permitting students to use the sources of their choosing allowed them to find information that was more relevant to their individual topics and needs and created a common ground for discussion about source differentiation. Martin (2009) described the tendency of librarians:

> to direct people away from chaos and toward our subject-specific databases, our lovingly maintained reference collections, and our carefully-crafted catalogs. While this can no doubt help patrons, especially with their academic research, guiding students away from chaos and to tools to which they will not have lifelong access contradicts the goals of information literacy and undermines mastery of important skills in patrons' lives. Library instruction should help students develop lifelong information literacy skills. Knowing how to use databases will not make you information literate, and avoiding chaos does not help you harness the power of information. Instead of guiding patrons in an open-ended exploration through the universe of information, too often the library plays the part of the overprotective parent. By acknowledging and employing the chaos of the Internet in library instruction, we can encourage information literacy while embracing postmodernism. Information literacy is about exploration, not information control (p.6).

As an alternative approach, Martin suggested:

We can embrace the chaos of the information universe by adopting new

technologies such as social bookmarking, wikis, blogs, and video sharing sites to

support our teaching. Students often already know how to use and manipulate

these technologies, but they may lack the skills to interpret the information that

they retrieve critically. How do people share information? How does the medium

change the content? Who will save this information? Is it important? Web-based

technologies can be used in activities in class or to spur class discussions based on

these questions. Librarians can use Wikipedia in library instruction sessions to

initiate discussion and debate over the nature of information, truth, and reality on

the web (p. 6).

Burkholder (2010), who taught from a genre theory perspective, agreed:

As we begin to teach sources as genres, we must also gain a better understanding

of how – or if – students select sources for their rhetorical value. Rather than

looking only at citations, choices need to be evaluated within the context of

students' actual work. We should not assume that all of their choices are careless.

. . . There are times when Web sites may be rhetorically appropriate. Thus, the

inclusion of Web sites in a bibliography is not an automatic indication of poor

source-quality or a careless research strategy (pp. 8-9).

Similarly, Warren and Duckett (2010) argued:

This article focuses on teaching students about peer-reviewed journal literature,

certainly one of the types of information most frequently required for the

completion of college assignments. It argues that a critical component of teaching

students about peer-reviewed articles and how to find them is deconstructing how

subscription-based resources such as article databases *relate to* and *complement*

the search tools that students use more frequently—Google and Wikipedia (p.

351).

They concluded:

In the contemporary information landscape, simply teaching students how to

distinguish peer-reviewed from non-peer-reviewed research is not sufficient.

Instead, a broader discussion of scholarly communication and the economics of

information will provide a useful, critical framework for learning about how

academic research relates to the everyday search tools that students use – Google,

Google Scholar, and Wikipedia (p. 355).

Mirtz (2010) also viewed the use of web sources as, "a shared ground for starting

social relationships and a much more engaged instructional session" (p. 299).

In critiquing their former teaching style, Sinkinson and Lingold (2010) said:

While most students lacked academic research experience, they had a great deal

of familiarity with popular search engines such as Google, but we did not invite

them to reflect upon these past experiences in such a way as to make it

transferable to the academic setting. By discouraging this connection, we denied

an opportunity to validate student knowledge and to encourage meaningful

participation. (p. 82).

They offered a practical example of a group activity that incorporated Google and

guided students to compare and contrast Google with more traditional academic sources:

The activity is designed to draw out the students' experience, knowledge and

reflection in order to bring a sense of relevance and meaning, which we believe to

be imperative to student engagement. By using Google as a core component of

the activity, we are able to bridge known and foreign information systems,

legitimating and exercising background student experience. We find that students

are able to conceptualize information systems more effectively through an

analysis of a familiar interface such as Google, and that by validating the

importance of the popular search engine, the classroom content becomes more

applicable for the students (p. 85).

Yoder (2003) lauded the availability of "local narratives" on the web and

suggested that nontraditional sources present a teaching opportunity for librarians:

Analyzing local narratives – the communities from which they come, the

languages they use, and the values they put forth – ultimately generates a more

satisfying library teaching and learning experience, incorporates a wide variety of

voices and formats, and de-emphasizes order and control, valuing instead

discovery, creation, and the search itself (p. 385).

A few critical information literacy librarians found the discussion pages of

Wikipedia to be a useful tool for teaching about how information is produced, as well as

engaging students in the classroom. Jacobs (2010) explained:

Because most of our students have a pre-existing relationship with *Wikipedia* [sic]

before they enter the classroom, many of them feel more than willing and able to

be "critical co-investigators' of the *Wikipedia problem* [emphasis from original].

Wikipedia [sic] thus is a topic replete with opportunities to engage students as

active participants within evolving discussions and debates related to information

literacy and the production and dissemination of scholarly information and knowledge (p. 186).

She described how she incorporated Wikipedia into her library instruction session:

One way that this critical inquiry could be brought into classes is to have students compare a *Wikipedia* [sic] entry with an entry from a reputable scholarly reference work and discuss the differences between the two articles in terms of content, reliability, authority, and accuracy. . . . Asking critical information literacy questions of *Wikipedia* [sic] – a resource most students use and feel comfortable with – opens a door to asking other probing questions about other information sources, be it an Oxford University Press reference work or an open access digital archive. These kinds of questions remind us not to be passive consumers of scholarly information and demand that we think critically about all kinds of information resources. Such a shift will help to illustrate to students that the production and dissemination of scholarly information is an active and evolving venture involving numerous decisions and choices, qualities that are often obscured by the fixed appearance of the printed page (pp. 187-189).

Martin (2009) also used the discussion pages behind Wikipedia entries in his instruction:

For example, in an introductory composition class, I collaborated with an instructor to create a lesson plan that uses Wikipedia as a topic selection tool. In order to find a topic for a persuasive paper, students are instructed to search for topics of interest in Wikipedia and explore the discussion behind the encyclopedic

entry. Each Wikipedia article includes additional information in the form of a discussion page and an article history page. These pages detail what changes have been made to the article, why these changes have been made, and future questions the article should explore. Students must consider what the discussion sections for their articles reveal not only about their topics, but also about the nature of information on the web. Taking this *meta* [emphasis from original] view and looking behind the scenes in Wikipedia invites students to think critically about their topic in the context of a familiar websites (p.6).

Chapter Summary

Almost all of the studies critiqued or criticized traditional approaches to information literacy. Advocates agreed that traditional information literacy overly-focused on tools and skills. Traditional information literacy also presented an overly-simplistic model of the research process that is out of synch with the reality that research is a non-sequential, iterative, and messy process. Most called the ACRL Information Literacy Competency Standards for Higher Education and other definitions of information literacy to account for over-emphasis on tools-and-skills-based approaches. Some also held accountable the design and focus of traditional research paper assignments. Various voices from the literature negatively described traditional approaches to information literacy as technical, mechanical, behavioral, strategic, and skills-based; while positively describing critical information literacy as a critical, problem-posing, multi-dimensional, creative, intellectual, process-based approach to support student agency.

In terms of pedagogy, critical information literacy scholars and practitioners called upon teaching librarians to embrace new roles for themselves and their students. They were advised to give up their own authority and expertise in the classroom; build upon students' existing knowledge about information; place the student at the center of instruction, and use their own peripheral role in academia as an opportunity to help students transition into academia.

The literature revealed some practical advice about how to design instruction that is meaningful to students by incorporating problem-or-question based instruction; using research topics and examples that are meaningful to students' personal lives; promoting student interaction; letting go of the classroom agenda in order to create space for student interaction; and using accessible language in instruction.

In terms of content, the literature recommended that teaching librarians teach explicitly about *all* types of information; avoid imposing value judgments on types of information sources; teach about information in terms of its purposes and uses; teach information as dialog; and do not limit sources – instead make use of sources students are familiar with as a bridge from their personal lives into academia.

Figure 6 presents on overview of these findings.
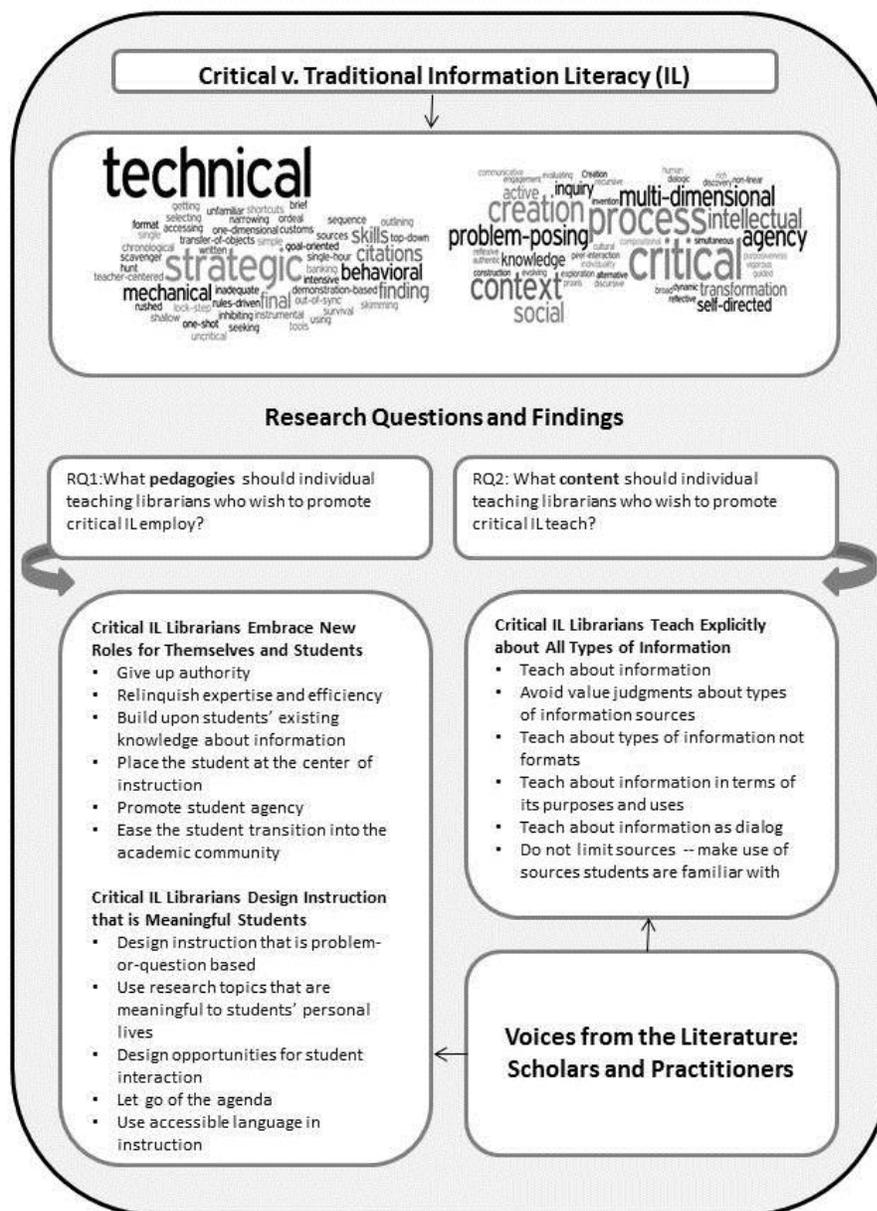
Figure 6: Overview of Findings

Figure 6. Overview of findings depicting perceptions of the differences between traditional and critical approaches to information literacy and recommendations from the literature about what pedagogy and content teaching librarians wanting to take a critical approach can incorporate into their instruction.

CHAPTER FIVE: DISCUSSION

The purpose of this study was to review and synthesize the literature about critical approaches to teaching information literacy to undergraduate students. Its aim was to discern curriculum and pedagogy that individual teaching librarians can use to improve their teaching practice.

The chapter begins with a conceptual discussion of the findings, which explores implications for practice. It is organized around the two research questions:

1. What pedagogies should individual teaching librarians who wish to promote critical information literacy employ?

2. What content should individual teaching librarians who wish to promote critical information literacy teach?

Next, the chapter continues with a discussion of the strengths and limitations of this study and recommendations for future research.

Traditional Information Literacy versus Critical Information Literacy

Four themes emerged from the analysis. The first was an overarching theme that attempted to distinguish critical information literacy from traditional approaches. Using key descriptive terms derived from the author's own words, a general picture emerged that described critical information literacy as a problem-posing, multi-dimensional, creative, intellectual, process-based approach intended to support student agency, as opposed to a traditional technical, mechanical, behavioral, strategic, skills-based approach.

Several proponents of critical information literacy advanced the somewhat startling idea that traditional approaches to teaching information literacy may actually inhibit, rather than support, students' development of information literacy. They posited that an overly-simplistic, skills-and-tools based approach stripped information of its context and thus did very little to promote student criticality. This idea is reason enough for teaching librarians to re-examine their pedagogy to determine if the methods they employ in the classroom are actually supporting the long-term goals of information literacy beyond student acquisition of tools and skills.

Another challenge that emerged from this theme is that the research paper assignment, which drives much library instruction, may also be counter-productive to information literacy. As some of the studies pointed out, research paper assignments that are product-driven rather than process-driven, "tend to collapse what should be a rich process of compositional invention and intellectual inquiry into a lock-step sequence that focuses on selecting, narrowing, and outlining a subject" (Norgaard, 2003, p. 127). Unfortunately, there is little most individual teaching librarians can do about the design of research paper assignments other than offer advice to instructors of record who typically design the assignment. One taken-for-granted tenet of teaching librarianship is to always ground the session in the course research assignment with the goal of integrating information literacy into course instruction (Rockman, 2004). However, if the assignment itself is flawed and out of the teaching librarian's control, it may make sense to consider alternative approaches to the information literacy session when possible. This idea will be further explored within the context of the research questions below.

Research Question 1: Critical Information Literacy Pedagogy

Critical information librarians embrace new roles for themselves and students. The aim of this research was to benefit individual teaching librarians, so it was important to discern advice from the literature about factors that individuals can control. As such, one of the more accessible findings was the call for new roles for librarians and students, which has more to do with perspective than material changes. Essentially this theme calls for praxis, which is the development of a critical consciousness about one's own teaching that connects theory and practice (Praxis, 2007). To accomplish the perspective called for in the critical information literacy literature, teacher librarians must be self-aware of their attitudes toward their own authority and expertise and toward students. Such a shift is necessary if teaching librarians are to set the tone for instruction that builds student criticality and agency.

Many teaching librarians are likely to reject the notion that they should give up their authority and expertise. Expertise is highly valued by librarians, and many librarians strive to model their expertise for students with the idea that students can then emulate it (Grassian & Kaplowitz, 2001). In my own experience librarian expertise seems welcomed by students at the graduate level and upper level disciplinary classes. However, this study focused on the teaching of undergraduate students. Most of the studies under review discussed teaching beginning or non-traditional students. Several voices from the literature made a compelling argument that ceding expertise and authority opens up space for student agency and engagement, inviting students to become contributors to academia.

When I have ceded expertise and authority to students in the undergraduate information literacy classroom, my experiences aligned with the experiences critical information literacy scholars and practitioners described – there are many ways to impart expertise to students without flaunting it. When I let students take the lead in demonstrating their own expertise, my information literacy sessions led to interesting, productive discussions that elicited student engagement and allowed plenty of opportunity for me to offer expertise *in response to the issues that the students raised*. This theme challenges teaching librarians to take a risk, what Sinkinson and Lingold (2010) aptly describe as a "leap of faith" (p. 87) – to trust that students have something of value to contribute. Like Sinkinson and Lingold, by rejecting a deficit approach, I too have been "astounded by the quality of student-generated ideas" and find that students arrive "precisely the conclusions we previously had attempted to drive home through our woefully inauthentic methods" (Sinkinson and Lingold, 2010, p. 87).

Perhaps unsurprisingly, given librarian stereotypes, most librarians are introverts (Scherdin, 2002). It may be impractical for many to cede authority and expertise to students in favor of interaction with students. It is possible that that authority and expertise shield introverted librarians from the very interaction that critical pedagogy is designed to promote. Peterson's (2010) observation in support of this theme was striking:

> [A] side effect of this lecture-demonstration, cram-it-all-in approach is distance. When I teach this way, I don't have to engage with the students beyond a superficial level. It's all show and tell on my part with no discussion or active

reflection with the group. I am the expert at the podium in the front of the

classroom and the students are the passive receptacles (p. 71).

There very well may be a mismatch between the self-perception of librarians and the

modern requirements of the job itself, which increasingly includes more teaching

responsibilities (Walter, 2008). Citing Wilson, Walter described the stereotype of a

librarians as "someone who is (among other things) introspective, socially conservative,

concerned with adherence to rules and regulations, orderly, and submissive to authority"

(p. 58). Or, as Patterson (2009) put it in support of this theme, "Librarians who view

their job as monitors of information and who prize the conventional LIS [library and

information science] framework of efficiency and effectiveness are probably the least

likely mentors for promoting the idea that knowledge is constructed" (p. 352)

The literature revealed several advantages to letting students demonstrate their

knowledge about information rather than telling them about it. Perhaps most compelling

was Martin's (2009) argument in support of this theme that "to assume they [students]

know nothing about information seeking is offensive and naïve" (p. 5). Presuming that

student engagement, not alienation, is the goal of a pedagogically-sound instruction

session, it makes sense to "honor their experiences, and to build bridges from where they

are to new literacies," as Elmborg (2010, p. 75) suggested. Teaching librarians should

seriously consider the suggestions from the literature about structuring information

literacy sessions in such a way that student experiences are the center of instruction,

because, as Peterson (2010) suggested, "When students can find themselves and their

own interests in the material and concepts, the instruction is more likely to be relevant

and engaging to them" (pp. 73-74).

This technique of honoring students' existing knowledge may be particularly important in an information literacy classroom that seeks to help students transition into academia. The idea that librarians' "outsider role" may be an advantage to their ability to ally themselves with and benefit students was intriguing (Simmons, 2005, p. 304). Increasingly, higher education is being called to account for student retention, especially state run institutions (McLendon, Hearn & Deaton, 2006). In response, libraries have successfully sought methods to demonstrate the value of library programs and services to student attainment (Stone & Bryony, 2013). If, as the literature suggests, taking a critical approach to information literacy instruction can ease student transition into academia, then there is substantial motivation for teaching librarians to experiment with the pedagogies called for by such an approach.

Critical information literacy librarians design instruction that is meaningful to students. The concept that information literacy might "be more about helping students ask questions about information and less about our delivering answers to questions" (Simmons, 2005, p. 308) offers teaching librarians a subtle, but important shift in perspective. Such an approach can be difficult when students are working on individual research topics, as students' topics are likely to vary widely as are their questions. My own experience aligns with Strege's (1996) and Peterson's (2010) – students need a balance between structure and discovery in topic selection. Problem-based learning (PBL), an alternative approach suggested by several scholars and practitioners, is attractive because problems can be built around topics that are meaningful to students and can be grounds for an interactive discussion in the classroom around a common-information-based problem. PBL also lends itself to group work.

Perhaps most importantly, PBL offers individual teaching librarians more control over the instruction session than the traditional assignment-based approached. Using PBL can help librarians mitigate the possible harmful effects of poorly-designed, product-based research assignments by presenting a lesson that is supportive of, but not solely based on the assignment.

This isn't to say that teaching librarians can afford to ignore poorly-designed research assignments. This issue will be further explored in the discussion of the second research question, which relates to content of the instruction session, but in terms of pedagogy, one practical step that individual teaching librarians seeking a critical approach can take is to suggest to instructors-of-record that they provide more structure and support to help students choose topics that are personally meaningful during the topic selection phase of research, especially when working with beginning students. The literature strongly suggested that such an approach would provide for students a bridge from their personal lives to academia – such a bridge would be especially important to those students who struggle the most.

If a teaching librarian seeks to have an interactive, personally-meaningful exchange with students the concept of *letting of the agenda* is important, even if at first difficult to accomplish. I cringe every time I hear a teacher say he or she is going to *cover* the material. Such an idea is directly related to the banking concept of education. It implies a single knowable truth that can be deposited into students' minds unfettered by the students' own ideas. It is easy to see that such an approach, particularly with young people just realizing their own independence, would be off-putting. By letting go of the agenda, teaching librarians can create space for student learning. But, letting go of the

agenda can be particularly challenging for teaching librarians who are limited to a single, one-time session with students. The temptation to *cover* as much material as possible in those constraints is strong. Again it seems that the literature of critical information literacy challenges teaching librarians to take more risks, in this case perhaps to sacrifice short-term goals in favor of long-term results. As Harley, Dreger, and Knoblock (2001) put it:

> Even if (and frequently when) the best search techniques are not used, finding information is usually a brief, if oft repeated, event in a student's life. One cannot expect these events to have a significant impact on the student's attitude. . . . Evaluating what others have done to information and what one might, in turn, do with it, comprise less superficial and more integrative tasks that, if repeated, can contribute to a process of intellectual growth that can have an impact on a student's attitude and research" (pp. 27-28).

Research Question 2: Critical Information Literacy Content

Critical information literacy librarians teach about all types of information. Many scholars and practitioners believed that librarians should spend more time teaching about information itself, rather than tools and skills. Those of us involved with the education of college students are very familiar with information – it is the tool of the trade. Many of us also grew up in the print era, when it was far easier to distinguish types of information from their physical properties – properties that today's college student probably hasn't been exposed to. It makes sense that students, particularly beginning students, need explicit instruction about types of information and their purposes and uses.

Accepting that students need explicit instruction about information, the body of literature that advocates for teaching about information must still be viewed with some skepticism by individual teaching librarians. Many scholars and practitioners who advocate this approach also argue that information literacy should be its own academic subject and be presented in a credit-bearing course (Webber & Johnston, 2000; Johnston and Webber, 2003). It isn't so much that I disagree with information literacy as a stand-alone subject, but that issue is beyond the scope of the current study. The aim of this study is to chart a possible course for individual teaching librarians who wish to improve their own individual teaching practice. The establishment of a credit-bearing information literacy course or not is for-the-most-part out of the control of individual teaching librarians. Other critical information literacy scholars and practitioners argue for teaching about information as a means of teaching about social injustice from the perspective that information is produced to perpetuate the status quo and students should be taught to recognize and reject that manipulation (Pawley, 1998; Kaptizke, 2003). However, such an approach is again unlikely to be useful to individual teaching librarians teaching in the common one-shot environment, so it is also beyond the scope of this study that seeks practical advice for teaching librarians.

Individual teaching librarians in a one-shot environment have limited time to teach explicitly about information. To attempt to introduce any significant amount of content about information in a short session seems at odds with other findings of this study that discourage teacher-centered approaches in favor of student-centered approaches. It is hard to imagine, for example, holding student interest for long with Warren and Duckett's (2010) suggested curriculum:

1. Who creates the information and for what audiences;

2. How the information is packaged and distributed;

3. Which technologies and tools are used to discover and access it; and

4. What the economic realities inherent in the preceding factors are (pp. 351-351).

A likelier scenario is that individual teaching librarians in collaboration with departments or instructors of record may be able to integrate teaching about aspects of information at strategic points in the curriculum within the context of courses already being taught.

Swanson (2004, 2004b), on the other hand, offers teaching librarians some richly-described, practical approaches to teaching about information in a pedagogically sound manner that could be accomplished in one or two class sessions. His use of scenarios to guide students to think critically about different types of information in terms of its use is an activity I've successfully adapted in a one-shot session for first-year students. The activity, which is more-fully described on pages 98 and 101-102 of this report, challenges students to evaluate information from different perspectives ranging from that of a health professional, to a journalist, to an 8th grader completing a paper. These scenarios help students understand information needs vary according to the researcher's purpose and provides some basis for helping students understand why they might be asked to use different *types* of sources in their academic work than their personal lives.

The more practical perspectives on teaching about information offer sound advice to teaching librarians. Librarians were cautioned against imposing value judgments on types of information sources. The argument was made that such an approach guides students to accept certain types of sources uncritically, which is at odds with the goals of

information literacy. The reality is as Warren and Duckett (2010) surmised, "The rise of free Open Access journals, preprint servers, Google Scholar, and Google Books has rendered ineffective the instructional strategy of teaching students that *library* equals *good information* and *free Web* equals *untrustworthy information*" [emphases from original] (p. 351).

Equally practical is the idea that librarians should teach about types of information, not formats. There was a time within the scope of my career when it made sense to teach students about information in terms of format, because at that time, format was synonymous with types and purposes of information. Ebooks and ejournals were uncommon in the 1980s and 1990s, and access to the internet was limited. In the final decades of the last century it was quite common for instructors-of-record to limit students to print resources, so it is no wonder that, perhaps unconsciously, librarians slip into the habit of teaching about formats rather than types of information. Today's reality is quite different. Swanson's example is apt: "An article from *Newsweek* may exist in print, it may be on the *Newsweek* Web site, and it may appear in a subscription database . . . it is the same article in all three formats, for all intents and purposes (Swanson, 2004b, pp. 262-263). In a one-shot session, this might take the form of simply challenging students to be more specific about what type of source they are using. For example, I never let students get away with saying they found a website, because a website is always something else as well. It may be a blog, a policy, a government document, social media, or any one of hundreds of *types* of information that are freely available on the web.

Although genre theory, outside of its application to information literacy, was beyond the scope of this study, the glimpses of its practicality provided by Anderson

(2006) and Burkholder (2010) were intriguing. Teaching about information in terms of genre may have potential for teaching librarians who wish to help student understand the range of types of information, its purposes, and its uses. Recalling that, "Genre theory is related to critical theory and is "used to characterize groups of similar texts that share certain recognizable conventions and that belong in the same literary tradition" (Türkkan, 2011, para. 1), it is easy to see how teaching from such a perspective would also lend itself to another recommendation from the literature – that teaching librarians teach about information as dialog. If types of information are grouped by purpose and potential uses, then a natural dialogical framework is created that can be shared with students and set the stage for their own participation in that dialog. By incorporating some of the pedagogical techniques suggested in the discussion of the first research question, such as PBL or group work, for examples, and presenting types of information as types of dialog, teaching librarians may be able to incorporate more content about information into sessions while still engaging students and not reverting to lecture.

One final but important word of advice from the literature is not to limit the sources students can use in their research, but to make use of sources students are already familiar with to bridge the gap between their personal and academic lives. Again, which sources students can and cannot use for a research paper assignment is largely determined by the instructor of record. A teaching librarian can make suggestions, but the issue is largely out of his or her control. The literature however, offered several examples of how librarians might use nonconventional sources such as Wikipedia to teach students about academic sources or as Martin (2009) suggested, "to initiate discussion and debate over the nature of information, truth, and reality on the web (p. 6).

Implications for Practice

This interpretive synthesis produced actionable theory (Schön, 1995) that should be recognizable and understandable to teaching librarians who wish to take a critical approach to teaching information literacy. The pedagogy and content defined by this synthesis can be applied by individual teaching librarians, even in very limited contexts such as the one-shot library instruction session, with the potential to increase students' critical engagement.

This synthesis also demonstrated the value of practitioner review of the research to improve practice, even in such situations that the research is diverse and largely comprised of descriptions of practice. In the course of conducting the synthesis, I have regularly practiced the pedagogy and content found here and believe in the process, become a more reflective, better-informed teaching librarian in terms of pedagogy and instructional content.

Strengths and Limitations

This study had both strengths and limitations. Some of the strengths were:

1.   It meaningfully targeted practitioners. It was able to synthesize an amalgamous, conjectural, and discursive body of literature to discern practical advice for teaching librarians who wish to take a critical approach to information literacy pedagogy and content.

2.   The use of the methodology of critical interpretive synthesis by a practitioner with the intention of improving practice is unique to this study as far as I can tell. The study may serve as a pilot of a methodology that may be useful to other practitioners who wish to make use of the literature to improve practice.

3.   This study was guided by sound methodological decisions supported by the literatures of research synthesis and practitioner inquiry. These included purposeful, theoretical sampling with the intent of answering research questions related to practice; a thorough and multi-faceted approach to locating the studies in the literature that comprised the sample; prolonged engagement with that literature; iterative data analysis; and extensive reliance on the data through use of the authors' own voices in the form of direct quotations to ground the findings. Limitations to the study included:

1.   This study targeted a very narrow group of practitioners' – individual teaching librarians who wish to improve their teaching practice through the use of critical approaches to information literacy in an undergraduate setting. Given the stereotype of a librarian as "someone who is (among other things) introspective, socially conservative, concerned with adherence to rules and regulations, orderly, and submissive to authority" (Walter, 2008, p. 58, citing Wilson), it is to be fully expected that many teaching librarians would reject a critical approach. They may still, however, benefit from certain ideas conveyed by this study even while not embracing critical information literacy.

2.   While "transferable" (Suri, 2014), this study is not generalizable or reproducible. It is a snapshot of the emerging theory of critical information literacy as described in the literature over a specific period of time. The findings may support the emerging theory at this time, but will likely be subsumed if the literature of critical information literacy continues to grow and develop.

3.   While every effort was made to thoroughly ground the findings in the authors'

own words through the use of direct quotation, those words were still interpreted

through my lens as a practitioner of information literacy instruction with more

than two decades' experience. While the study should be useful to some

practitioners as intended, it does not pretend to represent a neutral or single truth.

Limitations and Delimitations

The following limitations and delimitations bounded this study.

1.   The literature examined for this study constituted a purposeful sample, was

selected on the basis of an "emerging theoretical framework" (Dixon-Woods, et

al., 2006, p. 10).

2.   My own perspective as a practitioner guided this study and my interpretations. I

can't pretend to unlearn all that I know from, years of teaching and researching

these issues. My "continuous examination and explanation" of how I "have

influenced a research project" will allow me to craft a voice that is critical and

authentic to practice, which is in keeping with the overall purpose of this research

(Dowling, 2008, para. 1).

3.   Although, critical interpretive synthesis is "sensitised to the processes of

conventional systematic review methodology" it incorporates critical

interpretation with the aim to "offer a theoretically sound and useful account that

is demonstrably grounded in the evidence" (Dixon-Woods, et al., 2006, p. 10).

4.   The focus of this review was literature relevant to teaching librarians in academic

libraries that serve undergraduate students, although, in keeping with critical

interpretive synthesis, literature outside of that narrow field was reviewed if

relevant to the research questions under study (Dixon-Woods, et al., 2006).

Recommendations for Future Research

Clearly there is a need for more empirical research related to critical information

literacy in practice. Of the 42 studies, more than half were essays (N=25) with no

empirical data. Only one or two would meet any serious criteria of qualitative research.

Most of the remainder could at best be described loosely as single case studies, but were

really just descriptions of practice, because no serious effort was made to conduct or

report on a systematic study involving the collection and analysis of qualitative data.

This is in keeping with Booth's (2011) literature synthesis, which found that the library

literature lacks empirical studies and has a "high proportion of descriptive studies" (p. 4).

The critical information literacy literature also lacks a clear theoretical basis.

Although the term has been attributed to Hamlink (1995), who used in the context of

journalism, Todd (1998) and Luke and Katpitzke (1998), its origin isn't even clear.

There has been no serious theory development published in the literature. This absence

seems to call for grounded theory research to better understand the phenomenon of

critical information literacy.

Gauging the reactions of practicing teaching librarians to the findings of this study

merits further exploration as it would enhance the trustworthiness of the study. A second

potential direction to build upon the current study is to look further into the impact of

practitioner review of research on practice in education. I identified only two studies that

examined this issue (Kahn, et al., 2012; Professional user reviews, 2012). After

experiencing this study as a practitioner, I agree more than ever with this idea that was

previously expressed in my conceptual framework and shaped by the work of Gough

(2009) and Hammersley (2002): Methodologically-inclusive reviews conducted by and/or

for the practitioner to inform practice have much potential because they are driven by

practitioner-based concerns, are purposive to address those concerns, and are conducted

in such a way that they are likely to provide the synthesized detail that practitioners need

in order to apply knowledge to practice.

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Appendix A: Studies included in the Synthesis

Author, year	Title	Design/Framework	Target	Medium
Andersen, J. (2006).	The public sphere and discursive activities: Information literacy as sociopolitical skills	Argumentative Essay/Genre theory and compositional studies	n/a	Peer-reviewed journal article
Asselin, M., Kymes, A., & Lam, V. (2007)	A critical examination of information literacy instruction during a grade 9 research project.	Case study/ Critical and sociocultural theory	Secondary students	Peer-reviewed journal article
Broidy, E. (2007)	Gender and the politics of information: Reflections on bringing the library into the classroom.	Case study/ Feminist theory	Undergraduate, upper	Peer-reviewed journal article
Burkholder, J. (2010)	Redefining sources as social acts: Genre theory in information literacy instruction	Argumentative Essay/ Genre theory and compositional studies	n/a	Peer-reviewed journal article
Burton, M. (1995)	The knee-bone is connected to the thigh bone: Postmodernism, critical pedagogy, and logic	Case study/ Postmodernism and critical pedagogy*	Undergraduate, unspecified	Peer-reviewed journal article
Cope, J. (2010)	Information literacy and social power	Literature review as a discourse analysis/ Critical pedagogy	n/a	Book chapter
Doherty, J. (2007).	No shhing: Giving voice to the silenced: An essay in support of critical information literacy	Argumentative essay/ Critical pedagogy	n/a	Peer-reviewed journal article
Doherty, J., & Ketchner, K. (2005)	Empowering the intentional learner: A critical theory for information literacy instruction	Case study/ Critical pedagogy	Undergraduate, first year	Peer-reviewed journal article
Elmborg, J. (2006)	Critical information literacy: Implications for instructional practice	Argumentative essay/ Critical pedagogy	n/a	Peer-reviewed journal article
Elmborg, J. (2010).	Literacies, narratives, and adult learning in libraries	Theoretical essay/ Critical pedagogy and compositional studies	Adult learners	Peer-reviewed journal article
Elmborg, J.	Critical information	Theoretical essay/	n/a	Book chapter

Author, year	Title	Design/Framework	Target	Medium
(2012)	literacy: definitions and challenges	Critical pedagogy and compositional studies		
Franks, S. (2010)	Grand narratives and the information cycle in the library instruction classroom	Theoretical essay/ Postmodernism and critical pedagogy	College students, level not specified	Book chapter
Harley, B., Dreger, M., & Knobloch, P. (2001)	The postmodern condition: Students, the web, and academic library services	Case study/ Postmodernism	Undergraduate, first year	Peer-reviewed journal article
Hubbard, T. (1995)	Bibliographic instruction and postmodern pedagogy	Argumentative essay/ Postmodernism and compositional studies	College students, level not specified	Peer-reviewed journal article
Isbell, D., & Broaddus, D. (1995)	Teaching writing and research as inseparable: A faculty-librarian teaching team	Case study/ Compositional studies	Undergraduate, upper	Peer-reviewed journal article
Jacobs, H. (2008)	Information literacy and reflective pedagogical praxis	Theoretical essay/ Compositional studies and critical pedagogy	n/a	Peer-reviewed journal article
Jacobs, H. (2010)	Posing the Wikipedia 'problem': Information literacy and the praxis of problem-posing in library instruction	Case study/ Critical pedagogy	Undergraduate, lower	Book chapter
Jacobs, H., & Berg, S. (2011)	Reconnecting information literacy policy with the core values of librarianship	Theoretical essay/ Critical pedagogy	n/a	Peer-reviewed journal article
Jacobs, H., & Jacobs, D. (2009).	Transforming the one-shot library session into pedagogical collaboration: Information literacy and the English composition class	Case study/ Compositional studies	Undergraduate, first year	Peer-reviewed journal article
Kapitzke, C. (2003)	Information literacy: A positivist epistemology and a politics of outformation	Theoretical essay/Critical pedagogy	K-12	Peer-reviewed journal article
Keer, G. (2010)	Critical pedagogy and information literacy in	Theoretical essay/ Critical pedagogy	Community college	Book chapter

Author, year	Title	Design/Framework	Target	Medium
	community colleges			
Kopp, B., & Olson-Kopp, K. (2010).	Depositories of knowledge: Library instruction and the development of critical consciousness	Theoretical essay/ Critical pedagogy and problem-based learning	College students, level not specified	Book chapter
Luke, A., & Kapitzke, C. (1999)	Literacies and libraries-archives and cybraries	Argumentative essay/ Postmodernism	n/a	Peer-reviewed journal article
Martin, P. (2009)	Societal transformation and reference services in the academic library: Theoretical foundations for re-envisioning reference	Argumentative essay/ Information Society Theory and postmodernism	College students, level not specified	Peer-reviewed journal article
Mirtz, R. (2010).	Disintermediation and resistance: Giroux and radical praxis in the library	Theoretical essay/ Critical pedagogy and disintermediation	College students, level not specified	Book chapter
Norgaard, R. (2003)	Writing information literacy: Contributions to a concept	Theoretical essay/ Compositional studies	College students, level not specified	Peer-reviewed journal article
Norgaard, R. (2004).	Writing information literacy in the classroom: Pedagogical enactments and implications	Theoretical essay/ Compositional studies	College students, level not specified	Peer-reviewed journal article
Pankl, E., & Coleman, J. (2010).	"There's nothing on my topic!" using the theories of Oscar Wilde and Henry Giroux to develop critical pedagogy for library instruction	Theoretical essay/ Critical pedagogy and aestheticism.	Undergraduate, first year	Book chapter
Patterson, D. (2009)	Information literacy and community college students: Using new approaches to literacy theory to produce equity	Theoretical essay/Postmodernism	Community college	Peer-reviewed journal article
Peterson, E. (2010)	Problem-based learning as teaching strategy	Case study/ Critical pedagogy and problem-based learning	Undergraduate, first year	Book chapter
Reale, M. (2012)	Critical pedagogy in the classroom:	Case study/ Critical pedagogy	Undergraduate, lower	Peer-reviewed journal article

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	Library instruction that gives voice to students and builds a community of scholars			
Simmons, M. (2005)	Librarians as disciplinary discourse mediators: Using genre theory to move toward critical information literacy	Argumentative essay/ Critical pedagogy and genre theory	Undergraduate, level not specified	Peer-reviewed journal article
Sinkinson, C., & Lingold, M. (2010)	Re-visioning the library seminar through a lens of critical pedagogy	Case study/ Critical pedagogy and compositional studies	Undergraduate, first year	Book chapter
Strege, K. (1996)	Using critical pedagogy to improve library instruction	Critical action research/ Critical pedagogy	Undergraduate, lower	Dissertation
Swanson, T. (2004)	Applying a critical pedagogical perspective to information literacy standards	Theoretical essay/ Critical pedagogy	Community college	Peer-reviewed journal article
Swanson, T. (2004b)	A radical step: Implementing a critical information literacy model	Case study/ Critical theory	Community college, first year	Peer-reviewed journal article
Swanson, T. (2010)	Information is personal: Critical information literacy and the personal epistemology	Case study/ Critical pedagogy and problem-posing	Undergraduate	Book chapter
Torrell, M. (2010)	Negotiating virtual contact zones: Revolutions in the role of the research workshop	Case study/ Critical pedagogy and contact zone theory	Undergraduate, lower	Book chapter
Warren, S., & Duckett, K. (2010)	"Why does google scholar sometimes ask for money?" engaging science students in scholarly communication and the economics of information	Case study/ Scholarly communication and economics of information	Undergraduate, upper	Peer-reviewed journal article
Whitworth, A. (2006)	Communicative competence in the information age: Towards a critical theory of information literacy education	Theoretical essay/ Critical pedagogy and critical theory	n/a	Peer-reviewed journal article

Author, year	Title	Design/Framework	Target	Medium
Yoder, A. (2003)	The cyborg librarian as interface: Interpreting postmodern discourse on knowledge construction, validation, and navigation within academic libraries	Theoretical essay/ Postmodernism	n/a	Peer-reviewed journal article